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ELECTROMECHANICAL

HEAT ONLY, T812 SERIES

Provides SPST control of 24 Vac residential heating systems.

- Coiled bimetal element operates snap-action switch

Honeywell

Part No.	Application	Temperature Range (°F)	Finish	Price
T812A1002	Heating Only	50–90	Premier White®	27.90

HEAT ONLY, T822 SERIES

- Low voltage thermostat
- Vertical mounting
- Coiled bimetal element operates snap action switch
- SPST switch
- Vented covers-better air flow-improved temperature sensing
- Premier White color
- T827K provides control of 0.1A circuits in millivoltage, 12 VDC, and 24 Vac heating systems.
- T822L is heat only for normally open hot water zone valves
- T822L: scale in Farenheit and Celcius

Honeywell

Part No.	Stages Heat	Stages Cool	Temperature Range (°F)	Price
T822K1000	1	—	45 to 95	65.20
T822K1042	1	—	35 to 85	65.20
T822L1000	—	1	45 to 95	63.02
T827K1009	1	—	50 to 90	60.00
T834N1002	1	1	50°F to 90°F	64.00

SNAP ACTION

For low voltage single stage heating and cooling installations where a snap-action control is desired.

- Voltage: mV to 30 Vac maximum
- Vertical orientation
- 1C26101 includes "A" terminal for electric heat systems
- Snap action contacts
- Bi metal thermometer

White-Rodgers

Part No.	Orientation	Switch Functions System	Switch Functions Fan	Application	Price
1C20-102	Vertical	—	—	Heating	27.44
1C26101	Vertical	H/O/C	A/O	Heat/Cool	30.40

SNAP ACTION

For low voltage heating, cooling, and zoning installations where a snap-action control is desired.

- Voltage: 30 Vac maximum
- Snap action contacts
- Vertical orientation
- Suitable for zoning applications

White-Rodgers

Part No.	Range (°F)	Switch	Application	Price
1E30N910	50 to 90	SPST Open Rise	Heating	62.46

HEAT/COOL

- Single stage heating/cooling
- Voltage: 30 Vac maximum
- Switching: C/O/H, A/O
- Temperature range: 50 to 90°F
- SPDT
- Contact Type: enclosed snap switch
- Bi-metal thermometer
- Mercury free

White-Rodgers

Part No.	Mount*	Comments	Price
1E56N444	V	Terminals "B,O,A", 1–Stage HP, Electric Heat	63.38
1F56N444	H	Terminals "B,O,A", 1–Stage HP, Electric Heat	63.40

*Horizontal/Vertical

DIGITAL, NON PROGRAMMABLE

SN SERIES

- Large LCD display with backlight, continuous backlight option
- Independent heat and cool setpoints
- Simultaneous display of room temperature, setpoint, and current time
- Fan switch with ON and AUTO functions
- Permanent user setting retention during power loss - no batteries are required*
- Operates on 24VAC or two AA alkaline batteries (SN11 only)
- Air filter service indicator
- Low battery indicator
- Temperature calibration
- Terminal Load: 1.0A per terminal, 3.0A maximum total load
- Setpoint Temperature Range: 45°F to 90°F (7°C to 32°C)
- Accuracy: ± 1°F or ± 0.5°C

*Two AA batteries required to maintain clock function

IRP International Refrigeration Products

Part No.	Application	Power	Stages Heat	Stages Cool	Price
SN11I	Single stage heat pump, Gas, Oil, Electric, mV	Hardwire or Battery	1	1	49.54
SN12I	Heat pump systems, Gas, Oil, Electrict, Em Heat	Hardwire	2	1	57.54

T1 PRO

Includes: thermostat, UWP mounting system, installation (J-box) adaptor, small decorative cover plate, screws and anchors, installation guide, user guide, and 2 AA batteries

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH1010D2000	24 Vac systems, Gas, Oil, Electric, Steam/Gravity Systems	Battery and Hardwire	2.37 sq. in.	1 Conv.	1 Conv.	H/O/C/O	A/O	68.20
TH1110D2009		Battery and Hardwire	2.37 sq. in.	1 Conv./HP	1 Conv./HP	H/O/C/O	A/O	74.40

FOCUSPRO® WIRELESS

Easily add a zone to a TrueZONE™ system without running new wires.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled devices
- Large, clear, backlit display:
- Easy-to-see and read even in the dark.
- Precise comfort control: ±1°F of your set temperature.
- Simplified operation: Soft-key controls.
- Simultaneously displays both room temperature and temperature setting.
- Easy change battery holder.
- Built-in compressor protection: Minimum-off timer protects compressor from restarting too early after a shutdown.
- Changeover: automatic or manual

Honeywell

Part No.	Application	Power Method	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH5320R1002	Gas, Oil, Electric, Heat Pump, Forced Warm Air, Hot Water, Steam or Gravity	Battery	3	2	H/O/C/A/EM	A/O	279.88

Part No.	Description	Price
THM5320R1000	Equipment Interface Module, Use With Wireless FocusPRO™ Thermostats	258.00

PRO 1000 SERIES

Voltage: 20 to 30 Vac or 750 mV

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH1100DV1000	Conventional	Battery or Hardwire	1.32 sq. in.	1	—	H/O	—	54.78
TH1110DV1009	Conventional, HP	Battery or Hardwire	1.32 sq. in.	1	1	H/O/C	A/O	58.16
TH1210DV1007	Conventional, HP	Battery or Hardwire	1.32 sq. in.	2	1	H/O/C/EM. HT	A/O	77.14

PRO 3000

The PRO 3000 non-programmable thermostat provides electronic control of 24 Vac, single-stage heating and cooling systems or 750 mV heating systems.

- Horizontal mounting
- Manual changeover
- Large, clear backlit display is easy to read, even in the dark
- One-touch temperature controls
- Switchable fan control (auto or continuous fan)
- Displays both room temperature and temperature setting
- Built-in compressor protection
- Voltage: 20 – 30, 750 mV

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH3110D1008	Conventional	Battery and Hardwire	1.32 sq. in.	1	1	C/O/H	A/O	75.84
TH3210D1004	Conventional, HP	Battery and Hardwire	1.32 sq. in.	2	1	C/O/H/EM	A/O	105.76

DIGITAL, NON PROGRAMMABLE

T8775C1005

DIGITAL ROUND™

The T8775A thermostat provides 24V control of heating only systems. The T8775C thermostat provides single-stage temperature control for 24V heating-cooling systems with manual changeover from heat to cool. Includes wall plate, screws, and anchors.

- Range: 40 to 90°F heating, 45 to 99°F cooling
- 1.5A maximum system, .5A maximum fan, 20 to 30 Vac
- Large easy-to-read, backlit display
- No batteries required; permanent retention of settings in power failure
- Powered through heating-cooling system controls
- Manual changeover, system, fan switches T8775C
- Easily configurable by the use of DIP switches
- F or C temperature display
- Selectable heating cycle rates (1, 3, 6, 9 cph) for a variety of applications
- Cooling cycle rate is fixed at 3 cph
- Premier White® color

Honeywell

	Stages		
Part No.	Heat	Cool	Price
T8775A1009	1	—	104.00
T8775C1005	1	1	119.12

THE ROUND®, ELECTRONIC

Provide electronic control of 24 Vac heating and cooling systems.

- Mercury free
- Manual changeover
- Thermistor sensor element

Honeywell

Part No.	Scale Range (°F)	Terminals	Finish	Comments	Price
T87K1007	40 to 90	R,W,Y	Premier White®	Heat Only	70.34
T87N1000	40 to 90	R,Rc,W,Y,G,O,B	Premier White®	Heat, Cool	102.94
T87N1026	40 to 90	R,Rc,W,Y,G,O,B	Premier White®	Heat/Cool, Easy to See, Raised Markings, 2° click	128.80

HEAT/COOL, 80 SERIES

- Hardwired (1F89), Hardwired or battery (1F83)
- Fossil fuel or electric heat compatible
- Large LCD display with backlight
- Permanent program retention during power loss
- Configuration menu allows keypad selection of options
- Selectable °C or °F temperature display
- Classic White color

White-Rodgers

		Stages		Switching		
Part No.	Description	Heat	Cool	System	Fan	Price
1F89211	Non-program, Heat Pump	2	1	H/O/C/EM	A/O	112.70

HEAT/COOL

The 1F86 digital thermostats are battery powered and compatible with most heating and cooling systems.

- For heating, cooling, electric heat, 1-stage heat pump
- Temperature range: 45 to 90°F
- Voltage: millivolt to 30 Vac
- Large LCD display

White-Rodgers

		Stages		Switching		
Part No.	Description	Heat	Cool	System	Fan	Price
1F86344	Battery Powered	1	1	H/O/C	A/O	85.02

SINGLE STAGE

Comfort-Set® 70 Series 1 Heat/1 Cool.

- Battery powered for maximum compatibility
- Fossil fuel or electric heat compatible
- Large LCD with backlight
- Selectable °C or °F temperature display
- Includes O and B terminals
- Classic White color

White-Rodgers

		Staging		
Part No.	Description	Heat	Cool	Price
1F78144	Economy	1	1	60.48

ECONOMY

- Fossil fuel or electric heat compatible.
- Large LCD with backlight.
- Terminal Load: 1.0 A per terminal, 1.5A maximum all terminals combined
- Dimensions: 3 3/4"H x 5 1/8"W x 1 1/8"D

White-Rodgers

	Stages			
Part No.	Heat	Cool	Comments	Price
1E78144	1	1	Gas, Oil, Electric, Mv, HP (1 stg)	58.70

80 SERIES

- Attractive Sensi thermostat styling for non-wi-fi applications.
- Bright, high contrast backlight.
- Built-in level indicator
- Terminal block connections on subbase
- Keypad lockout and adjustable heat/cool temperature limits
- Automatic heat/cool changeover option on universal models
- Built in dual fuel logic program eliminates the need for an outdoor sensor
- Hardwired or battery
- Permanent program retention during power loss
- Display size: - 1F85: 5 sq. in. display
  - 1F83: 4.5 sq. in. display
- Display temperature range: 32 to 99°F
- Dimension: 3 3/4" H x 6" W x 1 1/8" D

White-Rodgers

Part No.	Application	Staging Heat	Staging Cool	Terminals	Price
1F83C11NP	Gas, Oil, Electric, mV, HP	1	1	RC, RH, C, W, Y, O/B, G	**84.46**
1F83H21NP	Gas, Oil, Electric, HP	1 HP	2 HP	R, C, W2, E, Y, O/B, G, L	**96.74**
1F85U22NP	Gas, Oil, Electric, mV, 3-Wire Zone Valve, HP	2	2 Conv, 1 HP	RC, RH, C, W/E, W2, Y, Y2, O/B/6, G, L	**122.24**
1F85U42NP	Gas, Oil, Electric, mV, 3-Wire Zone Valve, HP	2 Conv, 4 HP	2	RC, RH, C, W/E, W2, Y, Y2, O/B/6, G, L	**138.22**

DIGITAL, PROGRAMMABLE

SEA BREEZE TOUCHSCREEN

- Battery or hardwire
- Conventional or heat pump (STS11 has no aux heat control)
- 12 sq. inch display
- Auto changeover
- Keypad lockout
- Filter,humidifier pad and UV lamp reminders
- STS32 controls dual fuel heat pump
- Optional remote sensor (4350012 Outdoor, 4350013 Indoor)

IRP International Refrigeration Products — Sea Breeze

Part No.	Stages Heat	Stages Cool	Program	Price
STS11	1	1	5-2	**208.92**

WIRELESS THERMOSTAT AND RECEIVER

- Includes: thermostat, receiver, table stand, battery charger, 10' charging cable, instruction manual, mounting hardware, quick release wall mount
- Programmable / non-prog.: 5+1+1, 5+2 or 7 day, transmits up to 300'
- Conventional or heat pump systems, PTAC mountable
- Temperature manual override, auto change over
- Filter reminder, low battery warning, economy and hold function, optional outdoor sensor, lockout
- Heat 41°F to 95°F; Cool 45°F to 99°F

IRP International Refrigeration Products — Sea Breeze

Part No.	Stages Heat	Stages Cool	Program	Price
WTS32	3	2	Non-Programmable or 5+1+1, 5+2, 7	**292.30**

SEABREEZE TOUCHSCREEN SENSOR

IRP International Refrigeration Products — Sea Breeze

Part No.	Description	Price
4350013	Indoor Sensor, Wall Mounted Plastic Case, includes Mounting Hardware, 10' of Two Condutor Cable	**44.44**

SEA BREEZE

- Larger lighted display
- Simple quick reference instructions
- Permanent memory during power outages
- Dimensions: 5.3"W x 3.7"H x 1.2"D
- Set point temperature range: 45°F to 90°F (7°C to 32°C)
- Rated differential: 1/2°F to 1 1/2°F
- Operating ambient temperatures: 32°F to 105°F (0°C to 40°C)
- Operating humidity range: 90% non-condensing maximum
- No leveling required
- Electrical rating: 20 to 30 Vac, 50/60 Hz, 0.05 to 1.0 Amps (load per terminal)

IRP International Refrigeration Products — Sea Breeze

Part No.	Application	Program	Power	Stages Heat	Stages Cool	Terminals	Price
TSP12X	Gas, Oil, Electric (mV compatible)	5 + 2	Hardwire or Battery	1	1	C,W,B,Rh,G,Y,O,Rc	**49.50**
THP14X	Gas, Oil, Electric, Heat Pump (mV compatible)	5 + 2	Hardwire	1	1	C,L,Aux,E,R,G,Y,O,B	**49.50**

DIGITAL, PROGRAMMABLE

LYRIC™ WIFI

The Lyric thermostat is ideal for customers who are always on the go and want optimal comfort and savings they don't have to think about.

- App based install, everything happens in four easy steps using the mobile app,no manual necessary
- Geofencing uses a homeowner's smartphone location to automatically save energy when they're away and ensure comfort when they return home
- The Smart Cues™ feature delivers messages to a home owner's device with alerts to change filters or with extreme temperature notifications
- The Fine Tune™ feature considers both humidity and temperature so that a homeowner's desired temperature always feels the same
- Shortcuts are buttons on the app interface that can customize quick temperature setting changes for specific purposes, allowing homeowners to change settings with one touch
- Optional 24 VAC power (C) wire
- 5 Year Warranty

See Lyric Water Alarm page 1220

Honeywell

Part No.	Power Method	Changeover	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH8732WFH5002	Battery, Hardwire, Power Transformation	Auto/Manual	3 HP, 2 Conv.	2	H/O/C/A/EM	A/O/CIRC	474.30

T SERIES

The T Series programmable thermostat streamlines everything from product selection and installation to customer service and support. With a standard footprint and simple interface, the T Series will enhance the entire thermostat experience for you and your customers alike.

- 33% thinner than FocusPro
- First Honeywell product line with a standard wall mount
- Features: back lighting, time display, auxiliary heat control, adaptive intelligent, keypad lockout, compressor protection, fan circulation, filter change reminder (TH6220 dual fuel)
- Includes: thermostat, UWP mounting system, installation (J-box) adaptor, small decorative cover plate, screws and anchors, installation guide, user guide, and 2 AA batteries

Honeywell

Part No.	Application	Display Sq. in.	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH4110U2005	Standard Efficient Gas Forced Air, High Efficacy Gas Forced Air, Oil Forced Air, Electric Forced Air, Hot water Fan Coil, Geothermal Heat Pump, Air to Air Heat	3.93 Sq. In.	1	1	H/O/C/A	AUTO-ON	94.86
TH4210U2002			2 HP, 1 Conv.	1	H/O/C/A/EM	AUTO-ON	114.70
TH6210U2001	Standard Efficient Gas Forced Air, High Efficacy Gas Forced Air, Oil Forced Air, Electric Forced Air, Hot water Fan Coil, Geothermal Heat Pump, Air to Air Heat	5.44 Sq. In.	2 HP, 1 Conv.	1	H/O/C/A/EM	A/O/CIRC/FOLLOW SCHEDULE	124.00
TH6220U2000	Standard Efficient Gas Forced Air, High Efficacy Gas Forced Air, Oil Forced Air, Electric Forced Air, Hot water Fan Coil, Geothermal Heat Pump, Air to Air Heat Pump, Hot Water Radiant Heat, Steam	5.44 Sq. In.	2	1 HP, 2 Conv.	H/O/C/A/EM	A/O/CIRC/FOLLOW SCHEDULE	167.40
TH6320U2008	24 Vac systems; Gas, Oil, Electric Warm Air; Hot water Coil; Gas, Oil, Electric Hydronic; or Steam / Gravity Systems	5.44 Sq. In.	3 HP, 2 Conv.	2	H/O/C/A/EM	A/O/CIRC/FOLLOW SCHEDULE	189.10

LYRIC™ T6 PRO WI-FI

The new Lyric T6 Pro Wi-Fi is easy to use,and easy for techs to install and set up. Homeowners are asking for and adopting home automation technologies, and the Lyric T6 Pro Wi-Fi enables you to offer a simple solution that's integration-ready.

- Simple Installation and Easy Setup Options
- Location-Based Temperature Control
- Ecosystem Integration
- Optional Ventilation Control, Wired Indoor/Outdoor Sensors
- Compatible with most heating, cooling, and heat pump systems
- Required: 24 VAC power (C wire)
- Does not work with electric baseboard heat (120-240V)
- Does not work with millivolt systems
- Seamlessly integrates with Apple® HomeKit™ and Amazon Echo® for customers who want to control all their smart home devices from a single app.
- Includes: thermostat, UWP mounting system, installation (J-box) adaptor, small decorative cover plate, screws and anchors, installation guide, and user guide

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH6220WF2006	Gas, Oil, Electric Warm Air, Electric Hydronic, Steam / Gravity Systems	Hardwire	6.89 Sq. In.	2	1 HP, 2 Conv.	H/O/C/A/EM	A/O/CIRC/FOLLOW SCHEDULE	232.50
TH6320WF2003		Hardwire	6.89 Sq. In.	3 HP, 2 Conv.	2	H/O/C/A/EM		310.00

VISIONPRO™ 8000 WITH REDLINK

- 7-day programmable thermostat
- Thermostat works standalone or with the THM5421R1021 Equipment Interface Module or with the TrueZONE Wireless Adapter.
- Smart Schedule - programs in seconds for any lifestyle.
- RedLINK™ wireless communication.
- Plain language setup, no manual needed.
- Alerts and User Interactions Log. Viewable on a computer after you download them from the thermostat to a microSD card.
- Customizable Service Reminders allow dealers to remind their customers when its time to call for service, when their warranty is expiring and to provide customized alerts.
- MicroSD port for easy setup
- 1 assignable output on the TH8321 model to control humidification, dehumidification, ventilation or a stage of heating/cooling.
- 3 assignable outputs on the Equipment Interface Module to control humidification, dehumidification, ventilation or a stage of heating/cooling. The TH8110 and TH8320 models require the use of a Wireless Indoor Sensor to control humidification and dehumidification.
- 1 assignable input can be used with a wired outdoor, indoor or discharge sensor.
- 4 assignable inputs on the Equipment Interface Module can be used with wired outdoor, indoor or discharge sensors, occupancy sensor for remote setback and dry contact devices to trip pre-packaged or custom alerts such as a full drain pan or water leak.
- Extend wireless range of the Equipment Interface Module by connecting a THM4000R1000 Wireless Adapter to the ABCD terminals.

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH8110R1008	Gas, Oil, Electric, Heat Pump, Forced Warm Air, Hot Water, Steam or Gravity	Battery and Hardwire	10 sq. in.	1	1	H/O/C/A	A/O/CIRC	338.58
TH8320R1003		Battery and Hardwire	10 sq. in.	3	2	H/O/C/A/EM	A/O/CIRC	376.20
TH8321R1001	Gas, Oil, Electric, Heat Pump, Forced Warm Air, Hot Water, Steam or Gravity, Humidity	Battery and Hardwire	10 sq. in.	3	2	H/O/C/A/EM	A/O/CIRC	414.20

	Description	
YTH8321R1002	Kit that Includes: TH8321R1001 VisionPRO® 8000 thermostat and THM6000R1002 RedLINK™ Internet Gateway	474.30
YERM5220R8321	Kit that Includes: Equipment Remote Module (ERM) (ERM5220R1018) and VisionPRO 8000 (TH8321R1001)	650.02
THM5421R1021	RedLINK Interface Module. Up to 4 Heat/2 Cool Heat Pump, 3 Heat/2 Cool Conventional. 3 sets of Universal IAQ contacts to control humidification, dehumidification, and ventilation.	143.62
THM4000R1000	Wireless Adapter allows you to easily add RedLINK™ enabled thermostats to a TrueZONE™ system without running new wires.	117.48
THM6000R1002	RedLINK™ Internet Gateway provides remote access to any RedLINK™ enabled thermostat through the internet, smart phone or tablet	201.46

WIFI VISIONPRO™ 8000

- 7-day programmable thermostat
- Equipped with a touchscreen display with a 2 line message center.
- Provides lockout temperatures for auxiliary heat and/or compressor lockout in Heat Pump system using the wired outdoor sensor accessory or using the outdoor information from the cloud if no wired sensor is used, but the thermostat is connected to Wi-Fi and registered.
- Provides Remote Access through Smartphone, Tablet or Computer when connected to Wi-Fi and registered to mytotalconnectcomfort.com
- Plain language setup, no manual needed
- Relay for IAQ Control; no remote sensor required
- Equipment check/change reminders
- Programmable for annual energy savings

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH8321WF1001	WiFi Internet Connected	Hardwire	10 sq. in.	2 Conv, 3 HP	2	H/O/C/A/EM	A/O/CIRC/FOLLOW SCHEDULE	383.18

FOCUSPRO™ 6000

- Separately programmable weekday/weekend schedules.
- One-touch temp control overrides program schedule at any time.
- EnergyStar® compliant to greatly reduce your heating/cooling expenses.
- Large, clear, backlit display is easy to read–even in the dark.
- Displays both room temperature and temperature setting.
- Removable battery holder for fast, easy replacement.
- Built-in compressor protection.
- Selectable auto or manual changeover

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH6110D1021	Gas, Oil, Electric, mV	Battery and Hardwire	5.09 sq. in.	1	1	H/O/C/A	A/O	160.76
TH6220D1028	Gas, Oil, Electric, Heat Pump, mV	Battery and Hardwire	5.09 sq. in.	2	2	H/O/C/A/EM	A/O	198.86

DIGITAL, PROGRAMMABLE

FOCUSPRO™ WIRELESS

Easily add a zone to a TrueZONE™ system without running new wires.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Works with compatible RedLINK™ enabled devices
- Separately programmable weekday/weekend schedules.
- One-touch temp control overrides program schedule at any time.
- EnergyStar® compliant to greatly reduce your heating/cooling expenses.
- Large, clear, backlit display is easy to read–even in the dark.
- Displays both room temperature and temperature setting.
- Removable battery holder for fast, easy replacement.
- Built-in compressor protection.
- Selectable auto or manual changeover
- Use with: HZ432 or HZ322 and THM4000R1000, or THM5320R1000

Honeywell

Part No.	Application	Power Method	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH6320R1004	Gas, Oil, Electric, Heat Pump, Forced Warm Air, Hot Water, Steam or Gravity	Battery	3	2	H/O/C/A/EM	A/O	**307.92**
	Description						
THM5320R1000	Equipment Interface Module, Use With Wireless FocusPRO™ Thermostats						**252.97**

PRO2000 SERIES, BUILDER

Voltage: 20 to 30 Vac

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH2110DV1008	Conventional Heat/Cool	Battery or Hardwire	1.32 sq. in.	1	1	C/O/H	A/O	**69.44**
TH2210DV1006	Heat Pump, Heat/Cool	Battery or Hardwire	1.32 sq. in.	2	1	C/O/H/EM.HT	A/O	**99.30**

WIFI 9000 COLOR TOUCHSCREEN THERMOSTAT

Honeywell's Wi-Fi 9000 allows remote access to the thermostat through a computer, tablet, or smart phone with Honeywell's Total Connect Comfort Service.

- Connect to home's existing Wi-Fi network
- Automatic software updates through Wi-Fi
- Selectable to 7 Day or Non-Programmable
- Customize the screen color to match any décor
- Redesigned terminal block no longer requires tools, and the plain-language on-screen setup process eliminates the need for a manual

Honeywell

Part No.	Application	Power Method	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TH9320WF5003	Gas, Oil, Electric, Heat Pump	Hardwire	2 Conv. / 3 HP	2	H/O/C/A/EM	A/O/C	**483.80**

PRESTIGE™ THERMOSTAT

- Patented interview based programming and installer setup.
- RedLINK™ wireless communication.
- Increase profit per job by including RedLINK™ accessories that provide comfort and convenience. RedLINK™ accessories include the RedLINK™ Internet Gateway, Portable Comfort Control (PCC), Wireless Outdoor Sensor, Wireless Indoor Sensor, TrueSTEAM™ humidifier with Wireless Adapter and TrueZONE® zoning panel with Wireless Adapter.
- Light commercial - commercial language (occupied and unoccupied), schedule holidays and custom events, remote setback, economizer and time of day.
- Alerts and User Interactions Log - Keeps a searchable history of alerts and setting changes to the thermostat to determine if there is a system malfunction or if the issue was caused by user error. Saves time in troubleshooting and points the technician in the right direction.
- Configurable for residential and light commercial applications. Meets commercial code and is title 24 compliant.
- Customizable Service Reminders allow dealers to remind their customers when its time to call for service, when their warranty is expiring and to provide customized alerts.
- USB port for transferring Installer Setup, Customizable Reminders, Custom Events and Holidays to multiple thermostats.
- 2 assignable outputs to control humidification, dehumidification, ventilation and a stage of heating or cooling. (3 outputs for THX9421)
- Precise Temperature Control (± 1°F) for reliable and consistent temperature.

Additional features for THX9421:

- Control heating, cooling and IAQ equipment. Heating, cooling and IAQ equipment wires to the Equipment Interface Module.
- Delta T Alerts and Diagnostics informs customers when their system is not operating as expected with instructions to contact the dealer.

Honeywell

Part No.	Description/Application	Power Method	Stages		Switching		Price
			Heat	Cool	System	Fan	
THX9421R5021WW	Prestige™ IAQ 4-Wire High Definition Touchscreen Thermostat / Conventional, Heat Pump	Hardwire	3 Conv. / 4 HP	2	H/O/C/A/EM	A/O/Circulating	**528.96**
	Description						
C7089R1013	Outdoor Temperature and Humidity Sensor for RedLINK™ enabled thermostats and accessories						**116.18**
C7189R1004	Wireless Indoor Temperature and Humidity Sensor for RedLINK™ enabled thermostats and accessories						**87.92**
REM5000R1001	Personal Comfort Station™. Works with compatible RedLINK™ enabled thermostats and accessories.						**199.20**
50028399001	Cover plate for Prestige® Thermostats 7 7/8" x 5 1/2", Premier White®						**11.12**
THM6000R1002	RedLINK™ Internet Gateway provides remote access to any RedLINK™ enabled thermostat through the internet, smart phone or tablet						**201.46**

PRESTIGE® IAQ 2.0 COMFORT SYSTEM KIT

2-wire HD color touch screen thermostat, 7 day programmable, configurable for residential and light commercial, up to 4 heat / 2 cool heat pump and up to 3 heat / 2 cool conventional, controls humidification, dehumidification and ventilation, provides Delta T Alerts and Diagnostics, works with the Equipment Interface Module and RedLINK™ accessories.

- Control heating, cooling and IAQ equipment with only 2 wires at the thermostat. Heating, cooling and IAQ equipment wires to the Equipment Interface Module.
- Comes standard with a return and discharge air temperature sensor to measure Delta T.
- Alerts and User Interactions Log
- USB port for transferring Installer Setup, Customizable Reminders, Custom Events and Holidays to multiple thermostats.
- 3 assignable outputs to control humidification, dehumidification, ventilation and a stage of heating or cooling.
- 4 assignable inputs on the Equipment Interface Module can be used with wired outdoor, indoor or discharge sensors, occupancy sensor for remote setback and dry contact devices to trip pre-packaged or custom alerts such as a full drain pan or water leak.

Honeywell

Part No.	Description	Includes	Price
YTHX9421R5101WW	Prestige® 2.0 HD Comfort System Kit	THX9421R5021WW Thermostat, THM5421R1021 Equipment Interface Module, C7089R1013 Wireless Outdoor Sensor and 2 Duct Sensors	**697.48**
YTHX9421R5085WW	Prestige® 2.0 HD Comfort System Kit	THX9421R5021WW Thermostat, THM5421R1021 Equipment Interface Module and 2 Duct Sensors	**592.16**
YTHX9421R5127WW	Prestige® 2.0 HD Comfort System Kit	THX9421R5021WW Thermostat, THM5421R1021 Equipment Interface Module, THM6000R1002 RedLINK™ Internet Gateway and 2 Duct Sensors	**619.38**

DIGITAL, PROGRAMMABLE

WI7 WI-FI®

Comfort control from across the room or around the world
- 7 day programmable
- Fan and humidity control
- Full-color screen, ultra-wide viewing angle
- Touch/swipe/scroll control
- 5-year limited warranty
- Tool-free wire connections
- California Title 24 Compliant
- Secure Network on the cloud
- Back plate included

Arcoaire

Part No.	Stages Heat	Cool	Program	Power	Application	Price
Wi7P43	4	3	Universal	N/A	N/A	**410.08**

SENSI™, WIFI

Sensi App connects thermostat to home Wi-Fi router, no additional accessories/gateway required
- Programming: 7 day or non-programmable
- Works on heating and cooling systems, with or without "C wire"
- Geofencing automatically changes temperatures based on the location of the homeowner's smartphone.
- Smart alerts notify homeowners of extreme temperature or humidity levels.
- Compatible with smart home platforms Apple HomeKit, Amazon Alexa and Wink.
- Servicing contractor contact information resides in the Sensi App, via contractor's phone number
- One smartphone/tablet can control multiple thermostats
- Multiple smartphones/tablets can control one thermostat
- Sensi thermostat will operate the HVAC system and settings even if Wi-Fi is disconnected
- Auto heat/cool changeover option, automatically switches between heating and cooling programs
- Maintains room temperature to within ± 1°F
- Permanent program retention during power loss
- 5-Year Limited Warranty

White-Rodgers

Part No.	Stages Heat	Cool	Stages Program	Power	Application	Price
1F87U42WF	2 Conv. / 4 Heat Pump	2	Universal	Battery or Hardwire	Gas, Oil, Electric, Heat Pump	**291.82**

BIG BLUE™ TOUCHSCREEN, SERIES 90

Simple and logical installer menu set-up, programming and operation is enhanced by audio prompting that confirms touchscreen entries. Features like variable touchscreen security to prevent tampering, temporary and vacation overrides, and filter change reminders add convenience.
- Programming: Universal choice of 7 day, 5/1/1 day programmable or non-programmable
- Display: 12-square-inch
- Approvals: Meets ENERGY STAR® specifications
  Meets California Building Code, Title 24
- Permanent program retention during power loss
- Furnace filter, humidifier pad change reminder
- Dimensions: 4.6"H x 5.9"W x 1.2"D

White-Rodgers

Part No.	Heat	Cool	Program	Power	Application	Price
1F971277	1	1	Universal	Battery or Hardwire	Gas, Oil, Electric, mV	**304.56**
1F951277	3	2	Universal	Battery or Hardwire	Gas, Oil, Electric, Dual Fuel, mV	**340.18**
1F951280	4	2	Universal	Battery or Hardwire	Gas, Oil, Electric, Heat Pump, mV, 3-Wire Zone	**354.92**
1F951291	4	2	Universal	Battery or Hardwire	Gas, Oil, Electric, Heat Pump, mV, Humidity Control	**369.78**

80 SERIES, 5" DISPLAY

- Attractive Sensi thermostat styling for non-wi-fi applications.
- Bright, high contrast backlight.
- Built-in level indicator
- Terminal block connections on subbase
- Keypad lockout and adjustable heat/cool temperature limits
- Automatic heat/cool changeover option on universal models
- Built in dual fuel logic program eliminates the need for an outdoor sensor
- Permanent program retention during power loss
- Display size:
  - 1F85: 5 sq. in. display
  - 1F83: 4.5 sq. in. display
- Display temperature range: 32 to 99°F
- Dimension: 3 3/4" H x 6" W x 1 1/8" D

White-Rodgers

	Staging					
Part No.	Heat	Cool	Program	Application	Terminals	Price
1F83C11PR	1	1	5+1+1, 5+2, None	Gas, Oil, Electric, mV, HP	RC, RH, C, W, Y, O/B, G	118.24
1F83H21PR	2 HP	1 HP	5+1+1, 5+2, None	Gas, Oil, Electric	R, C, W2, E, Y, O/B, G, L	124.38
1F85U22PR	2	2 Conv, 1 HP	5+1+1, 5+2, None	Gas, Oil, Electric, mV, 3-Wire Zone	RC, RH, C, W/E, W2, Y, Y2, O/B/6, G, L	162.18
1F85U42PR	4 HP, 2 Conv	2	5+1+1, 5+2, None	Gas, Oil, Electric, mV, 3-Wire Zone	RC,RH,C,W/E,W2,Y,Y2,O/B/6,G,L	168.94

BLUE™ 6", EASY READER

- 6-square-inch Blue™ display with easy-to-read without glasses characters
- Blue lighted display for easier low-light viewing
- Large "one-button one function" keys for easy operation
- 2 time and 2 temeprature settings per program (1 setback) heat and cool, or selectable 4 time and 4 temperature settings (2 setbacks)
- Energy savings up to 33%
- Meets ENERGY STAR® specifications
- Patented pre-programmed schedule simplifies time and temperature programming
- Temporary temperature override two-hour minimum or until next program period
- Selectable energy management recovery
- Dimensions: 6.4" W x 4.2" H x 1.7" D
- 0 to 30 VAC, 50/60 Hz or DC
- 1.5 Amps (load per terminal)
- 2.5 Amps maximum load (all terminals combined)
- Temperature Range: 45 to 99°F
- Rated differential: 0.6 to 1.2°F with adjustable anticipation
- Choice of battery-powered with optional power stealing assist or hardwired with battery backup

White-Rodgers

	Stages					
Part No.	Heat	Cool	Program	Method	Application	Price
1F95EZ0671	4	2	Non-Programmable or 5+1+1 or 7	Battery, Hard-wired or Power Stealing Assist	Electric, Gas, Oil, Heat Pump, mV	221.40

1F98EZ1621

BLUE™ EASY INSTALL™

- Humidification and dehumidification control
- Intuitive menu-driven setup, programming and operation, with audio prompt
- Permanent program retention during power loss
- Indefinite setpoint hold or temporary temperature override
- Auto heat/cool changeover option — automatically switches between heating and cooling programs
- Heating and cooling, heating only or cooling only configuration
- Setpoint temperature limits
- Maintains room temperature to within ±1°F
- Room temperature display can be recalibrated up to ±5°F

1F98EZ1621 features:

- Wireless comfort interface, equipment control and return air sensor
- 6" display
- Choice of 4 or 2 program periods per day
- Reduces hot and cold spots — add up to 4 wireless sensors (3 indoor and 1 outdoor)
- Choice of dual fuel control with wireless temperature sensor or by Logic Program in Comfort Interface

White-Rodgers

		Stages					
Part No.	Description	Heat	Cool	Program	Method	Application	Price
1F98EZ1621	Wireless Thermostat System, 6" display	4 HP, 2 Conventional	2	Non-Programmable or 7	Battery	Electric, Gas, Oil, Heat Pump	441.88

Part No.	Description	Price
F145RF1600	Wireless Remote Sensor for 1F98EZ1621, 4 1/2" x 3 1/4" x 1 1/2"	148.20

THERMOSTAT

DIGITAL, PROGRAMMABLE

HEAT/COOL, 80 SERIES

- Fossil fuel or electric heat compatible.
- Large LCD display with backlight.
- Permanent program retention during power loss
- Configuration menu allows keypad selection of options
- Selectable °C or °F temperature display
- Selectable energy management recovery
- Classic White color

White-Rodgers

Part No.	Stages Heat	Stages Cool	Program	Power Method	Application	Price
1F82261	2	1	5+1+1	Hardwire	Heat Pump	**136.08**

HEAT/COOL, 70 SERIES

- 1 Heat/1 Cool.
- Battery powered for maximum compatibility
- Fossil fuel or electric heat compatible
- Large LCD with backlight
- Selectable °C or °F temperature display
- Includes O and B terminals
- Classic White color

White-Rodgers

Part No.	Description	Price
1F78151	Economy, 5+2 Program, Horizontal	**71.78**
1E78151	Economy, 5+2 Program, Vertical	**69.76**

REMOTE SENSOR

- Digital output provides superior temperature control
- No temperature variance caused by wire resistance
- Maximum wire distance: 300'
- Operating range: Indoor: 40 to 99°F
  Outdoor:-40 to 140°F
- Dimensions: 2 1/8"W x 3 1/2"L x 3/4"D

White-Rodgers

Part No.	Description	Price
F1451328	Indoor Sensor, Series 90	**57.94**
F1451378	Outdoor Sensor, 12' Lead, Series 90	**67.20**

HEAT/COOL

- Larger LCD displays setpoint temperature continuously and alternately shows actual time and temperature
- Hold temperature button allows manual program override for an indefinite period without changing programming on setback models
- For heating, cooling, electric heat, 1-stage heat pump
- Temperature range: 45 to 90°F
- System switch: H/O/C, A/O
- Voltage: millivolt to 30 Vac

White-Rodgers

Part No.	Description	Price
1F80361	5+1+1 Day Program, 4 Changes (2 Programs)	**122.52**

ZONE CONTROL

WIRELESS THERMOSTAT KIT

Everything you need to relocate thermostat or upgrade equipment without running new wires.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Choose from programmable or non-programmable kits

Each kit includes:

- Wireless FocusPRO™ thermostat
- Equipment interface module
- Return air sensor

YTH6320R1015 and YTH5320R1017 also include:

- Personal comfort station™
- Wireless outdoor sensor

Application: gas, oil, electric, heat pump, forced warm air, hot water, steam or gravity

Honeywell

Part No.	Includes	Price
YTH6320R1001	TH6320R1004 Wireless FocusPRO™ 5-1-1 Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor	**491.68**
YTH5320R1000	TH5320R1002 Wireless FocusPRO™ Non-Programmable Thermostat; THM5320R1000 Equipment Interface Module; C7735A1000 Return Air Sensor	**470.14**

WIRELESS ZONING ADAPTER KIT

Wireless Zoning Adapter Kit allows you to easily add to a TrueZONE™ system without running new wires.

- Powered by RedLINK™ reliability
- No interference with other wireless devices in the home
- Choose from programmable or non-programmable kits

Each kit includes:

Wireless Adapter

- Allows for wireless zoning when used with HZ432 or HZ322 TrueZONE™ panels (sold separately).
- Adapter receives communication from all wireless devices.

Wireless FocusPRO™ Thermostat

- Same great features of the FocusPRO™ thermostats - now wireless
- Installs in minutes
- Displays outdoor temperature and humidity (outdoor sensor sold separately)

Honeywell

Part No.	Includes	Price
YTH6320R1023	TH6320R1004 Wireless FocusPRO™ 5-1-1 Programmable Thermostat, THM4000R1000 Wireless Adapter	363.70
YTH5320R1025	TH5320R1002 Wireless FocusPRO™ Non-Programmable Thermostat, THM4000R1000 Wireless Adapter	352.98
	Description	
THM4000R1000	Wireless Adapter allows you to easily add RedLINK™ enabled thermostats to a TrueZONE™ system without running new wires.	112.92

CONTROL PANEL, TRUEZONE™

- Universal Application; controls 3 zones
- Robust push terminals
- Common-sense LEDs
- Clean, professional installation
- Smaller footprint
- Variable-speed fan control
- Can be used with W8665E wireless receiver

Additional features for HZ432 and HZ322

- Discharge air temperature staging
- Intutive installer setup. Easy-to-follow, digital display uses real language to guide installer through four easy steps.
- Standardized checkout procedure...insures all installers check the same way and all zones function correctly before the installer leaves

In addition the HZ432 offers dual fuel changeover based on outdoor temperature and/or thermostat staging, controls one extra zone and is expandable to 32 zones using TAZ4

Kits (HZ311K) include transformer and C7735A discharge air temperature sensor.

Honeywell

Part No.	Application	Stages	Zones	Price
HZ432	Conventional, Heat Pump, Dual Fuel Panel	4H/2C	4	714.86
HZ432K	Conventional, Heat Pump, Dual Fuel Kit	4H/2C	4	761.06
HZ322	Conventional, Heat Pump Panel	2H/2C	3	384.94
HZ322K	Conventional, Heat Pump Kit	2H/2C	3	438.40
HZ311	Conventional Panel	1H/1C	3	269.20
HZ311K	Conventional Kit	1H/1C	3	335.74

CONTROL PANEL, TOTALZONE™ ADDER

Panels allow additional zones to be added to central contol systems. Use TAZ4 with HZ432 panel to add another 4 zones (up to 32 zones maximum).

Honeywell

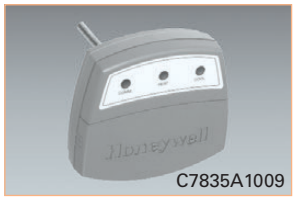
Part No.	No. Zones	Price
TAZ4	4	432.22

WIRELESS THERMOSTAT KIT

- Same great features of the FocusPRO® thermostat - now wireless. Can display outdoor temperature and humidity. Dual Fuel enabled -requires C7089R1013 wireless outdoor sensor (sold separately).
- Equipment Interface Module (EIM): All HVAC equipment is wired to the module. Module receives communication from the wireless devices.
- Return Air Sensor: Works with the Equipment Interface Module to maintain safe indoor temperatures if power is lost at the wireless thermostat. Maintains 62 F for heating and 82 F for cooling.
- RedLink™ wireless technology

Honeywell

Part No.	Includes	Price
YTL9160AR1000	Wireless EConnect™ 7-Day / 5-2 Programmable Thermostat and Electrical Heat Equipment Interface Module	365.74
TLM1110R1000	Equipment Interface Module only	236.70



DISCHARGE SENSOR

A duct-mounted temperature probe used to provide capacity control of heating and cooling equipment.

- Used only with Honeywell networked zoning, TZ, EMM, MABS
- Mounts in the supply air duct to sense the delivered air temperature

Honeywell

Part No.	Description	Price
C7835A1009	3 Wire, Indicator Lights	162.56
C7735A1000	2 Wire	93.78

See pages 807 to 808 for Honeywell Zone Dampers

DIGITAL, PROGRAMMABLE, COMMERCIAL

TB7100 MULTIPRO™

The MultiPRO™ multispeed and multipurpose thermostat is an effortless, 7-day programmable or non-programmable thermostat that provides universal system conpatibility, precise comfort and is easy to program. It provides temperature control for gas, oil, electric, heat pumps, PTACs, and fan-coil equipment for the following types of applications: 1H/1C conventional; Up to 2H/1C heat pump; 4 pipe fan coil (3 fan speeds); 2 pipe fan coil (3 fan speeds); 2 pipe fan coil w/Auxilliary Heat (3 fan speeds); PTAC (Hi, Lo fan speeds).

- Large and clear display
- Real-time clock
- Speedy same schedule armchair programming
- Remote setback input for occupancy sensors or timeclocks
- Remote indoor air sensing option

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TB7100A1000	Gas, Oil, Electric, Heat Pump, PTAC	Battery and Hardwire	4 sq. in.	2	1	H/O/C/A	A/O, H/M/L	**275.82**

TB7220 COMMERCIALPRO®

This thermostat is an effortless, 7-day programmable thermostat that provides universal system compatibility, precise comfort control and is easy-to-program.

The TB7220 provides temperature control for gas, oil, electric and heat pumps for up to 2 heat, 2 cool systems.

- Large, clear display with backlight shows the current and set temperature and time.even in the dark.
- Menu-driven programming make setup effortless.
- Beautiful ergonomic design is smart and sophisticated to match your customers' lifestyle.
- Real-time clock keeps time during power failures and automatically updates to daylight savings.
- Saving changes notification lets you know when the schedule changes have been saved.
- Change reminders let you know when to replace the batteries.
- Holiday override options allow you to override the program schedule, as desired.
- Speedy same-schedule programming.no need to copy multiple days.
- Armchair programming allows you to remove the thermostat from the wall for programming.

Honeywell

Part No.	Application	Power Method	Display	Stages Heat	Stages Cool	Switching System	Switching Fan	Price
TB7220U1012	Gas, Electric, Heat Pump	Battery and Hardwire	4 sq. in.	2	2	H/O/C/A	A/O	**452.98**

ELECTRONIC SENSOR, T7300 SERIES

T7047C and G sensors are used with T7300 for remote temperature sensing or averaging. Total Ω at TT terminal on Q7300 should be 1420 or @ 75°F.

- Taupe finish

Honeywell

Part No.	Application	Sensor Resistance (W)	Comments	Price
T7047C2007	2-Wire Sensor	1,420 @ 75°F	Series 70	**202.74**
T7047G2008	Remote 2-Wire Sensor, T7300	710 @ 75°F	Averaging	**244.26**

If you can't find it here, let us know.
United Refrigeration specializes in locating hard to find parts

BLUE™

- Pre-occupancy purge and/or programmable fan
- Remote sensing indoor or outdoor and at the thermostat
- Prioritizing or averaging between indoor sensor and thermostat
- Keypad limited or total lockout
- Limited temperature range
- For 24 VAC or Millivolt Systems
- Large, 6-square-inch display with backlight
- Exclusive Cool Savings™ feature saves energy during peak A/C demand periods
- Automatic daylight savings option
- Meets ENERGY STAR® specifications

White-Rodgers

	Stages					
Part No.	Heat	Cool	Program	Power	Application	Price
1F950680	4	2	7, 5+1+1, None	Hardwired, Battery or Power Stealing Battery Assist	Gas, Oil, Electric, HP, mV	232.58

PERFORMANCE PRO™, T8000

- Up to 3 Heat / 2 Cool in heat pump mode
- 3 Levels of keypad lockout and PIN access
- 365 day programmable calendar with 20 holidays and daylight-saving time shift
- Compressor and auxiliary lockout for dual fuel (fossil) or electric auxiliary heat
- Occupancy sensor / setback support
- Heating / Cooling LED indicator
- Low battery and change filter indicators
- Remote indoor sensor support
- Optimized algorithms with configurable ramp recovery
- Programmable and intermittent fan
- SD memory card interface
- 5 Year warranty

PECO

	Stages				
Part No.	Heat	Cool	Program	Power	Price
T8532001	3	2	7, 5+1+1, 5+2, None	24 Vac and/or AA Batteries	190.00

INDOOR SENSOR

Can be used with most PECO thermostats (including T8000 Performance Pro Series).
Provides the following features and system control functions:

- Remote temperature sensing in the zone
- Morning warm-up sensor (large commercial only)
- Zone sensor for ICS™ system
- Zone temperature averaging

PECO

Part No.	Application	Sensor Resistance (Ohm)	Size (In.)	Price
SP155017	Cooling, Gas/Electric, or Heat Pump Packaged Rooftops (2-25 ton), Large Commercial Rooftop UCM units (20-130 ton), Commercial Self-Contained units with Intellipak Controls	10,000 NTC Type 2 @ 77°F	2.8 x 4.5 x 1	39.10

DIGITAL, PROGRAMMABLE, COMMERCIAL

T7350B1002

HEAT/COOL

Controls 24 Vac commercial single zone HVAC equipment.

The thermostat includes the keypad and display for 7-day programming. The subbase includes equipment control connections. The subbase mounts on the wall and the thermostat mounts to the subbase.

- For single zone rooftop units, split systems, heat pumps, or hot/chilled water systems
- Two Occupied and two Not Occupied periods per day
- Thermostat interface module (TIM) connections to thermostat from PDA for advanced configuration, programming, keypad lockout, etc. changes can be made with thermostat mounted
- Individual heat and cool setpoints available for Occupied and Not Occupied periods
- P+I+D control minimizes temperature fluctuations
- Recovery ramp control automatically optimizes equipment start times based on building load
- Intelligent Fan™ feature energizes fan continuously in the Occupied periods; fan can also be configured for conventional heat or electric heat fan operation.
- Convenient overrides allow temporary setpoint changes
- Keypad multi-level lockout available with all models
- Remote sensor capability for temperature (including outdoor air and discharge air) and humidity sensors
- Auxiliary subbase contact typically interface with a Honeywell Economizer System (for total rooftop control integration) or act as dehumidification output

Features Available via PDA Configuration

* PDA not included

- 365 day clock with holiday programming
- Automatic Daylight Saving Time adjustments
- Selectable dehumidification limit control
- Occupancy input to control standby setpoint
- Additional standby period used in low traffic areas
- Sequential start option
- Discharge air high/low limits
- Selectable recovery ramp
- Ambient lockout (with outdoor sensor)

Honeywell

Part No.	Maximum Stages Heat/Cool	Features	Price
T7350A1004	1/1 +1	—	**408.02**
T7350B1002	2/2 +1	Outdoor, Discharge Air	**503.08**
T7350D1008	3/3 or 2/4	Outdoor, Discharge Air, Humidity, Occupancy	**620.36**
T7350M1008	2(4–20mA) + 2	Outdoor, Discharge Air, Humidity, Occupancy	**679.34**
T7350H1009*	3/3	Outdoor, Discharge Air, Humidity, Occupancy, LonWorks bus	**777.96**
T7350H1017	2(4–20mA) + 2	Outdoor, Discharge Air, Humidity, Occupancy, LonWorks bus	**783.86**
T7351F2010	3/3 or 2/4	Outdoor, Discharge Air, Humidity, Occupancy	**589.80**

*See sensor page 1093

WIRELESS OCCUPANCY SENSOR

WSK-24 automatically controls HVAC equipment by determining when a room is occupied. It uses the combination of an occupancy sensor and a door switch to provide optimal control.

- Wireless system provides quick and easy installation
- Pre-configured door sensor and occupancy sensor
- Fuse protection
- Long battery life
- Low battery indication
- Receiver memory retained after power loss

Includes

- 24V dry contact receiver
- Wireless PIR (passive infrared receiver) occupancy sensor with mounting kit
- Wireless door sensor with mounting kit
- Wiring harness.

The receiver can be wired into any thermostat or controller that supports the connection of a remote setback device. The receiver communicates wirelessly to a PIR occupancy sensor, a door sensor, and an optional 2nd door/window sensor.

Honeywell

Part No.	Use With	Price
WSK24	TB8575, TB7100, T7351, T7350	**308.30**

REMOTE TEMPERATURE SENSOR

Direct wired wall modules for use with the Honeywell T7350 thermostats.

- Push button setpoint adjustment with LED indicators.
- Occupied/unoccupied override with LED.
- LONWORKS® bus jack.
- Operating range 45 to 99°F
- Dimensions: 5 1/32"H x 3 5/32"W x 1"D

Honeywell

Part No.	Description	Price
T7771A1005	20 K Ohm Non-Linear Temperature Wall Module	**194.62**

FAN COIL

ELECTRONIC

For stand-alone digital control of fan coil units, heat pumps and terminal units. The microprocessor based units combine a proportional plus integral (P+I) control algorithm with advanced adaptive logic. This provides precise and stable control under varying system capacity and load conditions.

- Line voltage continuous or line voltage 3-speed fan control
- Remote setback capability from a time clock or facility management system

ELECTRONIC, T158 SERIES

- 3 wire floating, on/off control
- Line voltage

Schneider Electric t.a.c Erie

Part No.	Description	Fan Switching	Price
TB158001	Heat/Cool	None	**298.20**
TB1582	Heat/Cool	O/H/M/L	**291.48**

ELECTRONIC, T168 SERIES

- Output 0_10Vdc, 4-20ma
- Line voltage

Schneider Electric t.a.c Erie

Part No.	Description	Fan Switching	Price
TA168001	Dual Output, Heat/Cool, Aux Heat	None	**333.48**
TA168002	Dual Output, Heat/Cool, Aux Heat	O/H/M/L	**349.44**

FAN COIL

Controls line voltage fan coil valves in cooling, manual, or automatic changeover heating-cooling systems.

Honeywell

Part No.	Application	Switch Positions System	Switch Positions Fan	Comments	Price
T4039M1004	Auto Heating /Cooling	Off/On	H/M/L	Off Breaks, Heat, Cool and Fan	**275.02**

FAN COIL

The TB6575A, TB6575B, and TB8575A SuitePRO™ Digital Fan-Coil Thermostats can be used for residential and commercial applications. They are great for use in hotels, condos, and school classrooms.

- Dimensions, Approximate: 3 3/4"H x 5 1/2"W x 1 1/2"D
- Electrical Ratings:
  120 Vac, Fan Rating: 6.0 A, Relay Rating: 1.0 A;
  240 Vac, Fan Rating: 3.0 A, Relay Rating: 1.0 A
- Digital display of ambient temperature, setpoint, mode icons when cooling or heating relays operate, when energy savings mode is active, and fan status.
- Optional freeze protection feature that turns on heat, if necessary.
- Energy savings mode -- external energy savings input from dry contact such as time switch, occupancy sensor, or hotel cardkey overrides comfort setpoint with selectable setback heating or cooling setpoints.
- Energy savings input configurable as a normally open or normally closed dry contact.
- Proportional plus integral (P+I) control algorithm for precision temperature regulation.
- Selectable °C or °F.
- Adjustable deadband, in auto changeover mode, for heat and cool control.
- Adjustable maximum heating and minimum cooling setpoint limits.
- Installer setup mode allows changes of operating parameters.
- EEPROM permanently retains user settings, including setpoints, during power loss (no batteries required).
- Capability to display temperature sensor failure for easier troubleshooting.
- Optional remote temperature sensor and remote pipe sensors (20KΩ).
- Switch positions: System: O/H/C/A
  Fan: H/M/L/A/O

Honeywell

Part No.	Application	Voltage	Price
TB6575A1000	2 or 4 Pipe, Heat/Cool/Auto	120/240	**187.30**
TB6575B1000	2 Pipe, Heat/Cool	120/240	**179.58**
TB6575C1000	2 or 4 Pipe, Heat/Cool/Auto	120/240/277	**184.40**
TB8575A1000	2 or 4 Pipe, Heat/Cool/Auto	24	**174.44**

THERMOSTAT

FAN COIL

T6052A1015

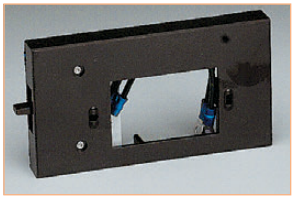
ELECTROMECHANICAL, HEAVY DUTY

Used to control line voltage fan coils, fans, motor starters, valves, contactors, and circulator motors in heating and/or cooling systems.

- Contact rating: 8 F.L. Amp @ 240 Vac

Honeywell

Part No.	Application	Switch	Temperature Range (°F)	Differential (°F)	Comments	Price
T6051A1016	Heat/Cool	SPDT	50 to 80	1, Fixed	—	**252.90**
T6051B1006	Heat/Cool	SPDT	46 to 84	1, Fixed	Explosion Proof Housing	**749.64**
T6052A1015	2-Heat or 2-Cool	2-SPDT	46 to 84	1H-2C, 2.5°F, 2H-1C, 3.2°F	—	**383.50**
T6052B1013	1-Stage Heat/Cool	2-SPDT	46 to 84	1H, 2.5°F, 2C, 3.2°F	Auto Changeover	**452.48**



SUB BASE, T6051, T6052

Provides manual system switching for T6051 thermostats.

- Includes pressure sensitive labels to identify switching positions

Honeywell

Part No.	Position Labels Supplied	Use With	Price
Q651A1009	Heat/Off/Cool - Auto/Off/On - Heat/Off/Fan	T6051A	**138.88**

ELECTROMECHANICAL, LIGHT DUTY

Controls line voltage valves, motors, contactors, electric heat elements, duct furnaces, and fan coil units in heating/cooling systems.

- Contact rating: 4 F.L. Amp @ 277 Vac
- Fixed differential: 2°F

Honeywell

Part No.	Application	Switch	Temperature Range (°F)	Price
T651A3018	Heat/Cool	SPDT	44 to 86	**144.80**

ELECTROMECHANICAL, LIGHT DUTY

Provides direct line voltage control of fan coils, fans, motor starters, circulator motors, contactors, valves for heating, cooling or SPDT applications.

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Switch	FL Amp (@ 240 Vac)	Price
1A10651	36 to 90	1.5, Fixed	SPDT	4	**142.52**

LINE VOLTAGE

LINEVOLTPRO THERMOSTATS

Applications include Electric Baseboards, convectors, radiant heat and fan-forced heaters.

- Electric Heat
- Heating indicator gives confirmation that heat is on.
- Maintenance free and no batteries are required.
- Quiet Operation: Epoxy-soundproofed relays
- On/Off Switch. ± 1°F Control
- Backlit Display
- Voltage: 208-240 Vac

LINEVOLTPRO 7000, NON-PROGRAMMABLE

Honeywell

Part No.	Contact Rating (Amps)	Switch	Price
TL7235A1003	15	DPST	**101.14**

LINEVOLTPRO 8000, 7 DAY PROGRAMMABLE

Honeywell

Part No.	Contact Rating (Amps)	Switch	Price
TL8230A1003	15	DPST	**118.66**

MEDIUM DUTY

Controls line voltage valves, motors, contractors, electric heat, elements, duct furnaces, and fan coil units in heating/cooling systems.

- Automatic cooling and heating anticipation
- Mounts on standard vertical or horizontal outlet box

Honeywell

Part No.	Temperature Range (°F)	Switch	Price
T451A3005	44–86	SPST, Open Rise	140.64

ELECTROMECHANICAL

Provides line voltage control of electric heating systems.

- Long lasting Micro-Switch™ mechanism
- Thermometer included
- Contact rating: 22A resistive @ 240 Vac

Honeywell

Part No.	Temperature Range (°F)	Switch	Price
T498A1778	40–80	SPST, Open Rise	66.08
T498B1553[1]	40–80	DPST, Open Rise	67.32
T498B1512	40–80	DPST, Open Rise	77.38

[1]Positive off

7 DAY PROGRAMMABLE

Can be used to control 2-way zone valves, 3-way zone valves or circulator pumps in both line volt and low volt applications. It also offers special protection modes to prevent system seizures and to reduce callbacks. Easy to install, provides cost-efficient programmable control of hydronic heating systems.

Application

- Baseboards
- Fan-forced heaters
- Central heating (Conventional)
- Radiant ceilings
- Convectors

Honeywell

Part No.	Application	Contact Rating (Amps)	Price
TL8100A1008	Heat Only	5 (Resistive), 2 (Inductive) @ 240 VAC	116.54

GENERAL PURPOSE, LINE VOLTAGE

HEAVY DUTY

Electric heat thermostats used for controlling baseboards, cable heat, glass panels, etc.

- Resistive 22 Amp @ 240 Vac, 5,000W

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Switch	Price
1A65641	40 to 85	1, Fixed	SPST Open Rise	52.44
1A66641	40 to 85	1, Fixed	DPST Open Rise	65.82

HEAT/COOL

For line voltage control of residential, commercial, or industrial heating or year round air conditioning. Liquid charged temperature sensing element and highly efficient diaphragm and leverage provides close temperature control. Temperature range is 40 to 90°F.

Johnson Controls

Part No.	Switching	Price
T26S18	SPDT, Heating & Cooling	175.42

HEAT/COOL

For equipment requiring a closed circuit on both rise and fall of temperature.

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Switch	F.L. Amps (@ 240 Vac)	Price
1791	55 to 95	3, Fixed	SPDT	3.7	334.34

PROPORTIONAL

T921 SERIES

Provides low voltage, 3-wire control for valve motors, damper motors, and balancing relays in heating or cooling system applications.

- Operating range: 56–84°F

Honeywell

Part No.	Fixed Throttle Range (°F)	Application	Price
T921A1191	2.5	Heat or Cool	592.58

DIGITAL, TB*980 SERIES

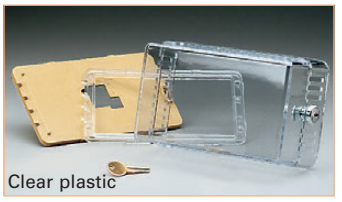
The ZonePRO thermostats are for low voltage pressure dependent VAV applications. Can also be used for hydronic perimeter heating/cooling and bypass box with or without reheat.

- Provides min/max setpoints for heating and cooling
- Provides night setback terminal for energy savings

Honeywell

Part No.	Output Type	Comments	Price
TB6980A1007	Floating, 0.5 A	Plus 1 Analog/TRIAC, 1 TRIAC outputs	217.32
TB6980B1006	Floating, 0.5 A	—	271.58
TB7980A1006	0-10 Vdc or 2-10 Vdc 0-10V, 10k min — Modulating (0-10 Vdc) control	Plus 1 Analog/TRIAC, 1 TRIAC Output	240.22
TB7980B1005	0-10 Vdc or 2-10 Vdc 0.5A max @ 24Vac	1 Analog/TRIAC1 TRIAC Modulating (0-10 Vdc) control with 2 additional outputs	313.00

GUARD


Clear plastic

Opaque plastic

Metal

Metal with hinged base

Metal Thermostat Guards: Metal Thermostat Guards: Constructed of 18-2 gauge steel and are finished with a durable baked enamel.

Plastic Thermostat Guards: Constructed of hi-impact plastic, and are designed for use in offices, restaurants, or other businesses where lightweight, medium protection is required to avoid tampering.

Ring base is for installation over existing thermostats. Solid base is for new installations (added strength). All models furnished with locking key and mounting hardware. Thermostat guards can be installed in a vertical or horizontal position.

"U" SERIES

Specifications:
Solid Base: 8 1/4"H x 5 3/8"W x 3 1/2"D
Ring Base: 8 1/8"H x 4 5/8"W x 3 5/8"D

Part No.	Description	Price
BTGUK2	Clear Plastic Guard with Solid and Ringed Bases	18.90
BTGUM	Metal Guard and Solid Base	23.16
BTGUWM	Metal Guard and Ring Base	26.20

"K" SERIES

Specifications:
Solid Base: 5 1/4"H x 4 5/8"W x 3"D
Ring Base: 5 1/4"H x 4 5/8"W x 3 1/4"D

Part No.	Description	Price
BTGK	Clear Plastic Guard with Solid & Ringed Bases	17.10

"R" SERIES

Specifications:
Solid Base: 7 1/4"H x 5 3/8"W x 3 1/2"D
Ring Base: 6 3/4"H x 4 1/4"W x 3 9/16"D

Part No.	Description	Price
BTGRK	Clear Plastic Guard with Solid & Ringed Bases	16.00
BTGRWM	Metal Guard with Ring Base	29.46

"54 VL" SERIES

Specifications:
Solid Base: 6 1/4"H x 4 3/4"W x 3"D
Ring Base: 6"H x 3 3/16"W x 3 1/8"D

Part No.	Description	Price
BTG54VL	Metal Hinged Guard with Solid Base	26.20

"54 VLW" SERIES

Specifications:
Solid Base: 6 1/4"H x 4 3/4"W x 3"D
Ring Base: 6"H x 3 3/16"W x 3 1/8"D

Part No.	Description	Price
BTG54VLW	Metal Hinged Guard with Ring Base	26.20

"E" SERIES

Specifications:
Solid Base: 3 7/8" H x 3 1/2" W x 2 1/2" D

Part No.	Description	Price
BTGEK	Clear Plastic Guard with Solid and Ringed Bases	15.10

REPLACEMENT KEY

- For BTG Guards

Part No.	Description	Price
F336	Universal Key	2.96

UNIVERSAL

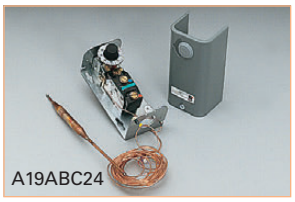
Encloses and protects wall thermostats against tampering, damage and unauthorized adjustment of thermostat settings.

- Includes opaque polystyrene wallplate, ring base, guard cover, tumbler lock, two keys and optional Honeywell logo insert

Part No.	L (In.)	W (In.)	D (In.)	Cover Style	Use With	Price
TG511A1000	6 1/2	7 1/2	2 15/16	Clear	T874, etc.	46.90
TG511D1004	6 3/8	7 3/8	2 7/8	Metal	T874, etc.	69.30
TG512A1009	7 1/4	9 3/4	3 3/8	Clear	T8600, T8090, etc.	48.62
TG512D1003	7 1/8	9 5/8	3 1/4	Metal	T8600, T8090, etc.	83.84

REMOTE BULB

The A19 Series are single stage temperature controls that incorporate liquid filled sensing elements. Suitable for temperature control in heating, ventilating, and refrigeration.


A19ABC24

WIDE RANGE, ADJUSTABLE DIFFERENTIAL

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19ABA40	SPST, Open Low	-30 to 100	3 to 12	3/8 x 4	6	140	8	**102.38**
A19ABC24	SPDT	-30 to 100	3 to 12	3/8 x 4	8	140	8	**132.12**
A19ABC37	SPDT	-30 to 100	3 to 12	3/8 x 4	10	140	8	**173.30**
A19ABC36	SPDT	-30 to 100	3 to 12	3/8 x 4	20	140	8	**203.56**

FIXED DIFFERENTIAL

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19AAF12	SPDT	25 to 225	3 1/2	3/8 x 3	10	275	3	**203.50**

CLOSE DIFFERENTIAL

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19AAD5[1]	SPST, Open Low	30 to 50	2 1/2	3/8 x 2 5/8	6	190	3	**190.34**
A19AAF20	SPDT	-30 to +100	2 1/2	3/8 x 4	6	140	3	**165.46**
A19AAF21	SPDT	40 to 90	1 1/2	3/8 x 5 3/8	6	140	3	**165.46**

[1]Bulk Milk Cooler

MANUAL RESET

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19ACA14	SPST, Open Low	-30 to 100	Manual	3/8 x 4	6	140	8	**167.18**
A19ACA15	SPST, Open Low	-30 to 100	Manual	3/8 x 4	10	140	8	**179.38**
A19ADB1	SPST, Open High	100 to 240	Manual	3/8 x 3 1/2	6	290	6	**182.94**
A19ADB2[1]	SPST, Open High	100 to 240	Manual	3/8 x 3 1/2	None	290	6	**156.68**

[1]Direct immersion

T6031A1029

WIDE RANGE

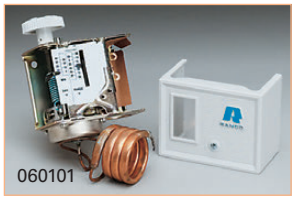
Provides limit or temperature control in refrigerated areas where remote mounting of sensing element is required.

- Contact rating: 5.1 F.L. Amp @ 240 Vac

Honeywell

Part No.	Temperature Range (°F)	Differential (°F)	Max. Temp. (°F)	Switch	Capillary Length (Ft.)	Price
T4031A1073	-30 to 90	3.5 to 12	125	SPST, Close Rise	8	**122.44**
T4031C1012	40 to 180	5, Fixed	205	SPST, Open Rise	5.5	**200.00**
T6031A1011	15 to 90	3.5 to 16	125	SPDT	5	**157.22**
T6031A1029	-30 to 90	3.5 to 16	130	SPDT	8	**139.36**
T6031A1060	-30 to 90	3.5 to 16	130	SPDT	20	**209.78**
T6031C1009	40 to 180	2, Fixed	205	SPDT	5.5	**229.26**
T6031D1049	30 to 270	7, Fixed	305	SPDT	5.5	**223.94**

REMOTE BULB



WIDE RANGE

Wide range temperature controls.

- Contact rating: 17 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (Ft.)	Price
060100	-35 to 95	4 to 50	SPDT	8, Cross Ambient	**148.64**
060101	-35 to 95	4 to 50	SPDT	Air Coil	**171.22**
060109	-20 to 70	3.5 to 35	SPST, Open Low	8, Cross Ambient	**105.92**
060200	95 to 240	6 to 50	SPDT	8, Cross Ambient	**167.80**

WIDE RANGE

- Snap-action electrical contacts minimize
- Fingertip manual trip feature allows contact function testing without tools

ENGINEERING TOMORROW Danfoss

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (In.)	Max Bulb Temp. (°F)	F.L. Amps (240V)	Price
060L5201	SPDT	-20 to 60	2.5 to 40	None	80	250	24	**118.04**
060L5206	SPDT	-20 to 60	2.5 to 40	1 1/2 x 1 1/4	None	250	24	**118.04**
060L5215	SPDT	25 to 95	3 to 45	1 1/2 x 1 1/4	None	250	24	**118.04**
060L5208	SPDT	-15 to 60	5 to 50	3/8 x 3 3/8	80	175	24	**124.14**
060L5218	SPDT	25 to 70	4 to 18	3/8 x 4 1/2	80	175	24	**124.14**
060L5223	SPDT	60 to 140	6 to 18	3/8 x 3 3/8	80	265	24	☎

WIDE RANGE

- Small profile, economical control

ENGINEERING TOMORROW Danfoss

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (In.)	Max Bulb Temp. (°F)	F.L. Amps (240V)	Price
060H1108	SPDT	-22 to 86	Fixed	1/4 x 5 1/2	120	140	10	**65.68**

RUBBER BULB

- Rubber coated bulb and capillary provide corrosion resistance
- Bulb designed for direct immersion

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19AAF4	SPDT	40 to 90	1 1/2, Fixed	3/8 x 5 3/4	6	140	3	**209.20**

☎ Please contact your local United Refrigeration Branch or our Customer Service Center for pricing.

RAINPROOF ENCLOSURE

- Control cooling tower sump heaters
- NEMA 3R enclosure

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19ANC1	SPDT	0 to 150	6, Fixed	0.290 x 2 1/2	10	190	8	**356.10**

REMOTE BULB, HEAVY DUTY

The A72AE and A72CE are wide range temperature controls with heavy duty DPST contacts and neoprene coated sensing elements for control of cooling tower fans, motorized valves, or solenoid operated valves.

- Heavy duty construction

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V 1ø)	Price
A72AE1	DPST, Close High	24 to 90	4 to 25	3/8 x 6 3/4	6	170	24	**465.44**
A72CE1	DPST, Open High	24 to 90	4 to 25	3/8 x 6 3/4	6	170	24	**499.22**

2 STAGE, REMOTE BULB, WIDE RANGE

Temperature sensing applications requiring two-stage control of HVAC/refrigeration equipment.

- Wide temperature ranges

Part No.	Switch	Range (°F)	Differential (°F)	Interstage Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A28AA29	2-SPDT	-30 to 110	5, Fixed	2 to 7	3/8 x 4	8	140	8	**325.04**
A28AA36C	2-SPDT	40 to 90	3, Fixed	2 to 7	3/8 x 4	6	140	8	**325.18**
A28AA37	2-SPDT	60 to 140	5, Fixed	2 to 7	3/8 x 4	6	230	8	**315.88**
A28AJ4	2-SPDT	20 to 80	2, Fixed	2 to 7	3/16 x 22	6	140	3	**366.34**

2 STAGE, WEATHERPROOF NEOPRENE COATED BULB

The A28MA controls are wide range temperature controls with rainproof NEMA 3R enclosure and two SPDT switches.

- Sump water temperature control for cooling towers and evaporative condensers
- Fan cycling control for air cooled condensers

Part No.	Switch	Range (°F)	Differential (°F)	Interstage Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	F.L. Amps (@ 240V)	Price
A28MA1	2-SPDT	40 to 120	5, Fixed	8, Fixed	3/8 x 4	6	8	**454.98**

4 STAGE, REMOTE BULB

The A36 Series are four stage thermostats with open construction for use in panel mounting.

- Cycling control for multiple refrigeration compressors or unloading type compressors
- Suggested replacements available under System 350 electronic temperature controls

Part No.	Switch	Range (°F)	Differential (°F)	Interstage Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A36AHA52	4-SPDT	55 to 95	2, Fixed	1 1/2, Fixed	3/8 x 5 1/4	6[1]	120	5	**797.94**
A36AHA58	4-SPDT	0 to 70	3, Fixed	2 1/2, Fixed	3/8 x 4	15[2]	120	5	**910.30**
A36AHB33	4-SPDT	0 to 70	2, Fixed	2 1/2, Fixed	3/8 x 4	15[2]	120	3	**910.30**

[1]12" nylon arm [2]Braided armor cap.

REMOTE BULB

WATER CHILLER

Remote bulb temperature control with limited setpoint range, adjustable differential, and adjustable cutout.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19ZBA1	SPST, Open Low	38 to 80	8 to 40	3/8 x 3 7/16	6	140	8	**486.98**

A72AA SERIES

The A72 Series temperature controls incorporate a vapor charged sensing element and heavy duty contacts.

- Automatic control of heavy electrical loads
- DPST contact block contains two isolated sets of contacts that make or break simultaneously

REMOTE BULB

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V 1ø)	Price
A72AA2	DPST, Open Low	15 to 55	3 to 30	3/8 x 3	6	200	24	**306.02**
A72AA3[1]	DPST, Open Low	50 to 90	3 to 30	11/16 x 6 3/4[1]	6	135	24	**326.02**

[1]Cross ambient.

COILED BULB

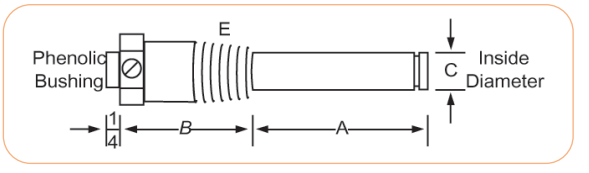
- Coiled copper bulb
- Space sensing thermostat with heavy duty contacts for cooling applications

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V 1ø)	Price
A72AA4	DPST, Open Low	15 to 55	3 to 30	200	24	**300.32**

BULB WELL

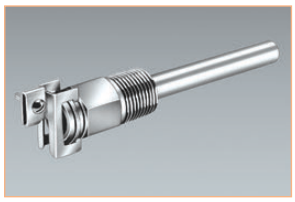
- Brass and copper wells
  - Maximum pressure: 300 psig
  - Maximum temperature: 250°F
- Monel wells
  - Maximum pressure: 1,000 psig
  - Maximum temperature: 700°F



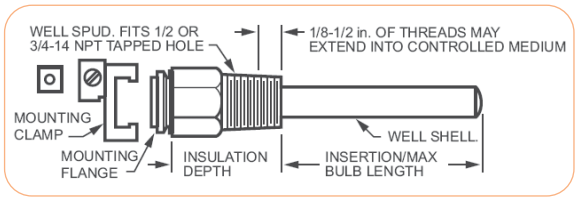
Johnson Controls

Part No.	Dimensions (In.) A	B	C	Pipe Thread (In.)	Construction Connector	Tube	Price
WEL11A601R	2 3/8	2 5/16	.299	1/2	Brass	Copper	**77.42**
WEL14A601R	7 9/16	1 13/16	.430	1/2	Brass	Copper	**72.30**
WEL14A602R	4 15/16	1 13/16	.430	1/2	Brass	Copper	**68.90**
WEL14A603R	5 13/16	1 13/16	.430	1/2	Brass	Copper	**69.60**
WEL17A600R	10 7/16	3/4	.763	3/4	Malleable	Copper	**214.02**

BULB WELL



- Copper wells
  - Maximum pressure: 255 psi
  - Maximum temperature: 300°F
- Include mounting clamp



Honeywell

Part No.	Bulb (In.)	Pipe Thread (In.)	Insulation Depth (In.)	Price
121371A	3/8 x 3	1/2	1 1/2	60.80
121371B	3/8 x 3	3/4	1 1/2	69.24

HEAT CONDUCTIVE COMPOUND

For efficient bulb/well heat transfer to aid accurate sensing

Honeywell

Part No.	Container Size	Price
107408	4 Oz.	25.86

Remote bulb thermostats regulate temperature of air or liquids in ducts, pipes, tanks and boilers.

- Fast response models operate approximately four times faster than standard models
- Standard bulb size: 1/2" x 4 3/16"
- 55–175°F bulb size: 1/2" x 3 9/16"
- Contact rating: 5.1 F.L. Amps @ 240 Vac

Honeywell

SINGLE STAGE, GENERAL PURPOSE

Part No.	Switch	Temperature Range (°F)	Differential (°F)	Interstage Differential (°F)	Capillary Length (Ft.)	Fast Response	Price
T675A1045	SPDT	0 to 100	3 to 10	—	20	No	606.30
T675A1102	SPDT	160 to 260	3 to 10	—	20	No	267.66
T675A1136	SPDT	0 to 100	1, Fixed	—	20	No	246.00
T675A1425	SPDT	55 to 175	3.6 to 12	—	20	No	260.94
T675A1508	SPDT	0 to 100	3 to 10	—	5	No	236.00
T675A1516	SPDT	0 to 100	1, Fixed	—	5	No	227.62
T675A1524	SPDT	55 to 175	1, Fixed	—	20	No	252.90
T675A1532	SPDT	160 to 260	3 to 10	—	5	No	252.06
T675A1540	SPDT	55 to 175	3.6 to 12	—	5	No	242.72
T675A1565	SPDT	0 to 100	3 to 10	—	20	No	270.60
T675A1706	SPDT	0 to 100	3 to 10	—	5	Yes	256.68
T675A1722	SPDT	55 to 175	3.6 to 12	—	5	Yes	263.40
T675B1002	SPST, Open Fall	30 to 50	Manual	—	10	No	258.92
T675B1010	SPST, Open Fall	30 to 50	Manual	—	20	No	282.20

Honeywell

TWO STAGE, GENERAL PURPOSE

Part No.	Switch	Temperature Range (°F)	Differential (°F)	Interstage Differential (°F)	Capillary Length (Ft.)	Fast Response	Price
T678A1015	2-SPDT	0 to 100	3, Fixed	3 to 10	20	No	364.76
T678A1361	2-SPDT	55 to 175	3.6, Fixed	3.6 to 12	20	No	368.46
T678A1437	2-SPDT	0 to 100	3, Fixed	3 to 10	5	No	314.50
T678A1445	2-SPDT	55 to 175	3.6, Fixed	3.6 to 12	5	No	322.68
T678A1478	2-SPDT	0 to 100	3, Fixed	3 to 10	5	Yes	339.40
T678A1494	2-SPDT	55 to 175	3.6, Fixed	3.6 to 12	5	Yes	446.22

REMOTE BULB

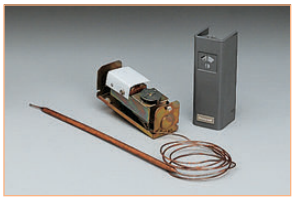
CHANGEOVER

Senses supply water temperature in air conditioning equipment or outdoor temperature in ventilation systems.

- Bulb size: 3/8" x 3"

Honeywell

Part No.	Switch	Temperature Range (°F)	Differential (°F)	Capillary Length (Ft.)	Price
T678C1005	2-SPDT	55 to 85	5	5.5	235.84



2 STAGE, SEQUENCED

Used for sequenced control of air temperature in two-stage heating or cooling systems or for single stage heating-cooling control.

- Bulb size: 5/16" x 11 11/16"

Honeywell

Part No.	Switch	Temperature Range (°F)	Fixed Differential (°F)	Fixed Interstage (°F)	Capillary Length (Ft.)	Price
T678F1002	2-SPDT	55 to 85	2	2.5	5.5	252.78

GENERAL PURPOSE WIDE RANGE

- Positive control for refrigeration applications
- Switch: SPST, close rise
- Hydraulic action element

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Capillary Length (Ft.)	Bulb Size (In.)	F.L. Amps (@ 240Vac)	Price
160990	-20 to 50	3 to 25	8	3/8 x 5 1/4	3.7	134.12
1609101	-30 to 90	3.5 to 40	5	3/8 x 5 1/4	8.0	121.68
1609103	-30 to 90	3.5 to 40	10	3/8 x 5 1/4	8.0	136.98
1609104	-30 to 90	3.5 to 40	20	3/8 x 5 1/4	8.0	167.10
1609105	-30 to 90	3.5 to 40	5	3/8 x 5 1/4	8.0	128.86
16879[1]	-30 to 90	4.5 to 40	8	3/8 x 5 1/4	3.7	137.98

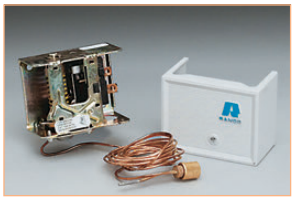
[1]SPDT

ICE MACHINE CONTROL

- Control stops compressor when ice bank completely covers sensing element and starts compressor when ice bank begins to melt
- Switch: SPST, close rise
- Nickel plated bulb for sanitary requirements
- Use as bin level control

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Capillary Length (Ft.)	Bulb Size (In.)	F.L. Amps (@ 240Vac)	Price
160994	35 to 57	3 to 20	6	3/8 x 6 3/4	8.0	133.50



ICE BANK

Suitable for soft drink dispensers, drink vending machines, and ice builders for thermal storage. Uses a special water-filled bulb and transmission fluid to control ice thickness in applications utilizing a refrigerated water bath with ice bank reserve capacity.

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary (Ft.)	Price
018100	Fixed	1/8" Ice Thickness	SPST, Open Low	6, w/Bulb	178.46

GENERAL PURPOSE

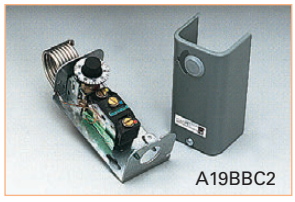
These controls offer a wide selection for such products as self-contained refrigerators, freezers, coolers, walk-in units, and refrigeration display cases.

- Contact rating: 24 F.L. Amp @ 240 Vac
- NEMA 1 enclosure
- Universal mounting

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (Ft.)	Price
0101010	0 to 55	7 to 55	SPST, Open Low	4	**175.74**
0101072	-15 to 40	3 to 20	SPST, Open Low	Air Coil	**174.26**
0101408	-15 to 40	3 to 20	SPST, Open Low	6, w/Bulb	**162.18**
0101409	0 to 55	3 to 20	SPST, Open Low	6, w/Bulb	**154.40**
0101410	25 to 75	3 to 20	SPST, Open Low	6, w/Bulb	**163.98**
0101416	0 to 55	3 to 20	SPST, Open Low	6	**166.98**
0101418	0 to 55	3 to 20	SPST, Open Low	Air Coil	**166.98**
0101419	-35 to 15	3 to 20	SPST, Open Low	6	**165.38**
0101433	-35 to 15	3 to 20	SPST, Open Low	6, w/Bulb	**177.78**
0101473	0 to 55	7 to 55	SPST, Open Low	6, w/Bulb	**165.30**
0101491	25 to 75	2, Fixed	SPST, Open Low	6, w/Bulb	**164.46**
0101802	25 to 75	3 to 20	SPST, Open Low	Air Coil	**173.24**
016104	0 to 55	3 to 20	SPDT	6, w/Bulb	**174.12**
016111	0 to 55	3 to 20	SPDT	6	**193.98**
016601	22.5 to 47.5	1.5, Fixed	SPDT	3, Cross Ambient Bulb	**191.62**
0207041	0 to 100	6 to 20	DPST, Open Low	8, Cross Ambient	**319.46**

SPACE



UTILITY LINE VOLTAGE, HEAVY DUTY

- A19BAC for ventilating and heating applications
- A19BBC2 for cooling applications
- Return air or space temperature sensing

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Capillary Length (In.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19BAC1	SPDT	30 to 110	3 1/2, Fixed	1 3/8 x 2 1/4 Coiled	140	8	**183.62**
A19BBC2	SPDT	-30 to 100	3 to 12	1 3/8 x 2 1/4 Coiled	140	8	**180.78**

UTILITY LINE VOLTAGE

Provides SPDT heavy-duty, line-voltage temperature control in ventilation, heating or cooling.

- Contact rating: 3.7 F.L. Amp @ 240 Vac
- Air coil element

Honeywell

Part No.	Switch	Temperature Range (°F)	Fixed Differential (°F)	Price
T6054A1005	SPDT	-30 to 100	3.5	**209.96**

EXPLOSION PROOF

- Designed for use in grain elevators, chemical and powder plants, mines, oil refineries. For use in Class I, Group D and Class II, Group E, F, and G hazardous locations.
- Coiled bulb sensing unit

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Price
A19BUC2	SPDT	20 to 80	3 1/2	**827.18**

NEMA 4X ENCLOSURE

The A19PRC is a single stage electromechanical thermostat designed for heating and ventilation applications. It features a raintight enclosure for use in agricultural and industrial applications that require compliance with Article 547 of the National Electric Code. The A19PRC has a rugged thermoplastic enclosure that meets NEMA 4X specifications.

- Coiled sensing bulb
- Exposed portion of the sensing element is plated and plastic coated to resist damage in corrosive atmospheres

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Price
A19PRC1	SPDT	30 to 110	3 to 12	**363.10**

SPACE

T631A1022

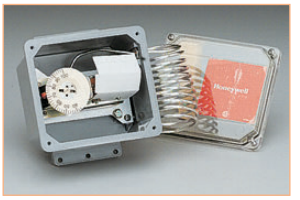
FARM-STAT

Provides line voltage control of heating, cooling and ventilating systems in farm buildings or storage areas.

- Treated to resist corrosion
- Contact rating: 3.7 F.L. Amp @ 240 Vac

Honeywell

Part No.	Switch	Temperature Range (°F)	Fixed Differential (°F)	Price
T631A1006	SPDT	35 to 100	2	**231.84**
T631A1022	SPDT	70 to 140	2	**242.04**
T631A1030	SPDT	0 to 70	3	**231.84**
T631B1005	2-SPDT	35 to 100	2	**370.22**
T631C1012	SPDT, 5.1A	20 to 90	3	**248.34**
T631C1020	SPDT	70 to 140	2	**258.82**
T631C1103	SPDT, 5.1A	-30 to 100	5	**248.34**



FARM-STAT, NEMA 4X

Provides line voltage control of heating, cooling and ventilating systems in farm buildings, storage areas and industrial environments; watertight, dust-proof enclosure.

- Contact rating: 3.7 F.L. Amp @ 240 Vac

Honeywell

Part No.	Switch	Temperature Range (°F)	Fixed Differential (°F)	Price
T631F1068	SPDT	35 to 100	2	**449.06**

2 STAGE, COILED BULB

Temperature sensing applications requiring two-stage space control of HVAC/refrigeration equipment.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Interstage Differential (°F)	Sensor (In.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A28AA4	2-SPDT	30 to 110	3 1/2, Fixed	3, Fixed	1 3/8 x 2 1/4	140	8	**314.12**

DEFROST TERMINATION, FAN DELAY

Remote bulb control with adjustable defrost termination temperature and preset fan delay temperature.

- Defrost termination control for refrigerated display cases
- Sensing element unaffected by barometric pressure and cross ambient temperature problems

Johnson Controls

Part No.	Switch	Defrost Termination (°F)	Fan Delay Temp. (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19ZBC2	SPDT	45 to 85	25, Fixed	19/64 x 3 1/8	6	140	8	**441.66**

F25107

F25 SERIES

The F25 control terminates defrost and delays the evaporator fan operation on electric heat, hot gas and reverse cycle commercial refrigeration systems.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Temperature Range (°F)	Temperature Differential (°F)	Switch	Capillary Length (In.)	Price
F25107	40 to 75	20, Fixed	SPDT	60, Cross Ambient Bulb	**182.88**
F25114	44 to 79	24, Fixed	SPDT	60, Cross Ambient Bulb	**188.94**

FREEZESTAT

A11B1

A11 SERIES

The A11 Series low temperature cutout controls incorporate a 20 foot long, vapor charged, sensing element. These controls react to the coldest 18 inch section of the control sensing element.

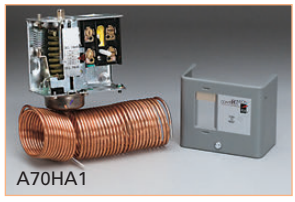
These controls are suitable for monitoring the face temperature of hot water coils for freeze protection.

The most common application for these controls is as a low temperature cutout for coils and/or pipe liquid sensing

- Element: 20' of 1/8 O.D. tubing, 4' capillary
- Switch: SPST—open low

Johnson Controls

Part No.	Range (°F)	Differential (°F)	Ambient Range (°F)	Max. Element (°F)	F.L. Amps (@ 240V)	Price
A11A1	35 to 45	Manual Reset	0 to 140	250	8	**359.48**
A11B1	35 to 45	8, Fixed	0 to 140	250	8	**345.86**


A70HA1

A70 SERIES, ALARM

The A70G, A70H, and A70K have a four-wire, two circuit contact block that contains two isolated sets of contacts.

The contacts are designed so that when the main contact opens, the auxiliary contact closes.

Typical applications would include energizing an indicator light upon low temperature cutout on a ventilating system.

Use as freezestat.

A70GA1/A70HA1 only

Low cutout stop is set and sealed at 35°F (1.6°C). Control responds only to the lowest temperature along any 1' of entire 20' element or bellows cup

Johnson Controls

Part No.	Switch: Main	Switch: Auxiliary	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V): Main	F.L. Amps (@ 240V): Auxiliary	Price
A70GA1	Open Low	Close Low	15 to 55	5, Fixed	1/8 O.D. Tubing	20	400	8	3	**357.58**
A70GA2C	Open Low	Close Low	35 to 80	3 to 30	3/8 x 3	6	250	8	3	**300.32**
A70HA1	Open Low	Close Low	15 to 55	Manual Reset	1/8 O.D. Tubing	20	400	8	3	**358.98**
A70HA2	Open Low	Close Low	35 to 80	Manual Reset	3/8 x 3	6	250	8	3	**311.74**
A70KA1	Open High	Close High	100 to 170	Manual Reset	3/8 x 10	6	240	8	3	**364.12**

L480B1239

L480 SERIES

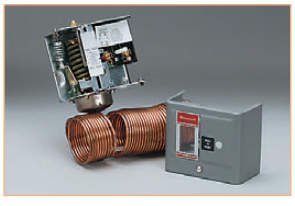
Used to limit or control temperature in air conditioning systems or refrigerated enclosures.

- Applications include freezer cabinets, display cases, beverage coolers, milk cooling tanks and air conditioners.
- Also used as frost alarm operator in storehouses or orchards where frost would damage crops or equipment.
- Maximum element temperature: 225°F
- Contact rating: 6.5 F.L. Amps @ 240 Vac
- Temperature differential: 10°F, fixed

Honeywell

Part No.	Switch	Reset Type	Operating Range (°F)	Capillary Length[1] (Ft.)	Price
L480B1239	SPDT	Automatic	20 to 60	20	**301.00**
L480G1044	SPST, Open Fall	Manual	20 to 60	20	**351.46**

[1]No bulb



L482 SERIES

- Contact rating:
  8 F.L. Amps (N.C.) @ 240 Vac
  3 F.L. Amps (N.O.) @ 240 Vac
- Maximum element temperature: 400°F

Honeywell

Part No.	Switch	Reset Type	Operating Range (°F)	Capillary Length (Ft.)	Price
L482A1004	2-SPST (1 N.O., 1 N.C.)	Manual	15 to 55	20	**303.96**

16A SERIES

Designed to shut down cooling equipment before undesirably low temperatures are reached.

- Manual reset freeze protection control
- Switch: SPST, open fall
- Contact rating: 7.0 F.L. Amp @ 240Vac

White-Rodgers

Part No.	Range (°F)	Differential	Capillary Length (Ft.)	Bulb (In.)	Price
16A609	-20 to 50	Manual Reset	10	3/8 x 5 1/2	**246.82**

ELECTRONIC

REMOTE SENSOR, A421 SERIES

The A421 Series Electronic Temperature Controls are single-stage controls with a SPDT output relay. A421 Controls feature a bright backlit LCD with adjustable brightness and a 3-button touchpad interface that can be set up to restrict user adjustments. An LED indicates the output relay's On/Off status. Standard A421 Series control modules have simple On and Off temperature settings for heating or cooling, an adjustable anti-short cycle delay, temperature setback, and sensor offset capability.

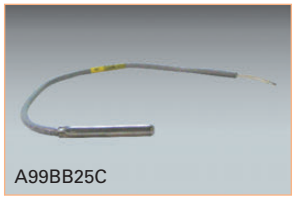
- Current draw: 1.8 VA maximum
- Temperature control range: -40 to 212°F
- Differential: 1 to 30°F
- Available in either:

  - NEMA 1, IP20, high-impact plastic enclosures suitable for surface or DIN rail mounting

  - NEMA 4X, IP67, weathertight, corrosion resistant surface mount enclosures

Johnson Controls

Part No.	Description	Enclosure	Voltage	Lead Length (In.)	Operating Ambient	F.L. Amps	Price
A421ABC02C	Line Voltage	NEMA 1	120, 208/240	79 1/5	-40 to 150°F	8 @ 240	**141.16**
A421AEC01C	Line Voltage	NEMA 4X	120, 208/240	9 7/8	-40 to 140°F	8 @ 240	**207.42**
A421AEC02C	Line Voltage	NEMA 4X	120, 208/240	79 1/5	-40 to 140°F	8 @ 240	**211.58**
A421GBF02C	Low Voltage	NEMA 1	24	79 1/5	-40 to 150°F	N/A	**137.06**
A421GEF01C	Low Voltage	NEMA 4X	24	9 7/8	-40 to 140°F	N/A	**200.52**
A421ABJ02C	Line Voltage, with Single Power Cord and Piggyback Plug	NEMA 1	120	79 1/5	-40 to 150°F	12 @ 120	**188.26**
A421ABD02C	Line Voltage with Off-Cycle Defrost Timer	NEMA 1	120, 208/240	79 1/5	-40 to 150°F	8 @ 240	**162.98**
A421AED02C	Line Voltage with Off-Cycle Defrost Timer	NEMA 4X	120, 208/240	78	-40 to 140°F	8 @ 240	**254.60**



PTC SENSOR, A99B SERIES

- Passive PTC silicon sensor (1035Ω at 77°F)
- Exceptional accuracy of the sensing element provides excellent performance in a wide variety of applications
- Stainless steel sensing bulb allows use in applications that require more corrosion protection
- Lead length may be extended up to 800'
- Use with A419

Johnson Controls

Part No.	Description	Length (In.)	Temperature Range	Price
A99BB25C	PVC Cable	9 3/4	-40°F to 212°F	**46.68**
A99BB200C	PVC Cable	78	-40°F to 212°F	**51.46**
A99BB300C	PVC Cable	117	-40°F to 212°F	**56.64**
A99BC25C	Hi Temp Silicon Cable	9 3/4	-40°F to 248°F	**53.32**
A99BC100C	Hi Temp Silicon Cable	39 2/3	-40°F to 248°F	**61.78**
A99BC300	Hi Temp Silicon Cable	24 3/8	-40°F to 248°F	**97.94**

REMOTE SENSOR, ETC SERIES

- Wide temperature range: -30 to 220°F
- Adjustable differential range: 1° to 30°F
- LCD digital display: Sensor temperature, control settings, relay status, onboard diagnostics
- Remote temperature sensing: up to 400'; sensor included
- Lockout switch to prevent tampering
- Relay output 240V NO

  1 stage controls - 8 FLA

  2 stage controls - 4 FLA

Robertshaw

Part No.	Input Voltage (Vac)	Stages	Enclosure	Price
ETC111000	120/240	1	NEMA1	**153.04**
ETC141000	120/240	1	Watertight, NEMA4	**283.06**
ETC112000	24	1	NEMA1	**154.40**
ETC211000	120/240	2	NEMA1	**281.80**
ETC241000	120/240	2	Watertight, NEMA4	**374.20**
ETC212000	24	2	NEMA1	**273.46**

Part No.	Description	Price
1309007044	NTC Sensor, 96", for all ETC	**38.12**

REMOTE SENSOR

Replaces most mechanical and electronic single stage controls using an SPDT output relay.
Offers the widest multiple voltage operating range: 24/120/208/240 VAC

Does not require a common wire when electrical load is greater than 2.5 amps

- Wide temperature range: -40 to 220°F
- Adjustable differential range: 1° to 30°F
- Remote temperature sensing: up to 400'; sensor included
- 8 FLA @ 240 Vac
- Alarm relay NO contact: 1 amp

White-Rodgers

Part No.	Input Voltage (Vac)	Stages	Enclosure	Price
16E09101	24/120/208/240	1	NEMA 1	**155.52**

UNIVERSAL-XR TEMPERATURE CONTROL

- Microprocessor based controller, suitable for applications on high, medium or low temperature refrigeration units
- Replaces the functions of a mechanical thermostat, defrost time clock, fan control and alarm in one control
- Replaces 20 different controls in the field
- Select from 7 pre-set programs based on application with easy 4-step setup
- Provided with 3 relay outputs to control compressor, defrost - which can be both electrical or hot gas - and evaporator fans
- Works with PTC or NTC probes
- Equipped with a flashing visual alarm and buzzer
- Operating temperature range: 32°F to 140°F
- RH (non-condensing): 20 to 85%

WEISS INSTRUMENTS

Part No.	Voltage	Price
XR60CX4N1F1UR	120	**246.00**
XR60CX5N1F1UR	230	**246.00**
XR60CXAN1F1UR	12/24	**246.00**

ENCAPSULATED TEMPERATURE SENSOR

Use with T7075 and T775 series.

Honeywell

Part No.	Description	Temperature Range (°F)	Price
193987GA	2 5/8" L, 3/8" diameter, 6" leads	-40 to +257°F	**236.88**
50021579001	Water resistant, 2" L, 1/4" diameter, 9' leads	-40 to +270°F	**88.26**
T775SENSOAT	Outside Air Sensor, 8 5/16"L	-40 to +158°F	**110.58**
T775SENSSTRAP	Strap On, Hot/Chilled Water	-40 to +250°F	**90.54**
T775SENSWR	Water resistant, 3 1/2" L, 1/4" diameter, 5' leads	-40 to +270°F	**110.94**
T775SENSWT	Water tight, 2" L, 1/4" diameter, 6' leads	-40 to +270°F	**139.90**

REMOTE SENSOR, T775-2000 SERIES

Provide on/off, modulating, or reset control in applications where electronic accuracy in addition to remote sensing is desired

- Available with one or two temperature inputs and up to four SPDT relay output stages or modulating outputs
- Calibrate input sensors up to ±10°F for temperature and up to ±10% of range for other sensors (e.g pressure, humidity) to compensate for resistance drops in longer sensor wire runs.
- Two settable time periods per day are standard on all models
- Power: 24, 120, or 240 Vac; 50/60 Hz;
- Remote sensing from up to 1,000'
- Operating range: -40 to 140°F
- Setting range: -40 to 248°F
- Differential: 1 to 150°F
- Contact rating: 4.9 FLA at 230V
- Analog modulating outputs can be individually configured for 0-10 Vdc, 2-10 Vdc, 4-20 mA or Series 90.
- The date and time settings are retained for 24 hours after a power outage. All other settings are stored permanently

Honeywell

Part No.	Input Quantity	Outputs			Enclosure	Comment	Price
		Relay	Analog	Floating			
T775A2009	1	1	—	—	NEMA 1	Standard	**280.50**
T775B2016	2	2	—	1	NEMA 4X	Standard, Floating	**539.02**
T775B2024	2	4	—	2	NEMA 4X	Standard, Floating	**679.52**
T775B2032	2	2	—	1	NEMA 1	Standard, Floating	**423.20**
T775B2040	2	4	—	2	NEMA 1	Standard, Floating	**618.72**
T775M2006	2	—	2	—	NEMA 1	Modulating	**318.36**

Continued on next page

ELECTRONIC

REMOTE SENSOR, T775-2000 SERIES (Cont'd.)

Honeywell

Part No.	Input Quantity	Outputs			Enclosure	Comment	Price
		Relay	Analog	Floating			
T775M2014	2	4	2	—	NEMA 4X	Modulating	906.44
T775M2022	2	2	2	—	NEMA 4X	Modulating	651.18
T775M2030	2	4	2	—	NEMA 1	Modulating	771.78
T775M2048	2	2	2	—	NEMA 1	Modulating	554.44
T775R2001	2	4	—	2	NEMA 1	Outdoor reset, 2 sensors included	684.96
T775R2019	2	4	2	—	NEMA 1	Outdoor reset, 2 sensors included	795.90
T775R2027	2	2	2	—	NEMA 1	Outdoor reset, 2 sensors included	627.04
T775R2035	2	2	—	1	NEMA 1	Outdoor reset, 2 sensors included	531.00
T775R2043	2	—	2	—	NEMA 1	Outdoor reset, 2 sensors included	531.00
T775U2006	2	2	2	—	NEMA 1	Universal; Humidity, Pressure, Temperature (less sensor)	554.44
T775U2016	2	2	2	—	NEMA 1	Universal; Humidity, Pressure, Temperature. Control to Sensor A (Universal Input) or Sensor B (temp) Independently.	644.48
T775L2007	2	4(2)	—	—	NEMA 1	Stage Sequencer with Reset	602.96
T775P2003	3	4	—	—	NEMA 1	Boiler Reset, 3 input sensors, digital alarm	723.12
T775S2008	—	4	—	—	NEMA 1	Relay Expansion Module only, use with T775L, T775P	186.04

PROPORTIONAL, REMOTE BULB

MODULATING

T991A1012

T991A1715

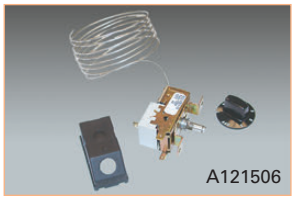
For modulating control of water or air temperature in ducts, tanks and similar applications.

- Supply voltage: 24–30 Vac
- Potentiometer resistance: 135Ω (T991A1269 - 280Ω)

Honeywell

Part No.	Temperature Range (°F)	Throttling Range (°F)	Capillary Length (Ft.)	Bulb (In.)	Price
T991A1004	0 to 100	3 to 30	5	1/2 x 4 3/16	563.14
T991A1012	0 to 100	3 to 30	20	1/2 x 4 3/16	633.90
T991A1079	160 to 260	3 to 30	20	1/2 x 4 3/16	698.22
T991A1194	55 to 175	3.5 to 36	20	1/2 x 3 9/16	663.88
T991A1244	55 to 175	3.5 to 36	5	1/2 x 3 9/16	563.14
T991A1269	55 to 175	3.5 to 36	20	1/2 x 3 9/16	716.50
T991A1350	55 to 175	3.5 to 36	24	Averaging	688.72
T991A1426	0 to 100	3 to 30	5	1/2 x 4 3/16	563.14
T991A1715	0 to 100	3 to 30	5	Fast Response	590.36
T991A1764	0 to 100	3 to 30	24	Averaging	630.38
T991A2069	0 to 100	3 to 30	20	Fast Response	800.96

APPLIANCE


A121506

CONSTANT "CUT-IN"

The Ranco A12 controls provide a constant "cut-in" feature. The constant "cut-in" design is generally used to provide an "off" cycle defrost function. Each time the control cycles off, the control contacts will remain "open" until the evaporator is cleared of any frost that may have accumulated from the previous "on" cycle.

- Contact rating: 16 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Cut-In (°F)	Capillary Length (In.)	Price
A121506	9 to 22	38	39	132.80
A121560	19 to 29	38	72	127.50
A12700	11.5 to 26	37	84	127.50
A12701	15 to 31	41	84	130.52

CONSTANT DIFFERENTIAL

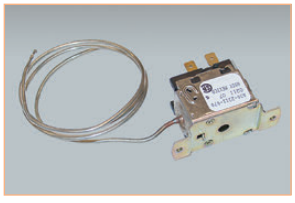
Controls for commercial refrigerators, freezers, ice machines, vending machines and beverage coolers.

These compact controls are readily adaptable to nearly all commercial refrigerators and freezers. A wide selection of temperature ranges, differentials and capillary lengths are available. Break-off shafts are included with installation instructions for easy, fast installation. Controls have "off" position except as noted.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
A221112	25 to 44	5	SPST, Open Low, No Off	72	**136.38**
A22391	11 to 51	8	SPDT, No Off	66	**152.22**
A22392	14 to 61.5	23.5	SPDT, No Off	48	**165.88**
A30180	-4 to 41	12	SPST, Open Low	42	**99.68**
A30181	-4 to 41	12	SPST, Open Low	84	**129.04**
A30182	-6 to 44	17	SPST, Open Low	42	**122.26**
A30183	-5 to 44	17	SPST, Open Low	84	**129.84**
A30184	-7 to 40	19	SPST, Open Low	42	**118.46**
A30185	-15 to 36	15.5	SPST, Open Low	42	**118.80**
A30260	-.5 to 32	6	SPST, Open Low	72	**111.48**
A30261	32 to 61	6	SPST, Open Low	84	**96.56**
A30262	3 to 43	12	SPST, Open Low	84	**106.76**
A30263	.5 to 47	22.5	SPST, Open Low	84	**103.76**
A30301	-24 to 20.5	8.5	SPST, Open Low, No Off	84	**98.26**
A30304	-21.5 to 19.5	15.5	SPST, Open Low, No Off	84	**100.68**
A30308	-30.5 to 12.5	11	SPST, Open Low, No Off	84	**118.12**
A30310	-24 to 23	20	SPST, Open Low	36	**118.38**
A30311	-22 to 24	14	SPST, Open Low	42	**124.24**
A30313	-20 to 21	8	SPST, Open Low	42	**105.80**
A30314	-21.5 to 23	8	SPST, Open Low	54	**138.38**
A30323	-11 to 10.5	10	SPST, Open Low	48	**138.38**
A302209	35 to 48	8	SPST, Open Low	48	**128.08**
A302210	30 to 42	8	SPST, Open Low	48	**104.10**
A302211	-10.5 to 17.5	10	SPST, Open Low	48	**105.02**
A30543	7 to 45	12	SPST, Open Low	27	**143.58**
A303618	17 to 45	17	SPST, Open Low	30	**81.78**
A303725	16 to 50	19	SPST, Open Low	60, w/Bulb	**100.10**



EVAPORATOR DE-ICE

Control is generally wired in series with cycling control and capillary senses evaporator temperature. When ice starts to accumulate on evaporator, control will shut off compressor.

Robertshaw

Part No.	Setting (°F) Open	Setting (°F) Close	Switch	Capillary Length (In.)	Price
A302311	30	60	SPST	30	**118.32**

ICE BIN LEVEL

Direct replacement control for ice machine applications. Provides narrow differential for accurate control of bin level.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
A221129	35 to 51	6	SPDT	48	**131.86**

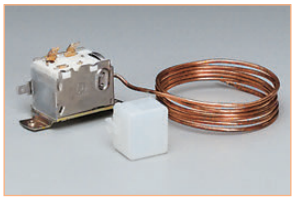
ICE HARVEST

Adaptable replacement for ice machine applications.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
A224506	-19 to 22	8	SPDT	72	**135.84**



WATER COOLER

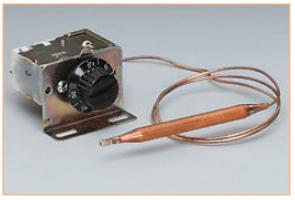
Ranco's water cooler controls will replace about 80% of your control needs for equipment from such manufacturers as Ebco, Elkay, Sunroc, Halsey-Taylor, Kelvinator and General Electric.

- Contact rating: 6 F.L. Amp @ 250 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Capillary Length (In.)	Price
K3001	37 to 61	7	48	**95.24**
K3002	7 to 66	27	36	**96.12**

APPLIANCE



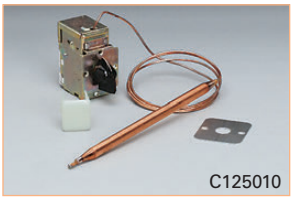
OUTDOOR THERMOSTAT

Ranco's C12-2001 control is an adjustable thermostat which holds back additional stages of supplemental heat until the outdoor temperature falls below the control's set point. The C12-2001 is typically wired through the relay circuit in conjunction with the indoor thermostat.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
C122001	-1 to 63	5	SPDT	30, w/Bulb	114.62



PTAC

This control replaces many OEM controls on heat/cool units.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
C125010	60 to 98	3	SPDT	36, w/Bulb	138.38
C17100	64 to 101	3.5	2 SPDT	26, w/Bulb	193.08

DISCHARGE FEEDBACK

Discharge feedback thermostats types C17 and C22 are replacements for room, packaged terminal and through-the- wall air conditioning units equipped for either manual or automatic heat/cool changeover. The C17 and C22 have separate switches for heating and cooling. A wide energy saving comfort zone ("dead band") is provided between heating and cooling cycles.

Robertshaw

Part No.	Range (°F) Cool	Differential (°F)	Capillary Length (In.)	Price
C129024	67 to 83	4	36, w/Bulb; 36, w/Bulb	188.30
C179043	68 to 86	4	36, w/Bulb; 36, w/Bulb	214.82

ROOM AIR CONDITIONER

Adaptable control to replace OEM controls which govern the on/off compressor function.

- Contact rating: 20 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (°F)	Differential (°F)	Switch	Capillary Length (In.)	Price
A221114	60 to 91	5	SPST, Open Low	54, Cross Ambient	147.84
A222451	45 to 81	5	SPDT	27	125.12
A222453	59 to 90	6	SPDT	39, Cross Ambient	153.00
A30X450	58 to 89	5	SPST, Open Low	18, Air Coil	82.80
A30X451	58 to 91	5	SPST, Open Low	48	82.80

ENCAPSULATED

- 1/4" female flare connection
- 18" leads

AUTO RESET, OPEN HIGH

IRP International Refrigeration Products

Part No.	Pressure (psi) Open	Close	Price
SHP200150	200	150	38.34
SHP250150	250	150	38.34
SHP275195	275	195	38.34
SHP300200	300	200	38.34
SHP350250	350	250	38.34
SHP375265	375	265	38.34
SHP400200	400	200	38.34
SHP400280	400	280	38.34
SHP400300	400	300	38.34
SHP425300	425	300	38.34
SHP425325	425	325	38.34
SHP450250	450	250	38.34
SHP610420	610	420	38.34

AUTO RESET, OPEN HIGH

Johnson Controls

Part No.	Pressure (psi) Open	Close	Price
P100CP1C	400	300	43.46
P100CP38C	500	325	35.80
P100CP85C	665	565	48.96

AUTO RESET, OPEN LOW, FAN CYCLING

IRP International Refrigeration Products

Part No.	Pressure (psi) Open	Close	Price
SFC150225	150	225	38.34
SFC170250	170	250	38.34
SFC210275	210	275	38.34
SFC300400	300	400	38.34

AUTO RESET, OPEN LOW, FAN CYCLING

Johnson Controls

Part No.	Pressure (psi) Open	Close	Price
P100AP3C	150	225	43.46
P100AP4C	170	250	43.46
P100AP332C	300	400	43.46

AUTO RESET, OPEN LOW

IRP International Refrigeration Products

Part No.	Pressure (psi) Open	Close	Price
SLP0520	5	20	38.34
SLP1032	10	32	38.34
SLP1535	15	35	38.34
SLP2550	25	50	38.34
SLP2565	25	65	38.34
SLP2580	25	80	38.34
SLP3560	35	60	38.34
SLP4080	40	80	38.34
SLP5090	50	90	38.34
SLP75100	75	100	38.34
SLP90120	90	120	38.34

MANUAL RESET, OPEN HIGH

IRP International Refrigeration Products

Supco

Part No.	Pressure (psi) Open	Connection (In.)	Price
SMR375	375	1/4	50.50
SMR410	410	1/4	51.00
SMR440	440	1/4	37.66
SMR610	610	1/4	37.66

MANUAL RESET, OPEN HIGH

Johnson Controls

Part No.	Pressure (psi) Open	Connection (In.)	Price
P100DA1	410	1/4	77.96
P100DA2	475	1/4	77.96
P100DA81C[1]	630	1/4	66.02

[1]Compatible with R410A

AUTO RESET

- 1/4" FFL with depressor pin

ENGINEERING TOMORROW Danfoss

Part No.	Description	Pressure (psi) Open	Close	Price
061F7523	Open Low	10	25	3.34
061F8333	Fan Cycling	188	232	43.56
061F8492	Open High	450	348	43.56

SYSTEM 450™

All System 450 modules are multipurpose and field configurable out-of-the-box; each module is designed for use in temperature, pressure, and humidity systems. A System 450 control system can be easily assembled and configured to monitor and control temperature, pressure, and humidity simultaneously.

Each control module can be set up as a stand-alone control or connected to expansion modules to control up to 10 outputs based on the input from up to 3 control sensors. A control system's outputs can be relay outputs (On/Off), analog outputs (0-10 VDC or 4-20 mA), or any combination of relay and analog outputs.

- Backlit Liquid Crystal Display (LCD) and 4-button touch pad User Interface (UI), provides quick, clear, visual status of the control system's input sensors and outputs with the touch of a button
- Up to 3 input sensors and up to 10 outputs allow you to build both simple and complex application specific control systems
- 4.9 F.L. Amps @ 240Vac

CONTROL MODULE

Johnson Controls

Part No.	Description	Price
C450CBN4C	Control Module with 1 SPDT Output Relay	281.64
C450CCN4C	Control Module with 2 SPDT Output Relays	273.42
C450CPN4C	Control Module with 1 Analog Output (4-20 mA / 0-10 VDC)	225.30
C450CQN4C	Control Module with 2 Analog Outputs (4-20 mA / 0-10 VDC)	281.64

RELAY OUPUT EXPANSION MODULE

Johnson Controls

Part No.	Description	Price
C450SBN3C	Relay Output Expansion Module Provides 1 SPDT Output Relay	112.66
C450SCN3C	Relay Output Expansion Module Provides 2 SPDT Output Relays	208.40
C450SPN1C	PI Analog Output Expansion Module Provides 1 Analog Output 4-20mA/0-10VDC	112.66
C450SQN1C	PI Analog Output Expansion Module Provides 2 Analog Outputs 4-20mA/0-10VDC	208.40

POWER MODULE

Johnson Controls

Part No.	Description	Price
C450YNN1C	Provides 24 V to System 450™ Module Assembly; 120 or 240 VAC Supply Power Input Terminals	78.86

SINGLE FUNCTION

ELECTRONIC

The P470 Electronic Pressure Control with Display is a single-stage, On/Off, electronic pressure control with an SPDT output relay (open high or low). The P470 control uses a P399 Electronic Pressure Transducer to generate a pressure signal and WHA-P399 Wiring Harness, which eliminates many of the constraints of capillary-tube control applications. (MUST BE ORDERED SEPARATELY)

- Easy-to-read liquid crystal display (LCD) clearly displays the sensed pressure (and other control information), and in many situations pressure may be monitored without applying gauges to the controlled equipment. LED indicates relay status
- Three field-selectable pressure ranges between 0-750 psi (transducer dependent) provide the flexibility to cover most HVAC/R pressure applications
- Lockable, 3-button, front-panel touchpad deters tampering and over adjustment of control settings by unauthorized personnel.
- Built-in, adjustable, anti-short cycle time-delay reduces compressor short cycling and nuisance lockouts, which can extend compressor life
- Economical, versatile transducer and wiring harness eliminate many of the constraints of capillary control applications and allow up to a 100 ft (30.5m) cable between control and transducer

Johnson Controls

Part No.	Voltage	Price
P470EB1	120/208-230	**166.24**
P470FB1	24	**161.24**

LOW PRESSURE TIME DELAY

P29NC provides a low pressure cutout control with time delay and lockout, which requires manual reset. Standard time delay is 60 seconds. The control provides equipment shutdown on extended low pressure conditions. The time delay prevents nuisance shutdowns due to momentary fluctuations in system pressures.

- Applications: chiller low temperature cutout; industrial equipment, oil pressure lubrication cutout; low suction pressure cutout
- Maximum bellows pressure: 325 psig
- Pressure drop to close contacts: 1–3 psi

Johnson Controls

Part No.	Switch	Range (psi)	Pressure Connection (In.)	Price
P29NC2	SPST	20 to 100	1/4 M Flare	**390.88**
P29NC3	SPST	20 to 100	1/4 F Flare; 36" Capillary	**390.88**

More than 50,000 items in stock and available for immediate shipment.

The P70 controls employ a set of switch contacts that are opened and closed by the movement of a pressure actuated bellows. Typical applications for these controls include system control of air conditioning and refrigeration systems and limit protection for system components. These controls can be used in the control of air, water, and oil pressure.

FAN CYCLING

- Includes universal mounting bracket
- Maximum over pressure: 475 psig

Johnson Controls

Part No.	Switch	Range (psig)	Differential (psi)	Connection (In.)	Capillary Length (Ft.)	F.L. Amps (@ 240V) 1ø	Price
P70AA118	SPST, Open Low	100 to 400	35 to 200	1/4 F Flare	3	17	**167.96**
P170AA118	SPST, Open Low	100 to 400	35 to 200	1/4 M Flare	None	17	**156.06**
P70AA2	SPST, Open Low	0 to 150	10 to 70	1/4 F Flare	3	17	**172.40**
P70AA400C	SPST, Open Low	100 to 470	35 to 200	1/4 F Flare	3	17	**167.96**
P70AA119[1]	SPST, Open Low	50 to 300	20 to 100	1/4 FPT	None	17	**296.90**
P72AA27	DPST, Open Low	100 to 400	35 to 200	1/4 F Flare	3	24	**256.04**

[1]For ammonia service. Maximum over pressure: 400 psig

HIGH PRESSURE

Part No.	Switch	Max. Working Pressure (psig)	Range (psig)	Differential (psi)	Connection (In.)	Capillary Length (Ft.)	F.L. Amps (@ 240V) 1ø	Price
P170AA2C	SPST, Open Low	525 psig	0 to 150	10 to 70	1/4 M Flare	None	17	166.60
P170AA400C	SPST, Open Low	525 psig	100 to 470	35 to 200	1/4 M Flare	None	17	156.06
P70CA2	SPST, Open High	525 psig	50 to 500	60 to 150	1/4 M Flare	None	17	172.86
P70CA3	SPST, Open High	525 psig	50 to 500	60 to 150	1/4 F Flare	3	17	187.20
P170CA3	SPST, Open High	525 psig	50 to 500	60 to 150	1/4 M Flare	None	17	170.86
P70DA1	SPST, Open High	525 psig	50 to 500	Manual Reset	1/4 F Flare	3	17	188.00
P170DA1	SPST, Open High	525 psig	50 to 500	Manual Reset	1/4 M Flare	None	17	180.52
P70CA5[1]	SPST, Open High	525 psig	50 to 500	60 to 150	1/4 FPT	None	17	330.10
P70DA2[1]	SPST, Open High	525 psig	50 to 500	Manual Reset	1/4 FPT	None	17	342.26
P170CA400C	SPST, Open High	690 psig	200 to 610	60 to 150	1/4 MFL	None	17	169.56
P70CA400C	SPST, Open High	690 psig	200 to 610	60 to 150	1/4 MFL	3	17	187.20
P170DA400C	SPST, Open High	690 psig	200 to 610	Manual Reset	1/4 MFL	None	17	180.52
P70DA400C	SPST, Open High	690 psig	200 to 610	Manual Reset	1/4 MFL	3	17	187.06
P72CA2	DPST, Open High	525 psig	50 to 500	60 to 150	1/4 F Flare	3	24	266.14
P72DA1	DPST, Open High	525 psig	50 to 500	Manual Reset	1/4 F Flare	3	24	276.30

[1]For ammonia service

HIGH PRESSURE/ALARM CIRCUIT

Maximum over pressure: 525 psig

Part No.	Switch	Range (psig)	Differential (psi)	Connection (In.)	Capillary Length (Ft.)	F.L. Amps (@ 240V) 1ø	Price
P70KA1	4-Wire, 2-Circuit[1]	50 to 450	Manual Reset	1/4 F Flare	3	8	270.24
P170KA1	4-Wire, 2-Circuit[1]	50 to 450	Manual Reset	1/4 M Flare	None	8	252.20

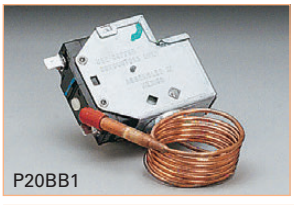
[1]L-M1 close high; L-M2 open high

LOW PRESSURE

Maximum over pressure: 325 psig

Part No.	Switch	Range (psig)	Differential (psi)	Connection (In.)	Capillary Length (Ft.)	F.L. Amps (@ 240V) 1ø	Price
P70AB12[2]	SPST, Open Low	12" to 80	5 to 35	1/4 F Flare	3	17	168.62
P170AB12[2]	SPST, Open Low	12" to 80	5 to 35	1/4 M Flare	None	17	154.78
P70AB1	SPST, Open Low	20" to 100	6 to 50	1/4 M Flare	None	17	161.24
P70AB2	SPST, Open Low	20" to 100	6 to 50	1/4 F Flare	3	17	168.62
P170AB2	SPST, Open Low	20" to 100	7 to 50	1/4 M Flare	None	17	156.24
P70CA1	SPST, Open High	20" to 100	6 to 50	1/4 F Flare	3	17	182.06
P170CA1	SPST, Open Low	20" to 100	7 to 50	1/4 M Flare	None	17	187.94
P70AA5[1]	SPST, Open Low	20" to 100	6 to 50	1/4 FPT	None	17	308.64
P70CA4[1]	SPST, Open High	20" to 100	6 to 50	1/4 FPT	None	17	330.10
P70EA10	SPDT	20" to 100	5 Fixed	1/4 M Flare	None	8	147.28
P72AA1	DPST, Open Low	20" to 100	7 to 50	1/4 F Flare	3	24	256.04

[1]For ammonia service [2]Micro set control


P20BB1

P20 SERIES

The P20 Series are slim profile, field replacement high and low pressure controls for non-corrosive refrigerants.

- Maximum temperature: 140°F
- Contact rating: 8 F.L. Amp @ 240V

Part No.	Switch	Range (psig)	Differential (psi)	Max. Bellows (psig)	Price
P20BB1	SPST, Open Fall	7 to 150	Manual Reset	250	123.38
P20DB1	SPST, Open Rise	100 to 425	Manual Reset	450	134.16
P20EB1	SPDT	7 to 150	30, Fixed	250	117.76
P20EB2	SPDT	100 to 425	75, Fixed	450	128.30

SINGLE FUNCTION

0101402

SINGLE FUNCTION

Type 010 SPST for single phase and 020 DPST for double break or 3-phase applications provides close-on-rise switch action for conventional low pressure cycling, pump down, limit, defrost termination, and alarm applications.

Type 011 SPST open-on-rise is typically used for unloader applications.

- Contact rating: 24 F.L. Amp @ 240 Vac
- 020 DPST switch: 12 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (psi)	Differential (psi)	Switch	Capillary Length (Ft.)	Connection Size	Connection Gender	Price
0101401	12" to 50	5 to 35	SPST, Open Low	None	1/4 SAE	M	**136.34**
0101402	12" to 50	5 to 35	SPST, Open Low	3	1/4 SAE	F	**151.88**
0101483	10" to 100	10 to 40	SPST, Open Low	3	1/4 SAE	F	**155.24**
0101831	10" to 100	10 to 40	SPST, Open Low	None	1/4 SAE	M	**136.34**
0101894[1]	100 to 400	40 to 150	SPST, Open Low	None	1/4 SAE	M	**137.66**
0102054[1]	100 to 400	40 to 150	SPST, Open Low	3	1/4 SAE	F	**156.66**
0111711	150 to 450	50 to 100	SPST, Open High	3	1/4 SAE	F	**169.94**
0207006	100 to 400	40 to 150	DPST, Open Low	3	1/4 SAE	F	**252.78**

[1]Suitable for head pressure for cycling application.

16108

SPDT SWITCH

These controls offer a variety of pressure ranges and switch action to provide maximum application flexibility.

Type 016 SPDT switch action can be used for all categories of applications. If desired, the unused terminal may be wired to an alarm.

Note: Since an alarm circuit is frequently desired on manual reset controls, all manual reset controls are provided in the Type 016 SPDT configurations.

- Contact rating: 24 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Range (psi)	Differential (psi)	Switch	Capillary Length (Ft.)	Connection Size	Connection Gender	Price
016107	10" to 100	10 to 40	SPDT	None	1/4 SAE	M	**161.54**
016108[1]	100 to 400	40 to 150	SPDT	3	1/4 SAE	F	**168.60**
016120	12" to 50	5 to 35	SPDT	None	1/4 SAE	M	**167.48**
016142	100 to 400	17, Fixed	SPDT	3	1/4 SAE	F	**185.68**
016166	50 to 150	10 to 40	SPDT	3	1/4 SAE	F	**183.02**
016200	150 to 450	Manual Reset	SPDT, Locks on Increase	4	1/4 SAE	F	**183.02**
016209	150 to 450	Manual Reset	SPDT, Locks on Increase	None	1/4 SAE	M	**195.06**
016261	10" to 100	Manual Reset	SPDT, Locks on Decrease	4	1/4 SAE	F	**209.16**
016527	10" to 100	10 to 40	SPDT	3	1/4 SAE	F	**165.42**
016557	12" to 50	5 to 35	SPDT	3	1/4 SAE	F	**182.88**
016570[1]	100 to 400	40 to 150	SPDT	None	1/4 SAE	M	**182.52**
016585	10" to 100	Manual Reset	SPDT, Locks on Decrease	None	1/4 SAE	M	**199.64**
016624	12" to 80	4 to 38	SPST, Opens Low	3	1/4 SAE	F	**146.58**

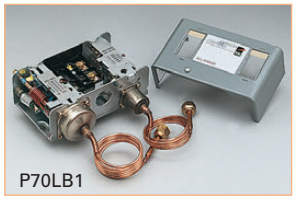
[1]Suitable for Head Pressure Fan Cycling Application

SPST, SPDT SWITCH

- Snap action electrical contacts
- The fail-safe dual bellows used in 600 psi controls prevent refrigerant loss and enable premature cut-out when a fault occurs
- Manual trip allows electrical function test without tools
- Repeatability less than 0.1 psi drift, even after 400 000 cycles
- Contact rating: 24 F.L. Amp @ 240 Vac

Part No	Range (psi)	Differential (psi)	Switch	Capillary Length (Ft.)	Connection Size	Connection Gender	Price
060-5231	6" to 108	10 to 60 psi	SPDT	None	1/4 SAE	M	**113.50**
060-5233	6" to 108	10 to 60 psi	SPDT	3	1/4 SAE	F	**121.64**
060-5232	28" to 100	10 psi fixed	SPDT	None	1/4 SAE	M	**118.48**
060-5234	28" to 100	10 psi fixed	SPDT	3	1/4 SAE	F	**127.18**
060-5237	6" to 73	6 to 30 psi	SPST, open low	None	1/4 SAE	M	**113.50**
060-5235	6" to 73	6 to 30 psi	SPST, open low	3	1/4 SAE	F	**121.64**
060-5239	6" to 73	6 to 30 psi	SPDT	None	1/4 SAE	M	**113.50**
060-5270	45 fixed	10 psi fixed	SPDT, Man Reset	None	1/4 SAE	M	**116.28**
060-5241	100 to 465	25 to 85 psi	SPST, open low	None	1/4 SAE	M	**113.50**
060-5242	100 to 465	25 to 85 psi	SPST, open low	3	1/4 SAE	F	**121.64**
060-5243	100 to 600	58 to 145 psi	SPDT	None	1/4 SAE	M	**126.30**
060-5245	100 to 600	58 to 145 psi	SPDT	3	1/4 SAE	F	**135.64**
060-5246	100 to 600	60 psi fixed	SPDT, Man Reset	3	1/4 SAE	F	**138.14**
060-5244	100 to 600	60 psi fixed	SPDT, Man Reset	None	1/4 SAE	M	**127.68**

DUAL PRESSURE



This P70 Series of dual pressure controls employs an SPST switch, that is opened when either high pressure or low pressure beyond the control settings is sensed at the control's two bellows sensing elements.

SINGLE POLE

- High pressure range: 100–500 psig
- High pressure differential: 65 psi < 300 psig
  75 psi 300–400 psig
  95 psi > 400 psig
- Maximum over pressure: 475 psig Low
  525 psig High
- Contact rating: 17 F.L. Amp @ 240V

Part No.	Low Pressure Range (psig)	Differential (psi)	High Pressure Reset	Connection (In.)	Capillary Length (Ft.)	Price
P70LB1	20" to 100	7 to 50	Auto	1/4 F Flare	3	**315.34**
P170LB1	20" to 100	7 to 50	Auto	1/4 M Flare	None	**295.24**
P70LB6[2]	12" to 80	5 to 35	Auto	1/4 F Flare	3	**315.34**
P170LB6[2]	12" to 80	5 to 35	Auto	1/4 M Flare	None	**295.24**
P70MA18[2]	12" to 80	5 to 35	Manual	1/4 F Flare	3	**315.00**
P70MA1	20" to 100	7 to 50	Manual	1/4 F Flare	3	**318.50**
P170MA1	20" to 100	7 to 50	Manual	1/4 M Flare	None	**303.62**
P70NA1	20" to 100	Manual Reset	Manual	1/4 F Flare	3	**321.44**
P170NA1	20" to 100	Manual Reset	Manual	1/4 M Flare	None	**304.88**
P70LA2[1]	20" to 100	7 to 50	Auto	1/4 FPT	None	**603.56**
P70MA2[1]	20" to 100	7 to 50	Manual	1/4 FPT	None	**617.92**

[1]For ammonia service [2]Micro set control

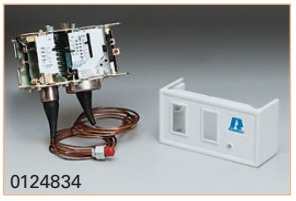
DUAL PRESSURE

TWO POLE

- High pressure range: 100–425 psig
- Differential: 55 psi < 300 psig, 65 psi ≥ 300 psig
- Maximum over pressure: 525 psig
- Contact rating: 24 F.L. Amp @ 240V

Johnson Controls

Part No.	Switch	Low Pressure Range (psig)	Low Pressure Differential (psi)	High Pressure Reset	Connection (In.)	Length (Ft.)	Price
P72LA1	DPST	20" to 100	6 to 50	Auto	1/4 F Flare	3	401.78
P72LB1	DPST	20" to 100	6 to 50	Auto	1/4 F Flare	3	404.48
P72MA1	DPST	20" to 100	6 to 50	Manual	1/4 F Flare	3	411.78
P72NA1	DPST	20" to 100	Manual Reset	Manual	1/4 F Flare	3	411.78


0124834

SINGLE POLE

These controls offer a tailored variety of ranges and options for refrigerants. Low and high pressure functions are combined into a single control with one switch.

- "Convertible" (auto or manual) reset or automatic high pressure reset models
- Contact rating: 24 F.L. Amp @ 240 Vac
- 022 DPST switch: 12 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Low Side Range (psig)	Low Side Differential (psi)	High Side Range (psig)	High Side Differential (psi)	Reset Low	Reset High	Capillary Length (Ft.)	Connection Size	Connection Gender	Price
0121502	12" to 50	5 to 35	150 to 450	70, Fixed	Automatic	Automatic	3	1/4 SAE	F	308.96
0121505	12" to 50	5 to 35	100 to 250	50, Fixed	Automatic	Automatic	None	1/4 SAE	M	291.52
0121506	12" to 50	5 to 35	100 to 250	50, Fixed	Automatic	Automatic	3	1/4 SAE	F	309.06
0121549	10" to 100	10 to 40	150 to 450	70, Fixed	Automatic	Automatic	3	1/4 SAE	F	291.78
0121550	10" to 100	10 to 40	150 to 450	70, Fixed	Automatic	Automatic	None	1/4 SAE	M	286.08
0121594	10" to 100	Manual	150 to 450	Manual	Manual	Manual	3	1/4 SAE	F	314.70
0124833	12" to 50	5 to 35	150 to 450	70, Fixed	Automatic	Convertible	4	1/4 SAE	F	300.74
0124834	10" to 100	10 to 40	150 to 450	70, Fixed	Automatic	Convertible	4	1/4 SAE	F	285.80
0124846	10" to 100	10 to 40	150 to 450	70, Fixed	Automatic	Convertible	None	1/4 SAE	M	294.54
0227706	10" to 100	10 to 40	150 to 450	70, Fixed	Automatic	Convertible	3	1/4 SAE	F	402.18

0605247

SINGLE POLE

- Snap action electrical contacts, 24 F.L.A at 240V
- The fail-safe dual bellows used in 600 psi controls prevent refrigerant loss and enable premature cut-out when a fault occurs
- Manual trip allows electrical function test without tools
- Repeatability less then 0.1 psi drift, even after 400 000 cycles

ENGINEERING TOMORROW Danfoss

Part No	Low Side Range (psig)	Low Side Diff. (psi)	High Side Range (psig)	High Side Diff. (psi)	Reset Low	Reset High	Capillary Length (Ft.)	Connection Size	Connection Gender	Price
060-5247	6" to 108	10 to 60	100 to 465	60 fixed	Automatic	Automatic	None	1/4 SAE	M	219.80
060-5248	6" to 108	10 to 60	100 to 465	60 fixed	Automatic	Automatic	3	1/4 SAE	F	233.10
060-5249	6" to 108	10 to 60	100 to 465	60 fixed	Automatic	Manual	None	1/4 SAE	M	224.50
060-5250	6" to 108	10 to 60	100 to 465	60 fixed	Automatic	Manual	3	1/4 SAE	F	238.40
060-5253	6" to 108	10 to 60	100 to 600	60 fixed	Convertible	Convertible	None	1/4 SAE	M	227.84
060-5254	6" to 108	10 to 60	100 to 600	60 fixed	Convertible	Convertible	3	1/4 SAE	F	243.70

CONTROL HOSE

- Maximum operating pressure: 600 psi
- Burst pressure: 3000 psi
- 1/4" fem flare x 1/4" 90° fem flare

NATIONAL REFRIGERATION PRODUCTS

Part No.	Length (In.)	Price
NPCH18	18	49.26
NPCH24	24	52.80
NPCH30	30	59.10
NPCH36	36	62.10
NPCH48	48	69.64
NPCH60	60	80.66

- Pressure only, cannot be used for flow/oil
- All pressure applications: safety controls, high and low, regulating valves, gauges
- Maximum working pressure: 1000 psi
- Burst pressure: 5000 psi
- Maximum temperature ratings: -40°F to 266°F
- 1/4" fem flare x 1/4" 90° fem flare
- Oil and UV resistant, mineral, alkyl benzene, polyester, PAG

Refflex NORTH AMERICA

NATIONAL REFRIGERATION PRODUCTS

Part No.	Length (In.)	Price
NTPH18	18	35.24
NTPH24	24	37.26
NTPH30	30	38.96
NTPH36	36	41.34
NTPH48	48	45.44
NTPH60	60	48.84

The UltraCap armored capillary is designed for use as a pressure connection in refrigeration and AC applications. The small orifice capillary minimizes pressure pulsation and the brass armor sleeve improves resistance to abrasion caused by vibration.

- Tubing ID: 0.062", 1/4" fem. flare straight
- UL recognized

Johnson Controls

Part No.	Length (In.)	Configuration	Price
SEC99AA24C	24	Straight, 1 depressor	42.42
SEC99AA36C	36	Straight, 1 depressor	49.38
SEC99AB18	18	90° x Straight, depressors	38.94
SEC99AB24	24	90° x Straight, depressors	42.46
SEC99AB36	36	90° x Straight, depressors	49.38
SEC99AB48	48	90° x Straight, depressors	56.38
SEC99AB60	60	90° x Straight, depressors	63.32
SEC99AD18	18	90° x Straight	38.52
SEC99AD24	24	90° x Straight	42.14
SEC99AD36	36	90° x Straight	49.36
SEC99AD48	36	90° x Straight	56.60

CONTROL HOSE

- Replaces regular copper capillary tubing on failure cut out controls and pressure controls.
- Eliminates capillary failure due to work hardening from vibration
- Operates to 600 psi and 252°F
- 1/4" female flare x 1/4" female flare

Robertshaw

Part No.	Length (In.)	Configuration	Price
1290132B24	24	Straight x Straight	79.52
1290132B36	36	Straight x Straight	90.78
1290132B48	48	Straight x Straight	118.42

HEAD PRESSURE, FAN SPEED CONTROL

PRESSURE RESPONSIVE

The P266 fan speed control is designed for approved single phase, PSC motors commonly used in a wide variety of refrigeration and air conditioning condenser fan applications. Designed to replace P66 and P215 Series fan speed controls. P266 controls have current ratings from 4 to 12 A depending on the voltage and model.

- Wide, adjustable pressure throttling range
- Optional auxiliary fan control provides control of up to three fixed-speed fans or fan stages in conjunction with the speed controlled fan or fan stage.
- Optional low-speed capacitor mode enables cooler, quieter, and more efficient fan motor operation at low speeds.
- NEMA 3R, (IP54) enclosure with integral metal heat-sink

Johnson Controls

Part No.	Voltage	High VAC Triacs	Aux. Fan Control Circuits	Max Amps	Price
P266ABA100C	208 to 240 Vac	3	3	8	718.44
P266ACA100C	208 to 240 Vac	1	0	8	600.48
P266BCA100C	440 to 575 Vac	1	0	4	606.24
P266BHA100C	440 to 575 Vac	2	3	4	742.56

PRESSURE TRANSDUCER

Electronic pressure transducer for P266 fan speed control modules

- Includes 6.6' cable
- 1/4 FFL connection

Johnson Controls

Part No.	Pressure Range (psi)	Price
P266SNR1C	0 to 508	182.12
P266SNR2C	0 to 754	182.12

HEAD PRESSURE, FAN SPEED CONTROL

PRESSURE TRANSDUCER

- Digitally compensated sensor
- All metal wetted parts for use in wide variety of fluid applications
- Suitable for use with freon and ammonia based cooling systems
- No internal elastomeric seals mean no o-ring compatibility issues
- Less than 2 ms response time provides accurate, high speed measurement
- Output signal: 2-wire 4-20mA
- Includes 3-meter cable

Honeywell

Part No.	Accuracy	Pressure Range (psi)	Connection Size (In.)	Price
MLH050PSCDJ1235	±0.50% FSS	0 to 50	1/4" - 18 NPT	**237.48**
MLH150PSCDJ1236	±0.25% FSS	0 to 150	1/4" - 18 NPT	**237.48**
MLH500PSCDJ1240	±0.25% FSS	0 to 500	1/4" FFL Schrader	**237.48**
MLH01KPSCDJ1241	±0.25% FSS	0 to 1000	1/4" FFL Schrader	**237.48**

P499RCP101

PRESSURE TRANSDUCER

The electronic pressure transducer is a compact, economical, rugged, direct-mount pressure transducer designed to produce a low-voltage analog signal (nominal 0.5 to 4.5 Vdc) based on the sensed pressure. They are designed for use in commercial refrigeration and airconditioning applications. These are suitable for use with all noncorrosive refrigerants as well as ammonia.

P499 transducers require wire harnesses for all models that do not have an integral cable.

Kits include a 6 1/2' wire harness.

Johnson Controls

PRESSURE TRANSDUCER 1/8" MPT

Part No.	Output Signal	Pressure Range (psi)	Description	Price
P499RAP101C	0.5 to 4.5 Vdc	0 to 100	Individual	**210.96**
P499RAP102C	0.5 to 4.5 Vdc	0 to 200	Individual	**210.96**
P499RAP105C	0.5 to 4.5 Vdc	0 to 500	Individual	**210.96**
P499AAP105C	4 to 20 mA	0 to 500	Individual	**210.96**
P499RAP101K	0.5 to 4.5 Vdc	0 to 100	Kit	**236.00**
P499RAP105K	0.5 to 4.5 Vdc	0 to 500	Kit	**236.00**
P499RAP107K	0.5 to 4.5 Vdc	0 to 750	Kit	**236.00**

PRESSURE TRANSDUCER 1/4" SAE

1/4" female flare connection with depressor

Johnson Controls

Part No.	Output Signal	Pressure Range	Description	Price
P499RCP101	0.5 to 4.5 Vdc	0 to 100	Individual	**216.72**
P499RCP105	0.5 to 4.5 Vdc	0 to 500	Individual	**216.72**
P499ACP107	4 to 20 mA	0 to 750	Individual	**216.72**
P499RCP101K	0.5 to 4.5 Vdc	0 to 100	Kit	**241.76**
P499RCP105K	0.5 to 4.5 Vdc	0 to 500	Kit	**241.76**
P499ACP105K	4 to 20 mA	0 to 500	Kit	**241.76**
P499ACP107K	4 to 20 mA	0 to 750	Kit	**241.76**
P499RCP107K	0.5 to 4.5 Vdc	0 to 750	Kit	**241.76**

WIRING HARNESS

Use WHAP with 499 pressure transducer.

Johnson Controls

Part No.	Length (In.)	Use With	Price
WHAPKD3200C	78	P399/P499 Transducer	**26.78**
WHAP399200C	78 1/2	P399/P499 Transducer	**26.74**
WHAP399400C	159	P399/P499 Transducer	**33.94**

ICM325HNC

TEMPERATURE RESPONSIVE

- Integral heat pump bypass circuitry allows electronic bypass of speed control during heat pump operation
- Features: Hard start, low temperature cutoff, high temperature bypass
- Controls up to 3 refrigerant circuits
- Varies motor speed
- Kit includes 70–100°F probe
- ICM325HNC requires 18-30Vac input, ICM326HNC, ICM327HNC have internal transforms; operate from controlled voltage
- Output current—Triac maximum: 10 amps
  minimum: 100 mA
- ICM32*HN* models are RoHS compliant (lead free)

ICM CONTROLS

Part No.	Controlled Voltage (Vac)	Price
ICM325HNC	120/208/240/480	**197.90**
ICM326HNC	120/208/240	**223.84**
ICM327HNC	480	**260.60**

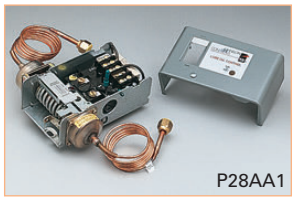
ICM379

SENSOR PROBE

ICM CONTROLS

Part No.	Temperature Range (°F)	Use With	Price
ICM376	70 to 100	ICM325K2	**50.66**
ICM379	70 to 100	ICM32*H Series	**49.06**

LUBE OIL


P28AA1

P128AA1

ELECTROMECHANICAL

The P28 series provides dependable shutdown on pressure of lubricated refrigeration compressors by sensing low lube oil pressure. A built-in time delay switch, accurately compensated for ambient temperature, allows for pressure pick up on start and avoids nuisance shutdowns on pressure drops of short duration during the running cycle.

- Heater circuit: 120/240 Vac
- Range: 8–70 psig

Johnson Controls

Part No.	Time Delay (Sec.)	Reset	Pressure Connection (In.)	Capillary Length (Ft.)	Price
P28AA1	90	Manual	1/4 F Flare	3	**417.44**
P128AA1	90	Manual	1/4 M Flare	None	**399.16**
P28AA2	60	Manual	1/4 F Flare	3	**417.44**
P128AA2	60	Manual	1/4 M Flare	None	**399.16**
P28AA17	120	Manual	1/4 F Flare	3	**417.44**
P128AA17	120	Manual	1/4 M Flare	None	**399.16**
P28AA18	45	Manual	1/4 F Flare	3	**417.44**
P28GA2	90	Automatic	1/4 F Flare	3	**429.72**
P28NA5[1]	120	Manual	1/4 F Flare	3	**430.96**
P28AN1[2]	90	Manual	1/4 F Flare	3	**683.70**

[1]Heater circuit 24 Vac [2]For ammonia service

ELECTROMECHANICAL, COPELAND, CARLYLE

P145NCA12

P45NCA12

The P45 control provides dependable, low lube oil pressure cut out for lubricated refrigeration compressors. The factory set pressure provides operation to the compressor manufacturer's specification. A built-in time delay relay, compensated for ambient temperature, allows for pressure pick-up on start and avoids nuisance shutdowns on short duration pressure losses during the running cycle.

- Max. bellows pressure: 425 psig
- Manual reset

Johnson Controls

Part No.	Time Delay (Sec.)	Heater Circuit	Factory Setting (Lbs.)	Pressure Connection (In.)	Capillary Length (Ft.)	Alarm Circuit	Usage	Price
P45NAA5	120	24 Vac	9.0	1/4 F Flare	3	No	—	**400.98**
P45NCA12	120	120/240 Vac	9.0	1/4 F Flare	3	No	Copeland	**373.60**
P145NCA12	120	120/240 Vac	9.0	1/4 M Flare	None	No	Copeland	**356.40**
P145NCB12	120	120/240 Vac	9.0	1/4 M Flare	None	Yes	Copeland	**386.10**
P45NCA82	45	120/240 Vac	6.5	1/4 F Flare	3	No	Carlyle	**373.60**
P145NCA82	45	120/240 Vac	6.5	1/4 M Flare	None	No	Carlyle	**356.40**
P145NCB82	45	120/240 Vac	6.5	1/4 M Flare	None	Yes	Carlyle	**386.10**

P545NCB82

ELECTRONIC, COPELAND, CARLYLE

The P545 Series electronic lube oil control is designed for use on refrigeration compressors equipped with an oil pump that accepts a single-point differential pressure transducer. The P545 senses net lube oil pressure and de-energizes the compressor if lube oil pressure falls below the manufacturer's recommendation for longer than the time delay. Front-mount LEDs indicate the status of the lubrication system and a user selectable time delay can be set to minimize compressor short cycling.

- P545 controls include pressure sensor and wiring harness
- P400 series sensors will adapt to either 300 or 400 series wire harness; test switch will not function with an older control

Johnson Controls

Part No.	Delay (Sec.)	Open (psid)	Application	Price
P545NCB22	120 sec	7.0±1.0	Copeland	**386.44**
P545NCB82	120 sec	12.75±0.75	Carlyle	**425.08**
P545NCB25	90 sec	10.0±1.5	Bitzer	**388.98**
	Description	**Open (psid)**	**Application**	
P400AD2C	Replacement Sensor	7.0±1.0	Copeland	**248.84**
P400AD1C	Replacement Sensor	12.75±0.75	Carlyle	**248.84**

LUBE OIL

ELECTROMECHANICAL

These lube oil protection controls guard pressure lubricated refrigeration compressors against major damage due to loss of oil pressure. If adequate oil pressure is lost, the built-in S30 time delay switch starts timing. If the oil pressure does not recover within the set period, the control circuit is opened, stopping the compressor.

The range is the difference between the crankcase pressure and the oil pump pressure that will energize the time delay switch and lead to shutdown. The difference in oil pressure needs to rise 7 psi above the range to de-energize the time delay switch and prevent eventual shutdown.

- Voltage: 120/240 Vac

Robertshaw

Part No.	Pressure Range (psig)	Time Delay (Sec.)	Capillary Connection (In.)	Price
P303701	8 to 60	90	36, 1/4 Female SAE	**368.56**
P305826	9, Fixed	120	36, 1/4 Female SAE	**361.48**

ELECTROMECHANICAL

Oil differential pressure controls are used as safety switches to protect refrigeration compressors against low lubricating oil pressure. If the oil pressure fails, the control will stop the compressor after a predetermined time period has elapsed.

- Simple manual trip, electrical test function eliminates need of tools and jumper wires
- Range: 29" to 170 psi, Δ p either factory set or adjustable
- 060B2012 includes normal compressor operation check light; goes off on time delay initiation
- Extremely narrow switch differential accuracy

ENGINEERING TOMORROW Danfoss

Part No.	Time Delay	Differential (psi)	Connection (In.)	Price
060B2002	90	9, fixed	1/4 M Flare	**293.18**
060B2003	120	9, fixed	1/4 M Flare	**293.18**
060B2008	45	6, fixed	1/4 M Flare	**293.18**
060B2012	60	4.3 to 64, adjustable	1/4 M Flare	**318.50**

WATER REGULATING, PRESSURE ACTUATED

The V46 is a pressure actuated, modulating valve that is suitable for use either on closed or open systems. Direct acting valves open on pressure increase. This type of valve is primarily used to regulate the flow of water or glycol to a water cooled condenser on a refrigeration system. Reverse acting valves open on pressure decrease and are generally used for bypass or heat pump application.

- Maximum water temperature: 170°F
- Maximum permissible pressure:
  - Water: 150 psig
  - Refrigerant: 230 psig (V46AS1 and V46AT1)
  - 320 psig (others)
- V46AS3C is for ammonia use only
- Do not use with R410A (See V246 series)

Johnson Controls

DIRECT ACTING, V46 SERIES

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Pressure Connection (In.)	Capillary Length (In.)	Price
V46AA1	FPT	3/8	70 to 260	1/4 F Flare	30	**257.18**
V46DA2	FPT	3/8	70 to 260	1/4 F Flare	30	**379.12**
V46AB1	FPT	1/2	70 to 260	1/4 F Flare	30	**279.24**
V46AC1	FPT	3/4	70 to 260	1/4 F Flare	30	**336.40**
V46AC3	FPT	3/4	70 to 260	1/4 F Flare	48	**337.00**
V46AD1	FPT	1	70 to 260	1/4 F Flare	30	**708.60**
V46AD13C	FPT	1	70 to 260	1/4 M Flare	None	**715.24**
V46AE1	FPT	1 1/4	70 to 260	1/4 F Flare	30	**826.74**
V46AR1	4 Hole, ASME Flange	1 1/2	70 to 260	1/4 F Flare	30	**1022.34**
V46AS1	4 Hole, ASME Flange	2	70 to 170	1/4 M Flare	None	**1471.30**
V46AS2	4 Hole, ASME Flange	2	160 to 260	1/4 M Flare	None	**1368.56**
V46AS3C	4 Hole, ASME Flange	2	100 to 200	1/4 FPT	None	**2361.12**
V46AT1	4 Hole, ASME Flange	2 1/2	70 to 170	1/4 M Flare	None	**2036.14**
V46AT2	4 Hole, ASME Flange	2 1/2	160 to 260	1/4 M Flare	None	**2036.14**

DIRECT ACTING, MARITIME, V46 SERIES

Cast naval bronze with monel interior.

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Pressure Connection (In.)	Capillary Length (In.)	Price
V46BB2	FPT	1/2	70 to 260	1/4 Sweat	30	1094.02
V46BC2	FPT	3/4	70 to 260	1/4 Sweat	30	719.08
V46BD2	FPT	1	70 to 260	1/4 Sweat	30	1194.00
V46BE2	FPT	1 1/4	70 to 260	1/4 Sweat	30	1415.94

REVERSE ACTING, V46 SERIES

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Pressure Connection (In.)	Capillary Length (In.)	Price
V46NB1	FPT	1/2	90 to 280	1/4 F Flare	30	309.18
V46NB2	FPT	1/2	40 to 100	1/4 F Flare	30	306.92
V46NC2	FPT	3/4	40 to 100	1/4 F Flare	30	349.60
V46ND2	FPT	1	40 to 100	1/4 F Flare	30	733.26

V48AD2

THREE-WAY

V48 Series valves are designed specifically for condensing units cooled either by atmospheric or forced draft cooling towers.

- Maximum water pressure: 150 psig

Part No.	Pipe Size (FPT In.)	Opening Point Range Normally Closed Side (psig)	Pressure Connection (In.)	Capillary Length (In.)	Max. Bellows Overpressure (psig)	Price
V48AB1C	1/2	85 to 110	1/4 F Flare	30	230	566.14
V48AB2C	1/2	145 to 190	1/4 F Flare	30	320	545.50
V48AC1	3/4	85 to 110	1/4 F Flare	30	230	608.82
V48AD2	1	145 to 190	1/4 F Flare	30	320	1164.28

V246 SERIES

The V246 2-way valves regulate water flow to control refrigerant head pressure in systems with water-cooled condensers. The V246 valves may be used with standard non-corrosive or ammonia refrigerants. For applications where the coolant may be corrosive to the internal parts

- Use with R410A refrigerant
- No close-fitting or sliding parts in water passages
- Accessible range spring
- Take-apart construction
- Pressure-balanced design
- Corrosion-resistant material for internal parts
- Maximum water temperature: 170°F
- Maximum permissible water pressure: 150 psig
- Pressure connection: 1/4 MFL

DIRECT ACTING, V246 SERIES, TWO-WAY

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Price
V246GA1001C	FPT	3/8	200 to 400	345.58
V246GB1001C	FPT	1/2	200 to 400	375.38
V246GC1001C	FPT	3/4	200 to 400	428.98
V246GD1001C	FPT	1	200 to 400	694.72
V246GE1001C	FPT	1 1/4	200 to 400	810.32
V246GM1001C	Union Sweat	1 1/4	200 to 400	720.94
V246GR1001C	Flange	1 1/2	200 to 400	1001.88

DIRECT ACTING, MARITIME, V246 SERIES, TWO-WAY

The maritime models have nickel copper (Monel®) internal parts.

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Price
V246HD1001C	FPT	1	200 to 400	1170.18
V246HE1001C	FPT	1 1/4	200 to 400	1429.98
V246HR1001C	ASME Flange	1 1/2	200 to 400	1975.74

WATER REGULATING, TEMPERATURE ACTUATED

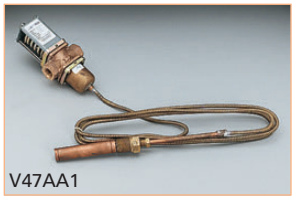
DIRECT ACTING, V248 SERIES, THREE-WAY

V248 Series 3-way valves are designed specifically for condensing units cooled either by atmospheric or foced draft cooling towers. The V248 valves are used on single or multiple condenser hook-ups to the tower to provide the most economical and efficient use of the tower.

- Use with R410A refrigerant
- Maximum water temperature: 170°F
- Maximum permissible water pressure: 150 psig
- Pressure connection: 1/4 MFL

Johnson Controls

Part No.	Connection Type	Pipe Size (In.)	Opening Point Range (psig)	Price
V248GD1001C	FPT	1	200 to 400	929.48
V248GE1001C	FPT	1 1/4	200 to 400	1083.20
V248GL1001C	Union Sweat	1 1/8	200 to 400	905.64
V248GM1001C	Union Sweat	1 3/8	200 to 400	1042.68


V47AA1

The V47 is a temperature actuated modulating valve that regulates the flow of water or glycol to maintain a desired temperature.

- Maximum bulb temperature: 20°F above range
- Maximum water temperature: 170°F
- Maximum water pressure: 150 psig
- Capillary: 6' nylon armor

Johnson Controls

Part No.	Pipe Size (In.)	Opening Point Range (°F)	Bulb Size (In.)	Price
V47AA1	3/8	115 to 180	11/16 x 3 1/4	670.14
V47AA3	3/8	75 to 135	11/16 x 6 Cross Ambient	684.04
V47AB3	1/2	115 to 180	11/16 x 3 1/4	713.52
V47AB5	1/2	75 to 135	11/16 x 10 Cross Ambient	727.50
V47AC3	3/4	115 to 180	11/16 x 3 1/4	764.20
V47AC6	3/4	75 to 135	11/16 x 10 Cross Ambient	776.98
V47AD1	1	75 to 135	11/16 x 16 1/4 Cross Ambient	1188.00
V47AD2C	1	115 to 180	11/16 x 6	1151.48
V47AE1C	1 1/4	75 to 135	11/16 x 16 1/4 Cross Ambient	1278.08
V47AE2C	1 1/4	115 to 180	11/16 x 6	1241.62
V47AE3C	1 1/4	160 to 230	11/16 x 6	1241.62
V47AR2	1 1/2	115 to 180	11/16 x 6	1449.30

DEFROST

804520

TIME

These timers are adjustable from one to six cycles per day. A minimum of four hours is required between successive operations. Defrost duration ranges from 4 to 110 minutes and is easily adjustable.

- Time initiation, time termination
- Contact rating: 40 amps resistive/pole

PARAGON Electrical Products

Part No.	Switch Type	Voltage (Vac)	Price
804100	2-NC/1-NO	120	171.90
804120	2-NC/1-NO	208/240	171.90
804500	SPDT	120	171.90
804520	SPDT	208/240	171.90
804700	2-NO/1-NC	120	171.90
804720	2-NO/1-NC	208/240	171.90

BTT4520

TIME

These timers are adjustable from one to six cycles per day. A minimum of four hours is required between successive operations. Defrost duration ranges from 4 to 110 minutes in 2 minute increments and is easily adjustable.

- Time initiation, time termination
- Contact rating: 40 amps resistive/pole

IRP International Refrigeration Products

Part No.	Switch Type	Voltage (Vac)	Price
BTT4100	2-NC/1-NO	120	142.56
BTT4120	2-NC/1-NO	208/240	142.56
BTT4500	SPDT	120	142.56
BTT4520	SPDT	208/240	142.56

824720

PRESSURE

The 8420 Series defrost control is time-initiated with termination being regulated over a wide range of pressure settings. Cut-in pressures range from 36 to 110 psi.

In addition to the pressure cut-in, the 8240 Series has backup mechanical defrost termination to protect against sensor failure. This timer allows settings from 4 to 110 minutes with two-minute increments. One to six defrost cycles may be set per day with a minimum of four hours between cycle initiation.

- Time initiation, temperature/pressure termination
- Contact rating: 40 amps resistive/pole

PARAGON Electrical Products

Part No.	Switch Type	Voltage (Vac)	Price
824500	SPDT	120	**710.98**
824520	SPDT	208/240	**717.02**
824720	2-NO/1-NC	208/240	**760.24**

814520

TEMPERATURE, PRESSURE

Backup mechanical defrost termination protects against sensor malfunction. 1 to 6 cycles per day. A minimum of 4 hours between successive defrost cycles. Adjustable from 4 to 110 minutes in 2 minute increments.

- Time initiation, temperature/pressure termination
- Contact rating: 40 amp resistive/pole

PARAGON Electrical Products

Part No.	Switch Type	Voltage (Vac)	Price
814100	2-NC/1-NO	120	**171.90**
814120	2-NC/1-NO	208/240	**171.90**
814300	2-NO/1-NC	120	**171.90**
814320	2-NO/1-NC	208/240	**171.90**
814500	SPDT	120	**171.90**
814520	SPDT	208/240	**171.90**
814520B[1]	SPDT	208/240	**171.84**

[1]Bracket mount

BTP4100

TEMPERATURE, PRESSURE

These timers are adjustable from one to six cycles per day. A minimum of four hours is required between successive operations. Defrost duration ranges from 4 to 110 minutes in 2 minute increments and is easily adjustable.

- Time initiation, temperature or pressure termination
- Contact rating: 40 amps resistive/pole

IRP International Refrigeration Products

Part No.	Switch Type	Voltage (Vac)	Price
BTP4100	2-NC/1-NO	120	**142.56**
BTP4120	2-NC/1-NO	208/240	**142.56**
BTP4500	SPDT	120	**142.56**
BTP4520	SPDT	208/240	**142.56**

TEMPERATURE, PRESSURE, 4 POLE

- Bracket mount control
- Contact rating: 55 amps resistive/pole
- Switch type: 3-NO/1-NC
- Voltage: 208/240 Vac
- Time initiation, temperature/pressure termination

PARAGON Electrical Products

Part No.	Control Type	Price
840820B	Time Initiated, Temperature or Pressure Terminated	**937.90**

914500

ELECTRONIC

- Real time clock.
- Initiate 15 minute manual defrost
- System status indicators
- 100 hours of power loss protection for both time and defrost schedule.
- Mechanism will fit in the standard Paragon enclosures; mechanism only versions are available
- Power comsumption: 6VA max
- Wires directly to 120V AC, 208V AC or 230V AC power sources without jumpers or switches
- Easy programming, easy set-up, set time, set defrost start and defrost end
- Display shows defrost start time and duration

PARAGON Electrical Products

Part No.	Description	Contact Ratings	Price
904500	Time Initiate/Time Terminate Defrost Timer with Metal Enclosure, SPST	30 amp (NC)	**251.06**
914500	Time Initiate/Temperature, Pressure Terminate Defrost Timer with Metal Enclosure, SPDT	15 amp (NC)/30 amp (NO) resistive	**241.40**

8145AV

AUTO VOLTAGE TIMER

This all-in-one auto voltage defrost timer replaces over 40 competitive voltage-specific mechanical defrost timers, eliminating the need for a separate short cycle timer and single-phase voltage monitor.

- Auto Voltage automatically adjusts for 120-277 VAC
- Compressor contacts 3HP
- Heater/Fan contacts 2HP
- LED indicators for defrost and refrigeration cycles
- Built-in permanent housing protects components from damage
- Mounts into existing closures, no tools required
- Real time clock face for easy accurate settings
- Defrost times programmable in 15-minute intervals with captive trippers
- Heavy-duty steel enclosure with knockouts (on the bottom, back and sides) and hasp
- Switch Rating: 40amp/3Hp/720VA/120-240VAC
- 8145AVM: mechanism only model

PARAGON Electrical Products

Part No.	Switch Type	Voltage (Vac)	Price
8145AV	2-NC/1-NO	120-240	**179.36**
8145AVM[1]	2-NC/1-NO	120-240	**166.68**

[1] Mechanism Only Model

DEFROST

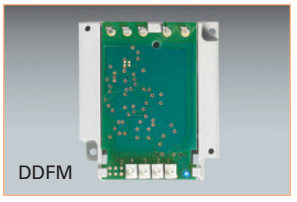
DTAV SERIES, AUTO-VOLTAGE

The DTAV40 defrost control automatically selects the appropriate voltage between 120VAC and 240VAC without the use of a dip switch/selector pins.

- Reduce installation time
- Heavy-duty 40 Amp mechanical control
- 40 Amp resistive, 120-240 VAC
- 1 HP @ 120 VAC, 2 HP @ 240 VAC
- Operation temp: -40° to 104°F
- 24-hour analog, captive trippers, 15 minute switching intervals
- Electrical Life: 50,000 Operations at full load

INTERMATIC

Part No.	Description	Enclosure	Price
DTAV40	40 Amp Auto Volt Defrost Control w/ Outdoor Enclosure	NEMA 3R Raintight Plastic	219.38
DTAV40M	40 Amp Auto Volt Defrost Control, Mechanism Only	None	200.98
DTAV40Q	40 Amp Auto Volt Defrost Control, Quartz, 7 Day Carryover	NEMA 3R Raintight Plastic	275.74



ICUBE™ ADAPTIVE DEFROST MODULE

Whether you are installing a total time clock replacement or looking for a fast retrofit, the ICUBE™ Module is an easy-to-integrate, low-cost solution for commercial refrigeration systems found in all types of food-service facilities.

- Assembles directly into existing DTAV40 Time Initiated, Temperature, Pressure or Time Terminated Defrost Timers.
- Demand defrost: only defrosts evaporator coils when necessary.
- Kit includes one temperature sensor and new faceplate.
- LED indicator conveys status and fault conditions, including efficiency mode and probe fault.
- Maintains the timer's scheduling to reduce frequent defrost initiations during high usage times.
- Four sensor inputs accommodate up to four evaporators or multiple sensor locations for larger coils.
- Simply install the module right underneath the existing DTAV40 FM-Timer Module and run the sensing wire from the ICUBE™ Module inputs to the evaporator coils (sensor wire runs through existing conduit); there's no need to change any other wiring in the system.
- Use DDT40 for new installations (this part already has the ICUBE™ module built-in).

INTERMATIC

Part No.	Description	Price
DDFM	ICUBE™ Adaptive Defrost Refrigeration Module with Sensor	285.86
DDT40	Adaptive Defrost Refrigeration Time Control with ICUBE™ Module, Sensor, and Type 3R Enclosure	508.48

ERC2 SERIES

The ERC-2 is a microprocessor-based controller designed to manage all of the temperature and defrost functions in a typical piece of commercial refrigeration equipment. By integrating these functions into one device, the ERC-2 can replace up to five different controls; the case thermostat, defrost timer, defrost termination switch, fan delay switch, and thermometer.

The ERC-2 includes two NSF approved temperature sensors for the case and the evaporator. Also featured are four powerful relay outputs; one each for the compressor, fan, defrost and alarm. Selectable line voltage input power (120/208/240VAC at 50/60Hz) enable it to handle a wide range of equipment.

- Sensors may be extended to 100' with 18-22 gauge wire
- Temperature Setpoint: -40°F to +60°F
- Defrost Cycles: 1 to 8 per day or 1 every 48 hours
- Contact Rating: 16A Resistive (5A resistive alarm circuit)
- Case Dimensions: 4.40" W x 7.82" H x 3.80" D
- Display Module Dimensions: 2.75" W x 1.10" H x 1.38" D
- Agency Approvals: UL, NSF

PARAGON Electrical Products

Part No.	Description	Price
ERC2212111	Universal Control, Integrated Display	485.32
ERC2222111	Universal Control, Remote Display	490.24
1309007045	NTC Sensor, 120"	38.38

SENSOR, ERC2 SERIES

Sensor may be extended to 100' with 18-22 gauge wire

PARAGON Electrical Products

Part No.	Description	Price
1309007045	NTC Sensor, 120"	38.38

To view the most current

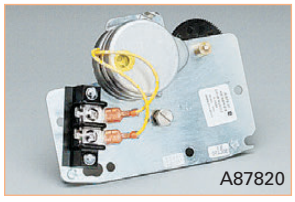
PARAGON Electrical Products

information

please check www.uri.com

MULTI-CIRCUIT

A complete defrost program timer composed of just three basic components: frame, drive motor, and program modules. The drive motor module slides on to the end of the frame and is securely locked by a single captive hex bolt. Individual program modules slip into the frame and are secured by a spring-loaded clip bar.
In the field any drive module or program module can be removed and replaced without disassembling the timer or disturbing program settings. Each program module has a 24-hour dial with time-of-day indication for initiation programming and a 2-hour dial for defrost duration control. Up to 12 operations per day are possible. The duration of defrost or the duration of backup defrost termination is 6 to 106 minutes.
Integral solenoid termination permits termination of defrost upon closure of an external pilot device, such as a thermostat or pressure switch.
- Up to 24 program modules can be driven by one motor

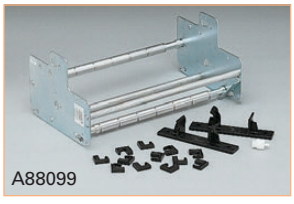

A87820

DRIVE MODULE

- Used with A87999 or A88099 frame modules and A876**, A877** circuit modules

PARAGON Electrical Products

Part No.	Voltage (Vac)	Price
A87800	120	**249.50**
A87820	208/240	**256.80**

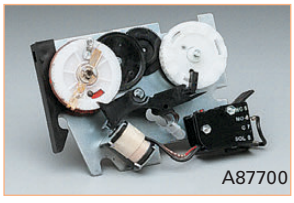

A88099

FRAME MODULE

Used with A87800 or A87820 drive module and A876** or A877** circuit modules.

PARAGON Electrical Products

Part No.	Module Capacity	Price
A87999	4	**280.26**
A88099	8	**334.76**


A87700

PROGRAM MODULE

- Solenoid modules for temperature or pressure termination with remote switch
- Used with A87800 or A87820 drive modules and A87999 or A88099 frame modules

PARAGON Electrical Products

Part No.	Frequency	Solenoid	Voltage	Price
A87699	Even Hour	No	—	**273.54**
B87699	Even 1/2 Hour	No	—	**273.54**
D87699	Odd Hour	No	—	**273.54**
E87699	Odd 1/2 Hour	No	—	**273.54**
A87700	Even Hour	Yes	120	**318.14**
B87700	Even 1/2 Hour	Yes	120	**318.14**
D87700	Odd Hour	Yes	120	**318.14**
E87700	Odd 1/2 Hour	Yes	120	**318.14**
A87720	Even Hour	Yes	208/240	**334.40**
B87720	Even 1/2 Hour	Yes	208/240	**334.40**
D87720	Odd Hour	Yes	208/240	**334.40**
E87720	Odd 1/2 Hour	Yes	208/240	**334.40**

DEFROST, FAN DELAY

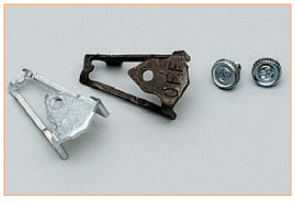
63220

24-hour timer with pump down, drain, or fan delay cycle.
- Defrost initiation: Adjustable from 1–8 cycles per day; minimum 3 hours between successive cycles
- Delay or pump down cycle: Adjustable for 0–30 minutes; 3 minute graduation; for stopping fans, reducing refrigerant pressure, or hot gas pump down cycle
- Defrost cycle: 3–45 minutes; 3 minute graduation
- Drain or fan delay cycle: Adjustable from 3–15 minutes; 3 minute graduation
- Contact rating: 10 amps resistive/pole

PARAGON Electrical Products

Part No.	Switch Type	Supply Voltage (Vac)	Price
63200	2-NO/2-NC	120	**660.24**
63220	2-NO/2-NC	208/240	**673.58**

ELECTROMECHANICAL



TRIPPERS

For Paragon timers.

PARAGON Electrical Products

Part No.	Usage	Price
X3596	632, 8000 Series Dial Pins (5)	**8.10**
X7248	RM Trippers	**20.26**

7 DAY, GRASSLIN

- Different ON/OFF program each day of the week.
- True 7-day load control with minimum ON and minimum OFF times of 3 1/2 hours.
- Steel case: 12 1/2" H x 8 1/4" W x 4" D. Indoor type with toggle action drawbolt and locking feature.
- Knockouts - Combination 1/2"-3/4" nominal knockouts, two on back, one on each side and two on bottom. Also one 1" nominal on bottom center.
- Switch Rating - Each Pole 40 amp resistive, 120-480 VAC; 40 amp tungsten, inductive or 1000 VA pilot duty, 120-277 VAC; 2 HP (24 FLA) 120 VAC; 5 HP (28 FLA) 240 VAC single phase; 7-1/2 HP (28 FLA) 208 VAC three phase; 10 HP (28 FLA) 240 VAC three phase.

INTERMATIC

Part No.	Switch	Voltage	Contact Rating (Amps)	Price
T7401B	4PST	125	40	**378.64**
T7402B	4PST	208-277	40	**394.76**
T7801B	2NO/2NC	125	40	**378.64**
T7802B	2NO/2NC	208-277	40	**394.76**

ELECTROMECHANICAL

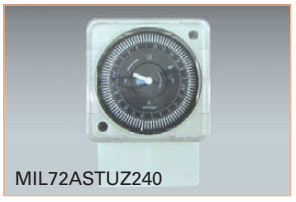
FM/1 STUZ, GRASSLIN

The FM/1 series modules are designed to be placed inside a machine control panel, circuit board, or other equipment. It offers up to 21A switching designed for control of heating, ventilating, air conditioning, refrigeration, lighting, security, circulating pumps, spas or any electrical load requiring 24-hour scheduling.

- Size: 2.36" x 2.36" x 1.25"

INTERMATIC

Part No.	Voltage	Price
STUZ24	24	90.02
STUZ120	120	88.02
STUZ220	240	90.02



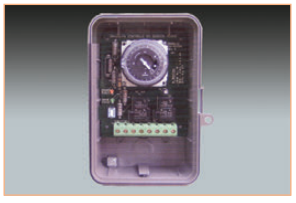
MIL72ASTUZ, GRASSLIN

Time based control of lighting, ventilating, heating, cooling or other electrical loads in commercial and industrial applications. The MIL72 time switches are available with a 24-hour (STuZ) or 7-day (SWuZ) program dial with a SPDT switch. Intended for surface mounting. The control is completely enclosed in a plastic housing and includes a terminal cover and sub-base for installation and hard wiring. Supplied with a clear plastic cover.

- Synchronous drive
- Captive trippers with interval as low as 15 minutes
- 21A SPDT switch
- Dimensions: 2.83" x 4.0" x 2.06"

INTERMATIC

Part No.	Voltage	Price
MIL72ASTUZ24	24	117.70
MIL72ASTUZ120	120	113.18
MIL72ASTUZ240	240	117.70

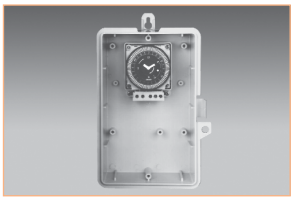


GM40, GRASSLIN

A universal, electromechanical clock which can automatically detect the voltage input without the use of dip switch or selector pins. The clock can operate at any voltage between 120 and 277 VAC. It selects input voltage automatically.

INTERMATIC

Part No.	Description	Price
GM40AV	24 Hour, 40A, DPDT/SPDT, Auto-Voltage	154.20



GMX, GRASSLIN

These Time Controls are universal, electromechanical time switches. They are a low cost alternative for applications that do not require more than 21A or 2HP @ 240VAC. The unit is mounted in a NEMA indoor or outdoor enclosure and is designed to control lighting, heating, air conditioning, pumps, motors, or other general purpose electrical circuits in residential, commercial, industrial and agricultural facilities.

- Contact Rating: SPDT, 21A Resistive @ 250VAC
- Voltage: 120 Vac

INTERMATIC

Part No.	Description	Price
GMXST1120	Economy, 24 Hour	132.98

FM1D, GRASSLIN

The FM1D Series Timers are compact electronic 24 hour/7 day time switch module with heavy duty relay contacts for switching low or line voltage loads. Applicable for time of day control of pumps, fans, heaters, HVAC control circuits, lighting, machinery and many other types of commercial, industrial, and agricultural equipment.

The FM1D Series features large keys with unique "circular pattern" for easy programming, an easy-to-read LCD display and capacitor backup to retain program memory during power outages.

- 8 FLA Amps @240 Vac
- Surface / din rail mount

INTERMATIC

Part No.	Voltage	Nb of Set Points	Price
FM1D20A120	120 Vac	20, Up to 140 Events/Week	275.54
FM1D50A12	12 Vac/DC	50, Up to 350 Events/Week	325.70
FM1D50A24	24 Vac	50, Up to 350 Events/Week	325.70

PERCENTAGE, SURFACE MOUNT

- Cycling pattern from 3% to 97% of total cycle duration
- Sealed enclosure handles dusty, ammonia rich or wash-down environments
- LED indicators provide constant operation feedback
- Manual On or Off override allows users to bypass cycling pattern when required
- Total cycle durations can be set from 30 seconds up to a maximum of 30 minutes, with ON/OFF durations from 1 second up to 29 minutes.
- Power input may be any standard 120 volt or 240 volt AC supply.
- Switch type: SPST
- Resiste amps: 20 amps
- Operating Temperature: 14 to 140°F

INTERMATIC

Part No.	Time Range	Price
CT2000	30 seconds, 1, 3, 5, 10, 30 minutes, 1, 4 hours	268.20

MECHANICAL

SPRING WOUND TERMINAL

These energy saving commercial timers use no electricity to operate. These timers are designed to replace any standard wall switch, single or multi-gang, and automatically limit the "ON" time of fans, lights, motors, heaters and other energy consuming loads. Time limits of 5, 15, 30 and 60 minutes and 2, 4, 6 and 12 hours are available. The "hold feature" allows the user to override the automatic shut-off function for extended use of the load as required. Rugged time-dial plate takes the abuse encountered in commercial environments. Time saving "up front" terminal connection with teeter type terminals and an easy "press-on" knob design ensure quick and easy installation.

Switch Rating:

Inductive: 20 Amp, 125 VAC, 50/60 Hz;
10 Amp, 250 VAC, 50/60 Hz;
10 Amp, 277 VAC, 50/60 Hz
Tungsten: 7 Amp 125 VAC
Motor: 1 HP 125 VAC 50/60 Hz; 2 HP 250 VAC 50/60Hz

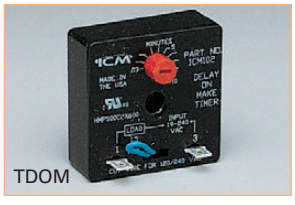
Caution:

Do not use for sunlamps, sauna, etc...

INTERMATIC

Part No.	Switch	Time Range	Comment	Price
FF15MC	SPST	0 to 15 Minutes	No Hold	**55.36**
FF4H	SPST	0 to 4 Hours	No Hold	**72.50**
FF6H	SPST	0 to 6 Hours	No Hold	**71.10**
FF6HH	SPST	0 to 6 Hours	Hold	**71.10**
FF12HC	SPST	0 to 12 Hours	No Hold	**72.50**
FF315M	SPDT	0 to 15 Minutes	No Hold	**93.08**
FF312HH	SPDT	0 to 12 Hours	Hold	**109.78**

DELAY TIMER



TDOM

"DELAY ON MAKE"

General purpose "delay on make" timing function. Ideal for compressor staging and stagger-starting multiple units. Helps to reduce power surges in multiple compressor applications.

When power is applied to the input, the time delay begins. After the time delay is complete, the load energizes and remains energized as long as power is applied. The control is reset by removing power during or after the time delay period.

- Voltage: 18–240 Vac/Vdc
- Switch type: SPST, normally open

IRP International Refrigeration Products

Part No.	Adjustment Type	Delay Time (Sec.)	Price
TDOM	Dial	2–600	**11.30**
ICM103B	Dip-Switch	1–1023	**26.60**

"DELAY ON BREAK"

Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short-cycling of compressors.

Upon application of power, the load is energized. When the thermostat or other switch opens or there is a loss of power, the load is de-energized and the delay period begins. The compressor will not start again during the delay period.

- Anti short-cycle
- Off delay on break
- Contact rating: 1.5 amps

IRP International Refrigeration Products

Part No.	Input Voltage (Vac)	Adjustment Type	Delay Time (Sec.)	Price
TDOB	18–240	Dial	2–600	**11.32**

32391

UNIVERSAL

- Model 32391 is the most popular timer in the industry
- Maximum amps: 1 (6 for 32397)

mars

Part No.	Type Delay	Delay Time	Adjustment Type	Input (Vac)	Price
32391	On Make	6 Sec.-8 Min.	Dial	19-240	**25.84**
32397	On Make	1–1000 Sec.	Dial	24	**104.24**

UNIVERSAL, DIPSWITCH

- 1 second dipswitch
- Delay on make
- Delay 1-1023 seconds
- Fine adjustment

mars

Part No.	Input (Vac)	Max. Amps	Price
32394	19-144	1	**107.10**

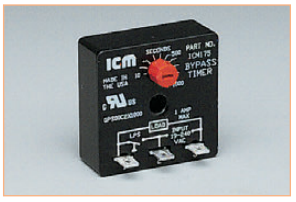
BYPASS

An adjustable, multi-voltage bypass timer that allows the temporary bypass of a control or device during start-up. At the end of the delay period the control is returned to the circuit.

mars

Part No.	Delay Time	Adjustment Type	Input (Vac)	Max. Amps	Price
32395	6 Sec.-8 Min.	Dial	19-240	1	**39.64**

DELAY TIMER



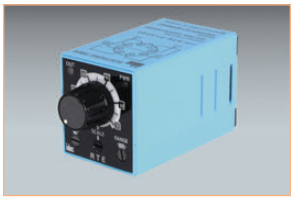
BYPASS

Designed to bypass a control or device during startup. Typically used to bypass a low pressure switch or an oil pressure switch upon startup. Helps to eliminate nuisance lockouts.

With power applied to the input, the load energizes immediately and remains energized for the length of the time delay, regardless of the state of the switch being bypassed. At the end of the time delay, the condition of the load is determined by the state of that switch.

- On delay interval timer
- Normally closed "delay on make"
- Ideal for low ambient startups
- Integral component for "winter start" kits
- Contact rating: 1 amp

Part No.	Input Voltage (Vac)	Adjustment Type	Delay Time (Sec.)	Price
ICM175B	18–240	Dial	10–1000	23.90

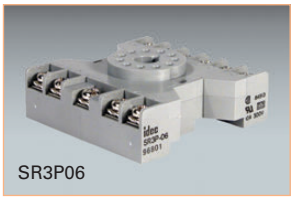


MULTI FUNCTION TIMER, PLUG IN

- 20 time ranges and 10 timing functions
- Time delays up to 600 hours
- P1A timing function: Cycle 2 (power start, ON first) - Cycle 1(power start, OFF first) - Interval 1 (power start) - On Delay 1 (power start)
- P2A timing function: Cycle Mode (signal start, ON First) - On Delay 2 (signal start) - Signal Off Delay 1 (signal start) - Signal On/Off Delay 1 (signal start) - Cycle 2 (signal start) - One Shot 2 (signal start)
- High repeat accuracy of ±0.2%
- ON and timing OUT LED indicators
- 2 form C delayed output contacts
- 10A Contact rating

Part No.	Input Voltage	Timer Type	Terminal Type	Price
RTEP1AD24	24 Vac/Vdc	Power On Trigger (Maintained Start Signal)	8 Pin Plug-In	130.00
RTEP1AF20	120-240 Vac	Power On Trigger (Maintained Start Signal)	8 Pin Plug-In	130.00
RTEP2AD24	24 Vac/Vdc	Dry Contact Trigger (Momentary Start Signal)	11 Pin Plug-In	130.00
RTEP2AF20	120-240 Vac	Dry Contact Trigger (Momentary Start Signal)	11 Pin Plug-In	140.00

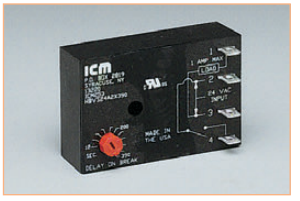
RELAY, SWITCHING



SOCKET DIN MOUNT SCREW TYPE

- SPDT, DPDT, or 3PDT pure silver contacts
- Worldwide approvals on octal (8-pin and 11-pin) models: UL, CSA, TUV, CE
- Options include check button for test operation and indicator light

Part No.	Description	Price
SR2P06	Socket for 8 Pin Timers (RTEP, RR1PA, RR2P, GE1A, GT5P, GT3)	12.00
SR3P06	Socket for 11 Pin Timers (RTEP, RR3PA, GT3)	16.00



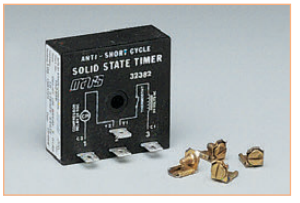
POST PURGE

Controls the circulating fan in heat pump, air conditioning and forced air systems. Off delay timing function continues to run the fan at the end of the heating/cooling cycle.

A one second interrogation delay is provided to avoid nuisance trips due to thermostat bounce or tampering.

- Contact rating: 1 amp

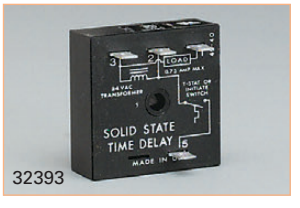
Part No.	Input Voltage (Vac)	Adjustment Type	Delay Time (Sec.)	Price
ICM253	18–30	Dial	12–390	33.80



SHORT CYCLE WITH BROWNOUT

- Lockout delay prevents rapid cycling of compensated resistor type wall thermostats
- Brownout protection prevents startup when voltage is below normal conditions
- Delay on break

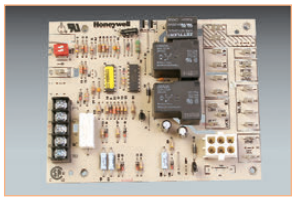
Part No.	Time Delay (Min.)	Input Voltage	Max. Amps	Price
32382	5	24	1	60.62



FAN DELAY/POST PURGE

32377, 32378 and 32379 will perform either on-delay or off-delay functions. On-delay is especially useful for controlling unloader valves. Off-delay can be used for fan off-delay, pump down systems or post purge applications.The off-delay may also serve an anti-bounce function as a pump flutter bypass switch.

Part No.	Type Delay	Delay Time	Adjustment Type	Input (Vac)	Max. Amps	Price
32377	Off/Interval	6 Sec.-10 Min.	Dial	24	6	101.66
32379	Off/Interval	6 Sec.-10 Min.	Dial	240	10	161.56
32393	Off	2 Min.	Fixed	24	1	39.64



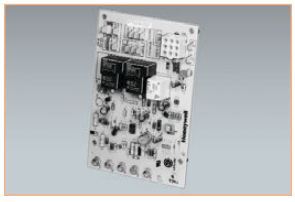
ELECTRIC FAN TIMER

Integrate control of combustion blower and circulating fan operations in a gas warm air appliance. A single circuit board providing combustion air blower control, two speed circulating air blower control, limit circuit inputs, thermostat wiring terminations.

- Central appliance wiring point simplifies appliance assembly and service.
- Fixed or field-adjustable heat fan on delay; field adjustable heat fan off delay

Honeywell

Part No.	Description	Price
ST9120U1011	Furnace Timer, Adjustable Settings, Universal	284.06



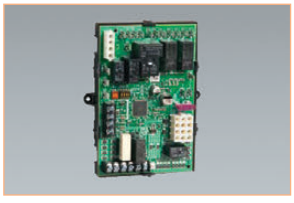
ELECTRONIC FAN TIMER, OIL

Integrate control of combustion burner and circulating fan operations in an oil furnace. A single circuit board providing combustion air blower control, two speed circulating air blower control, oil primary control, limit circuit inputs, thermostat wiring terminations and a central appliance wiring point for an oil fixed furnace

- Central appliance wiring point simplifies appliance assembly and service.
- Fixed or field-adjustable heat fan on delay; field adjustable heat fan off delay

Honeywell

Part No.	Description	Price
ST9103A1002	Furnace Timer, Adjustable Off Delay	229.14



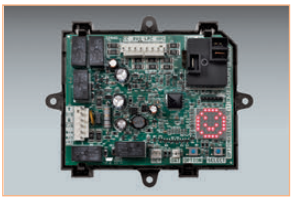
UNIVERSAL INTEGRATED FURNACE TIMER

Can be used with conventional thermostats as well as the EnviraCOM™ enabled VisionPRO IAQ and FocusPRO. The S9200U1000 Universal Integrated Furnace Control is intended for residential natural or liquid propane fueled furnaces only. The S9200U1000 EnviraCOM™ communications capability allows its use in twinning applications and enables communication with local and remote diagnostic devices such as the QuickLook hand held device (QuickLook™ 72), EnviraLNK® web-based application and the W8735D Telephone Access Module (TAM).

- Main burner ignition using a 120V hot surface igniter.
- Flame rectification circuit to monitor flame presence.
- Monitoring of system pressure switch, high temperature limit, and rollout functions.

Honeywell

Part No.	Description	Price
S9200U1000	Universal Hot Surface Ignition Integrated Furnace Control	255.26



HEAT PUMP DEFROST, UNIVERSAL

Introducing the industry's first universal heat pump defrost control, replaces virtually all single stage defrost controls.

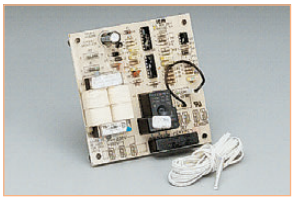
- Selectable demand or timed defrost
- O or B reversing valve with shift delay
- Configures to any system
- Universal mounting with rotating display
- One-button configuration to any OEM system
- Access set up and diagnostic menus from any orientation
- Auxiliary heat lockout
- Compressor lockout
- Reversing valve shift delay: selectable 0, 12 or 30 second delay
- Short-cycle protection: 0, 3 or 5 minute selectable delay between cycles to extend the life of the compressor
- Control voltage: 24 VAC 50/60 Hz
- Line voltage: 208/240 VAC 50/60 Hz
- Operating temperature range: -40° to 150°F
- Humidity range: 0-95% relative humidity, non-condensing
- Dimensions: 5.75"W x 4.72"L

Includes

- 47D01U843 Universal defrost control with plastic mounting tray
- Thermostat harnesses
- Harness #2: used to connect reversing valve, contactor, low and high pressure switches
- New Thermistors: used to measure coil temperature and air temperature
- 2 mounting screws, wire ties, wire nuts and labels

White-Rodgers

Part No.	Description	Price
47D01U843	Universal Heat Pump Defrost Control	196.28



HEAT PUMP DEFROST, E15 TYPE

- Solid state replacement for Ranco type E-15
- Reliable thermistor-type sensor is less susceptible to breakage, easier to mount
- Replaces faulty bulb-type sensors
- 24, 120 or 240 Vac operation
- 10 minute defrost interval
- Pin-selectable interval time (30/45/90)

ICM CONTROLS

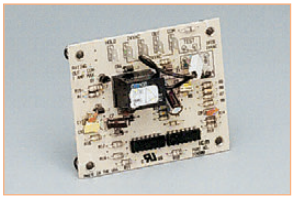
Part No.	Description	Price
ICM315	Ranco E15 Type Board	154.00

DELAY TIMER

ICM319

OEM HEAT PUMP DEFROST

Part No.	OEM, Part Number	Price
ICM316	Trane, CNT1642, CNT1152	134.90
ICM319	Nordyne, 624519A	85.96
ICM320	Carrier, HK32FA006	119.30
ICM321	Carrier, CES01130063-00	92.40

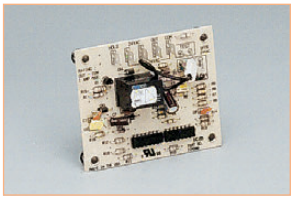


HEAT PUMP DEFROST 621 TYPE

Low voltage time/temperature defrost controller for heat pumps.

- Replaces most time/temperature 621 type controls

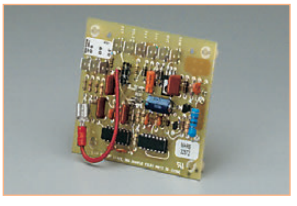
Part No.	Off Time (Min.)	On Time	Price
ST74A1053	50/70/90	10 Fixed	104.00



HEAT PUMP DEFROST 621 TYPE

- Direct replacement for OEM Type 621
- Time/temperature defrost
- 24 Vac operation (18–30 Vac)
- 10 minute defrost interval
- Pin-selectable interval time (30/60/90)
- Replaces Arcoaire part number 1052757

Part No.	Description	Price
ICM300	Time Temperature Defrost Board	44.90



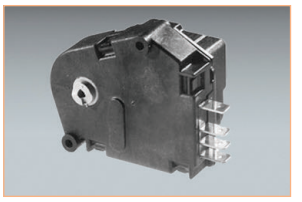
HEAT PUMP DEFROST 621 TYPE

Replacement for OEM Type 621 control. Pin selectable defrost interval.

- Time/temperature termination
- 50/60 Hz

Part No.	Defrost Interval (Min.)	Defrost Duration (Min.)	Voltage	Price
32572	30, 60, 90	10, Fixed	18–31	61.26

DOMESTIC



DEFROST TIMER, HEAVY DUTY

These heavy duty 15 amp Paragon timers are being used by the O.E.M. manufacturers today. They will replace both the older classic design timers and the new O.E.M. versions.

Part No.	Defrost Frequency (Hours)	Defrost Time (Minutes)	Price
A140000	6	21	27.08

EDT10

UNIVERSAL, RESIDENTIAL

The "EDT" has a two dial adjustment configuration that allows for the setting of any defrost frequency from 4 to 12 hours and any defrost time from 10 to 35 minutes.

Part No.	Voltage (Vac)	Max. Compressor Rating (H.P.)	Max. Resistive Lead (Amps)	Price
EDT10	120	1/3	10	49.34
EDT20	208/240	1/3	5	59.34
EDT11	120	3/4	20	49.84
EDT21	208/240	3/4	20	62.66

ELECTRONIC TEMPERATURE

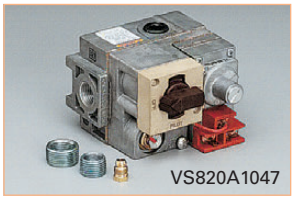
DEFROST/TEMPERATURE

The MR Series temperature controls are designed for hot gas or electric heat defrost in both refrigeration and freezer units. Either time or temperature based defrost termination may be selected. The MR Series incorporates control functions such as compressor control, defrost management, fan management, and alarm management.

- Time initiation, time, temperature termination
- Combined functionality of an electromechanical thermostat, mechanical clock, defrost termination device, and temperature readout device
- 2 sensors included: 6' leads
- Contact rating: (compressor, heater relays), 12 F.L. Amp @ 240 Vac
- Temperature/defrost

Part No.	Description	Price
MR4PMUHV12C	Electronic Refrigeration Control	647.22

VALVE, COMBINATION

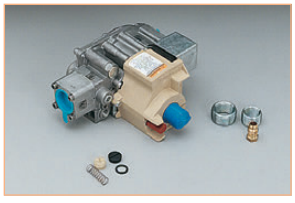

VS820A1047

CONTINUOUS PILOT

Provides complete control of continuous pilot gas-fired central furnaces and boilers.
- Includes pilot flow adjustment screw
- Easy to install, adjust and service
- Includes reducer bushings to adapt line size

Honeywell

Part No.	Application	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Price
V400A1095	120V, Use with 30mV Thermocouple	3/4	3/4	335	Natural	**1005.96**
V800A1070	24V, Use with 30mV Thermocouple	1/2	3/4	250	Natural	**493.66**
V800A1088	24V, Use with 30mV Thermocouple	3/4	3/4	335	Natural	**475.70**
V800A1476	24V, Use with 30mV Thermocouple	1/2	3/4	250	Natural	**474.66**
VS820A1047	Self Powered, Use with 750mV Thermopile	1/2	3/4	250	Natural	**635.64**
VS820A1054	Self Powered, Use with 750mV Thermopile	3/4	3/4	335	Natural	**635.64**



CONTINUOUS PILOT, LINE VOLTAGE

Combination gas control for use in 120 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.
- Control includes safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends. Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Standard regulator
- Combination dual automatic valve
- Power: 120 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Includes	Price
VR4300A4502	3/4	3/4	200	Natural	LP Conversion Kit	**466.30**

VR8200A2124

CONTINUOUS PILOT, LOW VOLTAGE, VR8200 SERIES

Combination gas controls for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 20 to 200 cfh.
- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment
- Includes reducer bushings
- Combination dual automatic valve
- Power: 24 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Includes	Price
VR8200A2124	1/2	1/2	130	Natural	Standard	LP Conversion Kit Thermocouple (36")	**219.04**
VR8200A2132	1/2	1/2	130	Natural	Standard	LP Conversion Kit	**202.62**
VR8200H1251	1/2	1/2	M130	Natural	Slow Open	LP Conversion Kit	**251.36**

VR8300A4508

CONTINUOUS PILOT, LOW VOLTAGE, VR8300 SERIES

Combination gas controls for use in 24 Vac, gas-fired, standing pilot appliances with capacities from 30 to 300 cfh.
- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment
- Combination dual automatic valve
- Includes reducer bushings
- Power: 24 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Conversion Kit Supplied	Price
VR8300A3500	1/2	3/4	190	Natural	Standard	Yes	**237.48**
VR8300A3518[1]	1/2	3/4	190	Natural	Standard	Yes	**255.04**
VR8300A4508	3/4	3/4	200	Natural	Standard	Yes	**254.62**
VR8300A4516[1]	3/4	3/4	200	Natural	Standard	Yes	**284.54**
VR8300C4506	3/4	3/4	200	Natural	Step Open	—	**418.48**

[1]Includes 36" thermocouple, ECO adapter

VALVE, COMBINATION

CONTINUOUS PILOT, SLOW OPENING

Model 36C53 complete gas control combines into a single compact package that functions as a 3-position gas cock, pressure regulator, 100% shut-off automated pilot and main operator. This model features a slow opening main valve that provides a softer ignition.

- Usage: natural gas – regulator setting 3.5" WC
- Order LP conversion set separately
- ECO terminal included

White-Rodgers

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity AGA (BTUH)	Coil Voltage (Vac.)	Price
36C53418	3/4	3/4	280,000	24	**463.64**

CONTINUOUS PILOT

Ideal for general purpose replacement, these 36C combination gas valves are furnished with natural to LP conversion kit, reducer bushings and self-adhesive label with pilot lighting instructions.

- Reducer bushings provided
- Valve may be mounted in any position, except upside down
- Both main valve seat and line-interrupter seal with line pressure, assuring positive gas seal-off
- Natural gas

White-Rodgers

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity AGA (BTUH)	Voltage (Vac)	LP Conversion Kit	Side Taps	Price
36C03300	1/2	3/4	230,000	24	No	No	**196.08**
36C03333	1/2	3/4	230,000	24	Yes	Yes	**209.24**
36C03400	3/4	3/4	280,000	24	No	No	**220.38**
36C03433	3/4	3/4	280,000	24	Yes	Yes	**265.00**
36C03U333	1/2	3/4	230,000	750mV	Yes	Yes	**305.64**
36C03U433	3/4	3/4	280,000	750mV	Yes	Yes	**344.36**

CONTINUOUS PILOT, MANUAL, LOW VOLTAGE

These valves feature a manual valve (gas cock), an automatic pilot safety valve, inlet/outlet screens, pilot outlet, pilot gas filter and pilot adjustment key. The automatic pilot safety valve is separate from the gas cock and provides gas shutoff in case of pilot outage.

The 700 Series 24 volt Uni-Kits® have a pressure regulator installed that is set for natural gas (3.5" W.C.).

To convert to L.P. gas, a regulator cover plate is included. Simply remove pressure regulator and install the regular cover plate.

Note: Valves can be mounted in any position except upside down.

- Reducer bushings included

Robertshaw

Part No.	Size (FPT In.) Inlet	Size (FPT In.) Outlet	Side	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700400	1/2	3/4	Straight-Thru	Uni-Kit	240,000	**180.74**
700406	3/4	3/4	Straight-Thru	Uni-Kit	300,000	**211.32**
700426[1]	3/4	3/4	Straight-Thru	3.5, Natural	300,000	**560.96**
700442[1]	1	1	Straight-Thru	3.5, Natural	600,000	**744.40**

[1]Slow opening feature for soft ignition

CONTINUOUS PILOT, LINE VOLTAGE

The 700 line voltage combination gas controls are available in 120 Vac models. These controls combine into one compact valve: a manual gas cock, automatic pilot safety valve and a silent line voltage operator. Regulated and nonregulated models are available. Standard features include: pilot outlet, pilot gas filter and pilot adjusting key. The automatic pilot valve is separate from the gas cock and provides gas shutoff in case of pilot outage.

Note: Valves can be mounted in any position except upside down.

Robertshaw

Part No.	Size (FPT In.) Inlet	Size (FPT In.) Outlet	Side	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700452	1/2	3/4	1/2	3.5, Natural	240,000	**335.88**
700454	3/4	3/4	Straight-Thru	3.5, Natural	300,000	**327.82**
700456[1,2]	1	1	Straight-Thru	3.5, Natural	600,000	**1032.04**

[1]Separate pressure regulator may be required. [2]Slow opening feature for soft ignition.

CONTINUOUS PILOT, DIAPHRAGM VALVE

Diaphragm/solenoid valves are single function, diaphragm types and are excellent replacements for solenoid gas valves. Standard features include: pilot outlet, pilot gas filter and pilot adjustment key.

Note: Valves can be mounted in any position except upside down.
These valves do not have a safety magnet.

- Power supply: 24 Vac

Part No.	Size (FPT In.) Inlet	Outlet	Side	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700422	1/2	3/4	1/2	3.5, Natural	240,000	**319.22**

CONTINUOUS PILOT, MILLIVOLT, WALL THERMOSTAT ACTIVATED

The 700 millivolt gas valves are wall thermostat actuated combination gas valves. These controls combine a manual gas cock, automatic pilot safety valve and a millivolt operator. The automatic pilot safety is separate from the gas cock and provides gas shutoff in case of pilot outage. Standard features include: pilot outlet, pilot gas filter and pilot adjusting key.

Note: Valves can be mounted in any position except upside down.

- Power supply: 250–750 mV
- Reducer bushings included

Part No.	Size (FPT In.) Inlet	Outlet	Side	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700502	1/2	1/2	1/2	3.5, Natural	100,000	**239.46**
700506	3/4	3/4	Straight-Thru	3.5, Natural	300,000	**241.26**

CONTINUOUS PILOT, DUAL VALVE

The 720 Series gas controls are designed for a wide variety of heating applications and can be used to replace most constant pilot valves, including dual valve (six function) models.

The 720 Series constant pilot gas valve is a six function valve incorporating a manual valve, safety shutoff magnet, dual automatic valves, main gas regulator, and pilot adjustment. Uni-Kits® are factory-set at 3.5" W.C. for natural gas, but can be converted to LP by installing the regulator conversion kit included.

The 720 Series feature an integral manual selector used to select from the 4 gas flow positions—off, on, pilot and "set". The "set" position provides pilot only gas flow during magnet energizing and lock up. Built-in stops serve to prevent accidental setting to the off position.

- Regulates to 15,000 BTU minimum, 200,000 BTU maximum, for natural gas
- Capacity: 150,000 BTUH
- Reducer bushings included

Part No.	Size (FPT In.) Inlet	Outlet	Side	Price
720400[1]	1/2	3/4	Straight-Thru	**163.50**
720402[1]	1/2	3/4	1/2	**163.92**
720406[1]	3/4	3/4	Straight-Thru	**171.98**
720472[2]	1/2	1/2	1/2	**369.06**
720474[2]	1/2	1/2	1/2	**358.48**

[1]Uni-Kit® regulator conversion included [2]Convertible regulator, designed for mobile home use

CONTINUOUS PILOT, LOW PROFILE

The 710 low capacity gas heating valves are designed for recreational vehicles and other applications with limited space. All models include a manual valve (gas cock), automatic pilot safety valve, pilot outlet, pilot gas filter and pilot adjusting key.

Note: The control can be mounted in any position except upside down and all models have 3-position outlets.

- Supplied with pipe bushings

Part No.	Type Operation	Pressure Regulator (In W.C.)	Typical Application	Price
710402	24 Volt	3.5, Natural	Wall Furnaces	**293.68**
710501[1]	Millivolt	None	Space Heaters/Replace B67	**393.64**
710502	Millivolt	3.5, Natural	Space Heaters/Replace B67	**165.88**

[1]Separate pressure regulator may be required

VALVE, COMBINATION

VR8204A2076

INTERMITTENT PILOT, LOW VOLTAGE, VR8204 SERIES

Combination gas controls for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators, servo pressure regulator and pilot adjustment
- Combination dual automatic valve
- Includes reducer bushings, natural to LP conversion kit
- Power: 24 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Pressure Regulating Setting (in. wc.)	Type Gas	Type Regulator	Price
VR8204A2076	1/2	1/2	3.5	Natural	Standard	**279.80**
VR8204C1019	1/2	1/2	3.5 (Full Rate) 0.5 (Step Setting)	Natural	Step Opening	**331.46**
VR8204H1006	1/2	1/2	3.5	Natural	Slow Opening	**332.54**
VR8204M1091	1/2	1/2	3.5	Natural	Standard	**310.76**

VR8304M3509

INTERMITTENT PILOT, LOW VOLTAGE, VR8304 SERIES

Combination gas control for use in 24 Vac, gas-fired, intermittent pilot appliances with capacities from 30 to 415 cfh.

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment
- Combination dual automatic valve
- Power: 24 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Conversion Kit Supplied	Price
VR8304M3509	1/2	3/4	270	Natural	Standard	Yes	**320.14**
VR8304M4507	3/4	3/4	300	Natural	Standard	Yes	**311.86**
VR8304P4330	3/4	3/4	—	LP	Step Open	—	**425.36**
VR8304P4504	3/4	3/4	300	Natural	Step Open	—	**424.70**
VR8304Q4511	3/4	3/4	—	Natural	Slow Open	Yes	**499.90**

INTERMITTENT PILOT, LINE VOLTAGE, VR4304 SERIES

- Controls include safety shutoff, manual valve, two automatic operators, pressure regulator and pilot adjustment.
- Use with S86F,H; S860D; S8600F,H; S8610 and S90A,B Control Modules.
- Solenoid operated first automatic valve opens on thermostat call for heat; closes when call for heat ends. Diaphragm-operated second automatic valve opens under control of regulator; closes if gas or power supply is interrupted.
- Standard and slow opening natural gas models include natural to LP gas conversion kit; LP to natural gas conversion kit also available.
- All adjustments, wiring connections and pilot outlet are accessible from top of control.
- Adjustable servo regulator effectively maintains almost constant gas output pressure under wide fluctuations in gas supply pressure.
- Compatible with ECO connector.
- ON-OFF lighting sequence.

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Conversion Kit Supplied	Price
VR4304M4519	3/4	3/4	415	Natural	Standard	Yes	**470.36**

INTERMITTENT, PROVEN PILOT, UNIVERSAL, LOW VOLTAGE

Universal electronic ignition combination gas control for use with direct spark ignition, hot surface ignition or intermittent pilot ignition in 24 Vac, gas-fired appliances with capacities from 30 to 415 cfh.

- Control includes manual valve, two automatic operators, servo pressure regulator, pilot adjustment, pilot plug and ignition adapter
- Replaces virtually any IP, HSI, or DSI gas control
- For use with natural or manufactured gas or LP gas. Includes converter kit to adapt from natural to LP gas
- Includes reducer bushings
- Power: 24 Vac

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Price
VR8345M4302	3/4	3/4	300	Natural	Standard	**262.14**

SMARTVALVE™, SV9501 SERIES

The Intermittent Hot Surface Pilot Ignition SmartValve™ System Controls provide easy field replacement of a wide range of SV9500, SV9501, SV9502 and SV9602 SmartValve™ System models. These controls provide intermittent pilot gas ignition sequencing, pilot flame sensing, and both pilot and main gas control functions in a single control. They are directly compatible with the Q3450 or Q3480 Intermittent Pilot burners used with the original controls on the appliance.

Suitable for a wide range of gas-fired appliances including residential furnaces, roof-top furnaces, residential boilers, unit heaters, infrared heaters, space heaters and commercial cooking units. Ignition sequence includes timed trial for ignition.

- SV9501M8129 includes 395454 extension harness and 393691 NAT to LP conversion kit

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Price
SV9501M2528	1/2 NPT	1/2 NPT	200	Natural	Fast Open	**528.58**
SV9501M8129	1/2 NPT	1/2 NPT	200	Natural	Standard	**528.58**

SMARTVALVE™, SV9601 SERIES

The SV9601 SmartValve System Controls combines gas flow control and electronic intermittent pilot sequencing functions into a single unit. This system is suitable for application in a wide range of gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, space heaters, water heaters, decorative appliances, and commercial cooking units.

Suitable for a wide range of gas-fired appliances including residential furnaces, roof-top furnaces, residential boilers, unit heaters, infrared heaters, space heaters and commercial cooking units. Ignition sequence includes timed trial for ignition.

- Includes: Two 3/4" x 1/2" reducer bushings and an LP conversion kit.

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Price
SV9601M4571	3/4 NPT	3/4 NPT	415	Natural	Standard	**592.22**

SMARTVALVE™, SV9641 SERIES

The SV9641 SmartValve ignition system control provides all gas ignition safety functions by controlling gas flow, ignition source, and a 120 Vac or 240 Vac combustion air blower. It also monitors the appliance airflow proving switch and limit string to assure proper appliance operation, and provides prepurge, postpurge, and timed trial for pilot ignition with 100 percent shutoff and continuous retry.

A diagnostic LED indicates system status.

- Communicates directly with an electronic fan timer (ST9160 Electronic Fan Timer for single stage applications; ST9162 Electronic Fan Timer for two-stage applications) in typical forced warm air furnace applications.
- Interfaces with the 208907
- Suitable for a wide range of fan-assisted combustion gas-fired appliances including furnaces, rooftop furnaces, boilers, unit heaters, infrared heaters, water heaters and commercial cooking appliances.
- OEM applications for ICP, Mestek and Slant/Fin.

Honeywell

Part No.	Size (In.) Inlet	Size (In.) Outlet	Capacity (cfh)	Type Gas	Type Regulator	Conversion Kit Supplied	Price
SV9641M4510	1/2 NPT	1/2 NPT	200	Natural	Standard	Yes	**633.58**

700 SERIES

These 700 Series ignition gas valves are designed for intermittent pilot, direct spark or hot surface usage, and include necessary parts to adapt to these applications. These valves incorporate a manual valve, pilot valve, and a main gas pressure regulator.

- Bushings included
- Has slow opening feature for soft ignition. Can be field removed.

INTERMITTENT, PROVEN PILOT, HS/DS, UNIVERSAL, LOW VOLTAGE

Robertshaw

Part No.	Size (In.) Inlet	Size (In.) Outlet	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700056	3/4	3/4	3.5, Natural	350,000	**351.90**
700059	1	1	4.0, Natural	720,000	**789.08**

INTERMITTENT, PROVEN PILOT, HS/DS, UNIVERSAL, LOW VOLTAGE, 2 STAGE

Robertshaw

Part No.	Size (In.) Inlet	Size (In.) Outlet	Pressure Regulator (In. W.C.) Lo	Pressure Regulator (In. W.C.) Hi	Capacity (BTUH)	Price
700053	3/4	3/4	1.3	3.5	300,000	**719.76**

VALVE, COMBINATION

720079

INTERMITTENT, PROVEN PILOT, HS/DS

The 720 Series gas controls are designed for electronic ignition applications: hot surface, direct spark and intermittent pilot. The 720 Series incorporates a manual valve, 2 dual automatic valves and a main gas pressure regulator. Uni-Kits® are factory-set at 3.5" W.C. for natural gas, but can be converted to LP by installing the regulator conversion kit included.

- Power supply: 24 Vac
- Uni-Kit® regulator conversion included

Robertshaw

	Size (FPT In.)				
Part No.	Inlet	Outlet	Side	Comments	Price
720050[1]	1/2	1/2	Straight-Thru	Slow Opening	365.20
720051	1/2	3/4	1/2	Standard	402.08
720079[2]	1/2	3/4	1/2	Universal	256.60

[1]Has Pilot Outlet [2]Has Pilot Valve

36C84912

CYCLE PILOT

Cycle pilot gas valves are equipped with redundant pilot solenoid main gas regulator, integral gas pressure switch and electrical connection on the gas valve for mercury flame sensor connection.

- Connections: 3/4" x 3/4"
- AGA Capacity: 280,000 BTUH
- Regulator setting: 3.5" W.C Natural gas
- Reducer bushing kit included

White-Rodgers

Part No.	Electrical Connection	Flame Sensor Socket Location	LP Kit	Price
36C84912	4 Spade Terminals, 1/4", CCLS	Side	Included	608.34
36C84921	4 Spade Terminals, 1/4", CCLS	Top	Included	608.34
36C84923	4 Spade Terminals, 1/4", CCLS	—	Natural Only	688.20
36C84926	Edge Connector to P.C. Board	Side	Natural Only	600.80
36C84945	3 Spade Terminals, 1 PIN Terminal	None	Included	608.34

PROVEN, CYCLE PILOT, MULTIFUNCTION

Compact multifunction valve designed to meet the requirements for use with all types of intermittent ignition systems (proven pilot, direct spark ignition and hot surface ignition).

- Connections: 1/2" x 3/4"
- Regulator adjustment: 2.5 to 5.0" W.C natural gas, 7.5 to 12.0" W.C L.P.
- Coil voltage: 24 Vac

White-Rodgers

Part No.	Electrical Connection	Usage	Side Taps	Price
36C94303	5 Spade	Proven Pilot with Pressure Switch, Slow Open, Nat only	No	303.78

PROVEN PILOT, HS/DS, LOW VOLTAGE, SINGLE STAGE

Designed for direct spark ignition and hot surface ignition system applications.
This valve is equipped with redundant and main solenoid valves that control gas flow to the main burners, a pressure regulator and a two-position on/off switch for regulation and electrical shut-off of the solenoid valves.

- Regulator calibrated to 3.5 ± 0.3" WC @ 100,000 BTUH.
- Natural gas/LP conversion kit
- Inlet/outlet reducer bushings (1/2 NPT x 3/8 NPT)

White-Rodgers

Part No.	Usage	Inlet Size (In.)	Outlet Size (In.)	Capacity AGA (BTUH)	Price
36J24214	Proven Pilot, HS/DS, Slow Open, Low Voltage, Nat Gas	1/2	1/2	140,000	142.78

PROVEN PILOT, 2 STAGE

Designed for use on automatic spark ignition systems. Fast open operation

- High/Low feature to permit two different rates of input to the main burner
- Natural/LP; conversion kit included
- Regulator settings : LO – 1.0" W.C.(adj 1 to 3.5"), HI – 3.5" W.C.(adj 2.5 to 5")
- Bushing kit included

White-Rodgers

Part No.	Inlet Size (In.)	Outlet Size (In.)	Capacity CSA (BTUH)	Coil Voltage (Vac)	Price
36H64463	3/4	3/4	300,000	24	328.00

PROVEN PILOT, HS/DS, LOW VOLTAGE, VR8205 SERIES

Combination gas controls for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances with capacities from 20 to 200 cfh.

- Controls include manual valve, two automatic operators and servo pressure regulator
- Combination dual automatic valve
- Includes reducer bushings, natural to LP conversion kit

Honeywell

Part No.	Size (In.) Inlet	Outlet	Capacity (cfh)	Type Gas	Type Regulator	Price
VR8205A2024	1/2	1/2	150	Natural	Standard	294.62

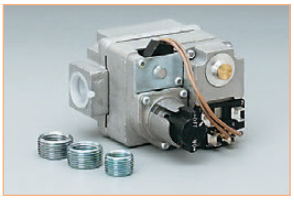
PROVEN PILOT, HS/DS, LOW VOLTAGE, VR8305 SERIES

Combination gas control for use with hot surface/direct spark systems in 24 Vac, gas-fired appliances with capacities from 30 to 415 cfh.

- Controls include manual valve, two automatic operators, and pressure regulator
- Combination dual automatic valve
- Includes bushing, natural to LP conversion

Honeywell

Part No.	Size (In.) Inlet	Outlet	Pressure Regulator (In. W.C.)	Price
VR8305M3506	1/2	3/4	3.5	307.32
VR8305Q4500	3/4	3/4	1.7 Low, 3.5 High	414.74



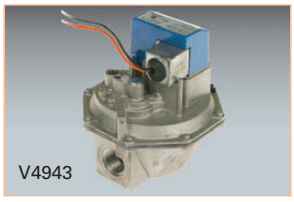
PROVEN PILOT, HS/DS, UNIVERSAL

Provides electrically operated pilot solenoid which is controlled by room thermostat. Main valve is energized by a mechanical flame sensor or electronic ignition/flame detecting module.

- For hot surface, direct spark
- Usage: natural gas
- LP conversion kit order separately, provide for 100% lockout
- Capacity (BTU/H): 300,000 (1" PD, .64 specific gravity — 1,000 BTU/Cu. Ft.)
- Pipe size: 3/4" x 3/4"
- Coil voltage: 24 Vac

White-Rodgers

Part No.	Opening Characteristic	Stages	Price
36H32423	Fast	1	252.50
36H33412	Slow	1	273.00
36H65401	Slow	2	351.78



COMMERCIAL

- Suitable for use on atmospheric boilers, commercial water heaters, and rooftop heaters.
- Solenoid-operated valves for use with natural gas (and LP gas for V4943A only)
- Valve body of die-cast aluminum with a straight through pattern
- V4943 for use with line voltage, on/off controllers
- V4944 for use with line voltage, dual stage controllers
- Pressure regulator: 3.5 w.c.
- Dimensions: 6 9/16" H x 6" W x 6" D
- Pipe size: 1"
- Voltage: 120 Vac

Honeywell

Part No.	Description	Capacity (cfh)	Valve Opening Time (Sec)	Price
V4943A1011	On/Off Diaphragm Valve	1000	6	352.04
V4943B1019	Single Stage Pressure Regulating	300 to 1000	3 to 25	416.50
V4944B1018	Two Stage Pressure Regulating	300 to 1000	3 to 25	486.40
V4944N1011	Two Stage Pressure Regulating	300 to 1000	6	486.46

COMMERCIAL

Bleed gas diaphragm valves feature: automatic pilot valve, bleed gas operator, inlet and outlet screens, manual "gas cock" valve, pilot adjusting key, pilot gas filter and pressure regulator.

Regulated models offer the additional feature of "straight line" pressure regulation, allowing application of the 700 diaphragm gas valves to a wide range of capacity requirements without regulator readjustment. Minimum application for regulated models is 10% of capacity shown. These valves are most commonly used on commercial water heating equipment in conjunction with the 1352 (CWH-3) bleed gas temperature controllers.

- Valve has as slow opening feature
- Reducer bushings included

Robertshaw

Part No.	Size (In.) Inlet	Outlet	Pressure Regulator (In. W.C.)	Capacity (BTUH)	Price
700804	3/4	3/4	3.5, Natural	305,000	345.28

HYDRAULIC LOW PROFILE

- Supplied with pipe bushings

Robertshaw

Part No.	Pressure Regulator (In. W.C.)	Capillary Length (Ft.)	Typical Application	Price
710203[1]	None	3	RV's	428.00
710205	3.5, Natural	3	Wall Furnace	351.70

[1]Separate regulator may be required.

GAS VALVE ACCESSORIES

VALVE CONNECTION BUSHING

The Y99 valve connection reducer kit allows easy conversion of any valve or regulator pipe connections in the field. The kit does not alter the overall face-to-face dimensions. The kit contains an anti-galling compound, wrench, and four male and female bushings.

Johnson Controls

Part No.	Description	Price
Y99AP1	1/2" MPT x 3/8" FPT Bushing	**99.68**
Y99AP2	3/4" MPT x 1/2" FPT Bushing	**95.88**

ADD-ON, PRESSURE REGULATOR KIT

The 1751 Series add-on pressure regulator kits are available for the indicated valves. 700 Series hydraulic cannot be converted

Robertshaw

Part No.	Type (Gas)	Valve Usage (Series)	Adjustment Range ("WC)	Price
1751003	Natural	700, 710	3 to 7	**64.56**
1751013	L.P.	700, 710	8 to 12	**63.38**
1751016	L.P.	7100, 720	8 to 12	**19.30**
1751007	Cover Plate	700, 710	—	**17.94**

GAS PILOT

UNIVERSAL PILOT BURNER

Q314U1001

Q345U1005

Q3451U1000

Q348U1009

With four pilots, contractors can replace over 100 different models. The Universal Pilot offers adjustable mounting options, flexible hood orientations and the accessories needed for replacement.

- Natural or LP gas.
- Includes a universal mounting bracket

Honeywell

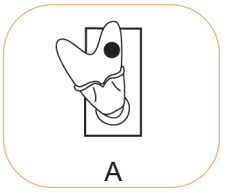
Part No.	Description	Price
Q314U1001	Standing Pilot Burner. Non-Primary Aeration, BCR-18, BBR-10, CAR-12, CAR-13, BBR-8 Orifices, Standard and low BTU hoods, Adjustable Tip Style	**90.92**
Q345U1005	Target Style Pilot Burner. Non-Primary Aeration, BCR-20, BCR-18, BBR-12, BBR-11 Orifices, Adjustable Tip Style	**116.40**
Q3451U1000	Target Style Pilot Burner with Integral Ignition Wire. Non-Primary Aeration, BCR-20, BCR-18, BBR-12, BBR-11, BCR-10 Orifices, Adjustable Tip Style, 36" and 55" igniter lead lengths	**148.76**
Q348U1009	Intermittent Batwing Style Pilot Burner. Primary Aeration, NE22, KF24, A26, KR14 Orifices	**116.52**

PILOT BURNER, Q314 SERIES

Non primary-aerated, insert orifice-type pilot burner for main burner ignition with Q340 or Q390 thermocouple for pilotstat safety control operation.

- Use with Q313 for 750 mV powerpile application

Tip Styles:



Honeywell

Part No.	Tip Style	Gas	Bracket	Price
Q314A3547	A	Natural	Side	**72.06**
Q314A4586	B	Natural, LP	End	**68.32**
Q314A6094	A	Natural, LP	End	**68.32**
Q314A6102	C	Natural, LP	End	**68.68**

IGNITER/SENSOR

Non primary-aerated combination pilot burner and igniter. Used with the S86, S860, S8610 or S8670 in intermittent pilot systems.

Honeywell

Part No.	Tip Style	Gas	Bracket	Price
Q345A1305	B	Natural	End	**72.84**
Q345A1313	A	Natural	End	**77.34**
Q345A1321	C	Natural	End	**91.84**

PILOT BURNER, Q327 SERIES

Primary-aerated, spud orifice-type pilotburner for main burner ignition with Q340 or Q390 thermocouple for pilotstat safety control operation.

Honeywell

Part No.	Gas	Bracket	Price
Q327A1626	Natural, LP	End	**79.56**

PILOT BURNER

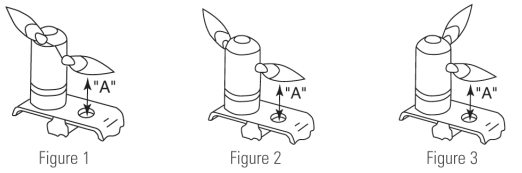


Figure 1

Figure 2

Figure 3

Figure 4

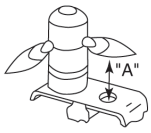
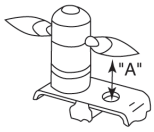


Figure 5



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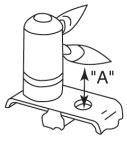

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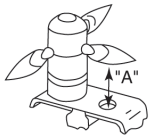

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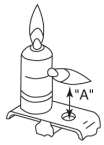


Figure 9

J992MDA2

Universal replacement models replace J12, J13 pilots.

- "A" dimension: .850"

BASO Gas Products LLC

Part No.	Figure	Price
J991MDA2	1	75.48
J992MDA2	2	73.66
J993MDA2	3	75.48
J994MDA2	4	79.90
J995MDA2	5	75.02
J996MDA2	6	75.90
J997MDA2	7	75.48
J998MDA2	8	72.48
J999MDA2	9	70.42

UNIVERSAL REPLACEMENT

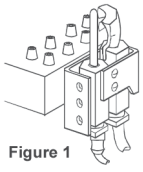


Figure 1

Figure 2

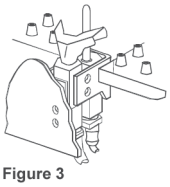
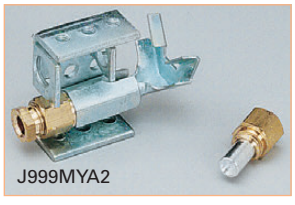


Figure 3


J999MYA2

The J Series BASO universal replacement pilot burners are supplied in three models. Mounting brackets on all four sides of each burner permit adaptation to almost any application.

BASO Gas Products LLC

- Natural and LP gas orifice supplied

Part No.	Figure	Type Pilot	Price
J999MHA2	1	"L" Channel	52.36
J999MKA2	2	Shell	51.06
J999MYA2	3	"Y" Channel	51.68

Q90BB1

Q15 MISER

Replaces pilot burner and sensor probe on specific OEM units in Q15 miser gas control system.

BASO Gas Products LLC

Part No.	Code	OEM	Price
Q90AA1C	J989EKW	Lennox	139.48
Q90BB1	J996DKW	Carrier	139.48
Q90CC1	J986HXW	Reznor	142.30
Q90DD1	J993HHW	Reznor	144.88

9B PILOT, UNIVERSAL

The 4-ported Universal 9B Pilot Uni-Kit is designed to replace all obsolete Model 9B pilot variations. The kit includes fittings for 1/4" tubing and an adaptor for fittings to adapt to 3/16" tubing. Each kit comes with a natural gas orifice installed and includes a separate L.P. gas orifice.

The 1800-100 is hooded, aerated, constant burning pilot for main burner ignition.

Robertshaw

Part No.	Description	Price
1800100	Universal 9B Replacement Pilot	102.52

1820019

PG9 THERMOPILE

Designed to replace those hard-to-find ITT-General PG9 type pilots. Each Uni-Kit comes with a natural gas orifice installed and a separate L.P. gas orifice. A special 1/4" tubing adaptor is provided to allow use of original tubing with nut and ball sleeve.

These 1820 Pilot Uni-Kits are aerated type pilots, combining the best feature of an incinerator type pilot and a target type pilot.

- Includes thermopile

Robertshaw

Part No.	Flame Pattern	Replaces P/N	Price
1820009	90° Right	PG9A42JTL020	100.94
1820019	90° Left	PG9A41JTL020	98.58

GAS PILOT

1830001

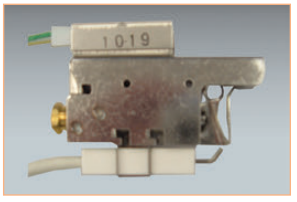
INCINERATOR TARGET

Designed to be used with all Uni-Line and competitive thermocouples, these kits include an adaptor that converts a threaded thermocouple/thermopile model 2CH to a snap-in thermocouple type, model 2C.

These are aerated type pilots, combining the best feature of an incinerator type pilot and a target type pilot. These pilots have non-linting characteristics, and no air shutters or supplementary shields requiring assembly or adjustment.

Robertshaw

Part No.	Replaces P/N	Flame Pattern	Price
1830001	2CH-6	Standard	70.24
1830005	4CH-6	3-Way	56.64
1830110	2CH-1	Standard	68.30
1830111	2CHL-1	25° Left	68.30
1830112	2CHR-1	25° Right	70.24



3-WIRE PILOT BURNER REPLACEMENT

Replaces a lot of older style Carrier, Payne and Bryant models.
Convertible from 3 wires to 2 wires.
Eletrical rating: 30 Vac, 60 Hz, 1.0 Amp

Part No.	Replaces P/N	Type Gas	Price
PS730A	LH680005, LH33JZ053	Natural	96.70

10021

GAS ORIFICE

Robertshaw

Part No.	Pilot Usage	Type Gas	Tube Diameter (In.)	Orifice Size (In.)	Price
10021	2C, 2CH	Natural	1/4	.018	18.68
10114	2C, 2CH	L.P.	1/4	.010	18.68

PILOT TUBING

BASO Gas Products LLC

Part No.	Description	Price
Y99AR1	1/4 O.D. x 60" Aluminum Tube	31.70

PILOT TUBING

Robertshaw

Part No.	Description	Price
11193	Pilot Tubing, Aluminum, 1/4" OD x 50'	62.80
11291	Pilot Tubing, Aluminum, 1/8" OD x 5'	23.74
81LB4	Pilot Tubing Nut, 1/4"	1.30

THERMOCOUPLE

Q340A1074

UNIVERSAL

Universal 30 mV thermocouple.

- Average operating life of 10 years

Honeywell

Part No.	Lead Length (In.)	Price
Q340A1066	18	16.58
Q340A1074	24	17.28
Q340A1082	30	18.32
Q340A1090	36	18.96
Q340A1108	48	20.98

Q390A1046

2 PIECE

For use on gas-fired heating systems as an alternative to Q340 with Universal two-piece adapter.

- Average operating life of 5–7 years

Honeywell

Part No.	Lead Length (In.)	Price
Q390A1046	24	10.54
Q390A1053	30	11.12
Q390A1061	36	11.72

Q313A1170

THERMOPILE

Provides power for a millivoltage, self-powered control system.

- Open circuit output: 600–750 mV
- Use with Q314, Q324, Q327, Q377, Q379, Q382 pilot burners

Honeywell

Part No.	Lead Length (In.)	Includes	Price
Q313A1022	35	Spade Terminal	107.02
Q313A1055	47	1/2" Nut	115.36
Q313A1139	35	Push In Clip	98.96
Q313A1170	35	PG9 Adapter	106.12
Q313A1188	35	Push In Clip & Nut	99.54
Q313B1005	35	Terminal Block	130.86

HIGH PERFORMANCE

The "Husky" high performance K16 Series are heavy duty high performance thermocouples that provide high output.

- Millivoltage range: 25–35 mV
- The K16WT are universal replacements, multi-mount

BASO Gas Products LLC

Part No.	Length (In.)	Carton Qty.	Price/Ea.
K16BT18	18	10	30.40
K16BT24	24	10	31.02
K16BT30	30	10	31.66
K16BT36	36	10	38.46
K16RA48C	48	5	62.58
K16RA72C	72	5	91.92
K16WT48	48	5	78.22
K16WT60	60	5	90.44
K16WT72	72	5	83.50

UNIVERSAL

"Super Slim Jim" universal K19AT thermocouples are designed for use with all Series "G" and "H" BASO valves, Basoids, and Basotrols with automatic pilot valves. The K19 is also interchangeable with thermocouples used with automatic pilot valves made by other control manufacturers whose power unit connector is similar to the BASO Series.

BASO Gas Products LLC

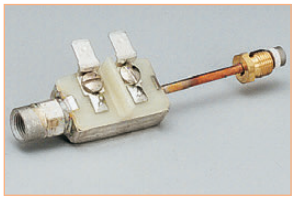
Part No.	Length (In.)	Carton Qty.	Price/Ea.
K19AT18	18	10	19.66
K19AT24	24	10	21.14
K19AT30	30	10	21.66
K19AT36	36	10	22.08
K19AT48	48	5	18.96
K19AT60	60	5	27.12
K19AT72	72	5	21.56

SNAP-FIT®

The 1980 Series snap-fit thermocouples offer easy installation into the majority of pilot burners.

Robertshaw

Part No.	Length (In.)	Price
1980018	18	10.94
1980024	24	11.42
1980036	36	13.16
1980048	48	17.36



ADAPTER

The Y99AN1 junction block adapter will fit any Baso thermocouple lead for conversion to a junction block application.

BASO Gas Products LLC

Part No.	Description	Price
Y99AN1	Junction Block Adapter	80.66

THERMOPILE

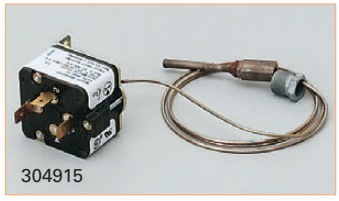
Designed for use on self-powered gas and control systems. Can be used to replace all Robertshaw and similar competitive devices.

Robertshaw

Part No.	Lead Length (In.)	Connection Type	Price
1950001[1]	36	Two Lead	79.28
1950532	36	Two Lead	91.26
1951001[1]	36	Coaxial	93.60
1951536	36	Coaxial	89.72

[1]Includes PG9 pilot adapter

MERCURY FLAME SENSOR

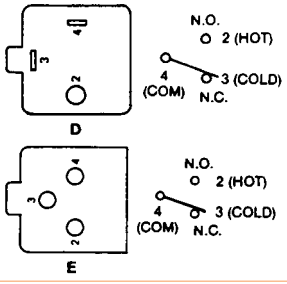


The mercury flame sensor is a mechanical device that proves the existence of an acceptable pilot flame. It converts the heat of a pilot flame to motion which is used to open and close a set of electrical contacts. When the bulb is heated by a pilot flame, the mercury is vaporized causing pressure in the capillary and diaphragm. Movement of the diaphragm causes the snap-switch to open one set of contacts and close a second set. These contacts control the pilot valve and the main valve.

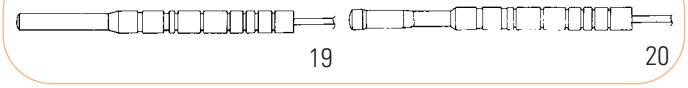
White-Rodgers

Part No.	Panel Type	Bulb Style	Element Length (In.)	Price
3049115	D	#20	48	408.24
3098134	E	#19	48	408.22
3098156	E	#20	48	408.22

Panel Type



Bulb Style



GLOW COIL

Y80AA48

Y80 Series glow coils are designed for use with G19, G21, and G29 ignition systems. They are used as replacements on existing pilot burners.

BASO Gas Products LLC

Part No.	Length (In.)	Used with Pilot Burners	Price
Y80AA48	48	J(-)DHD, J(-)DLD, J(-)EKD, J(-)GHD, J(-)VHD	**362.02**
Y80EA36	36	J(-)HHD	**400.94**

IGNITION CONTROL

780783

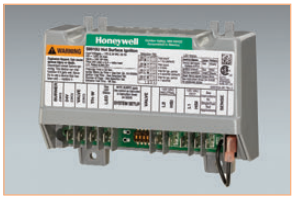
HOT SURFACE MODULE

The 780 Series hot surface ignition modules are designed for use on gas fired heating systems. The system acts on a demand for heat by a switch or thermostat to supply power to the ignition control. On non-prepurge models, the ignitor will be energized immediately and remain on for either of two optional selected ignitor heat up times (approximately 17 or 34 seconds). For models with the prepurge option, there is a time delay equal to the heat up time selected before the ignitor is energized. At the end of the ignitor heat up time the gas valve is opened supplying gas to the main burner. After several seconds, the ignitor is turned off and the sensor is energized.

The 780 Series provides lockout and complete gas shutoff if ignition is not proven after the trial for ignition sequences has been completed.

Robertshaw

Part No.	Type Timer (psi)	Sensor	Ignition Attempts Before Lockout	Valve Trial Time (Sec.)	Supply Voltage (Vac)	Replaces	Price
780783	Prepurge, 34 Sec.	Local	3	8	120	Rheem	**272.70**
780785	Ignitor Warm-up, 34 Sec.	Local	3	6	120	Rheem	**262.52**
780790	Ignitor Warm-up, 17 Sec.	Local	1	4	120	Rheem	**262.18**



HOT SURFACE MODULE, UNIVERSAL

- Replaces over 800 White-Rodgers, Robertshaw and Honeywell hot surface ignition models
- For 120 Vac (up to 5.0A) surface igniter (Norton 201/271 or equivalent).
- Features LED status indicator and microammeter ports for easy trouble shooting
- For local (single rod) or remote (dual rod) rectification type flame sensing.
- Contains easy-to-use cross reference and instructions plus the accessories required to replace the existing hot surface ignition module.
- Provides one or three ignition trials (four-second or seven-second trials) per call for heat
- Field selectable number of ignition trials and trial time based on unit being replaced
- Igniter warm up time: 7 (12 seconds second and third trial), 17 (27 seconds second and third trial), 34, or 45 seconds

Honeywell

Part No.	Description	Price
S8910U3000	Universal Hot Surface Ignition Control	**310.40**

50A55843

HOT SURFACE MODULE, INTEGRATED

Universal replacements for existing W/R integrated silicon carbide (50A50/50A55) and silicon nitride (50A65) modules.

White-Rodgers

Part No.	Description	Price
50A55843	Silicon Carbide Module	**237.14**
50A65-843	Silicon Nitride Module	**250.58**

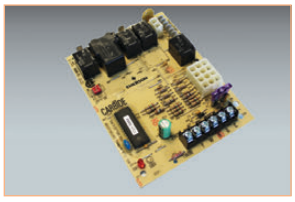
HOT SURFACE MODULE, NON-INTEGRATED

Universal replacement for silicon carbide, non-integrated HSI modules. Replaces all 50E47 W/R and virtually all competitive silicon carbide, non-integrated modules.

- Six insertable program keys cover most existing timing variations
- Tri-color LED indicator for diagnostics
- Direct and indirect flame sense

White-Rodgers

Part No.	Description	Price
50E47-843	Universal (NI) HSI Module	**246.36**



HOT SURFACE MODULE, INTEGRATED, FURNACE CONTROL KIT, OEM DIRECT REPLACEMENT

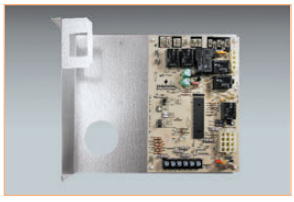
Replaces: White-Rodgers 50T55-289 and 50A55-289 and virtually All Goodman Single-Stage HSI controls with 120V ignitors.

Features:

- 120 VAC Ignitor Output
- 120 VAC Humidifier Output
- 120 VAC Electronic Air Cleaner Output
- 120 VAC 2-Speed PSC Circulator Output
- Fuse Protection – 5 Amp
- Furnace Status LED
- Heat Fan OFF Delay (Dipswitch Selectable)
- Y, W, R, G, C, TWIN Terminals
- Pre-purge time: 15 seconds

White-Rodgers

Part No.	Description	Price
50A55743	Single-Stage HSI Integrated Furnace Control Kit	104.88



HOT SURFACE MODULE, INTEGRATED, FURNACE CONTROL KIT, YORK SINGLE STAGE DIRECT REPLACEMENT

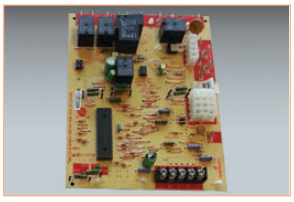
Replaces: White-Rodgers 50A56-242 and 50A56-243 and virtually all York single stage HSI controls with 120V ignitors

Features:

- Selectable Continuous Fan Speed
- System Diagnostics LED with Fault Recall
- Twin
- Third Fan Speed
- Two-Stage Cooling Y2 Input
- 120 VAC Ignitor Output
- 120 VAC Humidifier Output
- 120 VAC Electronic Air Cleaner Output
- 120 VAC 2-Speed PSC Circulator Output
- Fuse Protection — 5 Amp
- Heat Fan OFF Delay (Dipswitch Selectable)
- Y, Y2, W, R, G, C, TWIN Terminals

White-Rodgers

Part No.	Description	Price
50A56956	York Single-Stage HSI Integrated Furnace Control Kit	160.66



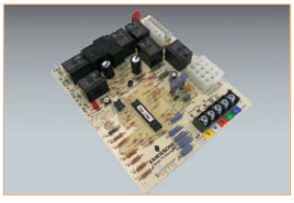
HOT SURFACE MODULE, INTEGRATED FURNACE CONTROL, NITRIDE IGNITION

Controls Gas Valve, Ignitor, Blower, Inducer, Humidifier and Air Cleaner. Replaces Lennox models

- Includes diagnostic indicator flash codes
- 3 fan speeds
- Remote flame sense
- Humidifier and electronic air cleaner connections (optional)
- Input voltage: 25 VAC 50 / 60 Hz
- Pre-purge time: 15 seconds
- Auto reset: 60 minutes

White-Rodgers

Part No.	Description	Price
50A66743	Nitride Ignition Integrated Furnace Control, HSI	253.18



HOT SURFACE MODULE, INTEGRATED FURNACE CONTROL, NITRIDE IGNITION, MULTI-SPEED

Controls Gas Valve, Ignitor, Blower, Inducer and Air Cleaner. Replaces OEM Goodman and White-Rodgers Models.

- System diagnostic LED with fault recall
- Multi speed circulator
- One or two stage gas valve
- Input voltage: 25 VAC 50 / 60 Hz
- Pre-purge time: 30 seconds
- Post-purge time: 15 seconds

White-Rodgers

Part No.	Description	Price
50M56743	Nitride Multi Speed Integrated Furnace Control, HSI	116.82

HOT SURFACE MODULE, INTEGRATED, FURNACE CONTROL KIT

Replaces virtually all White-Rodgers and competitive single stage carbide and nitride HSI systems.

Easy-Install Kit, includes:

- Ignition control module
- 9 Quick-Select/Quick-Connect wiring harnesses
- Universal nitride ignitor kit 21D642
- Installation instructions and OEM cross-reference

Features:

- 3 Fan speeds: cool, low heat and high heat (terminal connections)
- Color-coded thermostat connection
- System diagnostics, with fault recall (stored)
- Cover label displays diagnostic table
- Red LED light: used for diagnostic flash codes
- Low voltage, fuse protection, 3A replaceable automotive type
- Humidifier and electronic air cleaner connections (optional)

White-Rodgers

Part No.	Description	Price
50M56U843	Single Stage HSI Integrated Furnace Control Kit	279.32

IGNITION CONTROL

NITRIDE IGNITION INTEGRATED FURNACE CONTROL KIT

Controls gas valve, ignitor, blower, inducer, humidifier and air cleaner. Replaces Lennox models.

Kit includes:

- (1) 50A66-843 Ignition Control Board
- (1) Wiring harness (9-pin to 12-pin)
- (1) Wiring harness (4-pin to 6-pin)
- (1) Mounting panel
- (4) Stand-off fasteners
- (1) Circuit breaker
- (1) 4" blue wire
- (2) Wiring diagrams

Features:

- Includes diagnostic indicator flash codes
- 3 fan speeds
- Remote flame sense
- Humidifier and electronic air cleaner connections (optional)

White-Rodgers

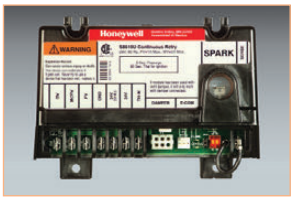
Part No.	Description	Price
21D83M843	Single-Stage HSI Integrated Furnace Control Kit	397.24

INTERMITTENT MODULE

- Field service replacement for most Honeywell (S8610U), Robertshaw (780-715), Johnson Controls (G779) and Utec Ignition Controls. 10 configuration options on modular control cards
- Provides ignition, proof of ignition and precise timing.
- Works with single rod or dual rod remote sensor.
- LED diagnostic indicator.
- 24Vac, 50/60 Hz, 0.2A

White-Rodgers

Part No.	Description	Price
50D50843	Universal Replacement Module, Proven	244.08



INTERMITTENT PILOT MODULE, UNIVERSAL

Field service replacement for most Honeywell, Robertshaw, Johnson, and UTEC (HSC) intermittent pilot ignition modules. Provides electronic control of most intermittent pilot ignition systems used on gas-fired furnaces, boilers and other heating appliances.

- Provides ignition sequence, flame monitoring and safety shutoff for intermittent pilot central furnaces and heating appliances
- Provides 100 % pilot gas shutoff if pilot fails to light; after 6-minute delay, trial for ignition is repeated. Ignition trial/delay sequence is repeated until the appliance lights or call for heat is removed.
- For use with natural or LP gas
- Includes remote reset, automatic vent damper plug
- For use in single rod or dual rod/remote sense applications
- Supply voltage: 24V

Honeywell

Part No.	Lockout Time (Sec.)	Price
S8610U3009	15 or 90	270.02

INTERMITTENT PILOT MODULE, UNIVERSAL

Microprocessor based ignition control. which provides reliable software control of all timings and operates a diagnostic LED. It provides ignition sequence, flame monitoring, and safety shutoff for intermittent pilot boilers, furnaces and other heating appliances.

BASO has designed-in features to retrofit other universal intermittent ignition controls with spark ignition and flame rectification such as: Johnson Controls, Honeywell, White Rodgers, Fenwal, Robertshaw.

It replaces controls with the following specifications:

- Single rod (local sense) or dual rod (remote sense) flame sensing
- 100% shutoff/lockout with 5 minute continuous retry
- Trial times of 25 seconds or longer
- Prepurge period 1 second or less
- Main burner 400,000 BTU/hr maximum
- Pilot burners with flow rates of 1,500 Btu/hr or less
- With or without automatic vent damper
- Must be used with redundant gas valves and not subjected to temperatures below -40°F or above 170°F

Direct replacement to Johnson Controls G779LHA.

BASO Gas Products LLC

Part No.	Minimum Flange Current (μA)	Contact Rating (Amps)	Price
C610U1C	.15	2	206.18

INTERMITTENT PILOT MODULE

Microprocessor based controls suited for direct replacement and new applications. They provide ignition sequence, flame monitoring, and safety shutoff for boilers, furnaces, and commercial cooking equipment. Intermittent pilot units are available with damper connection or without.

- Single rod (local sense) or dual rod (remote sense) flame sensing
- Trial for ignition 1 or 3
- 100% shutoff/lockout with none, 5 or 60 minutes continuous retry
- Trial times of infinite, 4, 5, 8, 10, 15, 20, 25, 30, 50, 60, 85, 90 and 120 sec.
- Pre-purge period of none, 4, 8, 10, 15, 30, 45, 60 sec. or 4 min.
- Main burner 400,000 Btu/hr max.
- Pilot burners with flow rates of 1,500 Btu/hr or less
- Temperature ranges of -40°F to 170°F

BASO Gas Products LLC

Part No.	Continuous Retry	Replaces*	Price
BG1600M00EK1AA	None	G600AY1, G670AW1	**197.08**
C670AGA1C	5 Minutes	BG1600M00ER1BD	**213.66**
BG1600M00FP1AD	None	G770MHC1C	**213.68**
BG1600M01ER1AD	5 Minutes	G775RGA	**240.38**
C670JGA1C	5 Minutes	BG1600M01CR1BD	**213.68**
BG1600M02CR1AD	60 Minutes	G776RGD14C	**217.40**
BG1600M10EK1AA	None	G600AX1	**257.70**
BG1600M10FF1AA	None	G600LX1	**240.68**
C664ABA1C	None	BG1600M10EM1AD	**217.46**
BG1600M10ER1AD	None	G770RHA	**240.68**
BG1600M11ER1AD	5 Minutes	G775RHA	**213.68**

*Refer to Baso cross reference table for a complete list

INTERMITTENT LOCKOUT MODULE

When the thermostat calls for heat, the 780-845 control simultaneously initiates ignition sparking and opens the pilot valve portion of the gas valve. Pilot flame recognition stops ignition sparking and opens the main valve portion of the gas valve. Pilot burner flame is continuously monitored at a synchronous frequency for the duration of the heating cycle. Should the pilot flame fail during the heating cycle, the control will shut off the main valve until the pilot flame is established.

The 780-845 lockout ignition control provides 90 seconds of spark (4 to 15 sparks per second), followed by a 6 minute time delay (purge) between ignition attempts. After three tries, if no pilot flame is sensed, the control goes into a one-hour lockout period. At the end of the lockout period, if the demand for heat is still present, the unit will repeat the three tries for ignition.

Robertshaw

Part No.	Description	Price
780845	Intermittent Lockout Module	**364.66**

IGNITION MODULE FOR LENNOX PULSE FURNACE

Direct replacement for natural gas or propane ovens which have a Johnson Controls G891 Pulse Ignition Control

BASO Gas Products LLC

Part No.	Description	Price
BGN8911C	Lennox Pulse Replacement for G891	**253.70**

DIRECT SPARK MODULE, S87 SERIES

Provides electronic control of direct spark ignition systems used on gas fired furnaces, boilers, and other heating appliances.

- Includes alarm terminal

Honeywell

Part No.	Lockout Timing (Sec.)	Comments	Price
S87D1004	6	Two Rod	**502.82**
S87D1012	11	Two Rod	**502.82**

DIRECT SPARK MODULE

Microprocessor based controls suited for direct replacement and new applications. Direct spark modules provide ignition sequence, flame monitoring, and safety shutoff for boilers, furnaces, and a variety of other commercial cooking equipment. Direct spark modules are available with various specifications as follows:

- Single rod (local sense) or dual rod (remote sense) flame sensing
- 100% shutoff/lockout with none, 5 or 60 minutes continuous retry
- Trial for ignition 1 or 3
- Trial times of infinite, 4, 5, 8, 10, 15, 20, 25, 30, 50, 60, 85, 90 and 120 sec.
- Pre-purge period of none, 4, 8, 10, 15, 30, 45, 60 sec. or 4 min.
- Main burner 400,000 Btu/hr max.
- Temperature ranges of -40°F to 170°F
- 24 Volt
- Recycle time: 300 seconds

BASO Gas Products LLC

Part No.	Ignition Trial Time (Sec.)	Pre-Purge Time (Sec.)	Replaces	Price
C161FJD1C	4	None	BG110MAAK1G	**197.08**
C161KKD1C	8	30	BG1100MADL1G	**197.06**

DIRECT SPARK MODULE, 120 VOLT

Local sensing type non prepurge control, thermostat reset model with isolated gas valve contacts, 1 ignition attempt before lockout, 10 second valve trial time, open board with 1/4" quick connects.

Robertshaw

Part No.	Fenwall Number	Usage	Price
35704600005	05-142301-005	Lennox 31C0801	**593.38**

IGNITION CONTROL

DIRECT SPARK MODULE, 24 VOLT

The direct spark ignition unit is a microprocessor based gas ignition control designed primarily for direct ignition and burner supervision applications such as gas furnaces, boilers, water heaters and other similar devices. The system features direct main burner ignition, remote sensing, prepurge, retry for ignition and a fixed time for flame lockout time.

Robertshaw

Part No.	Old Fenwall Number	Prepurge (Sec.)	Ignition Attempts (Before Lockout)	Valve Trial Time (Sec.)	Usage	Price
35605601003	05-296426-753	None	1	7	ICP HQ606360	**362.18**
35605601005	05-296426-755	None	1	10	Dexter 9857-116-001	**373.54**
35605606223	05-296466-253	30	3	7	Lennox 98G2901	**383.72**
35605606111	—	15	3	4	ICP 1380668	**360.02**

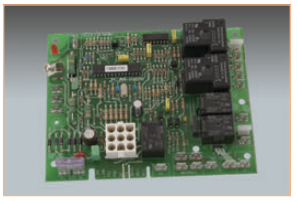
DIRECT SPARK MODULE

Microprocessor based gas ignition control for natural or LP. Proof of flame is accomplished.

- Color LED indicator for diagnostics.
- Program keys.
- 1/4" and 3/16" quick connect terminals.
- Damper interface.
- 25 Vac nominal, 50/60 Hz, 0.2A

White-Rodgers

Part No.	Description	Price
50D50842	S87 Replacement Module, Direct Spark	**244.08**



FURNACE CONTROL MODULE

Microprocessor based using software to determine the sequence of operation, timing, trial for ignition flame sensing and lockout

Monitors the status of the room thermostat, limit and rollout switches, air pressure switch and flame sensor before energizing the vent motor, blower control, hot surface ignitor and gas valve

- Provides diagnostic LEDs to aid in troubleshooting
- Designed for 100% gas shutoff in case of ignition failure
- Compatible with 24Vac thermostats
- Twinning with similar boards
- Voltage range: 98 to 132 Vac; 60Hz

ICM280 replaces:
– Goodman/Janitrol: B18099-13, B18099-13S, B18099-10, B18099-08, B18099-06
– UTEC: 1012-933D
– Texas Instruments: 41F-5
– White-Rodgers: 50T35-730, 50T35-743

ICM281 replaces:
– Carrier: CESO11005700, CESO11005701, CESO11005702

ICM282 replaces:
– Carrier: HK42FZ(004,007,008,009,011,013,016)

ICM CONTROLS

Part No.	Voltage	Replaces	Price
ICM280	115/1/60	Goodman/Janitrol B18099-(06,08,10,13,13S), UTEC: 1012-933D Texas Instruments: 41F-5, White-Rodgers: 50T35-790, 50T35-743	**169.36**
ICM281	115/1/60	Carrier CESO1100570(0,1,2)	**195.40**
ICM282	115/1/60	Carrier HK42FZ(004,007,008,009,011,013,016)	**318.00**
ICM291	208/230/1/60	Carrier LH33WP003/3A	**321.60**
ICM292	115/1/60	Rheem 62-24140-04	**247.30**

MODULE UNI-KIT®

Robertshaw's universal ignition control Uni-Kits feature a flame sense circuit that will work equally well on a one rod (local sense) or 2 rod (remote sense) application.

- Not for hot surface
- Kits feature bracket, connector and hardware
- Input voltage: 24 Vac

Robertshaw

Part No.	Type	Price
780001	Non-Lockout	**288.94**
780002	Lockout, 60 Seconds	**322.16**

MODULE ONLY

Not for hot surface.

Robertshaw

Part No.	Type	Description	Price
780715	Non-Lockout	Flame Rectification, Use w/7000BDER, 7100DER, 7200IPER	**162.86**
780735	Lockout	Flame Rectification, Use w/7000BDER, 7100DER, 60 Second Timing	**391.46**

780705

FLAME RECTIFICATION CONVERSION UNIT

Convert "D" and "K" Series heat sensing/flame switch pilot ignition systems to "flame rectification" without replacing the existing gas valve. Included in each kit is a universal pilot mounting bracket with factory installed electrode and sensor, ignition control unit, wiring harness and complete in-depth instructions.

The 780-704/705 modernizations kits DO NOT include a new gas valve. They are designed to utilize the existing gas valve. The existing gas valve is at least 12 years old or older. We suggest that a complete new 712 Series kit with a new gas valve be considered before using the 780-704 or 780-705 modernization kit.

Robertshaw

Part No.	Type	Price
780704	Lockout	**491.02**
780705	Non-Lockout	**413.62**

505923

PILOT RELIGHT

Ignition control generates spark pulses to ignite pilot gas. The relight control generates sparks until a pilot flame is sensed between the electrode and ground. The relight control detects a flame through "flame conduction".

When flame current is sensed between the electrode and pilotburner ground, the relight control stops sparking. If the flame is extinguished during the heat call, the relite control will begin sparking the instant the flame goes out.

White-Rodgers

Part No.	Input Voltage (Vac)	Connection	Price
5059134	24	Spike Connector	**206.10**
505923	24	Spark Plug, 1/4" Spade	**198.14**

PILOT RELIGHT

The Robertshaw 785 Series automatic pilot relight kits are designed for use on rooftop heating equipment, water heaters, boilers, space heaters, unit heaters, dryers, and other commercial, industrial, and residential appliances where the problem of pilot outage may occur. It should only be applied to those systems which already incorporate the necessary pilot-safety control system.

- Replaces most W/R 5059, 5059A

Robertshaw

Part No.	Electrical Rating (Vac)	High Voltage Output	Price
785001	120/24	15 kV Minimum	**121.10**

RETROFIT

Y8610U3003

IGNITION, UNIVERSAL

Complete kits for converting conventional standing pilot systems to intermittent pilot systems. For use with 24 Vac gas-fired atmospheric furnaces, boiler and heating appliances.

- Y8610F kits are for use with natural gas only; continuous trial for ignition until the pilot lights or the system is shut down manually
- Y8610U kits are for use with natural or LP gas; provides 100% pilot gas shutoff if pilot fails to light; after 6-minute delay, trial for ignition is repeated. Ignition trial/delay sequence is repeated until the appliance lights or call for heat is removed.
- Each system includes: Intermittent pilot module, intermittent pilot dual valve combination gas control, LP gas conversion kit with Y8610U, igniter-sensor assembly, ignition cable (30"), wiring harness (30"), and reducer bushings

Honeywell

Part No.	Type Gas	Includes	Price
Y8610U4001	Natural or LP	S8610U module, VR8204A valve, 1/2 x 1/2"	**545.60**
Y8610U6006	Natural or LP	S8610U module, VR8304M valve, 1/2 x 3/4"	**631.40**

712008

The Uni-Line 712 Series intermittent pilot ignition Uni-Kits feature solid-state logic and flame sensing (flame rectification) to provide automatic sequencing that will ensure proper operation of an intermittentpilot ignition device. Universal Uni-Kit models feature a gas valve with a natural gas pressure regulator installed and a separate LP gas regulator is included. The gas valve has a slow opening feature to provide soft ignition.

Uni-Kits® contain solid-state, prewired ignition control module, high capacity gas valve, universal electrode/sensor pilot assembly, installation instructions, and all necessary hardware.

IGNITION, LOCKOUT

- Lockout model: 90 second spark, 6 minute delay, 3 tries, 1 hour lockout
- LP regulator included with kit

Robertshaw

Part No.	Gas Valve Part No.	Gas Valve Size (In.)	Module Part No.	Natural Gas Capacity (BTUH)	Price
712006	700056	3/4 x 3/4	780735	350,000	**636.00**
712008	720070	1/2 x 3/4	780735	200,000	**544.64**
712009	700059	1 x 1	780745	720,000	**1483.48**

IGNITION, NON-LOCKOUT

Natural gas only.

Robertshaw

Part No.	Gas Valve Part No.	Gas Valve Size (In.)	Module Part No.	Natural Gas Capacity (BTUH)	Price
712016	700056	3/4 x 3/4	780715	350,000	**691.84**
712017	720070	1/2 x 3/4	780715	200,000	**390.08**
712019	700059	1 x 1	780715	720,000	**1240.96**

SENSOR

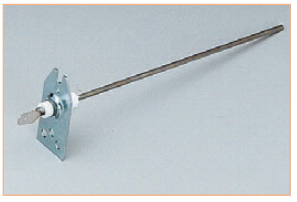
SPARK IGNITOR

Produces spark for direct ignition of main burner.

- Use with S87C, D, S89E, F; and Q354A

Honeywell

Part No.	Ground Strap Orientation	Electrode Length (In.)	Price
Q347A1004	Standard	2 1/32	66.38
Q347A1012	90° Angle	2 1/32	67.06



FLAME RECTIFICATION

Detects the presence of a main burner flame.

- Use with S825, S87C, D, K or S89E, F

Honeywell

Part No.	Flame Rod Length (In.)	Price
Q354A1018	6	86.62

CYCLE-PILOT ELECTRODE

Replaces cycle-pilot ignition electrodes and cable assemblies.

White-Rodgers

Part No.	Description	Price
76056	24" Lead with Slip On Bracket	120.52

HOT SURFACE IGNITION, FLAME

Can be remotely mounted on multiple burners or adjacent to ignitor. Designed to detect the presence of flame. 760802 is exact replacement for OEM mode;

White-Rodgers

Part No.	Lead Length (In.)	Price
760401	30	60.86
760802	30	116.40

FLAME SENSOR CLEANER

- Easily clean sensor
- Prevent false starts
- Convenient key ring

Supco

Part No.	Description	Price
FSC10	Flame Sensor Cleaner	13.16

GAS CONTROL

GLOWFLY™

Designed to provide a robust field service replacement ignitor in gas fired appliances with Norton/St Gobain 120 VAC silicon carbide hot surface ignitors. The Q3200U uses a 120 volt silicon nitride ignitor design with long life and high resistance to damage or burn out in the appliance. The kit includes the specially designed silicon nitride igniter and six different bracket configurations to adapt the ignitor to the specific appliance application.

Honeywell

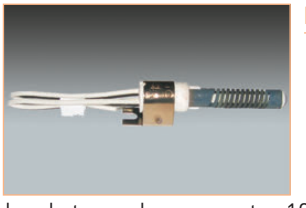
Part No.	Description	Price
Q3200U1004	Single Kit	65.12

IGNITOR

- Lower power consumption
- Engineered reaction bonded silicon carbide design - greater physical strength
- Superior gas lighting ability
- Includes: Ignitor, 3 mounting brackets, 1 self tapping screw, 2 porcelain wire nuts
- Replaces many OEM ignitors

Supco

Part No.	Description	Price
SIG1100	Universal	46.50



IGNITOR

- Replaces exact OEM ignitors
- Highest density silicon carbide - greater physical strength
- Double helix design
- G1000 by using one of two included brackets replaces up to 100 original part numbers including Robertshaw 41-402, 403, 405, 407, 409, 410

IG101 Replaces

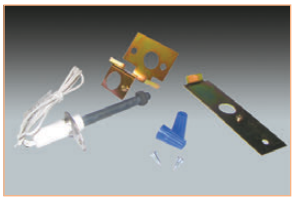
Nordyne 902661, 902694
Carborundum FC007, FC035, FC035KI

IG102 Replaces

Amana 10735002
Claire Bros C-238 (-1)
Coleman 1474-511, 1474-521
Carborundum FC046, FC046KI
Williamson 9050
York 025-32625-000, 025-32626-000, 373-05342-700, 373-09154-700, 473-12509-001

Supco

Part No.	Description	Price
IG101	Nordyne	48.00
IG102	York	41.66



IGNITOR

- Replaces over 100 ignitors
- Universal hot surface silicon nitride ignitor; incorporates SI3N4 technology
- Non porous construction for longer ignitor life, uses half the power of silicon carbide ignitors

Supco

Part No.	Description	Price
SSN2000	Universal Silicon Nitride Ignitor	34.16

IGNITOR KIT, UNIVERSAL

- Silicon Nitride design for strong, durable operation and performance.
- Backward compatible with all 24 Volt Honeywell 1st and 2nd second generation Smart Valves.

Supco

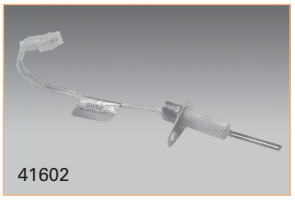
Part No.	Description	Price
SSN24	Universal 24-Volt Silicon Nitride Ignitor and Flame Rod Assembly Kit	51.66

SILICON CARBIDE IGNITOR

- Steady current: 4.25 Amps @ 115 VAC.
- Max. Current: 5 Amps @ 132VAC.
- Time to Temp (1800°F): < 17 seconds

Supco

Part No.	Description	Price
SKIT03033	Replaces Trane® KIT03033	63.16



IGNITOR, NORTON MINI

The 41-600 Series Norton hot surface mini ignitors made of a unique, non porous, high strength proprietary material. Three second heat up and small size; easy handling, simple installation, trouble free operation.

41605 includes harness and brackets (conversion kit)

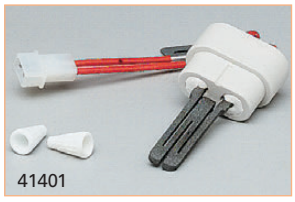
Robertshaw

Part No.	Factory Number	Housing	Usage	Price
41602	601TB	None	Amana 20165702	71.00
41603	601XBM	2.5"	York 025-33421-000	77.52
41605	601XBM	2.5"	York 473-20937-001	84.32
41-604	601XBM	4"	Armstrong 44744-2	69.32

IGNITOR, CARBIDE

White-Rodgers

Part No.	Terminals	Lead Length (In.)	Insertion Length (In.)	Price
767A356	0.093" Male Pins	6	2.00	29.26
767A357	0.093" Male Pins	5.25	2.25	29.04
767A361	0.093" Male Pins	5.25	2.25	28.00
767A365	0.25" female spade	5.688	1.87	29.04



IGNITOR, SILICON CARBIDE

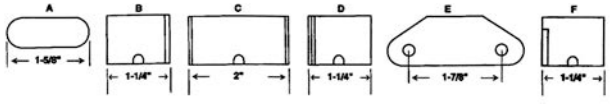
The 41-400 Series Norton hot surface ignitors are made of high-purity recrystallized silicon carbide (Crystar™) which combines physical and thermal strength with stable electrical properties. The 41-400 Series is designed to reach ignition temperature(s) within 17 seconds. They have 18-gauge nickel chrome lead wires embedded and metalized in place for maximum holding strength and electrical conductivity. The lead wires are also enclosed with a special high temperature fiberglass insulation providing total electrical protection.

Robertshaw

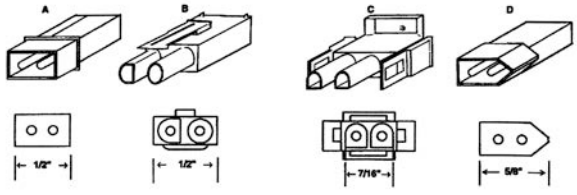
Part No.	Ceramic Block Size (In.)	Ceramic Block Style	Lead Length (In.)	Connector Style	Price
41401	1 5/8	A	4 1/2	A	39.84
41402	1 1/4	B	19	None	39.84
41403	2	C	5 1/2	None	39.84
41404	2	C	4 1/2	D	39.84
41405	1 1/4	D	5 1/2	None	39.84
41-406	1 7/8	E	10 1/2	None	39.84
41407	2	C	4 1/2	B	39.84
41408	1 1/4	B	4 1/2	C	39.84
41409	2	C	4 1/2	D	39.84
41410	1 1/4	B	4 1/2	B	39.84
41411	1 1/4	B	4 1/2	C	39.84
R41412	1 1/4	F	4 1/2	D	39.84
41413	1 3/8[2]	—	36 1/4	D	99.26
41414	1 1/4	F	12	D	83.38

[1]Hole centers [2]2" long, 1 3/8 diameter

TERMINAL BLOCK STYLES



CONNECTOR STYLES



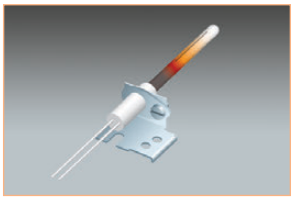
IGNITOR, NITRIDE

- AMP terminal receptacles with female sockets.
- White teflon coated leads.
- Steatite insulator with or without (768A845) steel zinc plated mounting tabs.
- 54mm ignitor element length.

White-Rodgers

Part No.	OEM	Terminals (In.)	Price
768A842	Amana, 11111701	0.093	61.90
768A843	Thermo, 768A-143	0.084	61.90
768A844	Lennox, 41K5601	0.084	61.90
768A845	Trane, B340970P01	0.084	61.90

GAS CONTROL



UNIVERSAL UPGRADE KIT

Designed to replace silicon carbide and older silicon nitride ignitors

- Upgrades silicon carbide integrated or non integrated systems to long lasting and durable nitride
- Kit includes universal ignitor mounting bracket, ignitor with 15 1/2" leads, mounting adapter bracket, 2 ceramic wire nuts, cross reference, instruction booklet and upgrade label for the furnace
- Super tough nitride ignitor construction; "no more broken ignitors"
- Easy ignitor replacement.
- 3 year warranty

White-Rodgers

Part No.	Description	Price
21D642	Nitride Upgrade Kit	**68.68**

GAS REGULATOR

RUBBER SEAT POPPET

These rubber seat poppet type regulators are designed primarily for main burner and pilot load applications where precise control of tiny flows is an essential operating requirement. Housings are of high strength aluminum die castings. All models have been tested for multi-poise mounting and may be installed in any plane or angle without restriction. Other than normal upright position will result in slight difference of outlet pressure. They may be used with natural, manufactured, mixed, LP, or LP gas-air mixture.

- Maximum inlet pressure: 1/2 psi
- RV48 Leak limiting devices 12A04 or 12A06 must be used if not vent piped to code

MAXITROL

Part No.	Connection Size FPT (In.)	Range of Regulation (BTUH) Main Burner	Range of Regulation (BTUH) Main Burner & Pilot	Standard Spring (In. W.C.)	Dimensions (In.) H	Dimensions (In.) L	Price
RV203/8	3/8	150 to 75,000	150 to 50,000	2.8 to 5.2	2 1/8	2 3/8	**36.00**
RV481/2	1/2	150 to 230,000	150 to 230,000	3.0 to 6.0	2 3/4	3 3/8	**52.70**
RV483/4	3/4	150 to 250,000	150 to 250,000	3.0 to 6.0	2 3/4	3 3/8	**52.70**

STRAIGHT-THRU-FLOW

Main burner only, non-lockup type. They should not be used as a line gas pressure regulator ahead of low pressure controls. Use only where downstream controls can operate at line pressure. Suitable for multi-poise mounting. The flow pattern provides accurate sensitive regulation at extremely low pressure differentials. Straight-thru-flow appliance regulators are intended for use with all fuel gases, and may also be used with air or other noncorrosive gases within their pressure limits.

- Maximum inlet pressure: 1/2 psi, except RV611 which is 1 psi
- Standard spring: 3" to 6" W.C.

MAXITROL

Part No.	Connection Size FPT (In.)	Regulation Range (CFH)	AGA Max (CFH)	Dimensions (In.) H	Dimensions (In.) L	Price
RV521/2	1/2	151 to 956	450	4 7/8	3 3/16	**98.90**
RV523/4	3/4	151 to 956	450	4 7/8	3 3/16	**98.90**
RV531	1	217 to 1,369	710	5 13/16	3 3/4	**135.20**
RV533/4	3/4	217 to 1,369	710	5 13/16	3 3/4	**135.20**
RV611	1	379 to 2,464	1,100	6 7/16	4 3/8	**191.34**

LEVER ACTING DESIGN

Pounds to inch regulator, meeting utility specifications, for use on residential, commercial, and industrial applications where adequate inlet pressures are available.

- Suitable for multi-poise mounting, except with vent limiting device
- Can be used as a single stage regulator or a first-stage on two-stage system
- May be used for both 2 psi and 5 psi flexible tubing house piping systems
- Precise regulation from pilot flows to full regulator capacity
- Regulation range (CFH) based on outlet pressure setpoint of 10" W.C.

MAXITROL

Part No.	Connection Size FPT (In.)	Regulation Range (CFH)	Dimensions (In.) H	Dimensions (In.) L	Price
32531/2[2]	1/2	100 to 320	3 1/2	4 1/4	**56.34**
3257AL11/4	1 1/4	650 to 2,060	7 1/4	8	**252.64**

[1]Based on use as an appliance regulator [2]Includes 12A09 vent limiter

R500S

BALANCED VALVE DESIGN

Intended for use with both main burner and pilot load applications. Ideally suited for use with infrared heaters and pilot lines on large industrial heaters and boilers. These regulators are not suitable for dead-end lock-up service. They are capable of controlling pressure at very low flows such as standing pilots, but should not be used as a line gas pressure regulator for appliances equipped with electronic ignition unless automatic control valve can open against line pressure.

- Suitable for multi-poise mounting and all fuel gases
- Standard spring: 3" to 6" W.C.

MAXITROL

Part No.	Connection FTP (In.)	Regulation Range (CFH)	Dimension H x L (In.)		Price
R400S	1/2	86 to 303	3 1/4	2	**96.40**
R500S	3/4	196 to 876	4 2/3	3 1/8	**137.56**

SPRING LOADED

For gas fired boilers, steam generators, industrial furnaces, ovens and similar high demand equipment. Balanced valve design eliminates the inlet pressure effect acting on the valve. Intended for use with all gas fuels. The regulator should be mounted in an upright position in a horizontal pipe run. The 210 Series is a lock-up type regulator and complies with codes using this specification. Designed to operate as a zero governor in the normal upright position

- Standard spring: 3" to 6" W.C.

MAXITROL

Part No.	Connection FPT (In.)	Regulation Range (CFH)	Dimension H x L (In.)		Price
210E11/2	1 1/2	4,450 to 10,500	11 1/4	7 5/8	**1458.26**

12A39

VENT LIMITER

Automatic vent limiting device – ball check permits free inhalation for fast regulator – diaphragm response on opening cycle, but limits gas escapement should a diaphragm rupture. May be used in multi-poise mounting, but when using the vent limiting device, regulator must be mounted in a horizontal upright position for best performance.

- RV81, RV91, RV111, 325-7, 210 Series must be vent piped per code

MAXITROL

Part No.	Description	Usage	Price
12A04	IAS Certification 14" W.C., 1/8" MPT	RV48, RV52 RV53, RV61	**11.04**
12A06	Orifice Only, Less Ball Check	RV48, RV52 RV53, RV61	**7.24**
12A09	IAS Certification 2 psi LP 5 psi Natural with Model 325-3, 1/8" MPT	325-3, R & RS	**11.40**
12A39	IAS Certification 2 psi LP 5 psi Natural with Model 325-5A, 3/8" MPT	325-5A	**27.94**

R521036

SPRINGS

MAXITROL

Part No.	Outlet Pressure Range (in W.C.)	Color Code	Usage	Price
R521036	3 to 6	Plated	RV52, RV500S	**4.26**
R81101022	10 to 22	Red	RV81, 210D	**37.24**
R811036	3 to 6	Plated	RV81, 210D	**12.76**
R8110412	4 to 12	Violet	RV81, 210D	**12.76**
R811048	4 to 8	Orange	RV81, 210D	**12.76**
R9110412	4 to 12	Violet	RV91, 210E	**18.50**

WARM AIR CONTROL

L4064B2210

FAN AND LIMIT

For control of high limit and fan motor in all types of forced air heating systems. The L4064 is the fastest responding fan and limit available.

- L4064W features a 20–90 second preheat before fan start
- L4064B, W models have manual fan switch that overrides fan control to keep fan running continuously
- High limit: 100–250°F
  Differential: 25°F, fixed
- Fan on: 65–215°F
  Differential: 22°F minimum
- Fan off: 50–200°F
- Contact rating— Fan: 7 F.L. Amp @ 240 Vac
  Limit: 4 F.L. Amp @ 240 Vac

Honeywell

Part No.	Element Insertion Length (In.)	Mounting Bracket	Price
L4064B2210	11 1/2	Surface	**222.68**
L4064B2228	5	Surface	**214.36**
L4064B2236	8	Surface	**218.52**

FAN OR LIMIT

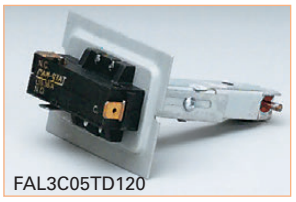
Single fan or limit control starts and stops fan operation and provides positive reliable high limit protection on warm air furnaces.

- Switch: SPDT
- Contact rating: 3.7 F.L. Amp @ 240 Vac

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Element Length (In.)	Price
4164	100 to 350	20, Fixed	9	**339.20**

WARM AIR CONTROL


FAL3C05TD120

FAN AND LIMIT

Turns the blower on and off as a function of temperature.

- Adjustable fan differential
- Limit differential: 30°F, fixed

CAM-STAT®

Part No.	Element Length (In.)	Fan Off Temp. (°F)	Fan Differential (°F)	Limit Temp. (°F)	Price
FAL3C05TD120	3	90 to 120	25 to 50	150 to 250	179.96
FAL7C05TD120	7	90 to 120	25 to 50	150 to 250	181.66

5D5178

FAN AND LIMIT, UNIVERSAL

- Single element type for applications with narrow space limitations
- Regulates fan or blower operation and acts as high limit safety control
- Designed to be interchangeable with other flush mounted, single element fan and limits
- Range: fan -50 to 265°F, differential 15–70°F
  Limit: 100 to 300°F, differential 25°F, fixed
- Switch: fan SPST, close rise, 7.0 F.L. Amp @ 240 Vac
  Limit: SPST, open rise, 6.0 F.L. Amp @ 240 Vac

White-Rodgers

Part No.	Element Length (In.)	Price
5D5135	5	205.70
5D5190	8	209.68
5D5178	11	209.70

FAN AND LIMIT, TIME/TEMPERATURE

Turns the blower on and off as a function of time and temperature. Includes limit portion for safe operation of furnace.

- Adjustable fan off temperature setting
- Adjustable limit temperature setting
- Includes a "Heat Assist" circuit to provide a timed blower on function
- Element length: 7"

CAM-STAT®

Part No.	Fan off Temp (°F)	Limit Temp. (°F)	Limit Differential (°F)	Comments	Price
FALTS57C05T	90 to 120	150 to 250	30, Fixed	—	196.86
FALTS57C65T	90 to 120	150 to 250	30, Fixed	w/Element Shield	200.24
FALTS57C13BT120A	90 to 120	150 to 250	30, Fixed	SPDT	200.84

L4029E1219

LIMIT, L4029 SERIES

Opens line or low voltage circuit and shuts off fan if air temperature reaches setpoint.

- Manual reset
- May be used as a fire stat in ductwork
- Positive lockout of burner in case of fan failure
- Contact rating: 5 F.L. Amp @ 240 Vac
- Duct mounting: 3" insertion

Honeywell

Part No.	Fixed Cutout Setting (°F)	Price
L4029E1011	135	265.20
L4029E1029	200	265.20
L4029E1045	240	265.20
L4029E1219	165	260.10
L4029E1227	125	260.10

L593BA

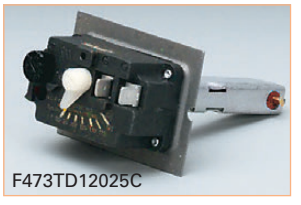
LIMIT

Safety device which cycles the blower and gas valve in case the fan control device fails.

- SPDT switching action

CAM-STAT®

Part No.	Element Length (In.)	Off Temperature (°F)	Price
L593BA	3	120 to 250	82.50
L597BA	7	120 to 250	84.00


F473TD12025C

FAN

Turns the blower on and off as a function of temperature.

- Fan off temperature: 90 to 120°F
- Fan differential: 25 to 50°F

CAM-STAT®

Part No.	Extension Width (In.)	Element Length (In.)	Price
F473TD12025C	7/16	3	161.66
F477TD12025C	7/16	7	164.16
F21412A140	1 1/16	3	166.44
F21413A140	1 1/16	7	168.80

FA47TS7110

FAN, TIME/TEMPERATURE

Turns the blower on and off as a function of time and temperature.

- Adjustable fan off temperature setting
- Includes "Heat Assist" circuit to provide a timed blower on function
- Time delay at 24 Vac: 25–60 seconds
- Fan differential: 50°F, fixed

CAM-STAT®

Part No.	Element Length (In.)	Fan Off Temperature (°F)	Price
FA47TS3110	3	90 to 120	190.00
FA47TS7110	7	90 to 120	197.50

S1061B6545C

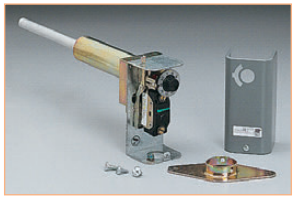
TIME DELAY

Used in controlling high current blowers, relays and contactors.

- 24 Vac input
- Available in SPST and SPDT configurations
- Provides delay on and delay off timing
- Contact rating—Normally open terminals: 8 F.L. Amp @ 240 Vac
  Normally closed terminals: 2.9 F.L. Amp @ 240 Vac

CAM-STAT®

		Timing (Sec.)		
Part No.	Switch	Delay On	Delay Off	Price
S1061A4575C	SPST	30 to 50	60 to 90	135.84
S1061A5040C	SPST	45 to 55	30 to 50	135.84
S1061B6545C	SPDT	60 to 70	45 to 75	135.84



FIRESTAT, DUCT

The A25 warm air controls lock out on a temperature increase to the control set point. Manual reset is required before the electrical contacts can be reclosed.

The A25 is normally located in a return air duct and wired to shut down air conditioning or ventilating fans when the temperature of the air becomes excessive, as from a fire.

Construction with 125°F stop setting meets requirements of NFPA 90A, Standard for the installation of air conditioning and ventilating systems for return air ducts of gypsum board construction.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Limit (°F)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A25AN1	SPDT, Open High	25 to 215	Manual Reset	125	300	8	216.82

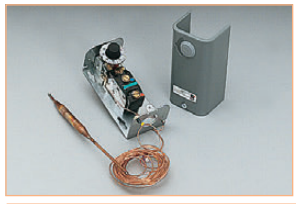
DUCT, FLANGE MOUNT

Wide range temperature control with special air coil sensing element and adjustable mounting flange. These duct thermostats are used on roof top units, make-up heaters, duct heaters, and air handling systems of all types.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19EAF1	SPDT	60 to 130	2, Fixed	200	3	203.88
A19EAF2	SPDT	30 to 110	2, Fixed	140	3	203.90

REMOTE BULB



HIGH RANGE

The A19 Series are single stage temperature controls that incorporate liquid filled sensing elements.

Suitable for temperature control in heating, ventilating, and refrigeration.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19AAB10[1]	SPST, Open High	200 to 550	10, Fixed	3/16 x 6	8	620	8	345.06
A19AAC9	SPDT	100 to 240	5, Fixed	3/16 x 3 7/8	6	290	8	183.80

[1]Oven thermostat

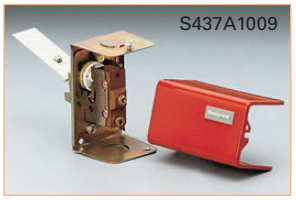
CROP DRYING

Crop drying thermostat energizes gas valve to maintain temperature.

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Bulb (In.)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240V)	Price
A19AAE3	SPST, Open High	80 to 180	2, Fixed	1/8 x 1 1/4	10	200	3	210.92

ACCESSORIES



SAIL SWITCH, HIGH VELOCITY

Responds to the air velocity in heating or warm air ducts.

- Contact rating: 5.1 F.L. Amp @ 240 Vac

Honeywell

Part No.	Switch	Operating Velocity (fpm)	Sail Dimension (In.)	Price
S637A1004	SPDT	1,900–2,250	1 x 3	234.96
S437A1009	SPST	1,900–2,250	1 x 3	206.06

SAIL SWITCH, LOW VELOCITY

Used in forced air systems to activate electronic air cleaners, humidifiers or other auxiliary equipment in response to airflow from system fan.

- Red flag drops into window on fan compartment suction increase

Honeywell

Part No.	Switch	Operating Velocity (fpm)	Sail Dimension (In.)	Price
S688A1007	SPDT	75 to 250	5 x 10	124.30

WINTER WATCHMAN

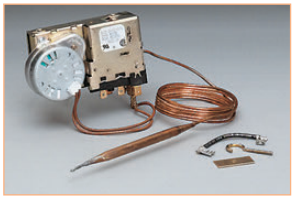
Used as a freeze warning device. Completes circuit to household lamp on temperature fall, indicating inoperative heating equipment.

- Lamp plugs into receptable at bottom of "Winter Watchman" device
- Useful when house is unoccupied to notify a neighbor of a temperature drop so heating source fault can be rectified before freeze-up occurs

Honeywell

Part No.	Temperature Range (°F)	Price
S483B1002	30–60	68.68

HEAT PUMP CONTROL



HEAT PUMP DE-ICE TIMER

Provides field-adjustable timer control for de-icing of heat pump outdoor coils. Defrost cycle starts every 30, 45 or 90 minutes. Interlock prevents more than one defrost cycle per time period and temperature must be 28°F or lower to start.

- Contact rating: 10 F.L. Amp @ 240 Vac

Robertshaw

Part No.	Switch	Voltage (Vac)	Capillary Length (In.)	Price
E152601	SPDT	240	60, w/Bulb	168.20

HEAT PUMP REVERSING VALVE

REVERSING VALVE

These solenoid operated reversing valves are slide type, 4 way with a 4 way pilot valve and operate under the full pressure of the heat pump system. The valves are used on unitary, split system, and window-type heat pump applications. There are six different styles designed to meet your particular system need.

- Coils not included — uses LDK style

OPPOSED PARALLEL

V10-414140-470 is used for heat recovery applications

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V2-408060-170	0.8 to 1.8	.9 to 2.2	1/2	3/8	V2128	221.64
V6-412080-170	1.1 to 5.4	1.3 to 6.7	3/4	1/2	V62101	221.34
V6-414080-170	1.1 to 5.4	1.3 to 6.7	7/8	1/2	V62103	221.34
V6-414120-170	1.1 to 5.4	1.3 to 6.8	7/8	3/4	—	246.34
V10-414080-170	3.2 to 9.4	3.8 to 10.1	7/8	1/2	V102500	374.86
V10-414120-170	3.2 to 9.4	3.8 to 10.1	7/8	3/4	V102750	282.04
V10-418140-170	3.2 to 10.7	3.8 to 11.7	1 1/8	7/8	V102762	410.56
V10-414140-470	3.2 to 9.4	3.8 to 10.1	7/8	7/8	V102765	551.08

LOOPBACK PARALLEL

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V1-406060-270	.4 to 1.3	.5 to 1.7	3/8	3/8	V1158	222.12
V2-408060-270	0.8 to 1.8	.9 to 2.2	1/2	3/8	V2100	201.00

OPPOSED OFFSET PARALLEL

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V12-4220T0-270	6.5 to 13.3	6.3 to 16.8	1 3/8	1 1/8 OD	V12-321	1066.72

OPPOSED FLARE

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V2-4100F0-370	1.1 to 2.0	1.3 to 2.5	5/8	3/8 OD	V2179	**98.12**

OPPOSED OFFSET FLARE

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V3-410080-770	1.1 to 2.7	1.3 to 3.1	5/8	1/2	V31003	**217.78**
V3-412080-870	1.1 to 2.8	1.3 to 3.5	3/4	1/2	V31004	**183.88**

LOOPBACK FLARE

Robertshaw

Part No.	Capacity (Tons) R407C	Capacity (Tons) R410A	Tube Size IDS (In.) Suction	Tube Size IDS (In.) High	Replaces	Price
V2-410060-470	1.1 to 2.0	1.3 to 2.5	5/8	3/8	V2150	**123.18**

COIL, LDK SERIES

Type LDK solenoid coils for use with the current Vx-xxxxxx-xxx series "Generation 4", Ranco heat pump reversing valves are epoxy encapsulated, continuous duty, moisture-resistant magnetic coils designed to operate the pilot valve controlling the reversing valves. Included with the solenoid coil is a wiring harness.

Robertshaw

Part No.	Voltage (Vac)	Color	Price
LDK-110000-070	24	Red	**64.26**
LDK-310000-070	120	Black	**66.06**
LDK-410000-070	240	Green	**66.06**
LDK-510000-070	277	Blue	**97.64**

HYDRONIC CONTROL, TEMPERATURE

AQUASTAT®

Immersion-type controllers for limiting or regulating temperatures of liquids in boilers or tanks.

- Contact rating: 5.1 F.L. Amp @ 240 Vac

Honeywell

Part No.	Application	Switch	Temperature Range (°F)	Differential (°F)	Includes	Price
L4006A1009	High/Low Limit	SPST, Open Rise	100 to 240	5, Fixed	1.5" Insulation	**334.76**
L4006A1017	High/Low Limit	SPST, Open Rise	100 to 240	5 to 30	1.5" Insulation	**323.22**
L4006A1132	High/Low Limit	SPST, Open Rise	100 to 240	5, Fixed	3" Insulation	**329.72**
L4006A1678	High/Low Limit	SPST, Open Rise	100 to 240	5 to 30	3" Insulation, Well Adapter	**238.32**
L4006A1959[1]	High/Low Limit	SPST, Open Rise	40 to 180	2, Fixed	1.5" Insulation, Well Adapter	**242.12**
L4006E1067	High Limit	SPST, Open Rise	110 to 270	Manual Reset	3" Insulation, Well Adapter	**347.48**
L4006H1004	High Limit	SPST, Open Rise	100 to 240	Manual Reset	Strap On, Well Adapter	**360.30**
L6006A1145	Circulator, High/Low Limit	SPDT	100 to 240	5 to 30	3" Insulation, Well Adapter	**250.40**
L6006C1018	Circulator, High/Low Limit	SPDT	65 to 200	5 to 30	Strap On, Well Adapter	**229.52**

[1]1.3 Full Load Amps @ 240 Vac

AQUASTAT® REMOTE BULB

For limiting or regulating temperature of liquids in boilers or tanks. Can also sense outside or duct air temperature.

Honeywell

Part No.	Application	Switch	Temperature Range (°F)	Differential (°F)	Includes	Price
L4008A1015	High/Low Limit	SPST, Open Rise	100 to 240	5 to 30	5 1/2' Capillary	**295.84**
L4008A1130	High/Low Limit	SPST, Open Rise	130 to 270	5 to 30	10' Capillary	**491.20**
L4008B1013	Circulator	SPST, Open Rise	100 to 240	5 to 30	5 1/2' Capillary	**292.64**
L4008E1156	High Limit	SPST, Open Rise	130 to 270	Manual Reset	5 1/2' Capillary	**315.74**
L6008A1192	Circulator, Low Limit	SPDT	100 to 240	5 to 30	5 1/2' Capillary	**406.48**

HYDRONIC CONTROL, TEMPERATURE

AQUASTAT®, MULTIPLE

High limit, low limit and/or circulator controllers used to regulate boiler water temperature in gas- or oil-fired hydronic heating systems.

- Contact rating: 5.1 amps @ 240 Vac
- Operating range:
  High limit: 130–240°F
  Differential: 10°F, fixed
  Low limit/Circulator: 110–220°F
  Differential: 10–25°F

Honeywell

Part No.	Application	Switch	Price
L4081A1023	High/Low Limit	2-SPST	444.94

AQUASTAT®, MULTIPLE, L8100 SERIES

Immersion-type controller for regulating and limiting the tank temperature in water heaters.

- Regulates temperature and provides energy cutoff (ECO) action on a temperature rise past the set point. Includes a second sensing element that senses average water temperature to minimize stacking.
- Operating range: 100–180°F
- Differential controller: 5°F, fixed
- ECO: 20°F, fixed
- Contact rating: 2 amps @ 24V

Honeywell

Part No.	Switch	Capillary Length (In.)	Price
L8100B1037	SPST, Opens on Rise	42	555.42
L8100B1128	SPST, Opens on Rise	39	517.26

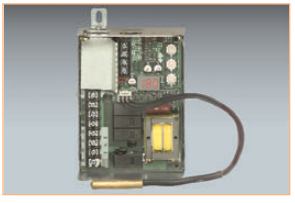
AQUASTAT®, TRIPLE

Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems, including domestic hot water service.

- Provides multizone control by using a separate circulator and R845 Relay for each zone
- Units with well adapter less well
- Operating range:
  High limit: 130–240°F
  Differential: 10°F, fixed
  Low limit/Circulator: 110–220°F
  Differential: 10–25°F
- Contact rating—Circulator: 3.7 F.L. Amp @ 240 Vac

Honeywell

Part No.	Application	Burner Voltage	Mounting	Insulation Depth (In.)	Includes	Price
L8124A1007	Multizone Capable	120	Vertical	1 1/2	3" Insertion Well	533.88
L8124A1015	Multizone Capable	120	Vertical	3	3" Insertion Well	539.00
L8124E1016	Multizone Capable	24	Vertical/Horizontal	1 1/2	Universal Element, Well Adapter	562.42
L8124G1020	Multizone Capable	120	Vertical/Horizontal	1 1/2	Universal Element, Well Adapter	579.74
L8124L1011	Multizone Capable	120	Vertical/Horizontal	3	Universal Element, Well Adapter	568.06



ELECTRONIC OIL AQUASTAT® CONTROLLER

120 Vac Oil Electronic Aquastat® Controller with Enviracom communication and troubleshooting Leds.

Provides electronic temperature sensing in a UL limit-rated controller with a single sensing probe. The L7224U controls the circulator, oil burner and boiler temperature. It replaces the L8124A, L8124C, L7124U, L7148A, L7248A,C, L7224A,C, and L8148A Controllers. The Aquastat Controller is intended for use in residential-type applications. It provides status and diagnostic information through an LED display combined with LED lights to enhance the diagnostic process.

Operating range: High limit: 130—240°F
Low limit: 110—220°F

Honeywell

Part No.	Differential (°F)	Height (In.)	Width (In.)	Depth (In.)	Includes	Mounting	Price
L7224U1002	High Limit: 5 to 20 adj.	7 1/8	4 1/4	2 5/8	—	Well mount, horizontal or vertical position, or flush mounted remote from the well	364.94

AQUARESET™ KITS

Outdoor Reset Kit

- Simple installation with three wire connection to the Aquastat
- Compatible with any L7224/L7248 Outdoor Reset Ready Aquastat, S9361A Integrated Boiler Control, and R7910 SOLA Controls

Domestic Hot Water Kit

- Compatible with Honeywell AquaReset™ wired and wireless kits
- Ensures domestic hot water needs are met when combining AquaReset™ with an indirect DHW tank.
- Easy three-wire installation to AquaReset™ module

Alarm Module

- Works with any alarm generating EnviraCOM™ enabled control
- Local LED alarm present and communication active indication
- Simple low-voltage, 5-wire installation

Honeywell

Part No.	Description	Price
W8735S1000	AquaReset™ Outdoor Reset Module	713.14
W8735S1008	AquaReset™ Domestic Hot Water Kit	236.88
W8735S3000	EnviraCOM™ Alarm Module	84.06

AQUASTAT® RELAY

Immersion-type controllers that combine high limit protection with switching relay control of burner and circulator motors.

- Horizontal and vertical mounting
- Includes well adapter, heat conductive compound
- Contact rating: 5.1 amps @ 240 Vac

Honeywell

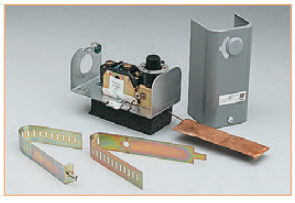
Part No.	Burner Circuit	Mounting	High Limit (°F)	Price
L8148A1017	Line Voltage	Horizontal	120 to 240	401.22
L8148E1265	Low Voltage	Vertical	180 to 240	522.10
L8148E1299	Low Voltage	Vertical	120 to 240	499.88
L8148J1009	Low, mV Voltage	Horizontal and vertical	120 to 240	471.50

HOT WATER, WELL IMMERSION

- Hot water control for hot water boilers
- Furnished with well assembly for 1/2" NPT

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Capillary Length (Ft.)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240 Vac)	Price
A19ABC11	SPDT	100 to 240	6 to 24	Flush	250	6.0	162.94
A19ABC12	SPDT	100 to 240	6 to 24	8	290	6.0	181.92

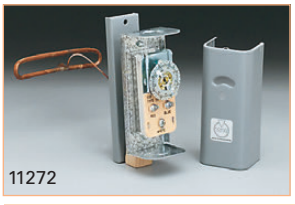


HOT WATER, STRAP-ON

- Strap-on, surface type hot water control
- Automatic changeover control for fan coil systems

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Max. Bulb Temp. (°F)	F.L. Amps (@ 240 Vac)	Price
A19DAC1	SPDT	100 to 240	10, Fixed	250	6.0	135.92



HOT WATER, STRAP ON

- Attach directly to surface of pipe
- Strap-on eliminates need for tapping of boiler or draining system
- Sensing element has twice the contact area of competitve models

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Switch	F.L. Amps (@ 240 Vac)	Price
11B021	100 to 240	10, Fixed	SPST, Open Rise	6.0	192.60
11272	100 to 240	10, Fixed	SPDT	3.7	216.44

VALVE, HYDRONIC CONTROL

V4043A1002

ZONE, LINE VOLTAGE

On/off and diverting line voltage valves consist of an actuator motor and valve assembly for controlling the flow of hot or chilled water and some models for steam.

- Manual opener (on all models, except straight-through, normally open valves) for valve operation on power failure; valve returns to automatic position when power is restored
- All models may be installed without disassembling the valve
- Complete powerhead may be removed or replaced without breaking line connections or draining the system

Honeywell

Part No.	Pattern	De-energized Position	Capacity (Cv)	Connection (In.) Size	Connection (In.) Type	Voltage	Price
V4043A1002	Straight-Thru	Normally Closed	3.5	1/2	Flare	120	**173.34**
V4043A1010	Straight-Thru	Normally Closed	3.5	1/2	Sweat	120	**173.34**
V4043A1259	Straight-Thru	Normally Closed	8.0	3/4	Sweat	120	**191.82**
V4043A1697	Straight-Thru	Normally Closed	10.0	1	NPT	120	**256.06**
V4043B1018	Straight-Thru	Normally Open	3.5	1/2	Sweat	120	**187.30**
V4043B1059	Straight-Thru	Normally Open	3.5	1/2	Sweat	240	**183.64**
V4043E1003[1]	Straight-Thru	Normally Closed	3.5	1/2	Sweat	120	**195.66**
V4044A1019	2-Position Diverting	Port A Normally Closed	4.0	1/2	Sweat	120	**187.74**
V4044A1050	2-Position Diverting	Port A Normally Closed	4.0	1/2	Sweat	240	**187.74**
V4044A1191	2-Position Diverting	Port A Normally Closed	7.0	3/4	Sweat	120	**206.04**
V4044B1017[2]	2-Position Diverting	Port A Normally Closed	4.0	1/2	Sweat	120	**232.54**

[1]Steam only [2]Bottom inlet, includes integral Aquastat®

V8044A1044

ZONE, LOW VOLTAGE

Control voltage: 24 Vac.

Honeywell

Part No.	Pattern	De-energized Position	Capacity (Cv)	Connection (In.)	End Switch	Price
V8043A1011	Straight-Thru	Normally Closed	3.5	1/2 Sweat	—	**160.00**
V8043A1029	Straight-Thru	Normally Closed	3.5	3/4 Sweat	—	**160.62**
V8043B1076	Straight-Thru	Normally Open	3.5	3/4 NPT	—	**181.34**
V8043E1004	Straight-Thru	Normally Closed	3.5	1/2 Sweat	Yes	**158.10**
V8043E1012	Straight-Thru	Normally Closed	3.5	3/4 Sweat	Yes	**169.18**
V8043E1020	Straight-Thru	Normally Closed	3.5	1 Sweat	Yes	**194.64**
V8043E1061	Straight-Thru	Normally Closed	8.0	3/4 Sweat	Yes	**169.18**
V8043E1145	Straight-Thru	Normally Closed	3.5	3/4 NPT	Yes	**181.34**
V8043F1028	Straight-Thru	Normally Closed	3.5	1/2 Sweat	Yes	**190.60**
V8043F1036	Straight-Thru	Normally Closed	3.5	3/4 Sweat	Yes	**183.36**
V8043F1051	Straight-Thru	Normally Closed	3.5	1 Sweat	Yes	**208.78**
V8043J1029[1]	Straight-Thru	Normally Open	3.5	1/2 NPT	—	**193.86**
V8043J1037[1]	Straight-Thru	Normally Open	3.5	3/4 NPT	—	**208.30**
V8044A1002	2-Position Diverting	Port A Normally Closed	4.0	1/2 Flare	—	**188.16**
V8044A1010	2-Position Diverting	Port A Normally Closed	4.0	1/2 Sweat	—	**181.20**
V8044A1044	2-Position Diverting	Port A Normally Closed	7.0	3/4 Sweat	—	**199.90**
V8044A1135	2-Position Diverting	Port A Normally Closed	4.0	1/2 NPT	—	**193.22**
V8044E1003	2-Position Diverting	Port A Normally Closed	4.0	1/2 Sweat	Yes	**196.62**
V8044E1011	2-Position Diverting	Port A Normally Closed	7.0	3/4 Sweat	Yes	**207.64**

[1]Steam only

ZONE, LOW VOLTAGE

- Control voltage: 24 Vac.
- Install without disassembly, compact construction for easy installation
- Manual opener

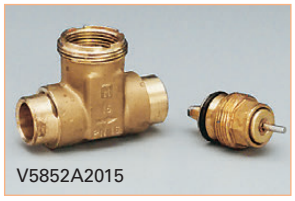
Honeywell

Part No.	Pattern	De-energized Position	Capacity (Cv)	Connection (In.)	End Switch	Price
V8043E5012	Straight-Thru	Normally Closed	3.5	3/4 Sweat	Yes	182.96
V8043E5020	Straight-Thru	Normally Closed	3.5	1 Sweat	Yes	206.52

LINEAR WATER

Controls hot and/or chilled water for VAV terminal units, fan coil units, small reheaters and recoolers in electric/electronic temperature control systems. Used with the M6410 (non spring return)/M6435 (spring return) small individual room controller 3-position floating electronic linear valve actuator or M7410 (non spring return)/M7435 (spring return) selectable 0 to 10 Vdc or 2 to 10 Vdc electronic actuator, or MP958 (2000 series valves only) pneumatic valve actuator.

- Larger valves (1 to 1-1/2") are pressure balanced, which results in higher close-off pressures.
- Long stroke allows wider range of control.
- Soft valve seat provides low leakage rate.
- Inserts for 1/2 and 3/4" valves are changeable without draining valve when used with an insert replacement tool.
- Brass body, seat, cartridge, stainless steel stem.
- Threaded plastic cover/manual handle allows manual operation.
- 1/2, 3/4" valves equal percentage flow, 1 to 1 1/2" valves linear flow


V5852A2015

2 WAY, CARTRIDGE GLOBE, WATER

Honeywell

Part No.	Connection (In.) Size (Nom.)	Type	Flow (C_V)	Price
V5852A2007	1/2	Sweat	0.19	60.04
V5852A2015	1/2	Sweat	0.29	58.06
V5852A2023	1/2	Sweat	0.47	58.06
V5852A2031	1/2	Sweat	0.74	58.06
V5852A2049	1/2	Sweat	1.2	58.06
V5852A2056	1/2	Sweat	1.9	58.06
V5852A2064	3/4	Sweat	2.9	83.60
V5852A2072	3/4	Sweat	4.9	83.60

2 WAY, CARTRIDGE GLOBE, FPT

Honeywell

Part No.	Connection (In.) Size (Nom.)	Type	Flow (Cv)	Price
V5862A2005	1/2	FPT	0.19	58.06
V5862A2013	1/2	FPT	0.29	58.06
V5862A2021	1/2	FPT	0.47	58.06
V5862A2039	1/2	FPT	0.74	58.06
V5862A2047	1/2	FPT	1.2	58.06
V5862A2054	1/2	FPT	1.9	58.06
V5862A2062	3/4	FPT	2.9	84.40

2 WAY, CARTRIDGE GLOBE, FPT (Cont'd)

Honeywell

Part No.	Connection (In.) Size (Nom.)	Type	Flow (Cv)	Price
V5862A2070	3/4	FPT	4.9	92.80
V5862A3003	1	FPT	5.5	261.54
V5862A3011	1	FPT	7.8	256.96
V5862A3029	1	FPT	11	226.60
V5862A3037	1 1/4	FPT	18	275.60
V5862A3045	1 1/2	FPT	25	374.18

V5853A2030

3 WAY, CARTRIDGE GLOBE, WATER

Honeywell

Part No.	Connection (In.) Size (Nom.)	Type	Flow (Cv)	Price
V5853A2006	1/2	Sweat	0.29	88.44
V5853A2014	1/2	Sweat	0.47	88.44
V5853A2022	1/2	Sweat	0.74	88.44
V5853A2030	1/2	Sweat	1.2	88.44
V5853A2048	1/2	Sweat	1.9	88.44
V5853A2055	3/4	Sweat	2.9	119.50
V5853A2063	3/4	Sweat	4.9	119.50
V5853A1008	3/4	Sweat	2.9	105.76
V5853A1016	3/4	Sweat	4.9	105.76

3 WAY, CARTRIDGE GLOBE, FPT

Honeywell

Part No.	Connection (In.) Size (Nom.)	Type	Flow (Cv)	Price
V5863A2004	1/2	FPT	0.29	90.60
V5863A2012	1/2	FPT	0.47	90.60
V5863A2020	1/2	FPT	0.74	90.60
V5863A2038	1/2	FPT	1.2	90.60
V5863A2046	1/2	FPT	1.9	91.48
V5863A2053	3/4	FPT	2.9	129.86
V5863A2061	3/4	FPT	4.9	122.40
V5863A1006	3/4	FPT	2.9	122.40
V5863A1014	3/4	FPT	4.9	113.50
V5863A3002	1	FPT	5.5	260.70
V5863A3010	1	FPT	7.8	241.46
V5863A3028	1	FPT	11	257.06
V5863A3036	1 1/4	FPT	18	319.82
V5863A3044	1 1/2	FPT	25	413.84

VALVE, HYDRONIC CONTROL

NSR CARTRIDGE GLOBE VALVE ACTUATOR

Small individual room control (IRC) electric actuators provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Suitable for Excel/IRC system or other controllers providing specified signals
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the closeoff port
- Power supply: 24 Vac
- Timing: 125 seconds

Honeywell

Part No.	Control Mode	Stem Force (Lbf)	Usage	Comments	Price
M6410A1029	SPDT Floating	40.50	1/2, 3/4" Valves	UL94-5V Plenum Rated	**158.88**
M6410A3017	SPDT Floating	67.50	1 to 1 1/2" Valves	UL94-5V Plenum Rated	**189.52**
M7410F1000	0-10 Vdc, 2-10 Vdc	40.50	1/2, 3/4" Valves	DA/RA	**286.42**
M7410F3006	0-10 Vdc, 2-10 Vdc	67.50	1 to 1 1/2" Valves	DA/RA	**294.82**

SR CARTRIDGE GLOBE VALVE ACTUATOR

Small Individual Room Control (IRC) Electric Actuators provide floating or modulating control of V5852, V5862 two-way or V5853, V5863 three-way valves.

- Suitable for Excel/IRC system or other controllers providing specified signals.
- Magnetic coupling for torque limitation independent of voltage supply and self-adjustment of the close-off port.
- No mounting tools required.
- Small size allows installation in limited space of fan coil units, induction units, and small reheaters or recoolers.
- Visual position indication (red pin).

Honeywell

Part No.	Control Signal	Feedback	Stem Force (Lbf)	Comments	Use with	Price
M6435A1004	Floating, SPDT	No	40.50	—	1/2 in. and 3/4 in. V58XX Cartridge Globe Valves	**294.86**
M6435A3000	Floating, SPDT	No	90	—	1 to 1 1/2 in. V58XX Cartridge Globe Valves	**315.94**
M7435F1001	0-10 or 2-10 Vdc Modulating	Yes	40.50	Direct/Reverse Acting Switch	1/2 in. and 3/4 in. V58XX Cartridge Globe Valves	**376.20**
M7435F3007	0-10 or 2-10 Vdc Modulating	Yes	90	Direct/Reverse Acting Switch	1 to 1 1/2 in. V58XX Cartridge Globe Valves	**392.30**

WATER

Controls central heating and/or cooling systems, fan coil systems, radiators and convectors. Depending on the model selected, it can be controlled by either a low or line voltage spst or spdt or floating controller such as a room thermostat, Aquastat control, or flow switch.

- Pressure ratings—Static: 300 psi
  Burst: 1,500 psi
- Use with VCXXXXZZ actuator

2-WAY, CARTRIDGE CAGE, WATER

Honeywell

Part No.	Connection (In.) Nom. Size	Connection (In.) Type	Flow (Cv)	Price
VCZAA1100	1/2	Sweat	3.2	**66.88**
VCZBB1100	1/2	FPT	3.2	**72.82**
VCZAL1100	3/4	FPT	4.7	**104.84**
VCZAM1100	3/4	Sweat	4.6	**94.76**
VCZAR1100	1	FPT	6.6	**151.28**
VCZAS1100	1	Sweat	6.6	**141.52**

3-WAY, CARTRIDGE CAGE, WATER

Honeywell

Part No.	Connection (In.) Nom. Size	Connection (In.) Type	Flow (Cv)	Price
VCZNB6100	1/2	FPT	3.7	**88.30**
VCZMA6100	1/2	Sweat	3.8	**81.76**
VCZMK6100	3/4	FPT	6.6	**128.92**
VCZML6100	3/4	Sweat	5.9	**112.40**
VCZMR6100	1	FPT	8.6	**173.60**
VCZNE6100	1 1/4	Sweat	9.0	**190.24**

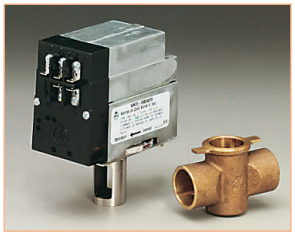
VC2111ZZ11

ACTUATOR

- Use with VCZXX1100 and VCZXX6100 valves

Honeywell

Part No.	Voltage (Vac)	Timing (Sec.)	Type Control	Signal	Aux. Switch	Price
VC4011ZZ11	120	6	2-Wire + Com	SPST	No	114.16
VC6934ZZ11	24	120	3-Wire	SPDT, Floating	No	192.76
VC7934ZZ11	24	120	3-Wire	0-10 Vdc Modulating	No	285.82
VC8114ZZ11	24	6	2-Wire	SPST	No	82.58
VC8714ZZ11	24	6	2-Wire + Com	SPST	Yes	104.06



2 WAY, ZONE

- For zoning hydronic systems up to 50 psi
- 2-wire and 3-wire, 24V valves with screw terminal wiring panel and auxiliary switch
- Maximum water temperature: 240°F, maximum system pressure 50 psi

2 WAY, ZONE, 2-WIRE

White-Rodgers

Part No.	Nominal Tubing ODF (In.)	Flow (Cv)	Price
1361102	3/4	23.5	314.10
1361103	1	37.0	332.60

2 WAY, ZONE, 3-WIRE

White-Rodgers

Part No.	Nominal Tubing ODF (In.)	Flow (Cv)	Price
1311102	3/4	23.5	267.88
1311103	1	37.0	294.74
1311104	1 1/4	42.2	344.90

MOTOR, REPLACEMENT

- Replacement motor for "C" Series classic zone valve

Schneider Electric t.a.c Erie

Part No.	Voltage	Price
30A118A	24	73.92
30118B	120	73.92
30A118V	230	85.68

ERIE POPTOP™

The Erie PopTop™ actuator is specifically designed for use with Erie's valve body. The valve actuator can be installed after the valve body is installed onto the fan coil, radiation or air handler. The PopTop™ features the reliable synchronous motor driven spring return operation proven in millions of Erie valves. The PopTop™ actuator mounts directly onto the body quickly and easily without the need for linkages and calibration.

AG13A020

ACTUATOR, 2 POSITION, VT SERIES

Spring return actuators for VT2xxx and VT3xxx series valves.

Schneider Electric t.a.c Erie

Part No.	Application	Voltage	Price
AG13B020	Normally Closed	120	96.60
AG13A020	Normally Closed	24	96.60
AG13A02A	Normally Closed (End Switch)	24	102.48
AG13T020	Normally Closed	277	105.00
AG13U020	Normally Closed	230	105.00
AG23B020	Normally Open	120	103.32
AG23A020	Normally Open	24	103.32
AG23D020	Normally Open	208	115.08

VT2212

2 WAY, ZONE

Schneider Electric t.a.c Erie

Part No.	Connection (In.) Nom. Size	Connection (In.) Type	Flow (Cv)	Price
VT2212	1/2	Sweat	2.5	48.72
VT2213	1/2	Sweat	3.5	48.72
VT2222	1/2	FPT	2.5	53.76
VT2223	1/2	FPT	3.5	53.76
VT2313	3/4	Sweat	3.5	61.32
VT2315	3/4	Sweat	5	61.32
VT2317	3/4	Sweat	7	61.32
VT2323	3/4	FPT	3.5	71.40
VT2325	3/4	FPT	5	71.40
VT2327	3/4	FPT	7	71.40
VT2415	1	Sweat	5	101.64
VT2417	1	Sweat	7	101.64
VT2427	1	FPT	8	113.40

VALVE, HYDRONIC CONTROL

3 WAY, ZONE

Part No.	Connection (In.) Nom. Size	Type	Flow (Cv)	Price
VT3212	1/2	Sweat	3	61.32
VT3213	1/2	Sweat	4	61.32
VT3222	1/2	FPT	3	66.36
VT3223	1/2	FPT	4	66.36
VT3313	3/4	Sweat	4	78.96
VT3315	3/4	Sweat	5	78.96
VT3317	3/4	Sweat	7	78.96
VT3323	3/4	FPT	4	86.52
VT3325	3/4	FPT	5	86.52
VT3327	3/4	FPT	7	86.52
VT3342	3/4	IFL[1]	3	66.36
VT3343	3/4	IFL[1]	4	66.36
VT3415	1	Sweat	5	118.44
VT3417	1	Sweat	7	118.44
VT3427	1	FPT	7.5	126.84

[1]Inverted Flare

ACTUATOR, MODULATING, VM SERIES

Spring return actuators for VM2xxx and VM3xxx series valves.

- 0 to 10 Vdc or 4 to 20 mA output.
- Magnetic clutch to maximize motor life and gear train
- Manual overide
- Position indicator

Part No.	Application	Voltage	Price
AP13A000	Spring Return, Normally Closed	24	310.80
AP23A000	Spring Return, Normally Open	24	310.80
AP33A000	Non Spring Return	24	178.92

2 WAY, ZONE, MODULATING

Part No.	Connection (In.) Nom. Size	Type	Flow (C_v)	Price
VM2213	1/2	Sweat	4	59.64
VM2223	1/2	FPT	4	67.20
VM2313	3/4	Sweat	4	93.24
VM2323	3/4	FPT	4	100.80

3 WAY, ZONE, MODULATING

Part No.	Connection (In.) Nom. Size	Type	Flow (Cv)	Price
VM3213	1/2	Sweat	4	73.08
VM3223	1/2	FPT	4	83.16
VM3313	3/4	Sweat	4	105.84
VM3323	3/4	FPT	4	116.76
VM3427	1	FPT	7	157.08

ZONE VALVE ACTUATOR

Actuator designed to work with Belimo's Zone Valves.

- On/Off diverting control
- Manual overide
- Electrical connection: 6" wire lead 120 V; 18" wire lead 24 V

Part No.	Application	Voltage	Price
ZONE24NC	Normally Closed	24	116.10
ZONE24NCS	Normally Closed, with Auxiliary Switch	24	131.40
ZONE24NOS	Normally Open, with Auxiliary Switch	24	131.40
ZONE120NC	Normally Closed	120	116.10
ZONE120NCS	Normally Closed, with Auxiliary Switch	120	131.40
ZONE120NOS	Normally Open, with Auxiliary Switch	120	131.40

2 WAY, ZONE

- Flow characteristics: on/off
- Chilled or hot water, 50% glycol
- Pressure rating: 300 Psi

Part No.	Connection (In.) Nom. Size	Type	Flow (C_V)	Price
ZONE215S25	1/2	Sweat	2.5	56.70
ZONE215S35	1/2	Sweat	3.5	56.70
ZONE215N25	1/2	FPT	2.5	61.20
ZONE215N35	1/2	FPT	3.5	61.20
ZONE220S35	3/4	Sweat	3.5	68.40
ZONE220S50	3/4	Sweat	5.0	68.40
ZONE220N35	3/4	FPT	3.5	76.50
ZONE220N50	3/4	FPT	5.0	76.50
ZONE225S80	1	Sweat	8.0	127.80
ZONE225N80	1	FPT	8.0	132.30

3 WAY, ZONE

- Flow characteristics: on/off, diverting
- Chilled or hot water, 50% glycol
- Pressure rating: 300 Psi

Part No.	Connection (In.) Nom. Size	Type	Flow (C_V)	Price
ZONE315S25	1/2	Sweat	2.5	72.00
ZONE315S35	1/2	Sweat	3.5	72.00
ZONE315N25	1/2	FPT	2.5	76.50
ZONE315N35	1/2	FPT	3.5	76.50
ZONE320S35	3/4	Sweat	3.5	90.90
ZONE320S50	3/4	Sweat	5.0	90.90
ZONE320N35	3/4	FPT	3.5	97.20
ZONE320N50	3/4	FPT	5.0	97.20
ZONE325S80	1	Sweat	8.0	139.50
ZONE325N80	1	FPT	8.0	153.00

ZONE SENTRY® ZONE VALVE, NORMALLY CLOSED, 2 WAY

The Taco Zone Sentry® Zone Valve enhances the overall performance of any zone valve system. The unique patented technology in the Zone Sentry utilizes a microcircuit based logic to control a gear driven electronic actuator which drives a ball valve based body design.

It can be used in a wide variety of heating and cooling applications, primarily designed for use with fan coils, radiators, convectors, air handlers, heat pumps and radiant applications.

Zone Sentry® can be installed in any direction, in any orientation. The operator can be mounted to the valve body in either direction great for those tight baseboard jobs. Snap-in quick connects on the back of the valve make for a simple, secure and fast wiring hook-up. A green LED light shows full functionality of the valve's operation and thermostat status. Under a no power situation the manual override button located on the top of the valve allows the ball to be rotated up to 90° and is also marked with a slot to indicate the position of the valve.

- Uses up to 93% less energy than other commonly installed zone valves
- Up to 12 valves on (1) 40VA transformer
- Multi function LED assists with troubleshooting
- Bidirectional flow (you can't install the valve backwards)
- Manual override button
- Positional indicator shows the ball valve's actual position
- Max. Operating Pressure: 300 PSI
- Max. Shutoff Pressure: 125 PSi
- Electrical Rating: 24 VAC, 60 Hz, 0.48 Amps

	Connection (In.)		Flow	
Part No.	Nom. Size	Type	(C_V)	Price
Z050C21	1/2	Sweat	4.9	**225.86**
Z075C21	3/4	Sweat	10.3	**238.10**
Z100C21	1	Sweat	8.9	**274.08**

ZONE VALVE

Taco zone valves permit accurate temperature control of individual rooms or groups of rooms in residences or commercial buildings which are heated or cooled hydronically. Beryllium copper metal bellows separate system water from the atmosphere for positive and leakproof operation. Exclusive heat motor functions silently. Saves energy; heat motor is not constantly energized while the valve is open.

Part No.	Nominal Size (In.)	Length (In.)	Shipping Weight (Lbs.)	Price
570	1/2	3 1/8	2.25	**234.38**
571	3/4	3 3/8	2.25	**234.38**
572	1	3 5/8	2.25	**275.96**
573	1 1/4	3 7/8	2.25	**322.30**
555050	Replacement Actuator for all Zone Valves			**171.56**

ELECTRIC VALVE ACTUATOR

The VA748 series provides floating or proportional control in HVAC applications. The compact design of this actuator makes it suitable for installation in confined spaces, such as fan coil, chilled ceiling, manifolds, etc.

Due to the innovative concept of different strokes setting the VA748 can be installed over most of the terminal unit valve in the market.

- Auto-commissioning simplifies installation, since models require no adjustments in the field
- Auto-shutoff actuator motor extends actuator life by reducing drive time and excessive motor wear
- Durable, heat-stabilized, plastic resin enclosure allows the actuator to be used in applications with fluid temperatures up to 203ΔF
- Actuator can be mounted after the valve body is piped, simplifying installation and providing application flexibility
- Operating status LED provides direct, visual indication of the actuator operating status
- Actuator can be rotated after it is mounted on the valve body, simplifying installation by allowing the actuator wiring entry to be located in any direction

Part No.	Description	Price
VA74800312	24 VAC Floating	**225.26**

HYDRONIC CONTROL

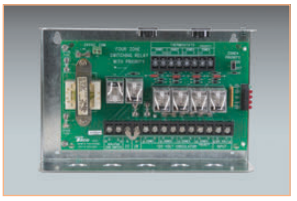
BOILER RESET CONTROL

Microprocessor-based control designed to regulate the supply water temperature from a single boiler based on the outdoor temperature. Standard functions include warm weather shut down, minimum boiler supply temperature setting, and a starting water temperature setting.

- Power supply: 24 VAC 3 VA (powered by -EXP control)
- Relays: 24 V (ac) 5A, pilot duty, 240 VA

Part No.	Description	Price
PC700	Add-On Power Control	**551.88**

HYDRONIC CONTROL



ZONE VALVE

Taco switching relays combine clearly labeled PC board layouts with advanced features that allow for total system customization. External indicator lights provide instant diagnostic feedback, making a snap of service calls or new installation start-ups. All switching relays are UL and CSA listed, use standard "ice cube" replaceable relays and are compatible with conventional and programmable thermostats.

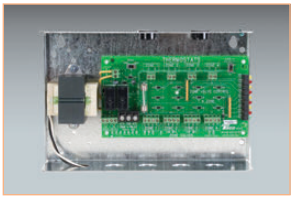
Features:

- External Indicator Lights
- Simplified Wiring
- Fully Enclosed Snap-Out Relays
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- 24 Volt Power Input or Output Terminal
- Extended 3 Year Warranty
- Switchable Priority
- Fuse Protected
- Isolated End Switch

Additional -EXP Features:

- Plug-in PowerPort Card Slots
- Expandable to 20 Zones
- Interface with -EXP Zone Valve Controls
- Add-on Power Control Plug

Part No.	Number of Zones	Contact Rating (Amps)	Price
SR502	2 with Priority	15 Amp	304.64
SR503	3 with Priority	15 Amp	329.84
SR504EXP	4 with Priority, 3 Power Ports	20 Amp	490.94
SR506EXP	6 with Priority, 3 Power Ports	20 Amp	574.98



ZONE VALVE CONTROL

Taco Zone Valve Controls work with two-, three-, or four-wire zone valves. Fully fuse protected, they also include two isolated end switches and a built-in priority switch. The contractor friendly PC board layout eliminates the problems caused by incorrect wiring and the "unfinished" look of conventional zone valve installations. The sturdy screw connections add additional reliability, while the external indicator lights provide instant diagnostic feedback, reducing installation time.

Features:

- External Indicator Lights
- Simplified Wiring
- Contractor Friendly PC Board Layout
- Universal Thermostat Compatibility
- UL and CSA Approved
- Switchable Priority
- Extra Set of Dry Contacts
- Extended 3 Year Warranty

Additional-EXP features:

- Two Plug-In PowerPort Card Slots
- One Add-On Power Control Plug
- Expandable to 20 Zones
- Interface with -EXP Switching Relays

Part No.	Number of Zones	Tranformer VA	Price
ZVC403	3	40	231.14
ZVC404	4 with Priority	40	265.62
ZVC406EXP	6 with Priority, 2 Power Ports	80	525.98

SWITCHING RELAY

UNIVERSAL

The R8845U Universal Switching Relay with 24V controller provides intermediate switching of line- and low-voltage devices from a line- or low-voltage controller.

- Replaceable, socketed relays
- Two troubleshooting LEDs
- Push-to-test button
- Relays can be used with external 24 Vac or 24 Vdc supply, line-voltage control, or with internal 24V transformer

Part No.	Description	Price
R8845U1003	Switching Relay	130.86

OIL BURNER CONTROL

AQUASTAT, PRIMARY

Immersion type Aquastat® controller and oil burner primary control provides high limit and low limit/circulator control for oil-fired hydronic heating systems.

- Control range—High limit SPST: 130–240°F
  Differential: 10°F, fixed
  Low limit, circulator SPDT: 110–220°F
  Differential: 10–25°F
- 120 Vac

Part No.	Insulation Depth (In.)	Spud Size (In.)	Capillary Length (Ft.)	Includes	Price
R8182D1079	1 1/2	3/4	None	Well Adapter, Vertical Case	1402.94
R8182D1111	1 1/2	3/4	None	Well Adapter, Horiz. Case	1402.94
R8182H1070	1 1/2	3/4	5	Horiz. Case	1436.78

ELECTRONIC DIGITAL OIL PRIMARY

The R7284 Electronic Oil Primary is a line voltage, safety rated, interrupted and intermittent ignition oil primary control for residential oil fired burners used in boilers, forced air furnaces and water heaters. Used with a cad cell flame sensor, it operates an oil burner, spark igniter, and optional oil valve. The control works with a low voltage and optional high voltage thermostat. The primary controls fuel oil, senses flame, controls ignition spark (either interrupted or intermittent) and notifies through the EnviraCOM™ bus a remote alarm circuit when in lockout. Can be used with both hydronic and forced air systems.

Part No.	Timing Safety Switch (Sec.)	Diagnostics Display	F.L. Amps (@ 240 Vac)	Price
R7284U1004	Settable 15, 30 or 45	2 Line LCD Display	3.7	164.42
R7284B1024	15	Using LED only	3.7	132.66

PROTECTOR RELAY

Provides automatic, nonrecycling control of an intermittent ignition oil burner system.

- Controls oil burner, oil valve (if desired) and the ignition transformer in response to a call for heat
- Voltage: 120 Vac
- Includes LED lockout indication and manual trip safety switch for shutdown during servicing

Honeywell

Part No.	Timing Safety Switch (Sec.)	F.L. Amps (@ 240 Vac)	Price
R8184G4009	45	3.7	**200.70**
R8184G4066	15	5.0	**270.94**

PROTECTORELAY™, LOW VOLTAGE

Operates the oil burner and oil valve (if desired) in response to a call for heat from a low voltage control circuit.

- Includes transformer
- Primary voltage: 120 Vac
- Secondary voltage: 26.5V
- Contacts: 3.7 F.L. Amp @ 240 Vac

Honeywell

Part No.	Timing Safety Switch (Sec.)	Price
R8184M1051	45	**341.26**

PROTECTORELAY™/ PYROSTAT

One-piece, stack-mounted oil burner primary controls that cycle the burner on and shut down the burner on flame loss or system malfunction.

- Manual reset of safety switch required after ignition failure completely shuts off main burner
- Includes manual trip safety switch to assure burner shutdown during servicing
- Input voltage: 120V
- Contact rating: 3.7 F.L. Amp @ 240 Vac

Honeywell

Part No.	Ignition Type	Ignition Rating (Vac)	Price
RA116A1055	Intermittent	360	**615.22**
RA117A1047	Interrupted	550	**646.00**

FLAME DETECTOR

Photoconductive flame sensing device for sequencing oil burner systems.

- On flame failure, the light sensitive cadmium sulfide cell, in conjunction with flame sensing circuitry, causes the Protecto-relay control to shutdown the main oil burner
- Use with oil primary controls, i.e.: R4166, R4184, R8182, R8184, R8185 and R8404

Honeywell

Part No.	Description	Price
C554A1463	Flame Detector, 5 Bracket Styles	**44.96**

VALVE, MAGNETIC SOLENOID

For on/off control of oil flow to domestic oil burner equipment.

- Connection: 1/8" FPT
- Capacity: 5–35 GPH

Honeywell

Part No.	Pressure Range (psi)	Orifice Size (In.)	Voltage	Price
V4046A1074[1]	300	.043	120	**204.30**
V4046B1049	300	.043	120	**192.40**

[1]Has opening delay to allow burner fan to reach speed

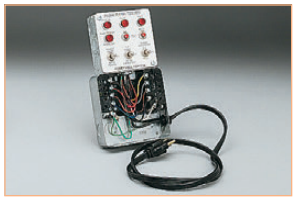
TESTER

PROGRAMMER

Provides quick operational check of most Honeywell BC7000, R4140 and R4150 programmers It will operationally check the R7795 if used with 198355A adapter.

Honeywell

Part No.	Description	Price
FSP5004	Programmer Tester	**3200.14**



PRIMARY CONTROL

Provides quick operational check of most Honeywell RA890 or R4795 non-programming primary controls.

Honeywell

Part No.	Description	Price
FSP1535	Primary Tester	**1515.56**

FLAME CONTROL

RA890F1270

PROTECTORELAY™ PRIMARY, RECTIFICATION

Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners.

- 3 second response time recommended for non-recycling ignition cutoff service, except where noted.
- Uses rectification principle of electronic flame detection.
- Relights once after flame failure in attempt to re-establish pilot before lockout. Safe-start check prevents start-up if flame-simulating failure occurs in flame detector circuit.
- Includes built-in protection against ignition crossover in flame rod systems.

Honeywell

Part No.	Supply Voltage (Vac)	Safety Switch Timing (Sec.)	Flame Failure Response (Sec.)	Price
RA890F1270	120	15	0.8	**3822.54**
RA890F1288	120	15	3.0	**3883.72**
RA890F1338	120	30	0.8	**4395.92**
RA890F1346	120	30	3.0	**4466.28**
RA890F1478[1]	120	15	0.8	**4383.16**

[1]Fast response on controller demand

PROTECTORELAY™ PRIMARY, UV INTERMITTEMT

Primary control provides solid state, electronic flame safeguard protection for industrial and commercial single or dual fuel burners.

- Designed for interrupted ignition with intermittent pilot on gas burners, and interrupted or intermittent ignition on oil burners.
- Use with a C7027, C7035 or C7044 minipeeper ultraviolet flame detector for flame sensing.
- Relights once after flame failure in attempt to re-establish pilot before lockout.

Honeywell

Part No.	Supply Voltage (Vac)	Safety Switch Timing (Sec.)	Flame Failure Response (Sec.)	Price
RA890G1229	120	15	0.8	**3822.54**
RA890G1260	120	15	3.0	**3883.62**

FLAME CONTROL, 7800 SERIES

RM7840G1014

PROGRAMMER

Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble-shooting.
- **May not be available in all locations. Please contact your local branch for more information**

Honeywell

Part No.	Description	Frequency	Replaces	Price
RM7800G1018	Control w/Display	60 Hz	BC7000L; PM720G	**4310.60**
RM7800L1012	Control w/Display	50/60 Hz	BC7000L; PM720L	**4639.24**
RM7800M1011	Control w/Display	60 Hz	BC7000L; PM720M	**3943.20**
RM7840E1016	Relay Module, No Display	50/60 Hz	—	**3932.72**
RM7840G1014	Relay Module, No Display	60 Hz	R4140G	**3210.50**
RM7840L1018	Relay Module, No Display	50/60 Hz	R4140L	**3899.88**
RM7840M1017	Relay Module, No Display	60 Hz	R4140M	**2845.42**

TIMING SEQUENCE

Part No.	Initiate	Standby	Purge	Pilot Flame Establishing Period (MFEP)	Main Flame Establishing Period (MFEP)	Run	Postpurge
RM7800E, RM7840E[1]	10 sec.	[2]	[3]	4 or 10 sec.	10 or 15 sec.	[2]	15 sec.
RM7800G, RM7840G	10 sec.	[2]	[3]	4 or 10 sec.	10, 15 or Intermittent	[2]	15 sec.
RM7800L, RM7840L	10 sec.	[2]	[3]	4 or 10 sec.	10, 15 or Intermittent	[2]	15 sec.
RM7800M, RM7840M	10 sec.	[2]	[3]	4 or 10 sec.	10 sec. or Intermittent	[2]	15 sec.

[1]Energy Saving Prepurge [2]STANBY and RUN can be an infinite time period [3]PURGE will be determined by which ST7800A Purge Timer Card is selected

PROGRAMMER

Microprocessor-based integrated burner control for automatically fired gas, oil, coal or combination fuel single burner applications. Provides safety, functional capability and features beyond conventional controls.

Uses existing subbase for easier installation

- Functions include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and trouble-shooting.
- Requires ST7800 purge timer and appropriate R787xx amplifier to complete the replacement
- Purge time determined by card selected

Honeywell

Part No.	Replaces	Price
R7140G1000	R4140G w/ preignition interlocks	5402.86
R7140G2008	BC7000L, PM720G, R4140G w/ start interlocks	5402.86
R7140L1009	R4140L	6765.20
R7140L2007	BC7000L; PM720L	6765.20
R7140M1007	BC7000L; PM720L	4760.40

TIMING SEQUENCE

Part No.	Pilot Type	Second Stage Pilot Valve	Interlocks	Pilot Flame Establishing Period (MFEP)	Main Flame Establishing Period (MFEP)	Postpurge
R7140G1000	Interrupted or Intermittent	Selectable	Running	4 or 10 sec.	10, 15, 30 sec. or int.	15 sec.
R7140G2008	Interrupted or Intermittent	—	Running	4 or 10 sec.	10, 15, 30 sec. or int.	15 sec.
R7140L	Interrupted	Interrupted	Lockout	4 or 10 sec.	10 or 15 sec.	15 sec.
R7140M	Interrupted	Intermittent	Running	4 or 10 sec.	10 sec. or Intermittent	15 sec.

PROGRAMMER

Microprocessor-based integrated burner controls. It is a plug in replacement of Fireye M series using existing Fireye wiring subbase

- Require ST7800 Purge Timer and appropriate R78XX Amplifier to complete the replacement.
- PrePurge: Determined by ST7800A Purge Timer Card
- PostPurge: programmed with S7800A1142 display
- 4 or 10 second pilot flame establishing period

- Functions provided by the R7120M include automatic burner sequencing, flame supervision, system status indication, system or self-diagnostics and troubleshooting.

Honeywell

Part No.	Description	Replaces	Price
R7120M1001	Burner Control Module, Intermittent	Fireye M Intermittent	946.96
R7120M1019	Burner Control Module, Interrupted	Fireye M Interrupted	946.96

AUTOMATIC PRIMARY RELAY MODULE

Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Initiate Time (Sec.)	Standby Time	Pilot Flame Establishing Period (Sec.)	Run	Comments	Price
RM7890A1015	10	Infinite	4, 10, 30	Infinite	Replaces RA890F, G, H	785.48
RM7890A1031	10	Infinite	30 Fixed	Infinite	Replaces RA890F, G, H	785.48
RM7890A1056	10	Infinite	4, 10	Infinite	Includes Programmable Valve Proving Switch Check Feature and Blinking LED Fault Annunciation	797.28

FLAME CONTROL, 7800 SERIES

RM7840G1014

FULL FUNCTION PRIMARY

Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Type	Replaces	Initiate	Standby	Purge	Flame Establishing Period: Pilot	Flame Establishing Period: Main	Airflow Switch Check (AFSC)	Main Valve (DMV)	Price
RM7895A1014	Intermittent w/o AFSC	R7795A, B	10 sec.	[1]	[2]	4 or 10 sec.	No	No	No	**1047.60**
RM7895B1013	Intermittent w/AFSC	R7795E, F	10 sec.	[1]	[2]	4 or 10 sec.	No	Yes	No	**1047.60**
RM7895C1012	Interrupted w/o AFSC	R7795C, D	10 sec.	[1]	[2]	4 or 10 sec.	10 sec.	No	Yes	**1316.24**

[1]STANDBY and RUN can be an infinite time period.

[2]PURGE will be determined by which ST7800A Purge Timer Card is selected.

ON-OFF PRIMARY WITH PRE- AND POST-PURGE

Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Type	Initiate	Flame Establishing Period: Pilot	Flame Establishing Period: Main	Airflow Switch Check (AFSC)	Main Valve (DMV)	Price
RM7896A1012	Intermittent	10 sec.	4 or 10 sec.	Intermittent	No	No	**1742.10**
RM7896C1010	Intermittent	10 sec.	4 or 10 sec.	10 Sec	No	Yes	**1918.82**

ON-OFF PRIMARY WITH SHUTTER DRIVE AND PROGRAMMABLE POST PURGE

Microprocessor-based integrated full-function primary burner control for automatically fired gas, oil, or combination fuel single burner applications. Provides level of safety, functional capability and features beyond conventional controls.

- Includes blinking LED fault annunciation feature
- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Type	Pilot Flame Establishing Period (Sec.)	Purge	Price
RM7897A1002	Selectable	4 or 10 sec.	PrePurge Determined by ST7800A Purge Timer Card PostPurge Programmed with S7800A1142 Display (Not Provided)	**1042.84**

Q7800A1005

WIRING SUBBASE

Burner, panel or wall mount sub bases for 7800 Series relay modules and S7830A expanded annunciator.

- 22 terminals
- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Description	Price
Q7800A1005	Universal—Panel Mount	**56.68**
Q7800B1003	Universal—Burner, Wall Mount	**56.68**
Q7800F1004	Adapter—RA890	**220.74**
Q7800F1012	Adapter—R4795	**220.74**

KEYBOARD DISPLAY

Provides current status of burner sequence, timing information, hold information and lockout information, as well as selectable or preemptive messages.

- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Description	Usage	Price
S7800A1001	Display Module, English	RM7800, RM7840, RM7838	**790.96**
S7800A1142	Display Module for Valve Proving Setup, English	RM7800, RM7840, RM7838, RM7890, RM7897, RM7898	**814.44**

R7848A1008

SIGNAL AMPLIFLIER, PLUG-IN

Solid state plug-in amplifiers that respond to flame detector inputs to indicate the presence of flame when used with 7800 Series relay modules

.• **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Pilot Type	Flame Failure Response (Sec.)	Type Fuel	Price
R7847A1025	Rectification (Green)	0.8 or 1.0	Gas, Oil	**372.74**
R7847A1033	Rectification (Green)	2.0 or 3.0	Gas, Oil	**372.74**
R7848A1008	Infrared (Red)	2.0 or 3.0	Gas, Oil, Coal	**699.58**
R7848B1006[1]	Infrared (Red)	2.0 or 3.0	Gas, Oil, Coal	**746.94**
R7849A1015	UV (Purple)	0.8 or 1.0	Gas, Oil	**372.74**
R7849A1023	UV (Purple)	2.0 or 3.0	Gas, Oil	**372.74**
R7851B1000	Optical (White), Ampli-Check	2.0 or 3.0	Gas, Oil, Coal	**344.84**
R7851B1018	Optical (White), Ampli-Check	0.8 or 1.0	Gas, Oil, Coal	**344.84**
R7852A1001	Infrared (Red/White)	2.0 or 3.0	Gas, Oil, Coal	**504.00**
R7861A1026	UV (Purple) Dynamic Self-Check	2.0 or 3.0	Gas, Oil, Coal	**981.56**

[1]Circuitry test amplifier 12 times/minute, shuts down on failure

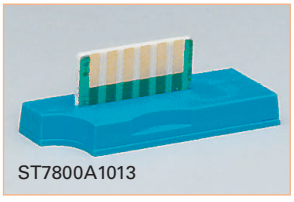
FIRST-OUT ANNUNCIATOR

Microprocessor-based expanded annunciator to support the 7800 Series relay modules for first-out annunciation, sequencing, system or self-diagnostics and troubleshooting.

- Front panel LED array-arranged to indicate flow of line-voltage through string of limits, controls and interlocks
- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Description	Price
S7830A1005	Expanded Annunciator	**1428.60**


ST7800A1013

PURGE TIMER

Provides prepurge timing for select 7800 Series relay modules.

- Use with RM7800, RM7840, RM7895, RM7838 relay modules
- **May not be available in all locations. Please contact your local branch for more information.**

Honeywell

Part No.	Prepurge Timing (Sec.)	Price
ST7800A1013	7	**104.26**
ST7800A1021	10	**104.26**
ST7800A1039	30	**104.26**
ST7800A1054	60	**104.26**
ST7800A1062	90	**104.26**

GAS/AIR PRESSURE SWITCH

C437 2000 SERIES

The C437D,E Series 2000 Gas Pressure Switches are pressure actuated switching devices used in industrial gas system applications for safety shutoff, pressure control, and differentialpressure control.

All Series 2000 models have MicroSwitch™ snap switches to open or close a circuit on pressure rise or drop.

- Pipe Connections
  High Pressure: 1/2 in. NPT internal thread
  Low pressure: 1/8 in. NPT internal thread
- 240 Vac: 5.1 AFL, 5.0 A resistive
- SPST switch, non-mercury
- Manual Reset

Honeywell

Part No.	Pressure Range	Maximum Sustained Pressure	Differential	Switch	Price
C437D2003	1 to 26 in. wc	5.0 psi	1 3/4 in. wc	Break on Rise	455.52
C437D2011	1/2 to 5 psi	15.0 psi	1/2 psi	Break on Rise	455.52
C437D2029	1 to 10 psi	30.0 psi	1 psi	Break on Rise	455.52
C437E2002	1 to 26 in. wc	5.0 psi	1 3/4 in. wc	Break on Fall	455.52
C437E2010	1/2 to 5 psi	15.0 psi	1/2 psi	Break on Fall	455.52
C437E2028	1 to 10 psi	30.0 psi	1 psi	Break on Fall	455.52
C437E2036	0.5 to 5.5 in. wc	3.0 psi	0.25 in. wc	Break on Fall	455.52

C6097 SERIES

- For use with natural gas, liquid propane (LP) gas, or air.
- Diaphragm-actuated safety-limit switch.
- Surge orifice.
- Integral vent limiter on all models.
- Contact ratings: 3 FLA @ 240 Vac

Honeywell

Part No.	Pressure Range	Differential Pressure	Differential	Action	Switch	Price
C6097A1012	3 to 21 in. wc	2.4 to 4.2 in. wc	Additive	Break on Fall	Manual Reset	229.56
C6097A1038	12 to 60 in. wc	10 to 12 in. wc	Additive	Break on Fall	Manual Reset	241.22
C6097A1053	3 to 21 in. wc	0.24 to 0.48 in. wc	Additive	Break on Fall	Auto Recycle	183.32
C6097B1002	12 to 60 in. wc	10 to 12 in. wc	Subtractive	Break on Rise	Manual Reset	233.74
C6097B1028	3 to 21 in. wc	2.4 to 4.2 in. wc	Subtrative	Break on Rise	Manual Reset	226.32
C6097B1051	1.5 to 7 in. wc	1.1 to 1.4 in. wc	Subtrative	Break on Rise	Manual Reset	259.42

FLAME SENSOR

FLAME ROD HOLDER

Used to apply flame rod in gas-fired system controlled by rectification-type flame safeguard control.

- Use with pressurized fire boxes
- Order flame rod separately

Honeywell

Part No.	Mount	Application	Price
C7007A1001	1/2" MPT	Gas Pilot or Gas-Ignited Oil	541.30

FLAME ROD AND HOLDER, 1/8" NPT

Subminiature "spark plug" type flame rod holder with flame rod.

- Use on industrial flame-retention gas burner nozzles
- Works with Honeywell flame safeguard controls requiring rectification- type flame detector
- Flame rod can be cut to desired length
- Mounting: 1/8" NPT male

Honeywell

Part No.	Length (In.)	Price
C7009A1009	4	173.66
C7009A1025	12	226.90

FLAME ROD AND HOLDER, 1/4" NPT

Miniature "spark plug" type flame rod holder with threaded base, snap-on cover and Kanthal A-1 flame rod.

- Use with Honeywell flame safeguard controls requiring rectification-type flame detection
- Comes in several different lengths and can be cut to exact desired length.
- Mounting: 1/4" NPT male

Honeywell

Part No.	Length (In.)	Price
C7008A1174	12	274.34
C7008A1182	24	447.20

DYNAMIC UV

Dynamic self-checking flame detector used with R7861 Dynamic Self-check Amplifiers for sensing the ultraviolet radiation generated by the combustion of gas, oil, or other fuels.

- Can be mounted horizontally, vertically or at any angle in between.
- Field replaceable ultraviolet sensing tube and quartz viewing window.
- Two detectors may be wired in parallel to reduce nuisance shutdowns in difficult flame sighting applications.
- Protective heat block built into mounting flange.

Honeywell

Part No.	Mount	Application	Use With	Price
C7061A1012	3/4" FPT	Gas, Oil	R7861 Amplifier	2251.92

FLAME DETECTOR

PURPLE PEEPER® ULTRAVIOLET

Solid state electronic flame detectors for use with Honeywell flame safeguard controls and amplifiers. Sense ultraviolet radiation produced by combustion of gas, oil, coal or other fuels.

Use with Honeywell rectification-type flame safeguard controls EXCEPT Dynamic Self Check Models©. Dynamic Self Check controls are R4075C, D, E; R4138C, D; R4140, BC7000 with R7247C amplifier, BCS7700 with R7747C amplifier or 7800 series with R7847C amplifier.

- Enclosure meets NEMA 4 standards

Honeywell

Part No.	Power Supply (Vac)	Pipe Mounting Size	Price
C7012A1145	120	3/4" FPT	2829.44

MINIPEEPER ULTRAVIOLET

Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.

- Mounts on a 1/2" sighting pipe by using an integral collar
- Lead wire length: 6'
- Ambient temperature: 0 to 215°F
- Ambient temperature for C7027A1031: -40 to 215°F

Honeywell

Part No.	Connects	Price
C7027A1023	Romex Connector, Low Temperature	238.82
C7027A1031	1/2" Spud Connector	264.78
C7027A1072	1/2" Spud Connector (Included)	264.78
C7027A1049	Romex Connector	238.82
C7027A1080	Heat Block & Bushing, Replace Fireye UV2	296.86

COMPACT

Compact flame detector for use with flame safeguard controls with ultraviolet amplifiers.

Honeywell

Part No.	Temperature Ambient (°F)	Lead Length (Ft.)	Price
C7035A1031	-40 to 250	6	552.16
C7035A1080*	-0 to 250	6	627.16

*Includes 600 Foot Leads

INFRARED

The C7915 Flame Detectors include a lead sulfide photocell that is sensitive to the infrared radiation emitted by the combustion of fuels such as natural gas, oil, and coal.

- Used for combination or dual-fuel applications.
- Detects pilot and main flame.
- Mounts quickly and easily on a standard 3/4 in. sighting pipe.
- Works where flame rod or rectifying photocell mounts are difficult to apply.
- The C7915 includes 50019469-001 Bushing with magnifying lens, photoconductive lead sulfide cells 32007255-001, orifice, heat block and reducer bushing
- Used With Flame Amplifiers: R7852

Honeywell

Part No.	Description	Use With	Price
C7915A1028	Infrared Compact Flame Detector	R7852	526.40

FLAME DETECTOR

MINIPEEPER® ULTRAVIOLET

Detect the ultraviolet radiation emitted by combustion flames. The flame detectors are used with Honeywell flame safeguard controls to provide flame supervision for gas, oil, or combination gas-oil burners.

- Properly installed the flame detectors are pressure rated for 5 psi.
- Flame detector is used with only the R7851B Flame Amplifier and the 7800 SERIES controls.
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on a one-half inch sight pipe.
- Application: Gas, Oil, or combination burners-intermittent operation only (burner cycled at least once each 24 hours).

Honeywell

Part No.	Description	Use With	Price
C7927A1016	Ultraviolet Solid State Flame Detector	R7851B	308.88

PURPLE PEEPER® ULTRAVIOLET

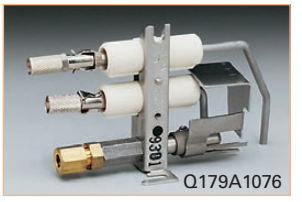
Detects the visible light emitted by fuel oil combustion flames. The C7962B Detector is used with Honeywell Flame Safeguard controls to provide fuel oil flame supervision in commercial and industrial burners.

- Used with 7800 SERIES Flame Safeguard controls; R7851B flame amplifier
- Has an integral collar threaded (internal 1/2-14 NPSM) for mounting on 1/2 inch sight pipe.
- Application: Commercial, industrial oil burners

Honeywell

Part No.	Description	Use With	Price
C7962B1002	Visible Light Detector	R7851B	449.52

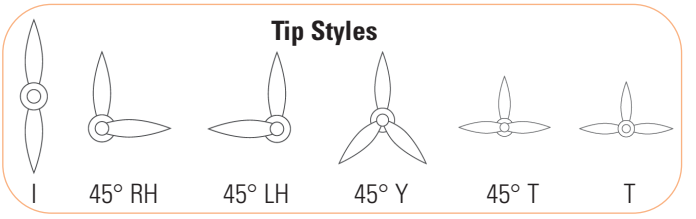
GAS PILOT



FLAME RECTIFIER

Combination rectifying flame rod and pilot burner for use with suitable electronic relay on industrial or commercial gas burners or gas pilot ignited oil burners.

- Primary-aerated type burner is equipped with stainless steel fins to stabilize flame and provide correct flame rod area to ground area ratio for maximum flame current.



Honeywell

Part No.	Tip Style	Application	Price
Q179A1001	I	Intermittent Ignition	398.46
Q179A1035	45° RH	Intermittent Ignition	398.46
Q179A1050	T	Intermittent Ignition	398.46
Q179A1076	45°Y	Intermittent Ignition	398.46
Q179A1092	45°T	Intermittent Ignition	398.46
Q179A1118	45° LH	Intermittent Ignition	449.24
Q179B1042	T	Continuous Pilot	373.32
Q179B1109	45° LH	Continuous Pilot	375.26

MINIATURE

Gas pilot burner assemblies prove pilot flame on industrial or commercial gas burners or gas pilot-ignited oil burners.

Combination pilot burner and rectifying flame rod flame detector. With ignition electrode; suitable for use on interrupted or intermittent electrically ignited gas pilot applications. Use with Q624 or other suitable ignition transformer.

Honeywell

Part No.	Mounting	Wing Span (In.)	Price
Q179C1009	End	1	203.96

Over 70 years of experience
specializing in refrigeration and HVAC products

VALVE, GAS CONTROL

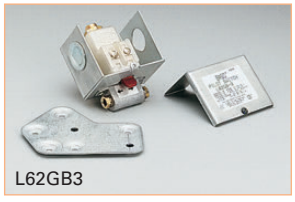
H17DB5

AUTOMATIC SMALL APPLIANCE

The H17 is a replacement automatic pilot valve particularly adaptable to small appliances. Gas will flow to both main and pilot burners when reset button is depressed. Pilot gas taken from main line within control. The control shuts off both main and pilot gases.

BASO Gas Products LLC

Part No.	Connection FPT (In.)	Pilot (In.)	Capacity BTUH/Hr. @ 1" ΔP	Low Dropout (mA)	Price
H17BB1	1/4	1/8-27 NPT	75,000	50	**329.18**
H17CB3	3/8	1/8-27 NPT	125,000	50	**329.18**
H17DB5	1/2	1/8-27 NPT	200,000	50	**329.20**


L62GB3

SHUTOFF, L60 SERIES

The L61 and L62 Series BASO pilot switches are for use on all gas-fired, standing pilot equipment that requires main burner shutoff when the pilot is extinguished.

- L61LL1 and L62AA5 are not 100% shutoff (suitable for natural gas only)

BASO Gas Products LLC

Part No.	Reset	Shutoff	Switch	F.L. Amps (@ 240V)	Price
L61LL1	Automatic	No	SPDT	4 A, 240 Vac	**542.22**
L62AA5	Manual	No	SPST	3 A, 250 Vac	**225.30**
L62GB3	Manual	Yes	SPST	4 A, 250 Vac	**231.42**

V4046C1005

SHUTOFF

Provides on/off control of natural, LP and manufactured gases to pilot burners in industrial and commercial applications.

Honeywell

Part No.	Pipe Size FPT (In.)	Capacity (CFH)	Voltage	Price
V4046C1005	1/8	20	120 Vac	**139.46**
V4046C1047	1/4	55	120 Vac	**153.04**
V4046C1054	3/8	67	120 Vac	**154.56**
V8046C1006	1/8	20	24 Vac	**140.84**
V8046C1014	1/4	20	24 Vac	**142.22**
V8046C1022	1/4	55	24 Vac	**212.42**
V8046C1030	3/8	67	24 Vac	**150.12**

SHUTOFF, NORMALLY CLOSED

V4295/V8295 solenoid gas valves control the flow of natural and LP (liquefied petroleum) gases and are suitable for use on furnaces, ovens, atmospheric burners, commercial water heaters, rooftop make-up air units, power burners and commercial/industrial boilers.

- Body Material: Die cast aluminum
- Valve Timing: Open/Close less than 1 second; positive close off
- Ambient: -40° F to 145° F (-40° C to 60° C)

APPROVALS: Underwriters Laboratories, Inc., CSA, Factory Mutual (all, except 1" to 3" — 2 psi version), CSD-1 and IRI acceptable

Honeywell

Part No.	Pipe Size FPT (In.)	Capacity (CFH)	Coil Voltage	Price
V4295A1106	1/2	210	120	**280.82**
V4295A1114	3/4	610	120	**377.50**
V4295A1122	1	825	120	**474.58**
V4295A1130	1 1/4	1950	120	**512.50**
V4295A1148	1 1/2	2270	120	**651.82**
V8295A1016	1/2	250	24	**196.68**
V8295A1024	3/4	645	24	**224.12**
V8295A1032	1	790	24	**308.96**
V8295A1040	1 1/4	1450	24	**369.68**
V8295A1057	1 1/2	2190	24	**520.72**

H15DH3

AUTOMATIC

The H15 Series control shuts off both main and pilot gas. Pilot gas is taken either from within the control or from the main line upsteam of the valve. Gas will pass only to the pilot burner while the reset button is depressed.

Some models include a rotor pilot "B" valve with an adjustable stop to maintain a constant open position.

Capacity BTUH/Hr. @ 1" DP: 402,000

BASO Gas Products LLC

Part No.	Connection Main FPT (In.)	Connection Pilot (In.)	Pilot Gas Flow	Price
H15DA3[1]	3/4	1/8-27 NPT	Internal	**409.02**
H15DH3	3/4	1/4 cc	Internal[2]	**415.90**

[1]Packaged with reducer bushings [2]With rotor pilot "B" valve

VALVE, GAS CONTROL

V88A1691

DIAPHRAGM

Solenoid-operated diaphragm valves provide slow opening and fast closing for controlling fuel gases.

- Use with LP, natural or manufactured gases

Honeywell

Part No.	Pipe Size FPT (In.)	AGA Capacity (CFH)	Max. Sustained Pressure (psi)	Power (Vac)	Price
V88A1659	3/4	668	1/2	24	**275.00**
V88A1667	3/4	668	1	24	**363.78**
V88A1675	1	1021	1	24	**348.28**
V48A2334	1	1021	1	120	**348.22**
V88A1683	1 1/4	2100	1	24	**455.60**
V48A2177	1 1/4	2100	1/2	120	**403.90**
V88A1691	1 1/2	2400	1	24	**501.72**
V88A1634	1 1/2	2400	1/2	24	**445.52**
V88A1709	2	4178	1	24	**859.66**
V88A1717	2 1/2	5100	1	24	**1049.46**

V4055A1007

ACTUATOR, ON/OFF

Use with V5055 valve to control gas supply to commercial and industrial burners.

V4055D1001, V4055D1043 on/off actuator includes Factory Mutual "Proof of Closure" and Underwriters Laboratories, Inc. "Valve Seal Overtravel Interlock" switch. Meets Factory Mutual and Underwriters Laboratories, Inc. requirements when used with V5055C valve bodies. Low pressure.

- Supply voltage: 120 Vac

Honeywell

Part No.	Opening Time (Sec.)	Damper Shaft	Internal Aux Switch	Price
V4055A1007	26	No	No	**730.96**
V4055A1031	13	No	No	**789.50**
V4055A1098	13	Yes	No	**789.50**
V4055A1296	13	No	Yes, adjusted to 90° stroke	**880.08**
V4055D1001	26	Yes	No	**800.30**
V4055D1019	13	Yes	No	**855.18**
V4055D1043	13	No	No	**850.94**

ACTUATOR, OFF/LOW/HI

Controls gas supply for commercial and industrial burners. Valve opens to low fire position when power is applied; valve opens all the way on demand.

- Use with V5055B, V5097B valve bodies, V5034, VE5000
- Low pressure
- Supply voltage: 120 Vac

Honeywell

Part No.	Opening Time (Sec.)	Damper Shaft	Internal Aux Switch	Price
V4062A1008	26	Yes	No	**1074.16**
V4062A1123	26	Yes with Return Spring Installed	Yes	**1298.20**

INDUSTRIAL

Safety shutoff valves used with V4055, V4062 and V9055 fluid power actuators to control gas flow to commercial and industrial burners.

- Use with natural or LP gases

Honeywell

Part No.	Application	Pipe Size FPT (In.)	AGA Capacity (CFH)	Price
V5055A1004	Low Pressure On/Off (Quick Open Guide)	1	960	**345.16**
V5055A1038		2	3620	**631.76**
V5055B1002	Low Pressure On/Off Characterized Guide (Slow Increase Upon Opening)	1	960	**364.98**
V5055B1010		1 1/4	1406	**416.02**
V5055B1028		1 1/2	1717	**495.72**
V5055B1069		2	3620	**692.82**
V5055C1059	Low Pressure On/Off Double Seal	1 1/2	1717	**950.30**
V5055C1000		2	3620	**1150.62**

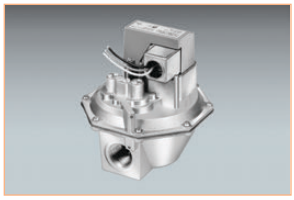
IVT BUTTERFLY

The V5197A is a firing rate valve used to provide variable flow control of air, natural gas, liquefied petroleum (LP), and manufactured gases. The V5197A is actuated by a ML7999A or B firing rate motor that can be mounted directly on the valve. The V5197A is not applicable as a safety shutoff valve. The V5197A is specially designed to provide fine control of gas flow in applications where a high turn down ratio is required. The maximum flow adjustment screw on the bottom of the valve allows adjusting the maximum flow of gas through the V5197 while maintaining the linear modulating characteristics and stroke. The V5197A is part of the Honeywell Integrated Valve Train System that allows gas train components to be directly bolted together.

- For modulating applications that do not require final shutoff service of firing rate valve.
- Two downstream 1/4 in. NPT threaded pressure taps available.
- Accepts C6097 Pressure Switch mounted directly to flange (downstream pressure tap only).
- Visual position indicator.
- Pressure Ratings: 15 psi max (1 Bar)

Honeywell

Part No.	Application	Capacity (cfh)	Price
V5197A1011	2 to 3" Pipe Size	16,900 at 3"	**867.44**



INDUSTRIAL

Single-stage Pressure Regulating Valve;These valves are used on boilers, unit heaters, duct furnaces, makeup air and rooftop heaters.

- Solenoid-operated diaphragm valves that combine the functions of safety shutoff and pressure regulation in a single unit.
- Valve body of die-cast aluminum with a straight-through pattern.
- Valve closes on power failure; recommended for final shutoff service.
- Electrical Connections: 1/4 in. (6 mm) spade terminals (quick connects). 30 in. (762 mm) leadwires and cover for electrical conduit connection provided.
- Pressure Ratings: 1/2 psi (3.4 kPa)
- Mounting: Upright (horizontal)
- Valve Type: Single-Stage, Slow Opening
- Valve Closing Time: 2 sec max

Honeywell

Part No.	Type Gas	Connection FPT (In.)	Capacity (CFH)	Open Time (sec)	Volt	Price
V8943N1039	NAT	1 1/2 FPT	780 to 2300	6	24	**638.24**

OVEN CONTROL

INFINITE SWITCH

Infinite controls Uni-Kits® include adaptors for screw- or palnut-type mounting. Kits include dial adaptors, allowing the customer's dial to be used.

- Contact rating: 15 amps @ 240 Vac
- Universal mounting

Robertshaw

Part No.	Voltage (Vac)	% Input at Low	Color Dial Included	Price
5500202	240	5	None	**52.96**
5500235[1]	240	5	White	**92.88**

[1]Reverse rotation

WATER AND STEAM VALVE

The VG7000 Series bronze valves regulate the flow of water or steam in response to the demand of a controller in heating, ventilating, and air conditioning systems. These valves are available in normally open, normally closed, and three-way mixing configurations.

- Complete actuator interchangeability, allowing easy field retrofit or mounting using standardized mounting kits
- All valve sizes available with brass trim or stainless steel trim for use in saturated steam applications of up to 100 psig

2-WAY, BRONZE VALVE, PDTC

- Two-way push-down to close (NO/PDTC)
- FPT connection • Brass trim, equal % flow

Johnson Controls

Part No.	Size (In.)	Flow (C_v)	Price
VG7241ET	1/2	1.8	**181.58**
VG7241GT	1/2	4.6	**182.72**
VG7241LT	3/4	7.3	**256.32**
VG7241NT	1	11.6	**332.34**
VG7241PT	1 1/4	18.5	**459.82**
VG7241RT	1 1/2	28.9	**607.48**
VG7241ST	2	46.2	**733.86**

2-WAY, BRONZE VALVE, PDTO

- Two-way push-down to open (NC/PDTO)
- FPT connection • Brass trim, equal % flow

Johnson Controls

Part No.	Size (In.)	Flow (C_v)	Price
VG7441ET	1/2	1.8	**205.80**
VG7441GT	1/2	4.6	**206.92**
VG7441LT	3/4	7.3	**289.72**
VG7441NT	1	11.6	**375.92**
VG7441PT	1 1/4	18.5	**519.50**
VG7441RT	1 1/2	28.9	**682.48**
VG7441ST	2	46.2	**828.46**

3-WAY, BRONZE VALVE

- FPT connection
- Three-way mixing • Brass trim, linear

Johnson Controls

Part No.	Size (In.)	Flow (C_v)	Price
VG7842ET	1/2	1.8	**219.66**
VG7842GT	1/2	4.6	**220.64**
VG7842LT	3/4	7.3	**318.34**
VG7842NT	1	11.6	**408.28**
VG7842PT	1 1/4	18.5	**648.66**
VG7842RT	1 1/2	28.9	**764.44**
VG7842ST	2	46.2	**958.22**

WATER AND STEAM VALVE

The V5011N is a two-way threaded globe valve that controls steam, water, and glycol solutions (up to 50% concentration) in heating or cooling HVAC applications. The valve is used in two-position and modulating control systems.

- V5011N1000 and V5011N2000 valves are push down to close (NO/PDTC)
- V5011N3000 valves are push down to open (NC/PDTO)
- Direct coupled electric and pneumatic actuators for easy mounting
- Stroke: 3/4"
- Not suitable for combustible gases.
- Valves require a linkage and control motor; a direct-coupled actuator or pneumatic valve actuator to position the valve.

2-WAY, GLOBE, THREADED, PDTC

Honeywell

Part No.	Size (In.)	Flow (C_V)	Type	Media	Price
V5011N1024	1/2	1.85	Equal %	Hot/Cold Water	157.54
V5011N1032	1/2	2.9	Equal %	Hot/Cold Water	156.66
V5011N1040	1/2	4.7	Equal %	Hot/Cold Water	143.96
V5011N1057	3/4	7.3	Equal %	Hot/Cold Water	179.24
V5011N1065	1	11.7	Equal %	Hot/Cold Water	227.92
V5011N1073	1 1/4	18.7	Equal %	Hot/Cold Water	282.46
V5011N1081	1 1/2	29.3	Equal %	Hot/Cold Water	441.26
V5011N1099	2	46.8	Equal %	Hot/Cold Water	606.12
V5011N2022	1/2	1.85	Linear	Steam	295.38
V5011N2048	1/2	4.7	Linear	Steam	298.30
V5011N2055	3/4	7.3	Linear	Steam	377.60
V5011N2063	1	11.7	Linear	Steam	478.52
V5011N2071	1 1/4	18.7	Linear	Steam	548.32
V5011N2089	1 1/2	29.3	Linear	Steam	796.16
V5011N2097	2	46.8	Linear	Steam	990.00

2-WAY, GLOBE, THREADED, PDTO

Honeywell

Part No.	Size (In.)	Flow (C_V)	Type	Media	Price
V5011N3004	1/2	2.9	Equal %	Hot/Cold Water	☎
V5011N3012	1/2	4.7	Equal %	Hot/Cold Water	202.80
V5011N3020	3/4	7.3	Equal %	Hot/Cold Water	222.40
V5011N3038	1	11.7	Equal %	Hot/Cold Water	249.94
V5011N3046	1 1/4	18.7	Equal %	Hot/Cold Water	319.64

2-WAY, GLOBE, THREADED

Used for two-position or modulating control of steam and water and glycol solutions (to 50 % concentration) in heating or cooling systems.

- Stroke: 3/4"
- Direct coupled electric and pneumatic actuators for easy mounting
- Valves require a linkage and control motor; a direct-coupled actuator or pneumatic valve actuator to position the valve.
- Not suitable for combustible gases.

Honeywell

Part No.	Size (In.)	Flow (C_V)	Type	Media	Price
V5011G1111	2 1/2	63	Linear	Steam	1170.18
V5011G1129	3	100	Linear	Steam	1664.42
V5011F1105	2 1/2	63	Equal Percentage	Water or Glycol	1111.64
V5011F1113	3	100	Equal Percentage	Water or Glycol	1470.96

3-WAY, GLOBE, THREADED

The V5013N is a three-way threaded globe valve that controls hot water, cold water, and glycol solutions (up to 50% concentration) in heating or cooling HVAC applications. The valve is used for mixing service to direct flow from one of two inlets to a common outlet in two-position or modulating control systems.

- Construction: Stainless steel stem, brass seats (V5013N1048 has stainless upper seat), carbon PTFE packing, brass plug, red brass body
- ANSI class: 150
- Suitable for pneumatic or electric/electronic actuation
- Stroke: 3/4"

Honeywell

Part No.	Size (In.)	Flow (C_V)	Price
V5013N1048	1/2	4.7	181.82
V5013N1055	3/4	7.3	200.78
V5013N1063	1	11.7	251.30
V5013N1071	1 1/4	18.7	404.16
V5013N1089	1 1/2	29.3	498.86
V5013N1097	2	46.8	669.68

If you can't find it here, let us know.
United Refrigeration specializes in locating hard to find parts

- For low pressure steam or water
- Equal % flow
- Construction:
  FPT body – bronze body and seat
  Stem – stainless steel
  Plug – brass
  Packing – spring loaded teflon cone
  Disc – composition
- Pressure: FPT static: 250 psi max.
  Flanged static: 125 psi max.
- Fluid temp: 281°F max., 40°F min.
- Recommended differential: 20 psi for quiet service, 35 psi max.

2-WAY, NORMALLY OPEN, MPT X FPT

Part No.	Connection Size (In.)	Flow (C_V)	Price
VB72110404	1/2	4.4	229.00
VB72110406	3/4	7.5	266.00
VB72110408	1	14.0	418.00
VB72110409	1 1/4	20.0	487.00

2-WAY, NORMALLY OPEN, FPT

Part No.	Connection Size (In.)	Flow (C_V)	Price
VB72130402	1/2	1.3	152.00
VB72130403	1/2	2.2	152.00
VB72130404	1/2	4.4	152.00
VB72130406	3/4	7.5	215.00
VB72130407	1	10.0	283.00
VB72130408	1	14.0	283.00
VB72130409	1 1/4	20.0	384.00
VB72130410	1 1/2	28.0	615.00
VB72130411	2	40.0	802.00

2-WAY, NORMALLY CLOSED, FPT

Part No.	Connection Size (In.)	Flow (C_V)	Price
VB72230402	1/2	1.3	176.00
VB72230403	1/2	2.2	176.00
VB72230404	1/2	4.4	176.00
VB72230406	3/4	7.5	257.00
VB72230407	1	10.0	348.00
VB72230408	1	14.0	348.00
VB72230409	1 1/4	20.0	456.00
VB72230410	1 1/2	28.0	681.00
VB72230411	2	40.0	924.00

2-WAY, UNION STRAIGHTWAY, MPT X FPT

2 way globe valve, union end, pneumatic actuator

- ANSI Pressure class: 250 psig
- Maximum steam inlet: 35 psig
- Medium temperature range: 20 to 281°F

Part No.	Connection Size (In.)	Flow (C_V)	Price
VK7221203404	1/2	4.4	376.00
VK7221203406	3/4	7.5	447.00

3-WAY, MIXING, FPT

- Hot or chilled water service

Part No.	Connection Size (In.)	Flow (C_V)	Price
VB73130402	1/2	2.2	197.00
VB73130404	1/2	4.4	197.00
VB73130406	3/4	7.5	283.00
VB73130408	1	14.0	442.00
VB73130409	1 1/4	20.0	593.00
VB73130410	1 1/2	28.0	700.00
VB73130411	2	41.0	920.00

VALVE ACTUATOR

The VA715 and VA720 Series synchronous, motor-driven actuator provides incremental (three-wire), or proportional control of valves with up to 3/4" stroke in heating, ventilating, and air conditioning applications. This compact, non-spring return actuator responds to a variety of input signals.

The VA715 and VA720 Series can be easily field mounted or ordered factory coupled to VG7000 Series bronze control valves.

- Input incremental: 24 Vac, 50/60 Hz
- Input proportional: 0–10 Vdc

90 LB. MINIMUM SEATING

Part No.	Description	Price
VA71501001	Three-Wire Incremental	318.72
VA71521001	Proportional	504.62

180 LB. MINIMUM SEATING

Part No.	Description	Price
VA72001001	Three-Wire Incremental	523.60
VA72021001	Proportional	992.30

61 LB. MINIMUM SEATING, SPRING RETURN

Direct-mount, spring return electric actuator provides a minimum 61 lb (271 N) force output for floating, on/off, or proportional control, and can be easily field mounted or ordered factory coupled to Johnson Controls 1/2 through 1-1/4" VG7000 Series Bronze Control Valves, with no additional linkages required.

- Manual hand crank allows for manual positioning of the valve, independent of a power supply
- Integral position indicator provides visual indication of the valve stem position

Part No.	Description	Price
VA4233GGA2	Proportional	834.82

VALVE ACTUATOR

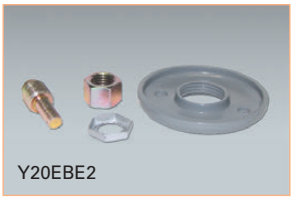
VA80201

22 LB. CLOSE-OFF

The VA-802x Series actuators are synchronous, force-sensor-limited actuators which provide floating/incremental or proportional control for 1/2" valves in many HVAC applications. They are motor-driven, non-spring return actuators.

- Used in conjunction with slotted stem valves

Part No.	Description	Price
VA80201	24 Vac, Three-Wire Incremental	312.66
VA81221	0–10 Vdc, Proportional	414.78


Y20EBE2

ADAPTER KITS

Part No.	Description	Adapts	Price
Y20EBE2	Mount Kit	VT Valve, VA7150 Actuator	63.44
Y20EBE11	Adapter Kit	Y20 Linkage, VG7000 Valve	89.12

UGVL-LVX24-3

ACTUATOR WITH GLOBE VALVE LINKAGE KIT

The new actuators and retrofit linkages are highly adaptable making selection, installation and service hassle-free.

- Travel ranges of up to 2"
- One universal linkage can retrofit most globe valves, regardless of make
- Increased force ranges for higher close-off pressures (up to 1011 lbf)
- Field selectable fail-safe position switches
- Lower power consumption during operation
- Steam inlet ranges up to 100 psi
- Innovative valve clamp and quick connect coupler
- Supply voltage: 24 Vac/Vdc

The SGVL/UGVL retrofit kits are designed to easily attach LV and SV series actuators to selectglobe valves. Their unique adjustable design allows the linkage kit to be mounted on 1/2" to 2" 2-way or 3-way valves in both normally open and normally closed configurations. The linkage with actuator will provide 20 mm of linear travel to accommodate a wide range of valves.

The FGVL retrofit kit is designed to easily attach AVK, EV and RV series actuators to select Flanged globe valves requiring larger stem travels and higher forces. Its casted base and lower locking clamp allow the FGVL to be mounted on 2-1/2" to 6" two-way or three-way valves in both normally open and normally closed configurations.

- SGVL, retrofit linkage for globe valves: VB7, VB9 (Schneider/Siebe/Invensys/Barber Colman), G2, G3 (Belimo)
- UGVL, retrofit linkage for globe valves: Johnson Controls, Robertshaw, Honeywell, Siemens/Landis/Powers
- FGVL, retrofit linkage for globe valves: Johnson Controls, Honeywell, Siebe, Siemens

Part No.	Retrofit Linkage	Fail-Safe	Control Type	Torque	Price
SGVL+LVKX24-3	SGVL	Electronic Fail-Safe	On/Off, Floating Point	112 lbf	745.20
SGVL+LVKX24-MFT	SGVL	Electronic Fail-Safe	Proportional/MFT, 2 to 10 Vdc	112 lbf	889.20
SGVL+LVX24-3	SGVL	Non-Spring Return	On/Off, Floating Point	112 lbf	540.00
SGVL+LVX24-MFT	SGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	112 lbf	652.50
SGVL+SVX24-3	SGVL	Non-Spring Return	On/Off, Floating Point	337 lbf	608.40
SGVL+SVX24-MFT	SGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	337 lbf	727.20
UGVL+LVKX24-3	UGVL	Electronic Fail-Safe	On/Off, Floating Point	112 lbf	851.40
UGVL+LVKX24-MFT	UGVL	Electronic Fail-Safe	Proportional/MFT, 2 to 10 Vdc	112 lbf	973.80
UGVL+LVX24-3	UGVL	Non-Spring Return	On/Off, Floating Point	112 lbf	585.00
UGVL+LVX24-MFT	UGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	112 lbf	702.90
UGVL+SVX24-3	UGVL	Non-Spring Return	On/Off, Floating Point	337 lbf	684.00
UGVL+SVX24-MFT	UGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	337 lbf	803.70
FGVLEVB243 [1]	FGVL	Non-Spring Return	On/Off, Floating Point	562 lbf	1454.40
FGVLEVB24MFT [1]	FGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	562 lbf	1512.90
FGVLRVB243 [2]	FGVL	Non-Spring Return	On/Off, Floating Point	1011 lbf	1638.90
FGVLRVB24MFT [2]	FGVL	Non-Spring Return	Proportional/MFT, 2 to 10 Vdc	1011 lbf	1710.00

[1] For 2.5" to 4" globe valves

[2] For 4" to 6" globe valves

CHARACTERIZED CONTROL VALVE

The Characterized Control Valve (CCV) marks a true advancement in control valves. It combines the high close-off capabilities of a ball valve with a specialized disc that ensures an equal percentage flow characteristic. The CCV offers a comprehensive Cv range for various applications such as air handlers, heating and cooling coils, fan coil units, unit ventilators and VAV re-heat coils.

- Equal percentage flow characteristic
- Excellent control stability assured with the characterizing disc
- Cv values equal to Cv values of globe valves the same size
- The need for multiple pipe reduction is usually eliminated
- Better control prevents "hunting" of the control loop, increasing the life span of actuator and valve
- Forged brass valve body, no pin-hole leaks
- Non-corroding chrome-plated brass or stainless ball
- Use the valve and actuator selection guide to choose the best actuator for your application

2-WAY VALVE

- Stainless steel ball and stem
- Service: Chilled or hot water, 60% Glycol.
- Flow characteristic: A-port equal percentage
- NPT female ends

BELIMO

Part No.	Size (In.)	Flow (Cv)	Price
B209-BEL	1/2	0.8	85.50
B210-BEL	1/2	1.2	90.90
B211-BEL	1/2	1.9	90.90
B212-BEL	1/2	3.0	93.60
B213-BEL	1/2	4.7	98.10
B214-BEL	1/2	7.4	105.30
B215-BEL	1/2	10.0	107.10
B216-BEL	1/2	16.0	108.90
B217-BEL	3/4	4.7	146.70
B218-BEL	3/4	7.4	149.40
B219-BEL	3/4	10.0	150.30
B220-BEL	3/4	14.0	153.00
B221-BEL	3/4	24.0	156.60
B223-BEL	1	10.0	144.00
B224-BEL	1	19.0	144.90
B225-BEL	1	30.0	145.80
B230-BEL	1 1/4	19.0	137.70
B231-BEL	1 1/4	25.0	149.40
B232-BEL	1 1/4	37.0	152.10
B238-BEL	1 1/2	19.0	153.90
B239-BEL	1 1/2	29.0	156.60
B240-BEL	1 1/2	37.0	159.30
B249-BEL	2	46.0	260.10
B250-BEL	2	57.0	262.80
B251-BEL	2	65.0	634.50
B252-BEL	2	85.0	695.70
B253-BEL	2	120.0	757.80
B263-BEL	2 1/2	110.0	827.10
B265-BEL	2 1/2	210.0	1021.50

3-WAY VALVE

- Stainless steel ball and stem
- Service: Chilled or hot water, 60% Glycol.
- Flow characteristic: A-port equal percentage, B-port modified for constant common port flow
- NPT female ends

BELIMO

Part No.	Size (In.)	Flow (Cv)	Price
B309-BEL	1/2	0.8	137.70
B310-BEL	1/2	1.2	137.70
B311-BEL	1/2	1.9	137.70
B312-BEL	1/2	3.0	137.70
B313-BEL	1/2	4.7	150.30
B315-BEL	1/2	10.0	153.00
B316-BEL	1/2	16.0	154.80
B317-BEL	3/4	4.7	204.30
B318-BEL	3/4	7.4	207.00
B320-BEL	3/4	24.0	209.70
B323-BEL	1	10.0	214.20
B325-BEL	1	30.0	216.00
B330-BEL	1 1/4	19.0	275.40
B331-BEL	1 1/4	25.0	333.90
B339-BEL	1 1/2	29.0	338.40
B340-BEL	1 1/2	37.0	344.70
B341-BEL	1 1/2	46.0	416.70
B348-BEL	2	37.0	531.00
B349-BEL	2	46.0	531.90
B350-BEL	2	57.0	536.40
B351-BEL	2	68.0	741.60

2-WAY VALVE, HIGH TEMPERATURE, STEAM

This valve is designed to fit in compact areas where on/off or floating point control is required using 24 VAC.

- Can only be used in steam applications of 15 PSI steam pressure or less
- Stainless steel ball and stem
- Service: water/low pressure steam, 60% Glycol
- Flow characteristic: A-port equal percentage
- NPT female ends

BELIMO

Part No.	Size (In.)	Flow (Cv)	Price
B215HT186	1/2	1.86	125.10
B215HT290	1/2	2.9	125.10
B215HT455	1/2	4.55	125.10
B220HT1320	3/4	13.2	156.60
B220HT731	3/4	7.31	156.60
B220HT928	3/4	9.28	156.60
B225HT1160	1	11.6	224.10
B225HT1856	1	18.56	224.10

Selection charts are available on the next page

CHARACTERIZED CONTROL VALVE

BELIMO

2-Way Valves

1. Use full port valve bodies with on/off actuators

2. SSBS stands for "Stainless Steel Ball and Stem" vs. chrome plated ball and stem

Valve Actuator Selection Guide

		On/Off 24 V						On/Off 120 V			3-Wire 24 V Floating				Proportional 2-10 VDC						
		Non-Spring Return			Spring Return			Spring Return			Non-Spring Return			Spring Return				Non-Spring Return			Spring Return			
Part No.	Valve Body Description	TR243	LRB243	ARB243	TFRB24	LF24 (WLF)	AFRB24	TFRB120	LF120 (WLF)	AFRBUP	TR243	LRB243	ARB243	TFRB243	LF243 (WLF)	AFRX24MFT	TR24SR	LRX24MFT	ARX24MFT	TFRX24MFT	LF24MFT (WLF)	AFRB24SR	AFRX24MFT
B209-BEL	1/2" 2-Way 0.8 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B210-BEL	1/2" 2-Way 1.2 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B211-BEL	1/2" 2-Way 1.9 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B212-BEL	1/2" 2-Way 3.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B213-BEL	1/2" 2-Way 4.7 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B214-BEL	1/2" 2-Way 7.4 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B215-BEL	1/2" 2-Way 10.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B216-BEL	1/2" 2-Way 16.0 Cv Full Port	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B217-BEL	3/4" 2-Way 4.7 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B218-BEL	3/4" 2-Way 7.4 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B219-BEL	3/4" 2-Way 10.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B220-BEL	3/4" 2-Way 14.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B221-BEL	3/4" 2-Way 24.0 Cv Full Port		X			X			X			X			X			X			X		
B223-BEL	1" 2-Way 10.0 Cv SSBS		X			X			X			X			X			X			X		
B224-BEL	1" 2-Way 19.0 Cv SSBS		X			X			X			X			X			X			X		
B225-BEL	1" 2-Way 30.0 Cv Full Port		X			X			X			X			X			X			X		
B230-BEL	1 1/4" 2-Way 19.0 Cv SSBS		X			X			X			X			X			X			X		
B231-BEL	1 1/4" 2-Way 25.0 Cv SSBS			X			X			X			X			X			X			X	X
B232-BEL	1 1/4" 2-Way 37.0 Cv Full Port			X			X			X			X			X			X			X	X
B238-BEL	1 1/2" 2-Way 19.0 Cv SSBS			X			X			X			X			X			X			X	X
B239-BEL	1 1/2" 2-Way 29.0 Cv SSBS			X			X			X			X			X			X			X	X
B240-BEL	1 1/2" 2-Way 37.0 Cv Full Port			X			X			X			X			X			X			X	X
B249-BEL	2" 2-Way 46.0 Cv SSBS			X			X			X			X			X			X			X	X
B250-BEL	2" 2-Way 50.0 Cv Full Port			X			X			X			X			X			X			X	X
B251-BEL	2" 2-Way 65.0 Cv SSBS			X			X			X			X			X			X			X	X
B252-BEL	2" 2-Way 85.0 Cv SSBS			X			X			X			X			X			X			X	X
B253-BEL	2" 2-Way 120.0 Cv SSBS			X			X			X			X			X			X			X	X
B263-BEL	2 1/2" 2-Way 110.0 Cv SSBS			X			X			X			X			X			X			X	X
B265-BEL	2 1/2" 2-Way 210.0 Cv Full Port			X			X			X			X			X			X			X	X

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BELIMO

2-Way Valves (High Temperature / Steam)

SSBS stands for "Stainless Steel Ball and Stem" vs. chrome plated ball and stem

Valve Actuator Selection Guide

		On/Off 24 V						On/Off 120 V			3-Wire 24 V Floating				Proportional 2-10 VDC						
		Non-Spring Return			Spring Return			Spring Return			Non-Spring Return			Spring Return				Non-Spring Return			Spring Return			
Part No.	Valve Body Description	TR243	LRB243	ARB243	TFRB24	LF24 (WLF)	AFRB24	TFRB120	LF120 (WLF)	AFRBUP	TR243	LRB243	ARB243	TFRB243	LF243 (WLF)	AFRX24MFT	TR24SR	LRX24MFT	ARX24MFT	TFRX24MFT	LF24MFT (WLF)	AFRB24SR	AFRX24MFT
B215HT186	1/2" 2-Way Hi-Temp Steam 1.86 Cv SSBS	X	X		X			X			X	X		X			X	X		X			
B215HT290	1/2" 2-Way Hi-Temp Steam 2.90 Cv SSBS	X	X		X			X			X	X		X			X	X		X			
B215HT455	1/2" 2-Way Hi-Temp Steam 4.55 Cv SSBS	X	X		X			X			X	X		X			X	X		X			
B220HT731	3/4" 2-Way Hi-Temp Steam 7.31 Cv SSBS		X			X			X						X			X			X		
B220HT928	3/4" 2-Way Hi-Temp Steam 9.28 Cv SSBS		X			X			X						X			X			X		
B220HT1320	3/4" 2-Way Hi-Temp Steam 13.20 Cv SSBS		X			X			X						X			X			X		
B225HT1160	1" 2-Way Hi-Temp Steam 11.60 Cv SSBS		X			X			X						X			X			X		
B225HT1856	1" 2-Way Hi-Temp Steam 18.56 Cv SSBS		X			X			X						X			X			X		

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BELIMO

3-Way Valves

Valve Actuator Selection Guide

1. Use full port valve bodies with on/off actuators

2. SSBS stands for "Stainless Steel Ball and Stem" vs. chrome plated ball and stem

		On/Off 24 V						On/Off 120 V			3-Wire 24 V Floating						Proportional 2-10 VDC					
		Non-Spring Return			Spring Return			Spring Return			Non-Spring Return			Spring Return			Non-Spring Return			Spring Return			
Part No.	Valve Body Description	TR243	LRB243	ARB243	TFRB24	LF24 (WLF)	AFRB24	TFRB120	LF120 (WLF)	AFRBUP	TR243	LRB243	ARB243	TFRB243	LF243 (WLF)	AFRX24MFT	TR24SR	LRX24MFT	ARX24MFT	TFRX24MFT	LF24MFT (WLF)	AFRB24SR	AFRX24MFT
B309-BEL	1/2" 3-Way 0.8 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B310-BEL	1/2" 3-Way 1.2 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B311-BEL	1/2" 3-Way 1.9 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B312-BEL	1/2" 3-Way 3.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B313-BEL	1/2" 3-Way 4.7 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B315-BEL	1/2" 3-Way 10.0 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B316-BEL	1/2" 3-Way 16.0 Cv Full Port	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B317-BEL	3/4" 3-Way 4.7 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B318-BEL	3/4" 3-Way 7.4 Cv SSBS	X	X		X	X		X	X		X	X		X	X		X	X		X	X		
B320-BEL	3/4" 3-Way 24.0 Cv Full Port		X			X			X			X			X			X			X		
B323-BEL	1" 3-Way 10.0 Cv SSBS		X			X			X			X			X			X			X		
B325-BEL	1" 3-Way 30.0 Cv SSBS		X			X			X			X			X			X			X		
B330-BEL	1.25" 3-Way 19.0 Cv SSBS			X			X			X			X			X			X			X	X
B331-BEL	1.25" 3-Way 25.0 Cv SSBS			X			X			X			X			X			X			X	X
B339-BEL	1.5" 3-Way 29.0 Cv SSBS			X			X			X			X			X			X			X	X
B340-BEL	1.5" 3-Way 37.0 Cv SSBS			X			X			X			X			X			X			X	X
B341-BEL	1.5" 3-Way 46.0 Cv SSBS			X			X			X			X			X			X			X	X
B348-BEL	2" 3-Way 37.0 Cv SSBS			X			X			X			X			X			X			X	X
B349-BEL	2" 3-Way 46.0 Cv SSBS			X			X			X			X			X			X			X	X
B350-BEL	2" 3-Way 57.0 Cv SSBS			X			X			X			X			X			X			X	X
B351-BEL	2" 3-Way 68.0 Cv SSBS			X			X			X			X			X			X			X	X

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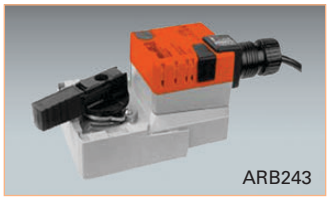
CONTROL VALVE ACTUATOR, NON-SPRING RETURN


ARB243

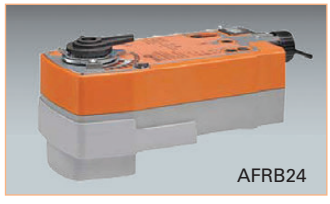
TR24SR

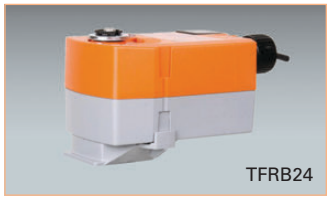
- Power Supply: 24 Vac/Vdc
- MFT model, with multi-function technology: faster running times, flexibility to customize and adapt a single actuator to various controllers and applications.
- Can be mounted in four different positions on characterized control valve

BELIMO

Part No.	Torque (In/Lb)	Control Type	Price
TR243	18	On/Off, Floating	139.50
TR24SR	18	Proportional, 2-10 Vdc	236.70
LRB243	45	On/Off, Floating	197.10
LRX24MFT	45	Proportional, 2-10 Vdc, MFT	387.90
ARB243	180	2 Position, On/Off, Floating	355.50
ARB24SR	180	Modulating, 2-10 Vdc	523.80
ARX24MFT	180	Proportional, 2-10 Vdc, MFT	519.30

CONTROL VALVE ACTUATOR, SPRING RETURN


AFRB24


TFRB24

- MFT model, with multi-function technology: faster running times, flexibility to customize and adapt a single actuator to various controllers and applications.
- Can be mounted in four different positions on characterized control valve

BELIMO

Part No.	Torque (In/Lb)	Control Type	Power Supply	Price
TFRB24	22	On/Off	24 Vac/Vdc	295.20
TFRB243	22	Floating, 3-Wire	24 Vac/Vdc	354.60
TFRX24MFT	22	Proportional/MFT	24 Vac/Vdc	478.80
TFRB120	22	On/Off	24 to 240 Vac 24 to 125 Vdc	318.60
AFRB24	180	On/Off	24 Vac/Vdc	509.40
AFRB24SR	180	Proportional	24 Vac/Vdc	627.30
AFRX24MFT	180	Floating/Proportional/MFT	24 Vac/Vdc	688.50
AFRBUP	180	On/Off	24 to 240 Vac 24 to 125 Vdc	565.20

DIRECT COUPLED

Belimo makes a full range of electronic direct coupled actuators. They can replace many Honeywell, Johnson Controls and Invensys actuators.

- Proportional actuators have standard 2 to 10 Vdc, 4 to 20 mA input signals
- Electrical connections are 3', 18 GA plenum rated wire, 1/2" conduit (except T suffix-screw terminals)

SPRING RETURN, 22 LB.-IN.

- Power Supply: 24 Vac/Vdc

BELIMO

Part No.	Control Type	Price
TFB24SR	Proportional	375.30

SPRING RETURN, 35 LB.-IN.

BELIMO

Part No.	Control Type	Power Supply	Price
LF24	On/Off	24 Vac/Vdc	317.70
LF24S	On/Off, 1 SPDT Aux	24 Vac/Vdc	373.50
LF243	Tri State, Floating	24 Vac/Vdc	386.10
LF24SR	Proportional	24 Vac/Vdc	434.70
LF24SRS[1]	Proportional	24 Vac/Vdc	490.50
LF24MFT	Proportional, MFT	24 Vac/Vdc	493.20
LF24MFTS[1]	Proportional, MFT	24 Vac/Vdc	549.00
LF120	On/Off	120 Vac	351.90

[1]With built-in auxiliary switch

SPRING RETURN, 90 LB.-IN.

BELIMO

Part No.	Control Type	Power Supply	Price
NFB24	On/Off	24 Vac/Vdc	380.70
NFB24S	On/Off, 2 SPDT Aux	24 Vac/Vdc	469.80
NFB24SR	Proportional	24 Vac/Vdc	508.50
NFBUP	On/Off	24 to 240 Vac 24 to 125 Vdc	431.10
NFBUPS	On/Off, 2 SPDT Aux	24 to 240 Vac 24 to 125 Vdc	520.20

SPRING RETURN, 180 LB.-IN.

- MFT models with multi-function technology: faster running times, flexibility to customize and adapt a single actuator to various controllers and applications.

BELIMO

Part No.	Control Type	Power Supply	Price
AFB24	On/Off	24 Vac/Vdc	466.20
AFB24S	On/Off, 2 SPDT Aux	24 Vac/Vdc	555.30
AFB24SR	Proportional	24 Vac/Vdc	579.60
AFBUP	On/Off	24 to 240 Vac 24 to 125 Vdc	520.20
AFBUPS	On/Off, 2 SPDT Aux	24 to 240 Vac 24 to 125 Vdc	609.30
AFB24MFTS	Proportional, MFT	24 Vac/Vdc	727.20

SPRING RETURN, 270 LB.-IN.

- Power Supply: 24 Vac/Vdc

BELIMO

Part No.	Control Type	Price
EFB24	On/Off	831.60
EFB24SR	Proportional	1036.80

NON-SPRING RETURN, 45 LB.-IN.

- Power Supply: 24 Vac/Vdc

BELIMO

Part No.	Control Type	Price
LMB243T	On/Off, Floating	144.00
LMB243S	On/Off, Floating, 1 SPDT aux	248.40
LMB24SR	Proportional	267.30
LRB243	On/Off, Floating (Valve Actuator)	197.10

NON-SPRING RETURN, 90 LB.-IN.

- Power Supply: 24 Vac/Vdc

BELIMO

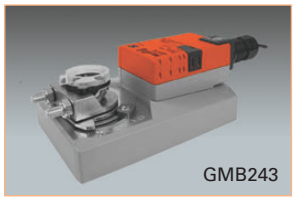
Part No.	Control Type	Price
NMB243	On/Off, Floating	234.00
NMB24SR	Proportional	329.40

NON-SPRING RETURN, 180 LB.-IN.

- Power Supply: 24 Vac/Vdc

BELIMO

Part No.	Control Type	Price
AMB243	On/Off, Floating	329.40
AMB243S	On/Off, Floating, 1 SPDT Aux	432.90
AMB24SR	Proportional	479.70


GMB243

NON-SPRING RETURN, 360 LB.-IN.

- Power Supply: 24 Vac/Vdc
- MFT model, with multi-function technology: faster running times, flexibility to customize and adapt a single actuator to various controllers and applications.

BELIMO

Part No.	Control Type	Price
GMB243	On/Off, Floating	466.20
GMB24SR	Proportional	621.90
GMX24MFT	On/Off, MFT	690.30

FSAF120

FIRE/SMOKE

- True mechanical spring return; the most reliable fail safe.
- Reverse mount for clockwise or counterclockwise fail-safe.
- Check damper position easily with clear position indicator.
- Overload-proof throughout rotation.
- UL555 and UL555S Listed

BELIMO

Part No.	Torque (In.-Lb.)	Price
FSLF120	30	406.80
FSLF120S[1]	30	477.90
FSNF120	70	525.60
FSAF120	133	648.90

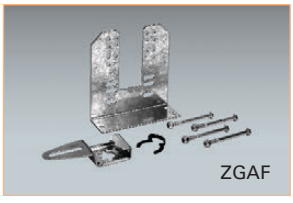
[1]With built-in auxiliary switch

KG8

LINKAGE ACCESSORIES

BELIMO

Part No.	Description	Use with	Price
KH6	Universal Crank Arm (For KG6 Ball Joint)	NFB,NFX,LF,TF Series	20.70
KH8	Universal Crank Arm (For KG8 Ball Joint)	AFB,AFX,AF,NFB,NFX,LF,TF Series	20.70
KG8	Ball Joint (5/16", 90)	AF,NFB,LF,TF,GM,AM,LM,AH Series	22.50
WAF4	Valve Actuator Linkage Kit	AF, LF, TF Series	31.50
WLF	Valve Actuator Linkage Kit	LF Series	26.10
WTF	Valve Actuator Linkage Kit	LF Series	13.50


ZGAF

CRANK ARM ADAPTOR KIT

BELIMO

Part No.	Description	Use with	Price
ZGAF	Crank Arm Adaptor Kit (includes mounting hardware)	AF Series	99.90
ZGNMA	Crank Arm Adaptor Kit (includes mounting hardware)	AM, NM Series	60.30
KHLF	Crank Arm for Shafts to 1/2"	LF Series	26.10

CONTROL AND POSITIONING

BELIMO

Part No.	Description	Use with	Price
ZGR01	Resistor with 6" Pigtail Wires 4 to 20 mA Adaptor, 500Ω,1/2" W	All Belimo Actuators	20.70

DIRECT COUPLED

M9116A

The M9100 Series is a direct-mount line of motor actuators that operates on 24 Vac or Vdc power and are available for use with floating or proportional controllers.

These bi-directional actuators require no linkages and are easily installed on round damper shafts up to 3/4" diameter or square shafts up to 5/8".

Integral auxiliary switches are available for indicating end-stop position or to perform switching functions at any angle within the selected rotation range. Position feedback is available through switches, a potentiometer, or a 0 (2) to 10 Vdc signal.

- Supply voltage: 24 Vac

NON-SPRING RETURN, 53 LB.-IN.

Part No.	Control Input	Price
M9106GGA2	0 to 10 Vdc (0–20 mA)	394.52

NON-SPRING RETURN, 70 LB.-IN.

Part No.	Control Input	Price
M9108AGA2	24 Vac, Floating	250.44
M9108GGA2	0 to 10 Vdc (0–20 mA)	393.88

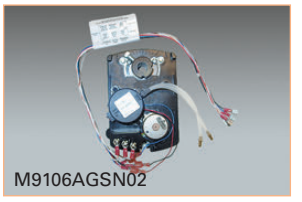
NON-SPRING RETURN, 140 LB.-IN.

Part No.	Control Input	Price
M9116AGA2	24 Vac, Floating	575.56
M9116GGA2	0 to 10 Vdc (0–20 mA)	575.90

NON-SPRING RETURN, 210 LB.-IN.

Part No.	Control Input	Price
M9124AGA2	24 Vac, Floating	675.72
M9124GGA2	0 to 10 Vdc (0–20 mA)	677.66

To view the most current Johnson Controls information please check www.uri.com


M9106AGSN02

NON-SPRING RETURN, 53 LB.-IN.

The M9106AGA2N02 synchronous motor-driven actuators provide floating (3-wire) control and are easily installed on a variable air volume (VAV) box.

They may also be installed on a small or medium-sized damper with a round shaft up to 1/2" in diameter or a 3/8" square shaft.

The M9106AGSN02 actuator/transmitter combines an M9106-AGA-2N02 with a prewired DPT-2015 differential pressure transmitter that has a 0 to 1.5 in. W.C. differential pressure range.

Features:

- 35 dBA rating meets audible requirements for open ceilings
- Synchronous drive provides constant rotation time that is independent of load
- Direct shaft mount with single-screw coupler simplifies installation and provides 3-point shaft gripping
- Magnetic clutch provides torque protection for the actuator and damper
- Adjustable rotation stops allow application versatility with 30 to 90° clockwise or counterclockwise rotation
- Manual gear release

Part No.	Control Input	Price
M9106AGA2N02	Floating, 1 Minute	185.72
M9106AGSN02	Floating, 1 Minute, DPT	390.68
M9106IGC2	Floating, On/Off, Adj. Time, 2 Aux.	275.96

SPRING RETURN

The M9200 Series is a direct-mount, spring return line of motor actuators that operates on 24 Vac or Vdc power and is available for use with on/off, floating, proportional, or resistive controllers. These bi-directional actuators require no linkages and are easily installed on round damper shafts up to 3/4" diameter or square shafts up to 1/2".
Position feedback is available through switches (*GC* models)

SPRING RETURN, 70 LB.-IN.

Part No.	Control Input	Price
M9208AGA2	24 Vac, On/Off Floating	393.76
M9208AGC3	24 Vac, On/Off Floating, 2 Aux	449.86
M9208BGA3	On/Off	323.66

SPRING RETURN, 140 LB.-IN.

Part No.	Control Input	Price
M9220AGA3	Floating	613.16
M9220BGA3	On/Off	499.88
M9220BGC3	On/Off	588.10
M9220HGA3	Vdc and mA w/Zero and Span	677.56

Actuators (DCA) are used within heating, ventilating, and air conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements.

Applications include:

- Volume control dampers, mounted directly to the drive shaft or remotely (with the use of accessory hardware).
- Quarter-turn rotary valves, such as ball or butterfly valves mounted directly to the drive shaft.
- Linear stroke globe or cage valves mounted with linkages to provide linear actuation.
- 5 year warranty
- 24 Vac input unless noted
- Modulating models: 2 to 10 Vdc, 4 to 20 mA

NON-SPRING RETURN, 44 LB.-IN.

Honeywell

Part No.	Control Type	Comment	Price
MN6105A1011	2 Position, Floating	—	132.62
MN6105A1201	2 Position, Floating	2 Aux	208.04
MN7505A2001	Modulating, Floating	—	210.08
MN7505W2001	Modulating, Floating	18 AWG color-coded cable	221.92

NON-SPRING RETURN, 88 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MN6110A1003	2 Position, Floating	—	191.22
MN6110A1201	2 Position, Floating	2 Aux.	244.18
MN7510A2001	Modulating, Floating	—	256.62
MN7510A2209	Modulating, Floating	2 Aux	318.08

NON-SPRING RETURN, 175 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MN6120A1002	2 Position, Floating	—	316.08
MN7220A2205	Modulating	2 Aux	444.12

NON-SPRING RETURN, 300 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MN6134A1003	2 Position, Floating	—	445.40
MN7234A2008	Modulating	—	514.08

NON-SPRING RETURN, 35 LB.-IN.

Used to control dampers in applications such as variable air volume terminal units, and for controlling ball valves.

- Control signal: SPDT floating, two position
- All include manual declutch level
- Supply power: 24 Vac
- Non-spring return

Honeywell

Part No.	Timing (Sec.)	Includes	Price
ML6161A2009	90	Feedback Output	137.02
ML6161A2017	420	Feedback Output	140.10
ML6161B2024	90	—	123.40
ML6161B2032	420	—	128.64

SPRING RETURN, 27 LB.-IN.

Zelix, compact actuator

Honeywell

Part No.	Control Type	Comments	Price
MS8103A1030	2 Position / 24 Vac/dc	—	249.38
MS8103A1130	2 Position / 24 Vac/dc	1 Aux	301.08
MS4103A1030	2 Position / 120 Vac	—	352.84
MS4103A1130	2 Position / 120 Vac	1 Aux	323.20
MS7503A2030	Modulating, Floating, 24 Vac/dc	—	350.60
MS7503A2130	Modulating, Floating, 24 Vac/dc	1 Aux	360.48
MS7403A2030	Modulating, Floating, 24 Vac/dc Economizer 3-Position	—	408.88

SPRING RETURN, 44 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MS4105A1030	2 Position / 120 Vac	—	301.08
MS4105A1130	2 Position / 120 Vac	1 Aux	352.84
MS7405A2030	Modulating, Floating, 24 Vac/dc Economizer 3-Position	—	405.90
MS7505A2030	Modulating, Floating, 24 Vac/dc	—	360.48
MS7505A2130	Modulating, Floating, 24 Vac/dc	1 Aux	408.88
MS8105A1030	2 Position, 24 Vac/dc	—	264.50
MS8105A1130	2 Position, 24 Vac/dc	1 Aux	314.34

SPRING RETURN, 88 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MS4110A1002	2 Position / 120 Vac	—	361.48
MS4110A1200	2 Position / 120 Vac	2 Aux	440.00
MS7510A2008	Modulating, Floating	—	416.46
MS7510A2206	Modulating, Floating	2 Aux	490.68
MS7510H2209*	Modulating, Floating	2 Aux	513.74
MS8110A1008	2 Position / 24 Vac	—	315.90
MS8110A1206	2 Position / 24 Vac	2 Aux	392.52

* Adjustable Zero and Span

SPRING RETURN, 175 LB.-IN.

Honeywell

Part No.	Control Type	Comments	Price
MS4120A1001	2 Position / 120 Vac	45 Sec	457.94
MS4120A1209	2 Position / 120 Vac	45 Sec, 2 Aux	542.98
MS4120F1006	2 Position / 120 Vac	15 Sec	601.18
MS4120F1204	2 Position / 120 Vac	15 Sec, 2 Aux	664.16
MS7520A2007	Floating, Modulating	—	542.64
MS7520A2205	Floating, Modulating	2 Aux	600.22
MS7520H2208*	Floating, Modulating	2 Aux	630.02
MS8120A1007	2 Position	—	393.88
MS8120A1205	2 Position	2 Aux	472.68

* Adjustable Zero and Span

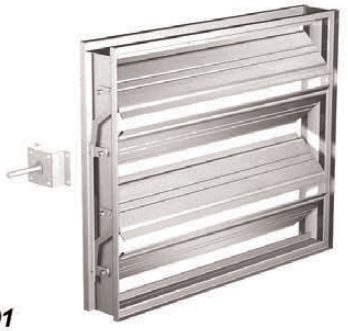
DAMPERS

Honeywell

Honeywell's line of dampers offers a number of new features

- Reinforced, overlapped corners for greater strength
- Hat channel frame
- Symmetrical blade design allows for airflow in either direction
- Better free-area and performance due to symmetrical blades and low- profile designs
- No top or bottom, allows for actuator mounting on either side without ordering special options
- Certified with the AMCA Air Performance Seal on every damper
- Blade-to-blade linkage out of air stream (concealed in frame)
- Can be sized in increments of 0.01 inches.
- Internal or external mounting locations for actuators
- Parallel or opposed blade orientations

Free Freight Standard Order Turnaround Time



D1
Airfoil Blades, Class 1 Leakage
6cfm/ft2 @ 4 in. wg, Silicone Blade Seals

D3
3V Blades, Class 3 Leakage
120cfm/ft2 @ 4 in. wg,
No Blade Seals

D2
3V Blades, Class 2 Leakage
10cfm/ft2 @ 4 in. wg,
Vinyl Blade Seals

MODEL NUMBER SPECIFICATION

D1	(Airfoil Control Dampers) extremely low-leakage damper with rugged steel "Airfoil blades" designed to meet the highest standards established for commercial control dampers. Intended for applications in medium to high pressure and velocity system									Product Type
D2	D642 (Class II Leakage, 3 V blade with seals)									
D3	D640 (Class III Leakage, 3 V blade without seals)									
	P	Parallel								Blade Action
	O	Opposed								
		A	16 gauge galvanized frame with galvanized linkages and axles							Frame
			A	Acetal Bearings /No Seal						Axle Bearings and Seals Materials (When you select D640 you are only selecting the bearing type)
			B	Acetal Bearings/Vinyl Seal						
			C	Bronze Bearings/No Seal						
			D	Bronze Bearings / Vinyl Seal						
				(006-072)	Standard Rectangular Damper Width					Width (in 2 inch increments through 36 in. then 4 in. increments through 72 in.)
					(006-072)	Standard Rectangular Damper Height				Height (in 2 inch increments through 36 in. then 4 in. increments through 72 in.)
						N	Nominal Sizing			Sizing
							A	No flange		Flange
									A	External LH Standard without jackshaft (may include jackshaft for larger sizes)	Actuator Mounting
									B	Internal LH Standard without jackshaft (may include jackshaft for larger sizes)	
									C	External RH Standard without jackshaft (may include jackshaft for lager sizes)	
D3	P	A	A	XXX	XXX	N	A	A		Example	

DIRECT COUPLED

ML7174A2001

NON-SPRING RETURN, 70 LB.-IN.

Used to control dampers in applications such as variable air volume terminal units; suitable for use with SPDT floating thermostats, electronic systems, and for mounting on ball valves.

- Supply voltage: 24 Vac
- Timing: 90 seconds
- Includes manual declutch lever

Honeywell

Part No.	Control Mode	Control Signal	Price
ML6174A2002	Series 60	SPDT Floating and On-Off	190.60
ML6174B2019	Series 60	SPDT Floating and 2-Position	187.20
ML7174A2001	Series 70	4–20 mA or 2–10 Vdc	278.58

SPRING RETURN, FAST ACTING, FIRE/SMOKE

For on/off damper control with integral junction box.

Reversible mounting allows actuator to be used for either clockwise or counterclockwise spring return and are designed to operate reliably in smoke control systems requiring Underwriter's Laboratories Inc. UL555S ratings up to 350°F.

- Timing: 15 seconds
- 95° angle of rotation

Honeywell

Part No.	Torque (Lb. In.)	Control Signal	Comments	Price
MS4104F1010	30	2-Position, SPST	—	358.24
MS4104F1210	30	2-Position, SPST	2 Aux	420.30
MS4109F1010	80	2-Position, SPST	—	471.50

SPRING RETURN, FIRE/SMOKE, 175 LB-IN.

Spring return direct coupled, line voltage actuator accepts two-position (SPST) control for air dampers, air handlers, ventilation flaps, louvers and ball valves.

- Brush DC submotor with electronic stall protection for 2-position model
- Self-centering shaft coupling for various shaft sizes
- Metal housing features built-in mechanical end limits
- Field selectable spring return direction, shaft position indicator and scale, and manual winding capability with locking function
- Supply voltage: 24 Vac
- Timing: 15 seconds

Honeywell

Part No.	Control Type	Comments	Price
MS8120F1002	2 Position / 24 Vac	15 Sec	552.78
MS8120F1200	2 Position / 24 Vac	15 Sec, 2 Aux	623.06

ML7421B1032

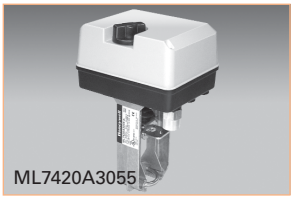
LINEAR VALVE OPERATOR, NON-SPRING RETURN

Electric linear valve actuator works with standard Honeywell globe valves.

- Supply voltage: 24 Vac
- ML7421B/ML6421B for use with 4-6" Globe Valve only

Honeywell

Part No.	Stroke (In.)	Stem Force (lbf)	Control Signal	Timing (Sec.)	Price
ML6421A1017	3/4	405	SPDT, Floating, On/Off	95	505.54
ML6421B1040	1 1/2	405	SPST. On/Off	175	535.78
ML7421A1032	3/4	405	2 to 10 Vdc	95	648.02
ML7421B1023	1 1/2	405	2 to 10 Vdc	175	685.56


ML7420A3055

LINEAR VALVE OPERATOR, NON-SPRING RETURN

Electric linear valve actuator works with standard Honeywell V5011/V5013 globe valves.

- For valves with 1 3/8" bonnet to 3" capacity
- Supply voltage: 24 Vac

Honeywell

Part No.	Stroke (In.)	Stem Force (lbf)	Control Signal	Timing (Sec.)	Price
ML6420A3049	3/4	135	SPDT, Floating, On/Off	60	371.68
ML6420A3056	3/4	135	SPDT, Floating, On/Off	30	368.06
ML7420A3055	3/4	135	2 to 10 Vdc	60	469.00

ML6425A3022

LINEAR VALVE OPERATOR, SPRING RETURN

Direct coupled electric linear valve actuator with direct/reverse action switch.

- Supply voltage: 24 Vac
- Use up to 3" Honeywell Globe Valve

Honeywell

Part No.	Control Signal	Comments	Price
ML6425A3022	SPDT Floating	Extends Stem Down on Power Failure	680.78
ML6425B3013	SPDT Floating	Retracts Stem Up on Power Failure	680.78
ML7425A3013	0 to 10 Vdc	Extends Stem Down on Power Failure	750.24
ML7425B3012	0 to 10 Vdc	Retracts Stem Up on Power Failure	750.22

DIRECT COUPLED

PROPORTIONAL, NON-SPRING RETURN

Mounts directly, without a linkage, on V5011A, C, F, G; V5013F and 1/2-3" water and steam threaded, V5011/V5013 N Series valve bodies.

- Supply voltage: 24 Vac
- NEMA 3R cover for outdoor Installation
- Field installed auxiliary switches and positive feedback pot available

Honeywell

Part No.	Control Signal	Price
ML7984A4009	2 to 10 Vdc, 4 to 20 mA, 135Ω, Series 90	438.52
ML6984A4000	3 or 5 Wire Floating, Low Volts SPDT, ON/OFF	379.78

FORTA

Programmable linear actuator for use with VB7000, VB8000 and VB9000 series 2-way, 3-way TAC valves

- Floating or proportional control
- Manual override
- Direct/Reverse action (switch selectable)
- 60 or 300 second run time (switch selectable)
- Equal percentage or linear (selectable)
- Optional auxiliary switch available
- M400A; 1/2 to 2" valves, M800A; 3/4 to 2" valves (VB9313 2 1/2 to 4"), M1500A; 2 1/2 to 6" valves

Schneider Electric t.a.c COLMAN

Part No.	Stem Force (Lbf)	Price
M400A	90	631.00
M800A	180	677.00
M1500A	337	993.00

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- *Sort by PO number, date or status*
- *Check your account balance*

SPECIAL PURPOSE MOUNT

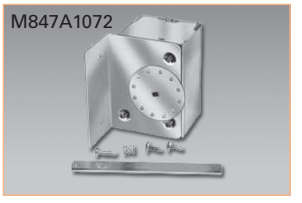
SPRING RETURN

Spring return motors for two-position back draft, outdoor air changeover, zone, or minimum position damper control.

- Includes 1 SPDT auxiliary switch
- Stroke: 75 degrees

Honeywell

Part No.	Supply Power (Vac)	Torque (Lb.-In.)	Timing (Sec.)	Includes	Price
M436A1116	120	20	30	2-Wire Thermostat, SPST Thermal Breaker	536.94
M436A1124	240	20	30	2-Wire Thermostat, SPST Thermal Breaker	557.58
M836A1042	24	20	30	SPST No Heat Anticipation Thermal Breaker	530.62
M836B1033	24	15	25	SPST Heat Anticipation	567.76



2-POSITION, SPRING RETURN

Used with two-wire 24V room thermostats or other low voltage controllers to operate the draft damper on solid fuel furnaces or boilers and other similar duty applications.

- Supply voltage: 24 Vac
- Rotates CW when energized

Honeywell

Part No.	Torque (Oz.-In.)	Timing (Sec.)	Stroke (Degrees)	Linkage (In.)	Price
M847A1072	30	20	45	3.8, Arm	201.96
M847A1080	30	20	45	38, Chain	201.96

ELECTRONIC ACTUATOR DRIVE

The CP-8301-XXX Series electronic actuator drive is designed to process a variable 1 to 15 Vdc signal from a controller to provide proportional control of an electric gear train actuator.

- Input: 1 to 15 Vdc
- Mounts directly onto Invensys proportional, electric, gear train actuators

Schneider Electric t.a.c COLMAN

Part No.	Power (Vac)	Price
CP8301120	120	598.00
CP830124	24	644.00

FOOT MOUNT

TWO-POSITION, SPRING RETURN

Two-position, spring return motors used to operate dampers and valves.

- Used in applications where it is necessary or desirable to have the controlled element return to the starting position in the event of power failure or interruption
- Electrically normally closed and rotated clockwise to open with a signal increase
- Modutrol IV Series
- Torque: 60 lb.-in.
- Foot mounted

Honeywell

Part No.	Supply Power (Vac)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M4185A1001	120	60	160	—	**815.24**
M4185B1009	120	60	160	1-SPDT Auxiliary Switch	**863.90**
M4185B1058	120/208/240	30	90	1-SPDT Auxiliary Switch	**923.60**
M8185D1006	24	30 to 60	90 to 160	—	**719.62**

REVERSING, 3-WIRE SPDT, FLOATING

Reversing, 3-wire SPDT or floating control motors used to operate dampers and valves.

- Modutrol IV Series

Honeywell

Part No.	Supply Power (Vac)	Torque (Lb.-In.)	Timing (Sec.)	Stroke (Degrees)	Price
M6184D1035	24	150	30 to 60	90 to 160	**888.62**
M6194D1017	24	300	120 to 240	90 to 160	**1277.60**

REVERSING, 3-WIRE

Reversing, 3-wire floating control motors with feedback potentiometer. Used with controllers that provide SPDT output to operate dampers and valves.

- Modutrol IV Series
- Torque: 150 lb.-in.

Honeywell

Part No.	Supply Power (Vac)	Timing (Sec.)	Stroke (Degrees)	Price
M6284D1000-S	24	30 to 60	90 to 160	**1042.46**

SPRING RETURN, 25 LB.-IN.

Spring return, 25-lb.-in. damper actuators provide SPDT floating, two-position, three-position or modulating control of economizer systems, ventilation dampers and combustion air dampers. Use with W7459A.

- Stroke: 90°
- Timing: 90 seconds
- Maximum operating torque: 25 lb.-in.
- Power supply: 24 Vac

Honeywell

Part No.	Rotate to Open	Application	Price
M6415A1016	CCW	SPDT Floating	**595.18**
M7415A1006	CCW	Modulating	**471.04**
M7415B1004	CW	Modulating	**471.04**
M8405A1006	CCW	3-Position, Adjustable Minimum	**442.78**
M8415A1004	CW	2-Position, Adjustable Auxiliary	**455.80**

FOOT MOUNT

PROPORTIONAL, ELECTRONIC

Proportional motors used to operate dampers and valves when used with a modulating 4-20 mA current source.

- Modutrol IV Series

Honeywell

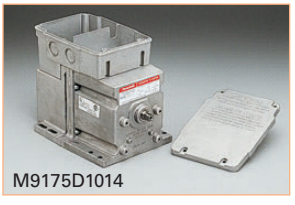
Part No.	Supply Power (Vac)	Torque (Lb.-In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M7284A1004	120	150	30	90	—	**1323.92**
M7284C1000	120	150	30	90	2-Auxiliary Switch	**1552.24**
M7284Q1009	120	150	30	90	2-Auxiliary Switch	**1660.90**
M7285A1003	120	60	30	90	—	**1546.40**

PROPORTIONAL, REVERSING, NON-SPRING RETURN, 35-75 LB. IN.

- For Series 90 control circuit

Honeywell

Part No.	Supply Power (Vac)	Torque (Lb. -In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M9164A1005	120	35	60	160	—	**1060.66**
M9164A1070	24	35	60	160	—	**989.38**
M9164C1001	24	35	60	160	2-SPDT Auxiliary	**1232.50**
M9164C1068	120	35	30	90	2-SPDT Auxiliary	**1320.54**
M9164D1009	24	35	30 to 60	90 to 160	—	**920.48**
M9174B1027	120	75	30 to 60	90 to 160	1-SPDT Auxiliary	**1238.24**
M9174C1025	120	75	30	90	2-SPDT Auxiliary	**1351.02**
M9174C1033	120	75	60	160	2-SPDT Auxiliary	**1351.02**
M9174D1007	24	75	30 to 60	90 to 160	—	**1010.44**

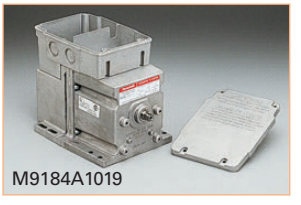


PROPORTIONAL, REVERSING, SPRING RETURN

- For Series 90 control circuit
- Supply power: 24 Vac
- M9185 can operate valve linkages from power end or normally open valve applications
- M9182 can operate valve linkages from power end or auxiliary end shafts for normally closed or open valve applications

Honeywell

Part No.	Torque (Lb.-In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M9182A1011	60	60	160	—	**1119.02**
M9185A1018	60	60	160	—	**1439.00**
M9185C1006	60	60	160	2-SPDT Auxiliary	**1459.70**
M9185D1004	60	30 to 60	90 to 160	—	**1411.34**
M9185E1019	60	30 to 60	90 to 160	1-SPDT Auxiliary	**1564.62**



PROPORTIONAL, REVERSING, NON-SPRING RETURN, 150-300 LB. IN.

- For Series 90 control circuit
- Supply power: 24 Vac

Honeywell

Part No.	Torque (Lb. -In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M9184A1019	150	60	160	—	**1220.14**
M9184C1031	150	60	160	2-Aux. Switches	**1269.34**
M9184D1021	150	30 to 60	90 to 160	—	**1266.18**
M9194D1003	300	120 to 240	90 to 160	—	**1446.86**
M9194E1000	300	120 to 240	90 to 160	1-Aux. Switch	**1585.04**

PROPORTIONAL, REVERSING, NON-SPRING RETURN

Reversing, proportional motors used to drive burner firing rate valves, dampers or auxiliary equipment. Replace M941A,C,D motors.

- Designed for flame safeguard applications in commercial/industrial oil or gas burner system.
- Vibration resistant electronic drive circuit.
- Regulated by three-wire proportional controller; 135 Ω
- Stroke is field-adjustable to 90 or 160 degrees.
- Supply power: 24 Vac

Honeywell

Part No.	Torque (Lb. -In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M9484D1010	150	30 to 60	90 to 160	—	**1290.64**
M9484E1017	150	30 to 60	90 to 160	1 Aux Switch (1°)	**1514.84**
M9484E1033	150	30 to 60	90 to 160	1 Aux Switch (7°)	**1520.00**
M9484F1007	150	30 to 60	90 to 160	2 Aux Switch (7° + 80°)	**1591.06**
M9484F1023	75	15 to 30	90 to 160	2 Aux Switch	**1562.74**
M9484F1031	150	30 to 60	90 to 160	2 Aux Switch (7° + 80°)	**1632.30**

PROPORTIONAL, MODULATING DC

Proportional motors used to operate dampers and valves when used with a modulating DC voltage source.

- Modutrol IV Series
- Motor and circuitry operate from 24 Vac.
- Input signal: 10.5 to 13.5 Vdc
- Torque: 60 Lb. In.

Honeywell

Part No.	Volt	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M7164A1017	24	30-60	90 to 160, Asymmetrical	—	**1030.00**
M7164G1030	120	30-60	90 to 160, Symmetrical	Transformer	**1044.50**

PROPORTIONAL, SPRING RETURN, MODULATING DC, W7080

Proportional motors used to operate dampers and valves when used with a modulating DC voltage source; specifically designed for use with W7080 control panel

- Modutrol IV Series
- Supply power: 24 Vac
- Input signal: 14 to 17 Vdc
- Rotation: CW from power end on signal increase

Honeywell

Part No.	Torque (Lb.-In.)	Timing (Sec.)	Stroke (Degrees)	Includes	Price
M7685A1025	60	30 to 60	90 to 160	Minimum Position Pot.	**1186.46**

2 POSITION, OIL SUBMERGED ACTUATOR

These actuators provide 2-position operation of dampers, valves, and other equipment requiring the return to normal position upon power interruption.

- SPST controller
- Spring return. CCW to origin.
- 2-wire, SPST control
- Torque: 60 lb.-in.
- Damper area: 33 sq. ft. parallel, 43 sq. ft. opposed blade
- No load timing: 20 seconds

Schneider Electric t.a.c COLMAN

Part No.	Power (Vac)	Price
MA418	120	**1099.00**

REVERSIBLE PROPORTIONAL ELECTRIC

The MP Series actuators are used for 2-position, floating, and proportional control of dampers, valves, and program switches in heating, ventilation, air conditioning applications, or similar applications.

- Proportional actuators with built-in feedback potentiometers
- Rotation: set at 180° (adjustable 45 to 320°)

Schneider Electric t.a.c COLMAN

Part No.	Power (Vac)	Torque (Lb.-In.)	Timing (Sec.)	Spring Return	Auxiliary Switch	Price
MP381	24	220	130	CW	SPDT	**1549.00**
MP485	120	220	130	NO	SPDT	**1630.00**
MP461600	120	50	90	CW	SPDT	**2572.00**

ACTUATOR ACCESSORIES

VALVE LINKAGE, Q5001 SERIES

The Q5001 valve linkage connects a Modutrol® motor to a 2- or 3-way valve. It is used primarily on V5011 or V5013 steam and water valves.

- Q5001 valve linkage is applicable to 2-way or 3-way valves in modulating or two-position service
- Linkage requires no adjustment when used with Honeywell valves and Modutrol IV motors
- Q5001 valve linkage replaces Q601 and Q618 valve linkages

Honeywell

Part No.	Stem Force (Lb.)	Lift Adjustment (In.)	Bonnet Size (In.)	Price
Q5001D1000	80, 160	3/4, Fixed	1 3/8	**251.06**
Q5001D1018	160, 320	3/4, Fixed	1 3/8	**252.56**

VALVE LINKAGE, Q5020 SERIES

The Q5020 globe valve linkages connect a Honeywell direct coupled actuator to a steam or water globe valve.

- Used with two-way and three-way globe valves in modulating or two-position service.
- Used with 25, 50, and 142 lb-in. spring return and 35, 70, 150, and 300 lb-in. non-spring return DCA
- Quick and simple installation with no disassembly required
- Precision roller-bearing rack construction prevents premature valve packing wear and leakage
- Flexible actuator mounting orientation
- Adjustable manual override lever and valve position indicator

Honeywell

Part No.	Stem Force (Lb.)	Stroke (In.)	Used With	Price
Q5020C1009	300, 142 to 175 (Spring Return)	1 1/2	V5051	**890.38**

INTERFACE MODULE

For converting Series 90 Modutrol IV motors to Series 70 (electronic) control.

- Q7130A1006 provides selectable voltage ranges: 4 to 7, 6 to 9 or 10.5 to 13.5 Vdc. Adapts M91XX Modutrol IV motor to function as M71XX model for M734H, J; M744D; M745G, P replacements.
- Q7230A1005 provides adjustable zero and span, voltage or current control (includes 4 to 20 mA and 2 to 10 Vdc). Adapts M91XX Modutrol IV motors to function as M72XX model for M744S, T, Y; M745S, T, Y replacements

Honeywell

Part No.	Application	Price
Q7130A1006	Voltage Ranges (4-7 Vdc, 6-9 Vdc, 10.5 - 13.5 Vdc)	**244.24**
Q7230A1005	Adj zero and span, 4-20 ma or 2-10 Vdc	**213.80**

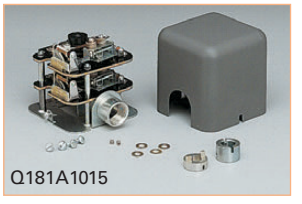
MANUAL POTENTIOMETER, S443 SERIES

Used for remote manual control of proportioning (Series 90) motors and relays.

- Use with M934, M941, M944, M945, M9164, M9484, M9184, M9185

Honeywell

Part No.	Resistance (Ω)	Price
S443A1007	135	**430.86**



AUXILIARY POTENTIOMETER, Q181 SERIES

Controls one to four Modutrol (Series 90) motors from one master motor.

- Compatible with Modutrol III and Modutrol IV motors

Honeywell

Part No.	Throttling Range (Degrees)	Motor Controlled	Cover	Price
Q181A1007	40 to 160	1	Yes	**549.98**
Q181A1015	40 to 160	2	Yes	**642.56**

DAMPER LINKAGE, Q298 SERIES

Honeywell

Part No.	Description	Price
Q298B1065	Damper Linkage, 2-Arms, 2-Ball Joints, 1-24" Push Rod	**140.94**
27518	Crankarm balljoint with 1/4 - 28 UNF male threads, fits 5-16" push rods	**17.18**

DAMPER LINKAGE, Q605 SERIES

Connects Modutrol motor to standard damper or set of dampers to provide control of duct airflow.

- Includes crank arm

Honeywell

Part No.	Location (To Duct)	Bracket	Damper Amps	Ball Joints	Price
Q605F1018	External	Yes	1	2	**125.60**
Q605H1016	External, Internal	Yes	3	4	**164.20**

Q209A1022

MANUAL POTENTIOMETER, Q209 SERIES

Used to limit minimum position of a proportioning Modutrol motor.

Honeywell

Part No.	Mount Location	Resistance (Ω)	Use On	Price
Q209A1022	Internal	150	M944, M945, M954, M955, M744, M745, M941	**118.98**
Q209A1030	Internal	300	M944, M945, M954, M955, M744, M745, M941	**144.90**
Q209E1002	Internal, Cover Box	150	Modutrol IV	**95.16**
Q209E1010	Internal, Cover Box	150	Modutrol IV	**115.10**

MANUAL POTENTIOMETER, S963 SERIES

For remote setpoint control of electronic (Series 70) motors and panels.

Honeywell

Part No.	Resistance (Ω)	Scale Range (°F)	Use With	Price
S963B1037	480	60 to 90	T7047A, C, D, E; T7022A; W927A-C, F; W7100	**238.00**
S963B1086	1,000	40 to 140	W7100	**187.00**
S963B1128	135	Open/Closed	Proportional Motors	**146.64**
S963B1136	270	Open/Closed	Proportional Motors	**143.86**

SIGNAL ADAPTER

Q769 Adapter is used to provide a modulating signal to the M7415 Economizer Damper Motors when used with a controller.

- Quick-connect terminals

Honeywell

Part No.	Description	Price
Q769A1009	6 to 9 Volt Adapter	**85.24**
Q769B1008	4 to 20 mA Adapter	**87.04**

HYDRAULIC

2 POSITION

These actuators are used for electronic 2-position control of valves and dampers which require a return to the normal position upon power interruption.

- Spring return
- 2-wire, SPST control
- 2-position actuators controlled by an SPST controller
- No load timing: 60 seconds
- Requires linkage for dampers or valves
- Auxiliary switch (where indicated): SPDT, 10 Amp

Schneider Electric t.a.c. Colman

Part No.	Power (Vac)	Auxiliary Switch	Price
MA5210	120	No	**560.00**
MA5210500	120	Yes	**699.00**
MA5213	24	No	**560.00**
MA5213500	24	Yes	**699.00**

MP5210500

PROPORTIONAL

These actuators provide electronic proportional control of dampers, valves, or program switches requiring the return to normal position upon power interruption.

- Compatibility with 2 to 15 Vdc System 8000 input signals
- Proportional control by variable Vdc input signal
- Spring return
- Fixed 3 Vdc operating span
- Timing: 60 second extension; 40 second retraction, 15 second retraction (power loss)
- Requires linkage for dampers or valves
- Auxiliary switch (where indicated): SPDT, 10 Amps

Schneider Electric t.a.c. Colman

Part No.	Power (Vac)	Auxiliary Switch	Price
MP5210	120	No	**668.00**
MP5210500	120	Yes	**802.00**
MP5213	24	No	**668.00**
MP5213500	24	Yes	**802.00**
MP5230[1]	120	No	**907.00**

[1]Damper actuation only

HYDRAULIC

POSITIVE POSITIONING

These actuators provide electronic proportional control of dampers, valves, or program switches requiring the return to normal position upon power interruption.

- Proportional control by variable Vdc input signal
- Compatability with 2 to 15 Vdc System 8000 input signals
- Spring return
- Timing: 60 second extension; 30 second retraction, 15 second retraction (power loss)
- Requires linkage for dampers or valves

Part No.	Power (Vac)	Price
MP5410	120	889.00
MP5413	24	889.00

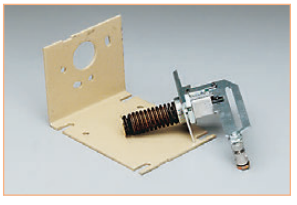
POSITIVE POSITIONING (0–10 VDC)

The MP-500 Series actuators are for the electronic proportional control of dampers, valves, or program switches which require the return to normal position upon power interruption. This series is compatible with 0 to 10 Vdc input signals.

- Proportional actuators controlled by variable Vdc input signal
- Spring return
- Timing: 60 second extension; 30 second retraction, 15 second retraction (power loss)
- Requires linkage for dampers or valves

Part No.	Power (Vac)	Price
MP5513	24	910.00

ACCESSORIES

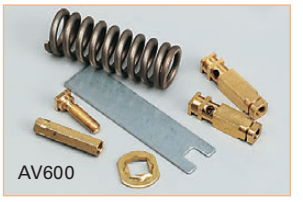


DAMPER LINKAGE

Required to modify MA/MP 5210, 5213 actuator for damper applications with 2" stroke.

- For 2-position, spring return actuator
- Includes: mounting bracket, damper linkage with spring and AM-122 straight connector

Part No.	Description	Price
AM601	MA/MP 5210, 5213 Series Damper Linkage	142.00



VALVE LINKAGE KIT

For assembling MA, MF, MP-5X1X and MPR-5X1X Series hydraulic actuators to (1/2" to 1 1/4") valve bodies. Device consists of spring retainer, spring and combination stem extension and lock nut.

Part No.	Description	Price
AV600	VB9000 Series Body Linkage	38.00
AV7600	VB7000 Series Body Linkage	40.00

LIQUID FLOW SWITCH

F261 SERIES

The F261 Series Flow Switches respond to fluid flow in lines carrying water, ethylene glycol, or other nonhazardous fluids. These models also work in applications with swimming pool water and lubricating oils.

- SPDT switches
- Type 3R (NEMA) or Type 4 (NEMA) polycarbonate enclosure provides dust protection in indoor and outdoor applications.
- Viton® diaphragm allows use in fluid lines carrying chlorinated water, treated water, or other nonhazardous fluids.
- Maximum fluid pressure: 290 psig
- Maximum fluid temperature: 250°F
- Minimum fluid temperature: -20°F

STANDARD FLOW RATE, PADDLE

F261 Series Standard Flow Switches use a variety of paddle sizes to respond to fluid flow rates in applications with 1 inch trade size (or greater) pipe.

- Each model includes: 1 in., 2 in., 3 in., and 6 in. stainless steel paddles, lock-tooth washer, and stainless steel paddle screw (supplied uninstalled)
- F261MALV01C is a low-energy model with gold-plated contacts that provides improved electrical performance in low-voltage, low-current circuits (dry circuits)

		Dimension (In.)[1]			F.L. Amps	
Part No.	Enclosure	H	W	D	(@ 240V)	Price
F261KAHV01C	NEMA 3R	8 1/4	4	2 3/4	10	238.40
F261MAHV01C	NEMA 4	8 1/4	4	2 3/4	10	316.28
F261MALV01C	NEMA 4	8 1/4	4	2 3/4	—	340.88

[1]Dimension with 3" paddle

LOW FLOW RATE

F261 Series Low Flow Switches respond to low fluid flow rates in applications with 1 inch trade size (or less) pipe.

- Low-flow operation on low-flow models actuates switch with less than 2.0 GPM flow for water applications or 11.0 GPM flow for steam applications

Johnson Controls

Part No.	Connection FPT (In.)	Enclosure	Adjustment Range (GPM) Flow Increase (R to Y Closes) Min.	Flow Increase (R to Y Closes) Max.	Flow Decrease (R to B Closes) Min.	Flow Decrease (R to B Closes) Max.	F.L. Amps (@ 240V)	Price
F261KEHV01C	1/2	NEMA 3R	1.3	2.6	0.6	1.25	10	**260.22**
F261KFHV01C	3/4	NEMA 3R	2	3.6	0.6	1.3	10	**260.22**
F261MEHV01C	1/2	NEMA 4	1.3	2.6	0.6	1.25	10	**373.30**
F261MFHV01C	3/4	NEMA 4	2	3.6	0.6	1.3	10	**375.18**

STANDARD FLOW RATE, PADDLE

- For starting or stopping electrically operated equipment such as signal lights, alarms, motors, automatic burners, metering devices, and others
- 1" NPT
- Sensitivity adjusting screw makes flow adjustment easy
- Single pole, double throw snap switch; 3.7 FLA @ 240V
- Four stainless steel paddles included: 1", 2", 3", and 6"
- Maxium pressure: 160 psi

McDonnell & Miller

Part No.	Description	Price
FS251	Flow Switch, NEMA-1 Case	**253.30**
FS254	Flow Switch, NEMA-4 Case	**340.00**

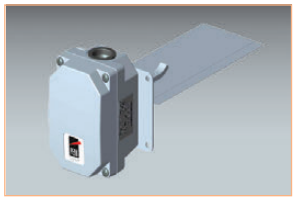
HIGH SENSITIVITY

- For general purpose applications where high sensitivity is required and moderate or low flow rates are encountered such as air conditioning, heating and hydronic systems, water, fuel oil, some viscous liquids and oils in process work
- In-line configuration eliminates need for a pipe tee
- High flow capacity
- 1/2" NPT
- SPDT snap switch
- Switch compartment is completely sealed to protect it from the liquid
- Sensitivity adjusting screw makes flow adjustment easy
- Minimum temperature: 32°F
- Maximum temperature: 225°F
- Maximum operating pressure: 100 psi

McDonnell & Miller

Part No.	Description	Price
FS1W	High Sensitivity Flow Switch, NEMA 4X Enclosure	**484.50**

AIR FLOW SWITCH



PADDLE

The F262 Series Airflow Switches detect airflow or the absence of airflow by responding only to the velocity of air movement within a duct. The SPDT switch can be wired to open one circuit and close a second circuit for either signaling or interlock purposes.

- Type 3R (NEMA) polycarbonate enclosure allows use in indoor applications and provides dust protection; approved for use in a plenum according to NEC
- Dependable dust-protected SPDT snap-acting PENNswitch detects the presence or absence of airflow
- Large wiring space makes wiring convenient and easily accessible
- Easily accessible range adjustment screw allows easy field adjustment

Johnson Controls

Part No.	Paddle Size (In.)	Dimension (In.) H	W	D	F.L. Amps (@ 240V)	Price
F262KDH01C	2 1/8 x 6 7/8 (installed) & 3 1/8 x 6 7/8 (supplied)	10 5/16	4	2 3/4	10	**233.56**

SAIL SWITCH

- Velocity range: 480–2230 FPM
- Maximum allowable velocity: 2500 FPM
- Temperature range: 32–300°F
- Switch: SPDT
- General purpose enclosure

McDonnell & Miller

Part No.	Description	Price
AF1M	Medium, High Air Flow Switch	**382.50**

FLOAT SWITCH

Designed to maintain a liquid level in indoor or outdoor closed tanks that hold water or other nonhazardous liquids. When the liquid level in the tank rises above or falls below the required level, the SPDT switch closes one circuit and opens a second circuit.

- Viton® diaphragm allows use in fluid lines carrying chlorinated water, treated water, or other nonhazardous liquids.
- Sturdy Type 4 (NEMA) enclosure allows for use in indoor or outdoor applications; inhibits the formation of moisture in low temperature applications
- Liquid temperatures: -20 to 250°F
- Maximum liquid pressure: 100 psig

Johnson Controls

Part No.	Switch	Enclosure	F.L. Amps (@ 240V)	Price
F263MACV01C	SPDT	NEMA 4	10	**541.20**

DIFFERENTIAL PRESSURE SWITCH, AIR

P32AC2

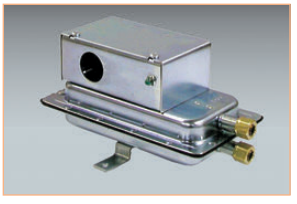
AIR FLOW SENSOR

The P32 differential pressure switch is used to sense air flow in ducts.

- Ambient temperature range: -40 to 167°F
- Adjustable setpoint
- Connection: 1/8" FPT
- Contact rating: 4.9 F.L. Amps @ 240V
- P32AC2 is supplied with 1/4" compression fitting, 4" extension tube, 2 mounting screws and "O" gasket

Johnson Controls

Part No.	Switch	Range (In. WC)	Sensitivity at Min. Setpoint (In. WC)	Includes Bracket	Price
P32AC1	SPDT	.15 to 12 "WC	0.07	BKT1821R	**135.46**
P32AC2	SPDT	.05 to 5"WC	0.04	BKT2291R	**151.46**
P32AF1	SPDT	.05 to 5"WC	0.025	BKT1821R	**135.46**
P32AF2C	SPDT	.05 to 5"WC	0.025	BKT2291R	**151.46**



AIR FLOW SENSOR

- Responds to positive, negative, or differential air pressure
- Eliminates "fluttering" or malfunction due to shock or vibration normally encountered with "sail switches"
- Contact rating: 15 resistive amps @ 277 Vac

Robertshaw

Part No.	Range (In W.C.)	Switch	Price
2374499	0.05 to 12.0"WC	SPDT	**61.10**

Part No.	Description	Price
SNAT3165	Neoprene air tubing, 3/16" ID, 5 Ft. Long	**9.84**
SSRT185	Silicone air tubing, 1/8" ID x 5/16" OD, 5 Ft. Long	**9.84**

2374495

AIR FLOW SENSOR

Designed to replace a wide variety of air-sensing switches found in residential and light commercial applications including furnaces, electronic air cleaners and humidifiers.

Both models are provided with an SPDT switch that can be activated by positive or negative pressure, or by pressure differential.

- Operates diaphragm vertical
- Connection: 1/8", 1/4", 3/8" barbed
- Contact rating: 5A noninductive to 277 Vac

Robertshaw

Part No.	Setpoint Range (in W.C.)	Price
2374495	.25 to 1.0"WC	**46.14**
2374498	1.0 to 4.0"WC	**46.14**

1910-1

DIFFERENTIAL PRESSURE SWITCH

Low differential pressure switch for air proving or filter service applications

Dwyer

Part No.	Range (In. H_2O)	Price
1910-0	.15 to .55	**105.22**
1910-1	.40 to 1.6	**105.22**
1910-5	1.40 to 5.5	**105.22**

P7640 SERIES

The P7640U universal mount differential pressure sensors provide reliable, accurate measurement and control. Proper applications include measurement of extremely low pressure applications such as: building/room pressure, air flow, variable air volume, filter status, and duct pressure. .

The P7640 pressure sensors are designed with field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output. 5 year warranty.

Pressure Range (inches w.c.): 0-0.1, 0-0.25, 0-0.5, 0-1.0, 0-5, 0-10

Honeywell

Part No.	Mounting	Pressure Range	Display	Price
P7640U1040	Universal	A, B	No	**416.44**
P7640U1052	Universal	A, B	Yes	**486.16**

PXPLX01S

TRANSDUCER

Utilize a highly accurate and stable sensor, which is microprocessor profiled for improved accuracy and reliability.

The directional mode jumper provides the means to configure the transducer in unidirectional or bidirectional mode for room and building static pressure applications.

- Static pressure in duct or room applications
- Variable air volume system
- Filter status monitoring
- Input power: 12-30 VDC or 24 VAC nominal
- Output power: field selectable, 2-wire, loop-powered 4-20 mA (DC only), (clipped and capped), or 3-wire 0-5V/0-10V

VERIS INDUSTRIES

Part No.	Setpoint Range	Comments	LCD Display	Connection Size (In.)	Price
PXPLX01S	0 to 1" w.c.	4 Field-Selectable Range Options	Yes	1/8" Barb	**381.44**
PXPLX02S	1 to 10" w.c.	4 Field-Selectable Range Options	Yes	1/8" Barb	**381.44**
PXULX05S	0 to 10" w.c.	7 Field-Selectable Range Options	Yes	1/8" Barb	**433.46**
PXUXX05S	0 to 10" w.c.	7 Field-Selectable Range Options	No	1/8" Barb	**398.76**

2374510

UNIVERSAL AIR PRESSURE SENSING SWITCH AND PROBE

The 2374510 kit replaces hundreds of other manufacturers' air pressure switch models.

- High impact polycarbonate housing
- Works in a variety of harsh conditions
- Snap-acting switch with three male 90° quick connect terminals
- Field adjustable set points ranging from 0.10" to 10" W.C.
- Installer can use 10650 sensing probe kit for hard to reach air streams
- Switch is NEMA rated and is practically insensitive to temperature change with an operating range of -40 to +190°F

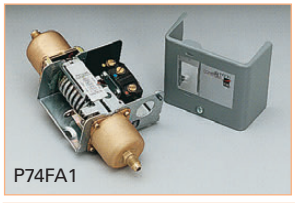
2374510 includes: Air Pressure Sensing Switch, Calibration Springs (5 options), Orifice Flow (4 options), Mounting Brackets (2 options), Hex Wrench

10650 includes: Universal Probe (7"), Mounting flange, Flange-Locking Set Screw, 3' Vinyl Tubing, Flange-Mounting Screw, Slip-On Adapter

Robertshaw

Part No.	Description	Price
2374510	Universal Air Pressure Sensing Switch Kit, SPDT	**46.14**
10650	Sensing Probe Kit with 7" Probe	**37.88**

DIFFERENTIAL PRESSURE SWITCH, LIQUID


P74FA1

LIQUID

Series P74 measures the pressure difference between two sources.

Johnson Controls

Part No.	Switch	Pressure Differential Range (psig)	Switch Differential (psi)	Connection (In.) Size	Connection (In.) Type	Capillary (Ft.)	F.L. Amps (@ 240V)	Price
P74BA1	SPST, Opens Decrease DP	8 to 70	8 to 30	1/4	F Flare	3	20	**317.30**
P74EA8	SPDT (Snap Acting)	2 to 26	3.5, Fixed	1/4	F Flare	3	16	**322.30**
P74EA10C	SPDT (Snap Acting)	2 to 26	3.5, Fixed	1/4	M Flare	None	16	**322.30**
P74FA1	SPDT (Snap Acting)	8 to 60	1.5, Fixed	1/4	M Flare	None	6	**305.76**
P74FA5	SPDT (Snap Acting)	8 to 60	1.5, Fixed	1/4	FPT	None	6	**305.76**
P74FA10	SPDT (Snap Acting)	2 to 26	1.5, Fixed	1/4	F Flare	3	6	**306.14**
P74JA2C	SPDT (Floating)	8 to 60	2.5, Fixed	1/4	M Flare	None	1 Amp, 24 Vac Class 2	**531.52**

NEMA 4

Used typically to sense differential pressure across devices such as oil or water filters, pumps, heat exchangers, chillers, coils, etc. Normally provides an alarm or shutdown function in applications where there is insufficient flow in a system or when excessive pressure differential indicates a problem. It may also be used to indicate pump status.

- SPDT switch with screw terminals
- Gasketed zinc-plated steel cover
- Strong, corrosion-resistant polyester enclosure
- External, multiturn adjusting screw for excellent resolution
- 7/8" hole for 1/2" NPT conduit connection
- Corrosion-resistant brass port
- Clearance holes for surface mounting
- NEMA 4 enclosure

UE UNITED ELECTRIC CONTROLS

Part No.	Switch	Pressure Differential Range (psig)	Connection (In.) Size	Connection (In.) Type	Capillary (In.)	F.L. Amps (@ 240V)	Price
24-013	SPDT	1 to 10	1/4	FPT	None	5	**318.34**

DIFFERENTIAL PRESSURE SWITCH, LIQUID

PWT250

PWT SERIES

The PWT Series wet/wet differential pressure sensors provide reliable, accurate measurement and control of proper applications, including the monitor and control of pump differential pressure, chiller/boiler differential pressure drop, and CW/HW system differential pressure. The PWT Series is ideal for measuring pressure across pumps, filters, heat exchangers, compressors and other non-corrosive wet media applications.

- The PWT Pressure Sensors incorporate microprocessor profiled sensors for exceptional accuracy and reliability.
- Field-selectable 4-20 mA, 0-5 Vdc, or 0-10 Vdc output.
- Jumper-selectable slow or fast response time.
- Rugged, die-cast enclosure provides NEMA 4 sealing.
- Jumper-selectable port swap feature.
- All models offer both pushbutton and digital input to zero the output. A microprocessor algorithm prevents accidental zero adjustment during normal operation.

Available pressure ranges (psid) within span
0 to 50: 0 to 5, 0 to 10, 0 to 25, 0 to 50 psid
0 to 100: 0 to 10, 0 to 20, 0 to 50, 0 to 100 psid
0 to 250: 0 to 25, 0 to 50, 0 to 125, 0 to 250 psid

Honeywell

Part No.	Pressure Range (psid)	Comment	Price
PWT50	0 to 50	—	1038.74
PWT100	0 to 100	—	1038.74
PWT250	0 to 250	—	1038.74

TRANSDUCER, 3-WIRE

The PW Series wet/wet pressure transducers incorporate a highly accurate, stable sensor, which is microprocessor profiled for exceptional accuracy and reliability. Designed for ease of use and to provide exceptional installation savings, the PW Series is ideal for measuring pressure across pumps, filters, heat exchangers, compressors and other non-corrosive wet media applications.

Application

- Monitor and control pump differential pressure
- Chiller/boiler differential pressure drop
- CW/HW system differential pressure

Features

- Rugged, die-cast enclosure provides NEMA 4 sealing
- Field-selectable output . 0-5V/0-10VDC, or 4-20mA provides excellent systems compatibility
- LCD display

VERIS INDUSTRIES

Part No.	Pressure Differential Range (psig)	Connection (In.) Size	Connection (In.) Type	Capillary (In.)	Price
PWLX04S	0 to 100	1/4	FPT	None	1113.00

PRESSURETROL®

PA404A1033

SPST – PA 404 SERIES

Provides control for steam pressure.

- Sensitive pressure-actuated diaphragm expands or contracts with pressure variations, moving a lever mechanism that operates the snap-switch.
- Use PA404A as high limit safety controller for steam boilers; use PA404B as fan controller for suspension-type unit heaters.
- Contact rating: 5.1 F.L. Amp @ 240 Vac

Honeywell

Part No.	Switch	Operating Range (psi)	(psi)	Price
PA404A1025	SPST, Opens on Rise	3 to 15	1 to 5	352.86
PA404A1033	SPST, Close on Fall	.5 to 9.0	1 to 5	323.14
PA404B1023	SPST, Opens on Fall	.5 to 9.0	1 to 5	353.52

L404 SERIES

Provides operating control, automatic reset limit protection

- Use with steam, air, noncombustible gases, or other fluids noncorrosive to pressure sensing element.
- Contact rating: 5.1 F.L. Amps @ 240 Vac
- SPDT controls include siphon loop (except L404F1102)
- SPST controls include ground screw

Honeywell

Part No.	Operating Range (psi)	Differential (psi)	Switch	Price
L404F1409	2 to 15	2 to 6	SPST, close on rise	251.18
L404F1078	5 to 50	6 to 14	SPDT	288.46
L404F1375	5 to 50	6 to 14	SPST, close on rise	274.04
L404F1102	10 to 150	10 to 22	SPDT	296.34
L404F1383	10 to 150	10 to 22	SPST, close on rise	274.04
L404F1094	20 to 300	20 to 50	SPDT	348.30
L404F1391	20 to 300	20 to 50	SPST, close on rise	345.08

L404 SERIES OIL

Oil pressure sensing devices for use on oil burner systems using any type of fuel oil including heavy, pretreated oils

- Clear plastic cover allows observation of the pressure settings and switch action
- Siphon loop provides thermal buffer to diaphragm

Honeywell

Part No.	Operating Range (psi)	Differential (psi)	Price
L404V1095	5 to 50	6 to 14	463.30
L404T1063	10 to 150	10 to 22	477.98
L404V1087	10 to 150	10 to 22	526.16

MANUAL RESET

- High pressure limit switches
- Stainless steel diaphragm for use with steam, air, noncombustible gases and fluids noncorrosive to stainless steel.
- Snap-acting switches open automatically on pressure rise; must be manually reset.
- Breaks 1 circuit
- Siphon loop included
- L4079W for oil applications, above 85 psi intermittent only

Honeywell

Part No.	Operating Range (psi)	Price
L4079B1033	2 to 15	258.16
L4079B1058	5 to 50	321.42
L4079B1041	10 to 150	340.54
L4079B1066	20 to 300	388.00
L4079W1000	10 to 150, oil	475.14

PROPORTIONAL

Modulating pressure operating control for regulation of liquid or air and other non-corrosive gases.

- Use with steam, air, noncombustible gases, or other fluids noncorrosive to the brass or phos-bronze (300 psi models) bellows. Do NOT use with combustible mediums or any medium chemically harmful to phos-bronze bellows (10–300 psi models) or brass bellows.
- L91A: Fixed differential
- L91B: Adjustable differential

Honeywell

Part No.	Operating Range (psi)	Differential Midscale (psi)	Price
L91A1037	0 to 15	7 Oz./Sq. In.	421.28
L91A1052	5 to 150	5	473.08
L91A1078	110 to 300	12	524.52
L91B1035	0 to 15	1 to 12	470.06
L91B1050	5 to 150	5 to 23	522.30
L91B1068	10 to 300	28 to 110	570.94
L91B1241	10 to 300	12 to 48	570.94

PROPORTIONAL

Line voltage pressure controller that provides automatic operating control, automatic limit protection, manual reset limit protection, and 4-20ma modulating firing rate control for pressure systems up to 300 psi.

- May be used with steam, air, non-combustible gases or fluids that will not corrode the pressure sensing element.
- LED indicators show limit function/lockout.
- Reset function easily accessible under cover.
- Clear cover allows set point and differentials to be read (but not adjusted) without opening the cover
- Application: On-off, Modulate and Limit Control, (breaks on pressure rise)
- Pipe Connections, Main or High Pressure: 1/2 in. NPT internal thread
- Sensor Element: Stainless Steel, solid state sensor
- Voltage: 120Vac, 50/60

Honeywell

Part No.	Operating Range (psi)	Differential Midscale (psi)	Price
P7810C1000	0 to 15	2 to 10	801.76
P7810C1026	0 to 300	15 to 50	995.84

HUMIDITY SENSOR

WALL MOUNT

Provides automatic control of a humidifier or dehumidifier for dehumidification and mildew control in air conditioning systems.

- Fully enclosed, dust free, SPST, snap-acting switch
- 24/120/240 Volt

Honeywell

Part No.	Use With	Humidity Range (% R.H.)	Contact Rating (@ 240 Vac)	Price
H46C1166	Dehumidifier	20 to 80	3.8	86.10

HUMIDISTAT

Designed to regulate the relative humidity of confined air spaces by cycling humidifying or dehumidifying equipment. J10 controls may be wall mounted and used to control exhaust fans or a furnace humidifier. The J10-808 control may also be duct mounted.

Robertshaw

Part No.	Function	Humidity Range (% R.H.)	Voltage (Vac)	Price
J10808	Humidistat, SPST	10 to 60	24	58.16

HUMIDITY SENSOR

2 POSITION HUMIDITY

These controllers provide low or line voltage on-off single stage control of humidifiers, dehumidifiers, valves, solenoid valves, compressors, relays, etc.

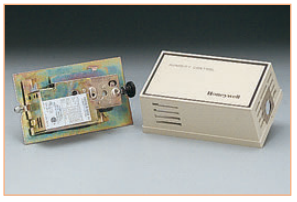
- Scale range: 15 to 95% RH, 5% switch differential
- SPDT switch

Part No.	Description	Price
HC201	Duct Mount Humidity Controller	370.00

HUMIDISTAT, LINE VOLTAGE

- Field-adjustable high and low stops. Stops can be set for locked setting.
- Designed for use in Building Automation Systems, BAS, and HVAC applications
- Horizontal or Vertical Mounting
- 4% RH differential

Part No.	Description	Price
W42AA1	Humidistat 10 to 90% RH, SPDT	254.44
W43A14	Humidistat 0 to 70% RH, SPDT	254.88



CONVERTIBLE

Operates humidification equipment on relative humidity fall or dehumidification equipment on relative humidity rise.

- Fully enclosed, dust-free, SPDT, snap-acting switch
- Not to be wall mounted

Part No.	Use With	Humidity Range (% R.H.)	Contact Rating (@ 240 Vac)	Price
H600A1014	Universal	20 to 80	3.8 Dehumidifier	305.90

CONVERTIBLE

The H8908 humidity controllers provide automatic low voltage control of humidifiers and dehumidifiers or ventilators, respectively, in central heating and air conditioning systems.

They have an SPST, snap-acting, dust-proof switch and are designed for wall or surface duct mounting.

- Humidity range: 10 to 60% RH
- Temperature range: -20 to 120°F
- Color: premier white®
- Voltage: 24 Vac, 50VA

Part No.	Application	Price
H8908ASPST	Humidistat	100.12
H8908DSPST	Dehumidistat	157.10

WALL TRANSMITTER

The HE67XX Series houses both a humidity transmitter and a temperature sensor in a single, wall-mounted unit. The humidity sensor is capable of measuring humidity over the entire range of 0 to 100% relative humidity with an accuracy of 3%.

- Humidity and temperature sensors in one unit eliminate need for separate sensors and reduce installation time and cost
- Supply voltage: 12–30 Vdc or 20–30 Vac, 50/60 Hz
- Output: 0–10, 0–5 Vdc

Part No.	Description	Price
HE67S30NOBT	Transmitter, Thin Film Nickel, Temperature Sensor	434.04
HE67N30N0BT	Transmitter, Planar Silicon, Temperature Sensor	434.04

DUCT TRANSMITTER

The HE67XX Series combines humidity and temperature sensing in a single duct-mounted unit. The humidity sensor is capable of measuring humidity over the entire range of 0 to 100% relative humidity with an accuracy of 3%.

- Supply voltage: 12–30 Vdc or 20–30 Vac, 50/60 Hz
- Output: 0–10, 0–5 Vdc

Part No.	Description	Price
HE67N30NOOP	Transmitter, Thin Film Nickel, Temperature Sensor	469.40
HE67S30NOOP	Transmitter, Planar Silicon, Temperature Sensor	469.40

2% ACCURACY RH TRANSMITTER

This Series relative humidity transmitters use a capacitive sensing element to deliver a proportional analog output. Features on board DIP switches which allow the selection of the desired output signal. Field calibration can be performed by using the on-board increment and decrement DIP switches. Duct and Outside Air configurations feature conformally coated circuit boards for moisture resistance. Several RTD and thermistor temperature sensing elements are available in this Series.

Part No.	Accuracy	Configuration	Price
A/RH2D	±2%	Duct/Euro	420.00
A/RH2O	±2%	Outside Air/Euro	431.66
A/RH2R	±2%	Room	408.34

HUMIDITY CONTROL

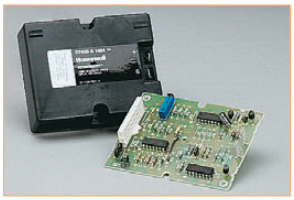
The W351 humidity control contains an SPDT relay with LED indication of relay status, for use with humidification and dehumidification equipment.

Adjustments include setpoint (10 to 90% RH), differential (2 to 10% RH), and humidify/dehumidify mode of operation. Typical applications include humidity control of clean rooms, computer rooms, office space, and warehouses.

- Use with HE67S30 wall or duct humidity sensors

Johnson Controls

Part No.	Includes	Price
W351AB2	—	315.26
W351AA1	Wall Humidity Sensor	1002.54



ENTHALPY SENSOR

- A solid state enthalpy sensor designed to sense temperature and humidity with 5% accuracy
- C7400A mounts in any position up to 200 ft away from Economizer Logic Module. It uses two sensors for differential control, maximizing energy savings
- C7400S Sylk Bus sensor is powered by and communicates on the Sylk Bus.

Honeywell

Part No.	Description	Use With	Price
C7400A2001	Enthalpy Sensor	W72XX, W7459, W7460	143.30
C7400S1000	Sylk Bus Enthalpy Sensor	W7220	124.00

C7600C2001

SOLID STATE

Solid state humidity sensor sense relative humidity in air

- Operating humidity: 10–90% RH

Honeywell

Part No.	Mounting	Operating Temp (°F)	Control Signal	Use With	Price
C7600B2008	Junction Box Wall	32–125	2–10 Vdc Directly Proportional	T775U	191.94
C7600C2001	Any position where it is exposed to freely circulating air	-40–150	4–20 mA	W7600 or controller requiring 4-20 mA reverse acting input	149.16

Wall Mount

HUMIDITY TRANSDUCER

Highly accurate, stable humidity transducers designed for use with HVAC controllers such as the T7350 thermostat, H775 remote humidity controller, and W7760 DDC control.

- Ceramic Technology allows sensors to recover fully from condensation, fog, and high humidity. (H7655A uses a polymer capacitance humidity sensor)
- Will accept 20KΩ NTC temperature sensor (except H7655A)
- Highly accurate, repeatable, stable output with negligible hysteresis.
- Temperature compensated output.
- Zero and span trimmers, and increment/decrement recalibration feature.
- All units have selectable 4-20 mA, 0-10 Vdc, or 0-5 Vdc output.
- NIST traceable calibration; every sensor calibrated at 3 different points.
- All humidity sensors use the same enclosure as the T7770 sensor, except the H7655A, which uses the T7047-like enclosure.

Honeywell

Part No.	Mounting	Accuracy	Use With	Price
H7625A2010	Wall	2% from 20 to 95% RH	T7350, XL10, XL15	379.46
H7625B2006	Duct	2% from 20 to 95% RH	T7350, XL10, XL15	436.32
H7635A2012	Wall	3% from 20 to 95% RH	T7350, XL10, XL15	329.40
H7635B2018	Duct	3% from 20 to 95% RH	T7350, XL10, XL15	376.32
H7636A2022	Wall	3% from 20 to 95% RH	T7350, XL10, XL15, T775 Series 2000	363.40
H7655A1001	Wall	5% from 30 to 70% RH	T7350, XL10, XL15	153.10
H7655B2014	Duct	±5% from 25 to 95% RH	T7350, XL10, XL15	301.04

TEMPERATURE SENSOR

PROBE

The TE-6000 sensing elements are typically used with TE-6001 hardware assemblies in a wide variety of temperature sensing applications. All models are nickel wire-

Johnson Controls

Part No.	Resistance @ 70°F (W)	Tolerance	Type	Price
TE60001	1000	±1.0%	Strap-on	**55.86**
TE6000100	1000	±0.1%	Ultra-precision, Standard	**86.28**

ELEMENT

TE-6100 completed assemblies are used in a wide variety of temperature sensing applications.

Johnson Controls

Part No.	Type	Description	Price
TE61001	Nickel	17' Averaging Element (1000Ω 1%) w/Handi Box	**263.26**
TE61002	Nickel	8' Averaging Element(1000Ω 1%) w/Handi Box	**208.02**

DISCHARGE AIR, C7046 SERIES

Electronic.

Honeywell

Part No.	Description	Element Insertion Length (In.)	Sensor Resistance (W)	Price
C7046A1004	No Setpoint	8	3000 @ 77°F NTC	**55.74**
C7046A1038	No Setpoint	12	3000 @ 77°F NTC	**55.74**
C7046B1010	Zone Discharge, Hot Deck, Cold Deck, Remote Return Air	6	22.8K @ 77°F NTC	**96.52**
C7046D1008	Discharge Temp.	8	1097 @ 77°F PTC	**104.76**

DISCHARGE AIR, C7100 SERIES

- Element insertion: 13 1/4"
- Electronic

Honeywell

Part No.	Type	Use With	Range (°F)	Price
C7100A1015	3484Ω @ 77°F	W7100	40–220	**143.80**
C7100B1013	Thermistor	W7080	40–150	**131.12**
C7100D1001	PT1000	XL500, XL600	40–100	**106.92**

AVERAGING

Intended for use with T775 electronic remote temperature controller.

Honeywell

Part No.	Temperature Range (°F)	Insertion Length (In.)	Price
C7100C1003	40 to 220	13	**143.80**

WALL, ELECTRONIC

Primary sensor for use with R7380J,L indicating controller and W7100 discharge controllers in indoor spaces.

- Platinum positive temperature coefficient sensor
- Sensor can be located up to 300' from controller

Honeywell

Part No.	Operating Range (°F)	Resistance (Ω)	Price
C7130A1001	-40 to 100	3484 @ 77°F	**83.08**
C7130B1009	-40 to 100	1100 @ 77°F	**79.62**

ZIO™ LITE WALL MODULE

The TR40 and TR42 are 2-wire, non-polarity sensitive, Sylk bus communicating wall modules, which communicate with Spyder® and some ComfortPoint™ programmable controllers. The TR40 and TR42 are simple LDC temperature wall modules with basic setpoint, override, and fan options, and are designed for a broad range of applications.

Models available with display (TR42) or without display (TR40).

TR42 models have configurable interface: temperature setpoint adjustment, override, fan (with FCU app)

Honeywell

Part No.	Description	Price
TR40	Wall Module, Temp Only, Sylk	**63.52**
TR40-CO2	Wall Module, Temp and CO2, Sylk	**520.42**
TR40-H	Wall Module, Temp and Humidity, Sylk	**320.82**
TR40-H-CO2	Wall Module, Temp, CO2 and Humidity, Sylk	**634.98**
TR42/U	LCD Wall Module, Temp Only, Sylk	**134.22**
TR42-CO2	LCD Wall Module, Temp and CO2, Sylk	**557.56**
TR42-H	LCD Wall Module, Temp and Humidity, Sylk	**357.50**
TR42-H-CO2	LCD Wall Module, Temp, CO2 and Humidity, Sylk	**665.96**

ZIO™ LCD WALL MODULE

These sensors are 2-wire, non-polarity sensitive, Sylk™ bus communicating wall modules for use with Spyder™ programmable controllers. All models have a space-temperature sensor, network bus jack, and an LCD with three softkeys and two Up/Down adjustment keys. The TR70H model includes an onboard humidity sensor.

- Ability to control user access to controller parameters.
- Programmable for: Home screen options, tenant access, contractor access, access to controller parameters, setpoint, override, fan, and other parameters.
- Supplied with eight pre-programmed configurations in the wall module configuration tool.
- The Wall Module Configuration Wizard in the WEBs-AX™ Workbench makes it easy to accomplish everything from balancing a VAV box to simply viewing values like duct flow, discharge air temperature or any point in the controller
- Home screen can display one to three of any of the following parameters: Temperature Setpoint, Room Temperature, Room Humidity, Outdoor Humidity, Outdoor Temperature, and Time, or one of virtually any parameter in the controller.
- Simple 2-wire terminal connection to the programmable controller and an optional 2-wire terminal connection for the network. All connections are polarity insensitive.
- Retention of user configuration, including setpoints after a power outage.

Honeywell

Part No.	Description	Price
TR71	Zio LCD Wall Module	207.22
TR71H	Zio LCD Wall Module with Humidity Output	405.08
TR75	Zio PLUS LCD Wall Module (w/ Scheduling Access)	299.02
TR75H	Zio LCD Wall Module with Humidity Output (w/ Scheduling Access)	483.68

WALL MODULE, ELECTRONIC

A family of direct wired wall modules for use with Honeywell Excel 800, 600, 500, 100, 80, 20 (all fully programmable) and W7750, W7751, W7752, W7753, W7761 controllers. All models have a space temperature sensor; some models have setpoint adjustment, override with LED and fan switch.

- Non linear sensor
- TR21A used for averaging in T7350 application (See page 982)

Honeywell

Part No.	Setpoint Range (°F)	Comments	Price
TR21	—	—	32.62
TR21H	—	Humidity, Network jack	221.88
TR21A	—	For averaging	46.46
TR21J	—	Network jack	41.56
TR22	Per selection	Selectable setpoint, network jack	62.24
TR22F5	Per selection	Network jack, 5 position fan	119.16
TR23	Selectable	Selectable setpoint, network jack, override/LED	94.60
TR23N	Per knob	Selectable setpoint knob, network jack, override/LED	131.14
TR23H	55 to 85°F	Humidity, selectable setpoint knob, network jack, override/LED	294.20
TR23F3	Per selection	Selectable setpoint, network jack, override/LED, 3 position fan	116.98
TR23F5	Per knob	Selectable setpoint knob, network jack, override/LED, 5 position fan	119.96
TR24	—	Network jack, override/LED	80.06

WIRELESS WALL SENSOR

All models report space temperature; TR23 models come with setpoint adjustment and override.

- Wall module to Receiver (point to point) wireless kits can replace any standard wired sensor
- Wireless Kits (wall module and receiver) are pre bound at the factory for quick installation
- Signal Strength LED built into the wall module
- Low battery indication
- Optional dip switches available to bind any wall module to any receiver
- Approximate 5 year battery life with AA Alkaline (included), 7.5 year with Lithium
- Locking screw discourages tampering and battery theft

Honeywell

Part No.	Description	Price
TR21-WS	Wireless Temperature Sensor	174.62
TR23-WS	Wireless Temperature Sensor with Setpoint (F/C/Relative) and Override Button	230.18
TR21-WK	Wireless Temperature Sensor Kit: includes TR21-WS Sensor and WRECVR Receiver (Bound at Factory)	406.32
TR23-WK	Wireless Temperature Sensor Kit: includes TR23-WS Sensor and WRECVR Receiver (Bound at Factory)	461.88
WRECVR	Receiver Used with Wireless Wall Sensors TR21-WS and TR23-WS	222.78

TEMPERATURE SENSOR

PROBE SENSOR

Primary electronic temperature sensor for the R7380J,L W7100 and W7505 load inputs for immersion, strap-on and duct mounting.

- Two-wire, platinum positive temperature coefficient sensor
- Sensor can be located up to 1195' from controller

Honeywell

Part No.	Range (°F)	Resistance (Ω)	Lead Length (In.)	Price
C7170A1002	-40 to 257	3484 @ 77°F	24	**134.12**
C7170A1010	-40 to 257	3484 @ 77°F	180	**181.04**
C7170B1000	-40 to 257	1097 @ 77°F	24	**104.10**

DUCT

Direct-wired temperature sensor used to sense discharge or return air temperature in a duct controlled by an Excel 10 Series 2000 controller.

- Primary and/or secondary sensor for use with electronic control systems
- Integral 20K Ω non-linear NTC thermistor

Honeywell

Part No.	Temperature Range (°F)	Price
C7770A1006	45–99	**45.38**

AIR, ELECTRONIC

Used with the W973 single zone system, the M7415A actuator or a solid state economizer module to sense mixed or discharge air in roof-top packaged air conditioning equipment.

- Negative temperature coefficient causes resistance to decrease as sampled air temperature increases.

Honeywell

Part No.	Use With	Price
C7150B1004	W973, W7459, W6210/W7210, W6215/S7215/W7460, M7415	**40.90**

AIR, ELECTRONIC

Electronic 20K temperature sensor intended for sensing mixed or discharge air in roof top packaged air conditioning equipment.
Thermistor on board with duct mount kit available for use as a probe

Honeywell

Part No.	Use With	Price
C7250A1001	W7220	**35.96**

DDC

Electronic temperature sensors used with DDC systems.

- Solid state thermistor element provides accurate sensing of temperature changes.

Honeywell

Part No.	Application	Element			Price
		Sensor Resistance (Ohm)	Range (°F)	Length (In.)	
C7031B2005	Duct Discharge Air	1097 at 77°F	-40 to 250	6	**87.54**
C7031D2003	Hot or Chilled Water, Includes well	1097 at 77°F	40 to 350	5	**101.36**
C7031G2006	Outdoor Air Sensor	1715 at 90°F	-40 to 120	—	**163.00**
C7031J2009	Duct Averaging Sensor	1097 at 77°F	40 to 180	144	**163.90**

Shop with total confidence.
We stand behind the parts we sell.

SENSOR

C7023, C7041D are for immersion mounting sense water temperature.
C7041F sense outdoor air temperature and are weatherproof for outdoor use (knockouts allow for 1/2 in. conduit connection).

20 KΩ NTC @ 77°F sensors designed to be used with Honeywell DDC systems (Excel 500, 100, 80, 50, 10)

Honeywell

Part No.	Application	Element Range (°F)	Sensor Resistance	Length (In.)	Price
C7023B2005	Duct Mount	-40 to 250	10 KΩ NTC @ 77°F Type III	6	31.38
C7023B2013	Duct Mount	-40 to 250	10 KΩ NTC @ 77°F Type III	12	34.62
C7023D2001	Hot or Chilled Water	-40 to 250	10 KΩ NTC @ 77°F Type III	5	33.60
C7023F2009	Outdoor	-40 to 158	10 KΩ NTC @ 77°F Type III	Integral	43.70
C7023J2007	Duct Mount, Averaging	-40 to 250	10 KΩ NTC @ 77°F Type III	144	127.40
C7023K2005	Water/Strap On	-40 to 250	10 KΩ NTC @ 77°F Type III	Integral	37.30
C7023R2000[1]	Duct Mount, Averaging	-40 to 250	10 KΩ NTC @ 77°F Type III	144	133.24
C7041B2005	Duct Mount	-40 to 250	20 KΩ NTC	6	31.38
C7041B2013	Duct Mount	-40 to 250	20 KΩ NTC	12	34.62
C7041C2003	Duct Mount	-40 to 250	20 KΩ NTC	18	37.84
C7041D2001	Use Well 50001774-001	-40 to 250	20 KΩ NTC	5	33.58
C7041K2005	Water/Strap On	-40 to 250	20 KΩ NTC	Integral	37.28
C7041F2006	Outdoor	-40 to 250	20 KΩ NTC	Integral	45.22
C7041J2007	Duct Mount, Averaging	-40 to 250	20 KΩ NTC	144	127.34
C7041R2000[1]	Duct Mount, Averaging	-40 to 250	20 KΩ NTC	144	135.82
C7041P2004	Button, Surface Mount	-40 to 250	20 KΩ NTC	1 3/16	79.34
C7772A1004	Wall Mount/Flush Type	45 to 99	20 KΩ NTC	Integral	36.34

[1]Flexible Copper Averaging Sensor

DUCT

C7660 selectable temperature sensor is used with the W7459, W7460 and W72XX economizer controls which are mounted on an M7415/M7215 Actuator. They permit the use of outdoor air as the first stage of HVAC systems. The C7660 Selectable Temperature Sensor is only to be used with single temperature change over with the sensor located in the outdoor air.

- Senses temperature of outdoor air and provides a signal to economizer control with OK or not OK to economize.
- Selectable dip switch provides 8 change over temperature options.
- When temperature of outdoor air is below change over temperature, the outdoor air damper is opened to reduce the cooling load in the building.

Honeywell

Part No.	Control Signal	Price
C7660A1000	4 or 20 mA output	79.32

THERMISTOR

Thermistor sensors for OEM/Industrial/DDC applications. High accuracy and interchangeability over a wide temperature range. Non polarity sensitive. CE approval (except for averaging sensors, LCDs and units with leads longer than 3 meters)

- Accuracy: ±0.2°C (from 0 to 70°C)
- Stability: ±0.13°C
- Operating Temperature Range: 32 to 122°F
- Operating Humidity: 0 to 90% RH non condensing
- Interchangeability: ±0.2°C
- Power Dissipation Constant: 3 mW/°C

ACI

Part No.	Description	Price
ACI10KAND4	Thermistor sensor, 10KΩ (Type III), duct, 4"	31.50
ACI10KANR2	Thermistor sensor, 10KΩ (Type III), wall mount room	23.40
ACI10KCPD4	Thermistor sensor, 10KΩ (Type II), duct, 4"	31.50
ACI10KCPR2	Thermistor sensor, 10KΩ (Type II), wall mount room	23.40
ACI10KCPR2O	Thermistor sensor, 10KΩ (Type II), wall mount room-override	35.98
ACI10KCPA12	Thermistor sensor, 10KΩ (Type II), copper averaging, 12ft	145.90
ACI10KCPI4	Thermistor sensor, 10KΩ (Type II), immersion, 4"	60.70

CO_2 SENSOR

C7232A1008

CO_2 sensor for Demand Control Ventilation Models available with LCD that provides sensor readings and status information.

- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- Device provides voltage output based on CO_2 levels.
- Models available with SPST relay output.

Honeywell

Part No.	Display	Relay Output	Mounting	Price
C7232A1008	Yes	1 SPST -NO	Wall	482.50
C7232A1016	No	1 SPST -NO	Wall	468.88
C7232B1014	No	1 SPST -NO	Duct	562.60

WALL SENSOR

The CWE Series is a non-dispersive infrared analyzer designed for measuring environmental CO_2 concentration in ventilation systems and indoor living spaces. Its measurement range of 0-2000 ppm makes it compliant with ASHRAE and other standards for ventilation control.

The CWE Series provides a user-selectable 4-20mA or 0-10VDC output. Microprocessor-based digital electronics and a unique self-calibration algorithm improves long-term stability and accuracy.

- Accurate to ±30 ppm ±5% of measured value
- Repeatable to ±20 ppm ±1% of measured value
- Measurement Range: 0 to 2000 ppm
- 20 to 30 Vdc / 24 Vac; 100 mA maximum
- 5 year calibration interval

VERIS INDUSTRIES

Part No.	Input Range	Price
CWE	Carbon Dioxide Wall Sensor	618.00

C7632A1004

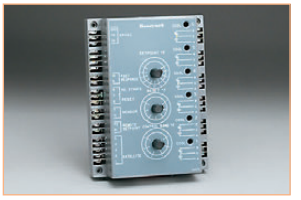
The CO^2 sensors offer a fixed 0-2000ppm and fixed 0-10Vdc output. No adjustments are necessary. Like the C7232 sensors, these are for use in determining ventilation necessity with HVAC controllers. The sensor measures the CO^2 concentration in the ventilated space or duct. The sensors are used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO^2 in the space.

- Non-Dispersion-Infrared (NDIR) technology used to measure carbon dioxide gas.
- Gold-plated sensor provides long-term calibration stability.
- Used for CO^2based ventilation control
- Automatic Background Calibration algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

Honeywell

Part No.	Display	Mounting	Price
C7632A1004	No	Wall	400.36
C7632B1002	No	Duct	462.88

ENVIRONMENTAL SYSTEMS CONTROL



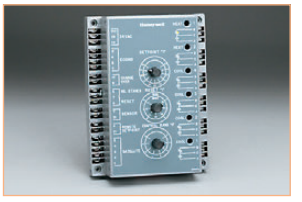
DISCHARGE WATER TEMPERATURE

Controls discharge water temperature in reciprocating chiller and cooling tower applications.

- Supply voltage: 20–30 Vac

Honeywell

Part No.	Stages Cool	Setpoint Range (°F)	Price
W7100G1001	6	10 to 60	3511.62



DISCHARGE AIR TEMPERATURE

Maintains an average discharge air temperature in variable air volume (VAV) systems or other systems requiring discharge air control of multistage cooling or heating. Reduces kilowatt demand and consumption by maintaining the minimum amount of heating or cooling capacity required to hold the discharge air set point. Utilizes economizer for free cooling when available.

- Supply voltage: 20–30 Vac

Honeywell

Part No.	Stages Heat	Stages Cool	Setpoint Range (°F)	Price
W7100A1053	None	6	40 to 90	3429.98
W7100C1018	2	4	40 to 90	3593.30

W973J1017

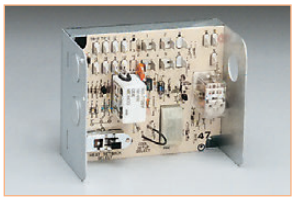
LOGIC PANEL

Controls heating, cooling and economizer operation in commercial air conditioning and heat pump equipment.

- Panels can be used with staged gas, oil, or electric heat; modulating gas, hot water, or steam heat; and direct expansion or modulating chilled water cooling.
- Controls up to 3 on/off heat or cool stages or up to 10 on/off heat and/or cool stages using W975 satellite sequencers.
- Supply power: 24 Vac

Honeywell

Part No.	Stages Heat	Stages Cool	Comments	Price
W973A1017	2	2	—	1561.52
W973B1016	3	3	Provides Modulating Heat/Cool Output	2228.46
W973F1004	4	2	—	2093.76
W973J1017	4	4	—	2372.24



SETBACK/SETUP MODULE

Used with W973 logic panel to conserve energy during building unoccupied periods.
Provides heating setback and either cooling shutdown or cooling setup. During unoccupied periods, outdoor air damper is closed and system fan is switched from continuous to intermittent operation. In cooling setup mode, W974B automatically cycles fan with a call for heating, cooling or economizer. In cooling shutdown mode, W974B automatically cycles fan with a call for heating. Economizer provides first stage of cooling in cooling setup mode.

Honeywell

	Temperature Selections		
Part No.	Setback (°F)	Setup (°F)	Price
W974B1006	5, 10, 15	5, 8, 12	1116.00

JADE™ ECONOMIZER MODULE

The W7220 Economizer Module is the core of the JADE™ system and provides the basic inputs and outputs to provide simple economizer control. When used with the optional Sylk Bus sensors, the Economizer Module provides more advanced economizer functionality.

- W7220 can be used as a standalone economizer module wired directly to a commercial set back space thermostat and sensors to provide Outdoor Air dry-bulb economizer control.
- W7220 automatically detects sensors by polling the Sylk Bus to determine which sensors are present. If a sensor loses communications after it has been detected, the W7220 Economizer indicates a device fail error on its LCD.
- The module is designed for use with any Honeywell 2 to 10 Vdc or Honeywell Sylkbus communicating actuator.
- Use with sensors: dry bulb temperature and mixed air, C7250A; temperature and humidity, C7400S1000 (optional); DCV (CO_2) sensor (C7232); humidity, C7600 (optional)

Honeywell

Part No.	Control Type	Description	Price
W7220A1000	—	Economizer Logic with DCV and Commissioning	431.14
Y7220A7215	Dry Bulb with Black Motor	Jade™ Y-Pack Economizer System, includes W7220A1000, (2) C7250A1001 sensors, M7215A1008 motor	882.82
YL7220A7503	Dry Bulb w/Non-Communication DCA	Jade™ Y-Pack Economizer System, includes W7220A1000, OAT sensor (C7250A1001), MAT Sensor (C7250A1001), and DCA OA (MS7503A2030)	810.96
YL7220S7503	Enthalpy w/Non-Communicating DCA	Jade™ Y-Pack Economizer System, includes W7220A1000, OAT sensor (C7400S1000), MAT Sensor (C7250A1001), and DCA OA (MS7503A2030)	888.24
YL7220SJ3103	Enthalpy w/Communicating 27 lb-in DCA	Jade™ Y-Pack Economizer System, includes W7220A1000, OAT sensor (C7400S1000), MAT Sensor (C7250A1001), and DCA OA (MS3105J3030)	890.98
YL7220SJ3105	Enthalpy w/Communicating 44 lb-in DCA	Jade™ Y-Pack Economizer System, includes W7220A1000, OAT sensor (C7400S1000), MAT Sensor (C7250A1001), and DCA OA (MS3105J3030)	900.76

ECONOMIZER™ LOGIC MODULE, ENHANCED

Use with C7400, or C7650 and C7150B or C7046 Sensors; indoor air quality (IAQ) sensor (2-10 Vdc); and Honeywell Series 72 actuators, or M7415 Damper Actuator to proportion outdoor and return air dampers for economizer and ventilation control in commercial HVAC equipment. Voltage: 24 Vac.

- All models include air change and shutdown; "A" models also provide prepurge.
- Combines solid state enthalpy or dry bulb changeover control, minimum and maximum damper position potentiometer and DCV setpoint functions.

Honeywell

Part No.	Use With	Air Temperature Input	Price
W7215B1004	Series 72 Actuators	C7150,C7046,C7650,C7232,C7400	631.84

THERMOSTAT

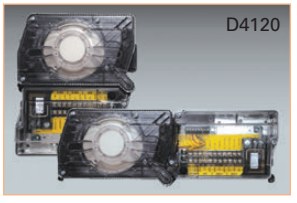
2 POSITION DUPLEX

Provides on/off control of heating/cooling systems, lower line voltage, fan coils, motor starters and contactors.

Part No.	Setpoint Range (°F)	Differential (°F)	Price
TC1101	55 to 85	2	252.00
TC1102	45 to 75	2	289.00
TC1151[1]	55 to 85	1.5	848.00

[1]Dual case size—matches TC1161

DUCT SMOKE DETECTOR



LOW-FLOW, PHOTOELECTRIC

The InnovairFlex D4120 4-wire photoelectric duct smoke detector features a pivoting housing that fits both square and rectangular footprints and mounts to round or rectangular ductwork.

A plug-in sensor head offers improved false alarm immunity and simple installation, testing, and maintenance. The InnovairFlex housing provides ample wiring space, a 3/4 inch conduit knockout, and built-in short circuit protection to prevent damage to sensitive components during installation. As many as 50 InnovairFlex detectors can be interconnected. When one unit senses smoke, all interconnected detectors will switch their relays; only the detector sensing smoke will go into alarm, thus pinpointing the fire source.

Three DIP switches can be used to configure field selectable settings: cover tamper delay, number of sensors to be controlled, and shut down on trouble option. The InnovairFlex duct smoke detector can be customized to meet local codes and specifications without additional wiring. The new InnovairFlex product line is compatible with all previous Innovair models, including remote test accessories.

- 24 Vac/Vdc or 120 Vac operation
- Built-in reset button
- Remote test station option
- Remote sounder option
- Air velocity rating from 100–4000 fpm
- Two DPDT form-C relay contacts
- Temperature range: -4 to 158°F
- Patented sampling tube installs from front or back of the detector with no tools required
- Listed UL268A

Part No.	Description	Price
D4120	Low-Flow, Photoelectric	226.56
D4120W	Low-Flow, NEMA 4, Waterproof	332.66

MULTI-SIGNALING ACCESSORY

Designed to work with InnovairFlex 4-wire conventional duct smoke detectors. These accessories include a key switch that can be used to select one of two connected sensors to be tested, reset, or both by a push button switch.

The AOS is an optional accessory included with the RTS2-AOS model.

Part No.	Description	Price
RTS2	Multi Signaling Accessory	150.24
RTS2-AOS	Multi Signaling Accessory with Add-On-Strobe (RTS2 & AOS)	225.34
AOS	Add-On-Strobe for use with RTS2	73.64

WEATHERPROOF ENCLOSURE

The DH400OE-1 all-weather outdoor enclosure is specifically designed to protect the system sensor high-temperature model DH400, D4120 duct smoke detector from harsh elements. This enclosure provides the protection needed to meet agency requirements in outdoor installations against rain, sleet and snow or indoors against dripping water.

- Special sampling tube gaskets are included as required by U.L. 268A Listing

Part No.	Use With	Price
DH400OE1	DH400ACDCIHT	426.66

SAMPLING TUBES

Used to sample duct airflow for models D4120, D4120W

Part No.	Use for Duct Widths (Ft.)	Price
DST1	to 1	8.86
DST1.5	1 to 2	11.46
DST3	2 to 4	16.60
DST5	4 to 8	20.04
DST-10	8 to 12	42.38

ANNUNCIATOR

Remote annunciator for InnovairFlex™ duct smoke detectors.

Designed for both conventional and intelligent applications. Their red LED provides visual indication of an alarm condition.

Part No.	Description	Price
APA151	Remote Annunciator w/Piezo Horn	50.06
RA100Z	Remote Annunciator	28.62

HORN/STROBE

- Operates on either 12V or 24V
- Tamper resistance capability
- Field selectable candela settings on wall and ceiling units
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela
- Minimal intrusion into the back box
- Horn rated at 88+ dbA at 16 volts
- Rotary switch for tone selection
- 3 horn volume settings
- Electrically compatible with existing SpectrAlert products
- Meets UL1971, NFPA72, and ADA signaling requirements
- Weight: 8.8 oz.

SYSTEM SENSOR

Part No.	Description	Price
P2R	Horn/Strobe	111.66

REMOTE TEST STATION

Remote test stations are automatic fire detector accessories designed to test duct smoke detectors from a convenient location. For 4-wire detectors, the RTS151KEY test station features a multi-colored LED that alternates between steady green and red. For 2-wire detectors, the LED illuminates red for alarm.

SYSTEM SENSOR

Part No.	Description	Price
RTS151	Test Station	60.82
RTS151KEY	Test Station with Key Switch	88.54

COMBUSTIBLE GAS DETECTOR

METHANE AND PROPANE GAS DETECTION

Low voltage electronic detector of combustible, heating type gases. Designed for connection to UL Listed Fire Alarm/Burglary Control Panels. Alarm control panels that work on 12 or 24 VDC can provide battery backup to the GD-2A detectors. For use in ordinary indoor locations of family living units and office workspaces. Intended for installation in buildings in non-hazardous locations such as residences, retail stores, office buildings, and institutional buildings. This combustible gas detector has been evaluated by UL for methane (natural gas) and propane (LP) gas. It is NOT designed to detect smoke, fire or carbon monoxide.

- Supervised Sensor
- SPDT Alarm and N.C. Trouble Relay
- Can be self-restoring or latching
- Solid State Electronic sensors: no maintenance or recalibration
- Voltage: 12 to 24 VAC or VDC

MACURCO GAS DETECTION

Part No.	Description	Price
GD2A	Combustible Gas Detector For Use With Alarm Control Panels	236.32

METHANE, PROPANE OR HYDROGEN GAS DETECTION

Combustible gas detectors will respond to a wide range of hydrocarbons, including aerosol sprays, cleaning solvents, paint thinner and other common volatile organic compounds. This low voltage detector provides automatic feedback and fan or valve control that can help reduce combustible gas concentrations in parking garages, battery rooms, maintenance facilities, and other locations that require combustible gas detection.

- Target Gas: Methane (NG), Propane (LP) or Hydrogen (H2)
- Output: Fan relay, Alarm relay and 4-20mA current loop
- Controls: Digital display (0-50% LEL), buzzer, fan delay, fan minimum runtime
- Mounts on a standard 4" x 4" electrical box
- 5 A SPDT fan relay controls valves, louvers or exhaust fans
- 0.5 A N.O. or N.C alarm relay connects to warning devices or control panels
- 4-20mA current loop, compatible with the Macurco DVP-120 Control Panel
- Factory calibrated
- Supervised system design: detector problem will cause the fan and alarm relay to activate
- Power: 3 W (max) from 12 to 24 VAC or 12 to 48 VDC

MACURCO GAS DETECTION

Part No.	Description	Price
GD6	Combustible Gas Detector Controller and Transducer	777.98

DETECTOR, CONTROLLER AND TRANSDUCER

Electronic detection system used to measure the concentration of CO and provide feedback and automatic exhaust fan or valve control to help reduce CO concentrations in parking garages, maintenance facilities or other commercial applications.

- Fan relay actuation: selectable at 15, 25, 35 (default), 50 or 100 ppm CO
- Output: Fan relay, Alarm relay and 4-20mA current loop
- Controls: Digital display (0-200 ppm), buzzer, fan delay, fan min. runtime
- Mounts on a standard 4" x 4" electrical box
- 5 A SPDT fan relay controls valves, louvers or exhaust fans
- 0.5 A N.O. or N.C alarm relay connects to warning devices or control panels
- Factory calibrated
- Supervised system design: detector problem will cause the fan and alarm relay to activate
- Power: 3 W (max) from 12 to 24 VAC or 12 to 32 VDC

MACURCO GAS DETECTION

Part No.	Description	Price
CM6	Carbon Monoxide Detector, Controller and Transducer	766.64

CARBON MONOXIDE DETECTOR

- Battery Operated - Alkaline Battery Included
- Fast and Easy to Install - No Wiring Required
- Optochemical Sensor Technology-Resistant to Nuisance Alarms, Extends Sensor Life, Provides Fail-Safe Notification
- Easy Access Test/Reset Button
- Red Alarm LED
- Loud 85 Decibel Horn
- Audible Low Battery Warning Signal
- End-of-Life Notification - warns after approximately 6 years of operation from initial power up
- Five Year Limited Warranty

DIVERSITECH

Part No.	Description	Price
CD9000B	Carbon Monoxide Alarm, Battery Standard Series	55.40

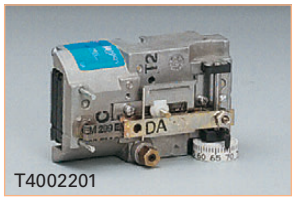
THERMOSTAT

LOW VOLUME

This pneumatic thermostat is a low volume proportional controller providing temperature control for a wide variety of applications including return air, mixed air, and unit ventilator control.

Johnson Controls

Part No.	Includes	Price
T3610-1001	8' Averaging Element, 5 Holders	447.36
T36101003	18" Rigid Stem Element with Duct Mounting Bracket	407.46



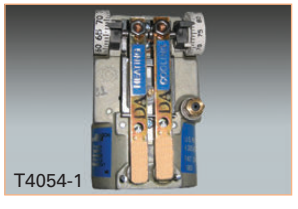
HIGH VOLUME, SINGLE TEMPERATURE

The T4002 is a high volume output, single temperature thermostat.

Note: Requires mounting bracket and cover to complete installation

Johnson Controls

Part No.	Action	Mount	Price
T4002201	Direct Acting	Horizontal	188.72
T4002202	Reverse Acting	Horizontal	188.72
T4002203	Direct Acting	Vertical	188.72
T4002204	Reverse Acting	Vertical	188.72



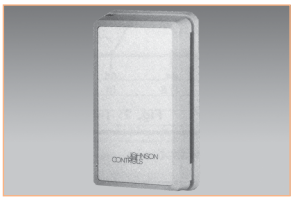
2 PIPE, HIGH VOLUME, ENERGY MANAGER

The T-4054 heating-cooling, energy manager thermostat is a high volume output, with an adjustable deadband of 0 to 30°F between heating and cooling set points.

Note: Requires mounting bracket and cover to complete installation

Johnson Controls

Part No.	Action	Price
T4054-1	Direct Acting	275.94
T4054-2	Reverse Acting	275.94

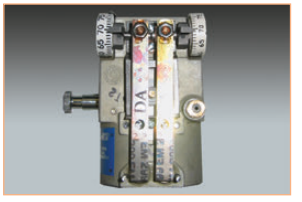


2 PIPE, LOW VOLUME, SINGLE TEMPERATURE

The T4100 is a low volume output, single temperature thermostat.

Johnson Controls

Part No.	Action	Price
T41001	Direct Acting	207.20
T41002	Reverse Acting	207.20



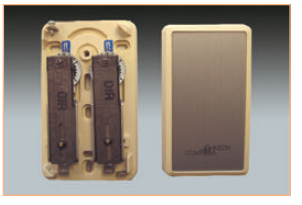
2 PIPE, HIGH VOLUME, DAY/NIGHT

High volume output, dual temperature, dual dial thermostat. The T4506 provides individual day and night, or two setpoint temperature control.

Note: Requires mounting bracket and cover to complete installation

Johnson Controls

Part No.	Description	Price
T4506201	Direct Acting, Horiz. Mounting, w/Indexing Switch, Switchover 17 psi	389.02
T4506202	Direct Acting, Vert. Mounting, w/Indexing Switch, Switchover 17 psi	389.02
T4506209	Reverse Acting, Horiz. Mounting, w/Indexing Switch, Switchover 17 psi	389.02
T4506203	Direct Acting, Horiz. Mounting, w/o Indexing Switch, Switchover 17 psi	347.06
T4506204	Direct Acting, Vert. Mounting, w/o Indexing Switch, Switchover 17 psi	347.06
T4506217	Reverse Acting, Horiz. Mounting, w/o Indexing Switch, Switchover 17 psi	347.06

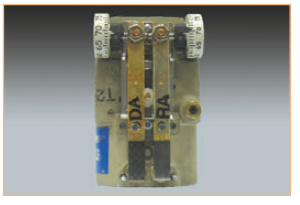


2 PIPE, LOW VOLUME, ENERGY MANAGER

Low volume output, energy managing, heating-cooling thermostat. The independent setpoints can result in a deadband to encourage energy conservation by eliminating heating and cooling overlap.

Johnson Controls

Part No.	Action	Price
T46001	Direct Acting	302.18
T46002	Reverse Acting	302.18



2 PIPE, HIGH VOLUME, DUAL TEMPERATURE

The T-4756 is a high volume output, dual-temperature, dual-dial, heating-cooling thermostat. The T-4756 provides automatic changeover between direct and reverse actions when supply pressure changes from 15 to 20 psig.

Note: Requires mounting bracket and cover to complete installation

Johnson Controls

Part No.	Action	Mount	Price
T4756205	15 psig Reverse/20 psig Direct	Horizontal	339.50

SINGLE TEMPERATURE, SINGLE PRESSURE

- External set point adjustment
- Includes protective snap-on cover
- Includes pointer tabs to restrict the temperature adjustment range to as little as ±2.5°F
- Factory calibrated for a nominal adjustment of ±7.5°F, from a set point of 75°F
- Includes attached mounting bracket

Part No.	Action	Price
T31002	Direct Acting	563.66

3 PIPE, HIGH VOLUME, DAY NIGHT

A high volume output, dual temperature, dual dial thermostat. The T-4516 provides individual day and night control, or weekend setback.

- Available in direct acting with auto switchover at 17 psig
- Additional output air terminal which can be used as an on-off switchline pressure
- Includes Fahrenheit dial
- Provided with an optional manual indexing switch that permits you to restore the day temperature of the individual thermostat without affecting the other system thermostats. Indexing switch can be unlatched manually or will automatically reset with the day cycle.

Part No.	Action	Price
T4516201	Dual Direct Acting	389.02

2 PIPE, HIGH VOLUME, ENERGY MANAGER

A high volume output, heating-cooling thermostat. Provides automatic changeover between Direct Acting (DIR) and Reverse Acting (REV) when supply pressure changes from 15 to 20 psig (105 to 40 kPa). Includes fahrenheit dial

Order cover and mounting bracket separately

Part No.	Action	Pressure (psig)	Price
T4752201	DA/RA	15-DA/20-RA	320.66
T4752205	RA/DA	20-DA/15-RA	320.66

ACCESSORIES

See Thermostat Conversion Kit section for additional mounting brackets.

Part No.	Description	Price
T4002124	T4000 Thermostat Mounting Bracket	14.42

COVERS

Covers for T4000 Series thermostats.

Part No.	Material	Thermometer	Mount	Window	Price
T40002138	Beige Plastic	No	Horiz. or Vert	No	28.24
T40002139	Beige Plastic	No	Horiz.	No	28.24
T40002140	Beige Plastic	Yes	Horiz.	No	36.72
T40002141	Beige Plastic	No	Horiz.	1	28.24
T40002142	Beige Plastic	Yes	Horiz.	1	36.72
T40002144	Beige Plastic	No	Vert.	No	28.24
T40002145	Beige Plastic	No	Vert.	1	28.24
T40002146	Beige Plastic	Yes	Vert.	1	36.72
T40003139	White Plastic	No	Horiz.	No	29.62
T40003141	White Plastic	No	Horiz.	1	29.62

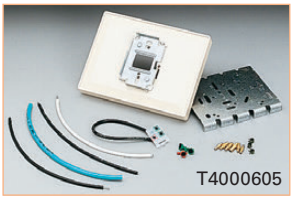
THERMOSTAT KIT

2 PIPE, HIGH VOLUME CONVERSION KIT

The T4002-30X thermostat with cover and two-pipe conversion kits feature a T4002201 (DA) or a T4002202 (RA) thermostat. The kits also contain a white or beige cover and cover plate, a selection of faceplates, and all other necessary parts and mounting hardware required to convert a wide array of two-pipe competitors' thermostats.

Part No.	Action	Color	Price
T4002302	Reverse Acting	White	253.98
T4002303	Direct Acting	Beige	253.98

THERMOSTAT REMODEL KIT



CONVERSION KIT

The T-4000-605 (beige) universal conversion kits provide all the parts necessary to remodel existing room installations of both Johnson Controls and non-Johnson Controls thermostats. These kits can be applied to existing instrument installations with exposed or concealed tubing.

Includes terminal connector and tubing, T-400 air fittings, adjustable pipehead, tube couplings and clamps, and mounting hardware.

Convert T400 models to T4000.

Note: Requires T4002 thermostat and cover

Part No.	Description	Price
T4000605	Universal Conversion Kit	96.76
T4000611	Bakelite Back Adaptor Style for Dual Temperature Vertical or Horizontal Instruments with Two Pipehead Adaptors	53.14
T4000612	Metal Back Subplate Style for Single or Dual Temperature Vertical or Horizontal Instruments with Two Pipehead Adaptors	140.82

TEMPERATURE TRANSMITTER

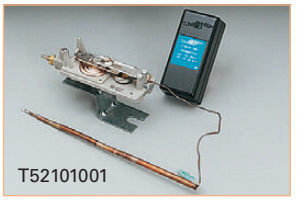
T5002201

ROOM TEMPERATURE

The T-5002 Series room transmitters measure space or mass temperature and transmit a proportional 3 to 15 psig pneumatic output signal to an indicator, receiver-controller, or building automation system (BAS) for automatic temperature control.

Note: Requires T4002 mounting bracket and cover to complete installation

Part No.	Action	Range (°F)	Price
T5002201	Direct Acting	50 to 100	354.12
T5002202	Direct Acting	60 to 85	354.12


T52101001

COPPER BULB

This pneumatic temperature transmitter measures temperature and converts this measurement to an air pressure signal that is transmitted to a pneumatic receiver, controller, or receiver-indicator.

Part No.	Operating Range (°F)	Capillary Length (In.)	Price
T52101001	50 to 100	5 1/2	379.00
T52101002	0 to 100	5 1/2	379.00
T52101004	40 to 240	5 1/2	379.00
T52101008	50 to 150	5 1/2	379.00
T52101113	-40 to 160	48	397.98
T52101114	0 to 100	48	397.98
T52101123	60 to 85	5 1/2	379.00
T52101151	20 to 120	48	397.98

T52101009

COPPER

This pneumatic temperature transmitter measures temperature and converts this measurement to an air pressure signal that is transmitted to a pneumatic receiver, controller, or receiver-indicator.

Part No.	Operating Range (°F)	Element Length (Ft.)	Price
T52101005	50 to 100	8	428.92
T52101006	40 to 240	8	428.92
T52101007	50 to 150	8	428.92
T52101116	50 to 150	17	437.86
T52101009	0 to 100	8	428.92
T52101124	40 to 65	8	428.92

CONTROLLER

T53121

RECEIVER CONTROLLER, T5312 SERIES

The T-5312 receiver-controller directly controls dampers, valves, and other devices in a pneumatic transmission system. The T-5312 produces a proportional 3 to 15 psig pressure signal from a remotely located transmitter.

Part No.	Action	Price
T53121	Proportional	965.22
T53123	Two-Position	1154.40

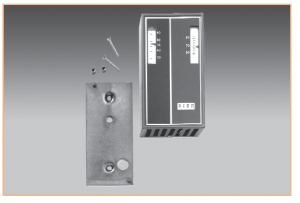
T80003

REMOTE BULB, TEMPERATURE

The T-8000 bulb element thermostat provides proportional, two-position, direct action, or reverse action temperature control. The T-8000 is designed for applications which require the sensing element to be located where extreme conditions do not permit controller mounting or where operational adjustments to the controller would be inconvenient. This relay-type instrument is ideally suited for installations requiring the controller to be mounted on a local control panel.

Proportional action, non-compensated capillary, includes two-sided dial: -10 to 124°F or 110 to 244°F.

Part No.	Element	Capillary Length (Ft.)	Price
T80001	Bulb	4	1075.18
T80003	Bulb	15	1075.18



IMMERSION TEMPERATURE

The T-8020 immersion thermostat provides control of liquid temperatures. The T-8020 can function as a proportional, direct action, or reverse action instrument.

Part No.	Action	Price
T80201	Proportional	1194.14

T58001

RECEIVER CONTROLLER, T5800 SERIES

The T-5800 pneumatic receiver-controller is designed for use with remote temperature, humidity, or pressure transmitters that are connected to a control variable (CV) input. The controller provides precise control of pneumatic devices.

The T-5800 is capable of providing restricted supply air to low volume remote transmitters, reducing the number of air line connections needed between instruments to only one line. The "CV" input accepts the transmitted output of any pneumatic device with a calibrated output of 3 to 15 psig.

Johnson Controls

Part No.	Input	Action	Price
T58001	Single	Proportional	**1128.46**
T58002	Single	Proportional Plus Integral	**1596.16**
T58003	Dual	Proportional	**1559.38**
T58004	Dual	Proportional Plus Integral	**1947.90**

P38001

RESET VOLUME, VAV

The P-3800 reset volume controller regulates the flow of air in variable air volume boxes. The P-3800 controls the output volume, between adjustable minimum and maximum limits, in response to a reset signal from a thermostat or some other master controller.

Johnson Controls

Part No.	Thermostat (Configuration)		Price
P38001	DA, RA	(DADR), (RARR)	**254.32**
P38002	RA, DA	(DARR), (RADR)	**254.32**

P80001

PRESSURE

The P-8000 pressure controller provides proportional or two-position control in applications that require the controller to be located on a local control panel.

Johnson Controls

Part No.	Action	Dial (2-Sided)	Price
P80001	Proportional	30" HG to 10 psig/0 to 25 psi	**1093.46**
P80002	Proportional	0 to 124 psig/110 to 244 psi	**1093.46**

ACTUATOR, DAMPER

D30621

2" STROKE

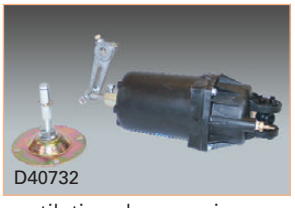
The D-3062 pneumatic actuator is a multipurpose positioning device used to accurately position small dampers primarily on variable air volume, terminal units and small ventilating dampers in response to output signals of a pneumatic controller or electro-pneumatic transducer.

The actuator is also recommended for use on other air flow control dampers in interior locations up to a maximum area of 4 square feet for proportional volume control and 6.25 square feet for two-position actuation, provided that the torque requirements are compatible with the specific application.

- Requires actuator linkage kit to complete installation

Johnson Controls

Part No.	Nominal Spring Range (psig)	Price
D30621	3 to 7	**156.82**
D30622	5 to 10	**156.82**
D30623	8 to 13	**156.82**
D30624	11 to 15	**155.00**
	Description	
D3062101	Auxiliary Mounting Kit, Swivel Mounting	**96.20**


D40732

3" STROKE

The D-4073 pneumatic actuator is a multipurpose positioning device used to accurately position small dampers primarily on unit ventilator, variable air volume terminal units, and small ventilating dampers in response to output signals of a pneumatic controller or electro-pneumatic transducer.

The actuator is also recommended for use on other air flow control dampers in interior locations up to a maximum area of 6.75 square feet for proportional volume control, and 11.7 square feet for two-position actuation, provided that the torque requirements are compatible with the specific application.

Where precision sequential operation is desired, or additional positioning power is necessary, use a D-9502 pilot positioner. Up to four more D-4073 actuators may be slaved from one pilot positioner for coupled dampers.

Johnson Controls

Part No.	Nominal Spring Range (psig)	Includes	Price
D40731	8 to 13	D9502, Universal Mounting Bracket	**589.50**
D40732	8 to 13	Universal Mounting Bracket	**401.12**
D40733	5 to 10	Universal Mounting Bracket	**401.30**
D40735	8 to 13	Auxiliary Mounting Bracket	**331.74**
D40736	5 to 10	Auxiliary Mounting Bracket	**327.08**

ACTUATOR, DAMPER

3" STROKE

The D-3153 pneumatic actuator is a multipurpose positioning device used primarily for operating ventilating dampers in response to the output signals of a pneumatic controller or electro-pneumatic transducer.

The D-3153 can be used with dampers up to a maximum area of 16 square feet for proportional volume control, and 25 square feet for two-position actuation, provided that the torque requirements are compatible with the specific application.

Johnson Controls

Part No.	Nominal Spring Range (psig)	Includes	Price
D31531	8 to 13	Pilot Positioner, Universal Mounting Bracket	763.00
D31532	8 to 13	Universal Mounting Bracket	548.98
D31533	5 to 10	Universal Mounting Bracket	538.70
D31535	8 to 13	Auxiliary Mounting Bracket	524.42
D31537	3 to 7	Auxiliary Mounting Bracket	514.42

4", 6" STROKE, SWIVEL MOUNT

The D-3240 Series pneumatic piston actuators are multipurpose positioning devices designed for operating inlet vanes on centrifugal fans and compressors in direct response to the output signal of a pneumatic controller. These actuators can also be used on other applications that require a large amount of positioning power from a single actuator, such as large damper applications, provided that the damper is designed to withstand the high torque capabilities of the actuator.

Johnson Controls

Part No.	Nominal Spring Range (psig)	Stroke (In.)	Includes	Price
D32444	8 to 13	4	Swivel Mount Bracket, Clevis, and Crank Arm	830.56
D32461	8 to 13	6	Swivel Mount Bracket, Clevis, and Crank Arm	1286.78

ACTUATOR POSITIONER

The D-9502 pneumatic damper actuator positioners are precision relay devices used to adjust and maintain damper actuators in exact positions on those applications requiring precise or otherwise special damper positioning.

- Provides dynamic stabilization and/or sequential control of pneumatic damper actuators
- For D3246 also order spring #D9502612, and pilot spring bracket #D9502100

Johnson Controls

Part No.	Usage	Price
D95025	D3244/D3246 Actuator	367.60
D95028	D3153 Actuator	391.88
D950212	D4073 Actuator	432.38

VALVE ACTUATOR

Pneumatic valve actuators are designed to accurately position steam or water valve modulating plugs in response to a pneumatic signal from a controller. The actuators have a molded synthetic rubber diaphragm design.

- Universal valve mounting design is compatible for use on all Johnson Controls valves with V-3000 mounting configurations

Johnson Controls

Part No.	Description	Price
V30008003	Valve Actuator, Enclosed	220.22
V30001	Valve Actuator, Replaceable Diaphragm	165.80

PNEUMATIC ACTUATOR

The V-3802 Pneumatic Oval Top Actuator positions steam or water valve modulating plugs in response to a pneumatic signal from a controller.

- Comparatively small oval enclosed actuator has sufficient force to handle most seating pressures
- Easily field mounted to the valve bonnet with a single set screw.

Refer to linkage and mounting kits in Linkage Kits for Field Coupling Johnson Controls Actuators to VT Series Valves only.
Also available to replace older, installed V-3800 Series Oval Top Actuators.

Johnson Controls

Part No.	Description	Price
V38021	Valve Actuator, VT, V-3800 Valves	206.88

SMALL PNEUMATIC ACTUATOR

Accurately positions the modulating plugs of chilled or hot water control valves in response to a pneumatic signal from a controller.

- Directly replaces field installed V-3854 and V-3800 models
- Tailored for small terminal unit valve applications
- Direct replacement for oval top actuators (VT Series and older oval top series) and (V-3800 Series) actuators (except V-3801-8001 on VG7000 Series valves)

Johnson Controls

Part No.	Description	Price
V40001	Valve Actuator, Small	254.96

VALVE ACTUATOR ASSEMBLY

TWO-WAY, NORMALLY OPEN, PDTC, BRONZE VALVE

Johnson Controls

Part No.	Connection Size (In.)	Connection Type	Flow C_V	Spring (psi)	Price
VG7241CT+3008B	1/2	NPT	0.73	3 to 6	389.74
VG7241ET+3008B	1/2	NPT	1.8	3 to 6	389.74
VG7241ET+3008D	1/2	NPT	1.8	4 to 8	389.74
VG7241ET+3008E	1/2	NPT	1.8	9 to 13	389.74
VG7241GT+3008B	1/2	NPT	4.6	3 to 6	390.12
VG7241GT+3008D	1/2	NPT	4.6	4 to 8	390.12
VG7241GT+3008E	1/2	NPT	4.6	9 to 13	390.12
VG7241LT+3008B	3/4	NPT	7.3	3 to 6	466.36
VG7241LT+3008D	3/4	NPT	7.3	4 to 8	466.36
VG7241LT+3008E	3/4	NPT	7.3	9 to 13	466.36
VG7241NT+3008B	1	NPT	11.6	3 to 6	544.66
VG7241NT+3008E	1	NPT	11.6	9 to 13	544.66
VG7241PT+3008B	1 1/4	NPT	18.5	3 to 6	676.94
VG7241PT+3008D	1 1/4	NPT	18.5	4 to 8	676.94
VG7241RT+3008B	1 1/2	NPT	28.9	3 to 6	863.46
VG7241RT+3008E	1 1/2	NPT	28.9	9 to 13	863.46
VG7241RT+823C00	1 1/2	NPT	28.9	3 to 6	1309.96
VG7241ST+823C00	2	NPT	46.2	3 to 6	1448.16
VG7251CT+3008B	1/2	Union Globe	0.73	3 to 6	441.10
VG7251ET+3008B	1/2	Union Globe	1.8	3 to 6	436.96
VG7251LT+3008B	3/4	Union Globe	7.3	3 to 6	525.72
VG7251NT+3008B	1	Union Globe	11.6	3 to 6	616.10
VG7551CT+3008B	1/2	Union Angle	0.73	3 to 6	475.88
VG7551ET+3008B	1/2	Union Angle	1.8	3 to 6	475.88
VG7551GT+3008B	1/2	Union Angle	4.6	3 to 6	478.12
VG7551LT+3008B	3/4	Union Angle	7.3	3 to 6	589.68
VG7551NT+3008B	1	Union Angle	11.6	3 to 6	702.56

TWO-WAY, NORMALLY CLOSED, PDTO, BRONZE VALVE

- NPT end connections

Johnson Controls

Part No.	Size (In.)	Flow C_V	Spring Range (psi)	Price
VG7441CT+3008E	1/2	0.73	9 to 13	413.92
VG7441ET+3008B	1/2	1.8	3 to 6	413.92
VG7441ET+3008D	1/2	1.8	4 to 8	413.92
VG7441ET+3008E	1/2	1.8	9 to 13	413.92
VG7441GT+3008D	1/2	4.6	4 to 8	415.10
VG7441GT+3008E	1/2	4.6	9 to 13	415.10
VG7441LT+3008E	3/4	7.3	9 to 13	499.38
VG7441NT+3008E	1	11.6	9 to 13	590.12
VG7441PT+3008E	1 1/4	18.5	9 to 13	738.56
VG7441RT+3008E	1 1/2	28.9	9 to 13	946.70
VG7441RT+823E00	1 1/2	28.9	9 to 13	1392.74
VG7441ST+823E00	2	46.2	9 to 13	1552.28

THREE-WAY, BRONZE

- NPT end connections

Johnson Controls

Part No.	Size (In.)	Flow C_V	Spring Range (psi)	Price
VG7842ET+3008B	1/2	1.8	3 to 6	428.20
VG7842ET+3008D	1/2	1.8	4 to 8	428.20
VG7842ET+3008E	1/2	1.8	9 to 13	428.20
VG7842GT+3008D	1/2	4.6	4 to 8	429.42
VG7842GT+3008E	1/2	4.6	9 to 13	429.42
VG7842LT+3008B	3/4	7.3	3 to 6	530.24
VG7842LT+3008D	3/4	7.3	4 to 8	530.24
VG7842LT+3008E	3/4	7.3	9 to 13	530.24
VG7842NT+3008B	1	11.6	3 to 6	623.08
VG7842NT+3008D	1	11.6	4 to 8	623.08
VG7842NT+3008E	1	11.6	9 to 13	623.08
VG7842PT+3008B	1 1/4	18.5	3 to 6	871.48
VG7842PT+3008E	1 1/4	18.5	9 to 13	871.48
VG7842RT+3008D	1 1/2	28.9	4 to 8	1036.12
VG7842RT+3008E	1 1/2	28.9	9 to 13	1036.12
VG7842RT+823D00	1 1/2	28.9	4 to 8	1481.28
VG7842RT+823E00	1 1/2	28.9	9 to 13	1481.28
VG7842ST+823D00	2	46.2	4 to 8	1693.14
VG7842ST+823E00	2	46.2	9 to 13	1693.14

FLARE VALVE

These 1/2" two-way and three-way flare valves accurately regulate the flow of hot and cold water in small HVAC terminal units, including fan coils, perimeter radiation, and reheat coils.

Johnson Controls

Part No.	Type	Size (In.)	Flow C_V	Spring Range (psi)	Price
V37661002	Two-Way, NO	1/2	1.7	3 to 6	490.62
V37661003	Two-Way, NO	1/2	3.2	3 to 6	490.62
V43321009	Three-Way	1/2	1.7 NO, 2.3 NC	4 to 8	575.88

SWITCH

P10BC7

PRESSURE ELECTRIC, AIR

These pressure controls open or close electrical circuits from a change in operating air pressure.

- For pneumatic systems, pumps, or small air compressors
- Pressure to electric switch

Johnson Controls

Part No.	Stages	Switch	Pressure Differential Range (psig)	Switch Differential (psi)	Connection (In.)	F.L. Amps (@ 240V)	Price
P10BC7	1	SPDT	3 to 20	2, Fixed	Barbed	8	**159.18**
P10BG3	1	SPDT	2 to 20	0.2, Fixed	1/8 NPSF	8	**175.78**
P10FC4C	2	SPDT	3 to 20	2 Low Stage, 2 High Stage	1/8 Barbed Fitting	8	**256.80**

LOW PRESSURE

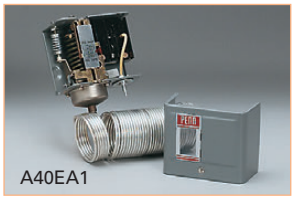
P67 pressure controls are used to close (or open) an electrical circuit on the basis of a predetermined air pressure signal.

Typical applications include the control of air compressors, fans, pilot lights, and resistance heating elements.

- Maximum over pressure: 50 psig
- Temperature range: 32 to 140°F

Johnson Controls

Part No.	Switch	Range (psig)	Differential (psi)	Connection	F.L. Amps (@ 240V)	Price
P67AA1	DPST, Open Fall	3 to 30	1 1/2 to 20	Angle Barbed	12	**276.44**
P67CA1	DPST, Open Rise	3 to 30	1 1/2 to 20	Angle Barbed	12	**290.70**


A40EA1

REMOTE BULB, TEMPERATURE

A40 temperature actuated pneumatic switches control when the sensed temperature reaches the control setpoint.

- Automatic reset
- A barb fitting permits "push-on" 1/4" tubing connection

Johnson Controls

Part No.	Switch	Range (°F)	Differential (°F)	Maximum Bulb Temperature (°F)	Bulb	Capillary Length (Ft.)	Price
A40EA1	Opens on Fall	15 to 55	5, Fixed	400	1/8" x 20'	—	**451.32**
A40EA4	Opens on Fall	50 to 90	4, Fixed	250	11/16" x 6 3/4"	6	**493.92**
A40FA1C[1]	Opens on Fall	15 to 55	5, Manual Reset	400	1/8" x 20'	—	**467.04**
A40GA2	Opens on Rise	50 to 90	5, Fixed	250	11/16" x 6 3/4"	6	**507.22**

[1]On low cutout manual reset models, the temperature must increase the amount of the differential before pneumatic switch can be closed

VALVE AIR SOLENOID

V11HGA100

3-WAY

The V11 three-way solenoid valve is used in applications where an electrical circuit operates a pneumatic control device.

- 50/60 Hz

Johnson Controls

Part No.	Voltage	Price
V11HAA100	110/120	**294.90**
V11HBA100	220/240	**278.44**
V11HDA100	440/480	**278.44**
V11HGA100	24	**313.72**

3-WAY

Used in applications where an electrical circuit operates a pneumatic control device. This valve diverts the air signal to the pneumatic device when the coil is energized or de-energized, depending on the choice of air connection.

- Air connections:NO or NC/Common
- Compact size with durable, solid brass construction
- Positive air seal
- Can be used in smoke control applications

Johnson Controls

Part No.	Voltage	Price
V24102	120	**413.86**

3-WAY

Switches the flow of air from one air line to another. For day night switching, heating/cooling, enthalpy switchover

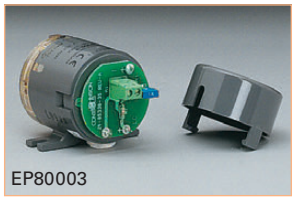
- V6135: no exhaust function
- V6137: after switchover, the non active line exhausts to atmosphere

Features

- Fast acting two-position switching mechanism
- Factory supplied with an integral mounting bracket for surface mounting

Part No.	Voltage	Price
V61351	2 to 4	425.70
V61352	11 to 15	425.70
V61353	15 to 19	425.70
V61371	15 to 19	425.70

TRANSDUCER, ELECTRO PNEUMATIC


EP80003

The EP-8000 electro-pneumatic transducer converts a 0 to 10 Vdc or 4 to 20 mA signal from an electric controller into a proportional pneumatic output pressure signal.

- Proportional: direct acting

Part No.	Input Type	Input Range	Output Type	Output Range (psig)	Price
EP80001	Voltage	.5 to 9 Vdc	Low Volume	1 to 18	342.62
EP80002	Voltage	.25 to 9.5 Vdc	High Volume	5 to 19	357.62
EP80003	Current	4 to 20 mA DC	Low Volume	3 to 15	342.62
EP80004	Current	4 to 20 mA DC	High Volume	3 to 15	357.52

TRANSDUCER

This unit has no air consumption and is immune to mounting orientation or supply line pressure fluctuations. It incorporates a manual override switch and, in the manual mode, the pressure can be increased or decreased with two pushbutton switches.

- Powered by 18-28 Vac/Vdc
- Proportional: direct acting

Part No.	Input Range	Output Type	Output Range	Price
EP313020	4-20 mA, 0-5 or 0-10 Vdc	High Volume	0 to 20 psi	360.00

HIGH/LOW PRESSURE SELECTOR

C222011

HIGH-LOW PRESSURE SELECTOR

The C-2220 high-low pressure selector selects and transmits control pressure signals from a group of thermostats or controllers. The appropriate C-2220 module must be selected to work with either high or low volume thermostats or controllers. The C-2220 high-low pressure selector can be combined in master and slave module groups for applications using both high and low volume output thermostats or controllers.

- One master can combine with as many as 19 slaves to control 20 zones

Part No.	Function	Input	Price
C222011	Master	Low Volume	161.26
C222012	Slave	Low Volume	123.60
C222013	Master	High Volume	161.26
C222014	Slave	High Volume	123.60

Part No.	Description	Price
C22205	Mounting Bracket	113.12

RELAY

C52302

SIGNAL LIMITER

The C-5230 pneumatic signal limiter imposes high and/or low limits on any pneumatic signal.

Part No.	Description	Price
C52302	High or Low Limit	255.42
C52303	High and Low Limit	307.16

SIGNAL TRANSMITTER

The C-5226 pneumatic signal transmitter repeats pneumatic transmission signals or selects the higher or lower of two pneumatic signal levels directly from the output of a controller. The C-5226 may also be used as a high or low signal limiter or a differential switchover device.

Part No.	Description	Price
C52263	Signal Repeater	97.28

RELAY

AVERAGING CUMULATOR

The C-2040 averaging cumulator is a low volume output device designed to operate a controlled device or receiver-controller by averaging the output signals of two, three, or four controllers or transmitters. The cumulator produces an output signal equal to the average of the input signals.

Johnson Controls

Part No.	Description	Price
C20401	Averaging Cumulator	416.38

SWITCHING CUMULATOR

The C-9506 air switching cumulator switches output pressure from zero to full supply pressure when the pilot pressure reaches the switch point.

- Switch point: 2–12 psig
- Differential: 1 psig

Johnson Controls

Part No.	Action	Price
C95061	2 Position, DA	400.06

BOOSTER

The R-2080 booster relay operates as a pneumatic repeater and volume amplifier. The pilot signal is repeated at its output at a 1:1 ratio.

- Amplifies a pilot signal from a non-relay, low volume controller to a large volume output signal

Johnson Controls

Part No.	Description	Price
R20801	Booster Relay	261.46

REVERSING

The R-3030 reversing relay functions as a 1:1 pneumatic inverter, volume amplifier, and inverse sequencer.

Johnson Controls

Part No.	Description	Price
R30301	Reversing Relay	380.78

ACCESSORIES

PRESSURE REDUCING STATION

The remote mounted pressure reducing station regulates the output pressure in a pneumatic system to within 0.02 psi with a 20 psi variation in input pressure.

- Input maximum: 300 psig
- Output: 0–50 psig
- Flow capacity: 25 scfm
- Safety relief valve: 25 psi

Johnson Controls

Part No.	Description	Price
A4000138	Pressure Reducing Station	394.02

MINIATURE PRESSURE REGULATOR

The R-4000 miniature pressure regulator provides a method to readjust the setpoint of pneumatic controllers in low volume applications. The output pressure varies in proportion to the rotation of the adjusting knob.

Johnson Controls

Part No.	Output Pressure (psig)	Price
R40003	12	260.22
R40004	1, 2, 3, 5, 6	260.22

PRESSURE REDUCING VALVE

The R130 air pressure reducing valve reduces the primary air supply pressure to a selected pressure in a compressed air system. The reducing valve can also be used as a minimum set point regulator.

- When used as minimum setpoint regulator, an R3710 Series .005 restrictor must be used in output line

Johnson Controls

Part No.	Fitting Size (In.)	Flow Capacity (scfm)	Price
R1301	1/8	1	99.70
R13015	3/8	20	190.52

PP901A1004

PRESSURE REDUCING VALVE

Used to control the pressure of the air delivered to pneumatic control systems. Models available for single-pressure systems or two-pressure systems (day/night or summer/winter) requiring two independently regulated pressure settings. Dual pressure units switch from the lower setting to a higher setting when main air is applied to the pilot port. Models also available including a sub-micron filter assembly and pressure gauges.

- Built-in adjustable safety relief valve for limiting downstream pressure
- Inlet pressure: 45–150 psi
- Outlet pressure: 0–25 psi, factory 18 psi
- Safety relief pressure: 12–25 psi, factory 22–25 psi
- Secondary pressure: 0–5 psi above primary setting
- Factory set: 4.5 psi

Honeywell

Part No.	Description	Includes	Price
PP901A1004	Single Pressure	—	**396.36**
PP902C1009	Single Pressure	Submicron Filter, 2 Gauges	**880.04**
PP901B1002	Two Pressure	—	**474.02**
PP902D1007	Two Pressure	Submicron Filter, 2 Gauges	**1031.88**

R130100

PRESSURE REDUCING VALVE ACCESSORY

Johnson Controls

Part No.	Description	Price
A4000144	1/4" NPT, 25 psi Safety Relief Valve	**75.72**
A4000143	Mounting Bracket (R13014 Only)	**32.64**
R130100	Post Mounting Bracket (R1301 & R13014)	**44.12**

A4000137

FILTER, OIL REMOVAL

Combining coalescing and activated carbon filters in series provides clean, oil free air by removing both oil aerosols and vapors in pneumatic control systems.

Johnson Controls

Part No.	Connection (In.)		Max Capacity (scfm)	Type	Price
A40001037	1/4	Barb	1.50	In-Line	**46.68**
A4000146	1/2	FPT	23	Activated Carbon	**769.22**
A4000147	1/2	FPT	12	Activated Carbon	**690.60**
A40001048	3/8	FPT	17	Coalescing	**402.80**
A40001049	3/8	FPT	30	Coalescing	**468.92**
A40006001	3/8	FPT	50	Coalescing	**858.64**
A4000152	3/8, 1/2	FPT	—	Universal Mounting Kit	**140.40**

A4000604

FILTER, REPLACEMENT CARTRIDGES

Johnson Controls

Part No.	Type	Fits	Price
A4000604	Coalescing	A4000149	**101.54**
A4000605	Coalescing	A4000601	**198.54**
A4000633	Carbon	A4000146	**476.18**
A4000632	Carbon	A4000147	**403.88**
A4110604	Coalescing	A4000148	**95.78**

G20105

AIR PRESSURE GAUGE

The G2010 air pressure gauge provides continuous indication of air pressure in pneumatic control systems.

Johnson Controls

Part No.	Gauge Size (In.)	Range (psig)	Stem Mount (In.)	Mounting	Price
G20105	1 1/2	0 to 30	1/8 NPT Center Back	Stem	**46.48**
G20101	1 1/2	On/Off Indicator	1/8 NPT Center Back	Flush or Surface	**170.58**
G201011	2	0 to 30	1/8 NPT Center Back	Stem	**51.42**
G2010101	2	0 to 30	1/8 NPT Center Back	Flush or Surface	**65.94**
G201023	2	0 to 100	1/8 NPT Center Back	Stem	**66.08**
G201016	2	0 to 160	1/4 NPT Center Bottom	Stem	**66.08**
G2010400	3 1/2	0 to 30	1/8 NPT Center Back	Flush or Surface	**145.96**

Over 70 years of experience specializing in refrigeration and HVAC products

ACCESSORIES

THERMOMETER

The T-5500 Series pneumatic temperature indicator provides continuous indication of the temperature measurement of a transmitter in a 3 to 15 psig pneumatic transmission system.

3 1/2" DIAL

Johnson Controls

Part No.	Temperature Range (°F)	Price
T55001051	50 to 100	280.44
T55001052	0 to 100	280.44
T55001053	50 to 150	280.44
T55001054	-40 to160	280.44
T55001055	40 to 240	280.44
T55001057	20 to 120	280.44
T55001058	40 to 65	280.44
T55001059	60 to 85	280.44

2 1/2" DIAL

Johnson Controls

Part No.	Temperature Range (°F)	Price
T55021001	50 to 100	136.24
T55021002	0 to 100	136.24
T55021003	50 to 150	136.24
T55021004	-40 to160	136.24
T55021005	40 to 240	136.24

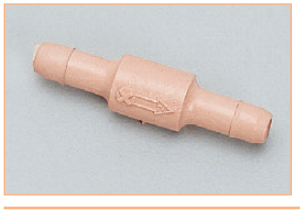
R3710 SERIES

The R3710 Series restrictors limit pressure and flow direction in pneumatic systems.

RESTRICTOR, IN-LINE, COMPRESSION

Johnson Controls

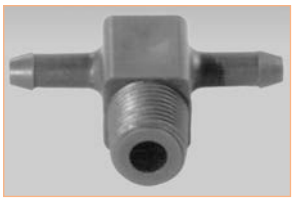
Part No.	Description	Price
R37101005	For Inserting 1/4" Tubing, Compression Connection .005", Red	16.68
R37101007	For Inserting 1/4" Tubing, Compression Connection .007", Aqua	16.68



RESTRICTOR, IN-LINE, BARBED

Johnson Controls

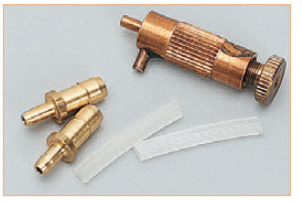
Part No.	Description	Price
R37102005	1/4" Barbed Fitting, .005 In.	13.74
R37102007	1/4" Barbed Fitting, .007 In.	13.74



RESTRICTOR, IN-LINE, 1/8" NPT

Johnson Controls

Part No.	Description	Price
R37103105	Red 1/4" Barbed x 1/8" NPT, .005 In.	20.14
R37103107	Aqua 1/4" Barbed x 1/8" NPT, .007 In.	20.14



RESTRICTOR, IN-LINE, ADJUSTABLE

- Furnished with 2 3/4" lengths, 5/32" tubing, and 2 1/4" x 5/32" couplings

Johnson Controls

Part No.	Description	Price
R37102010	Pin Valve Adjuster	89.30

RESTRICTOR, IN-LINE, BARBED

Johnson Controls

Part No.	Description	Price
R37103005	1/4" Barbed Connection, .005 In.	16.10
R37103007	1/4" Barbed Connection, .007 In.	16.10

RESTRICTOR, DIODE TEE

The R-3712 diode restrictor tee allows air flow through the bottom of the tee, in one direction only. The R-3712 is designed for inline installation using 1/4" O.D. flexible tubing.

Johnson Controls

Part No.	Description	Price
R37123007	1/4" Barbed Connection, .007 In.	46.28

RESTRICTOR, LOW VOLUME EXHAUST, DIODE TEE

The R-3714 diode tee provides through line low volume exhaust whenever the pressure to the diode branch is at a lower value than pressure on the through line. A higher pressure at the diode branch closes the diode and allows normal operation in the through line. Air can flow out of the bottom of the tee causing a slight reverse flow. The R-3714 is not designed for systems where the reverse flow through the restrictor can be trapped between a shut off device and an actuator.

Johnson Controls

Part No.	Description	Price
R37143000	Pressure Regulator, 1/4" Barbed Connection	46.28

THERMOSTAT

TP970A2145

2 PIPE, SINGLE SETPOINT

Two pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

Honeywell

Part No.	Action	Scale Range (°F)	Throttling Range (°F)	Includes	Price
TP970A2004	DA	60–90	2–10	Cover not Included	169.78
TP970A2012	DA	40–70	2–10	Cover not Included	191.14
TP970A2038	DA	60–90	2–10	Modernization Kit	282.98
TP970A2145	DA	60–90	2–10	Convertastat™ Kit[1]	183.94
TP970B2002	RA	60–90	2–10	Cover not Included	169.78
TP970B2077	RA	60–90	2–10	Convertastat™ Kit[1]	183.92

[1]Includes universal adapter wall plate, universal cover

TP971A2102

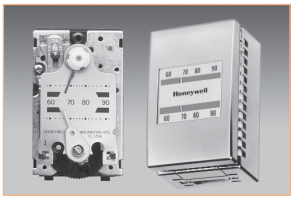
2 PIPE, SETBACK

Pneumatic thermostat with night setback used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Two pipe direct acting two temperature scale range:
  Day: 60–90°F, 13 psi
  Night: 50–75°F, 18 psi
- Throttling range: 2–10°F

Honeywell

Part No.	Includes	Price
TP971A2003	Order Cover Separately	299.18
TP971A2102	Convertastat™ Kit Includes Adapter Plate, Wall Plate & Satin Chrome Cover	334.72



2 PIPE, HEATING/COOLING

Two-pipe, one- or two-temperature, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Throttling range: 2–10°F
- DA heating @ 18 psi
- RA cooling @ 13 psi

Honeywell

Part No.	Description	Scale Range (°F)	Comments	Price
TP972A2036	2 Pipe, 2 Temp.	55–75 Heating 60–90 Cooling	Two Concealed Setpoint Knobs 78°F Min. Cooling, 72°F Max. Heating, Order Cover Separately	298.24
TP972A2002	2 Pipe, 1 Temp.	60–90	Sensor only	267.78

1 OR 2 PIPE, SINGLE TEMPERATURE

One-pipe or two-pipe, single temperature, low capacity, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Requires .005 in. restrictor for one-pipe installation
- Scale range: 60–90°F
- Throttling range: 2–10°F

Honeywell

Part No.	Description	Features	Price
TP973A2076	1 or 2 Pipe, DA 1 Temp., Low Capacity	Order Cover Separately	149.26
TP973B2066	1 or 2 Pipe, RA 1 Temp., Low Capacity	Order Cover Separately	147.24

1 PIPE, AIRSTREAM

One-pipe, single setpoint, pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems. Commonly used as discharge controllers for unit ventilators.

- Pressure ratings—Operating: 25 psi
  Supply: 3 to 15 psi

Honeywell

Part No.	Type	Scale Range (°F)	Throttling Range (°F)	Price
LP907A1002	1-Pipe, DA	40 to 140	10 to 70	396.50

THERMOSTAT

LP916A1019

2 PIPE, REMOTE BULB

Two-pipe, single temperature, unit mounted, remote bulb pneumatic thermostat used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

Honeywell

Part No.	Description	Comments	Scale Range (°F)	Fixed Throttle Range (°F)	Price
LP916A1019	2-Pipe, DA, Single Temp., .007 in Restriction	For Unit Ventilators, 1/2" x 5 7/8" Bulb	65 to 85	3.5	**386.60**
LP916A1134	2-Pipe, DA, Single Temp., .005 in Restriction	For Induction, Fan Coil Systems, 3/8" x 7" Bulb	65 to 85	3.5	**361.84**
LP916B1082	2-Pipe, 18 psi Heating DA, 13 psi Cooling RA, Single Temp., .005 in Restriction	For Induction, Fan Coil Systems, 3/8" x 9" Bulb	65 to 85	3.5	**463.88**

TRANSMITTER

LP914A1052

TEMPERATURE, INSERTION

One-pipe, direct-acting temperature sensor used with RP908/RP920 controllers to provide proportional control of pneumatic valve or damper actuators. Rod and tube insertion element for duct, well, or through-the-wall mounting.

- Controls are one-pipe direct acting

Honeywell

Part No.	Temperature Sensing Range (°F)	Element Length (In.)	Mounting	Price
LP914A1003	-40 to 160	15	Duct	**358.50**
LP914A1011	-40 to 160	15	Well	**934.30**
LP914A1052	40 to 240	7	Well	**297.08**
LP914A1060	-40 to 160	7	Well	**323.24**
LP914A1144	25 to 125	15	Duct	**374.76**

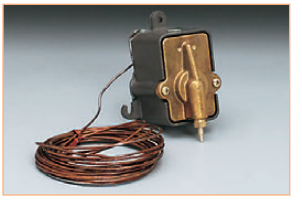
TEMPERATURE, WALL MOUNT

One-pipe or two-pipe direct-acting temperature sensor used with RP908/RP920 controllers to provide proportional control of pneumatic valve and damper actuators.

- 1 or 2 pipe, DA

Honeywell

Part No.	Sensor Type	Sensing Range (°F)	Price
TP974A2000	1 or 2 Pipe, DA Less Cover	50–100	**312.04**

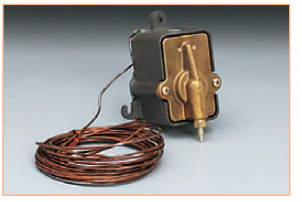


TEMPERATURE, AVERAGING

One-pipe, direct-acting temperature sensor, used with RP908 or RP920 controllers to provide proportional control of pneumatic valve or damper actuators. Averaging, liquid-filled element for duct mounting.

Honeywell

Part No.	Temperature Sensing Range (°F)	Element Length (Ft.)	Mounting	Price
LP915A1044	0–200	18 1/2	Duct	**493.16**



TEMPERATURE, AVERAGING

One-pipe, direct-acting temperature sensor, used with RP908 or RP920 controllers to provide proportional control of pneumatic valve or damper actuators. Averaging, liquid-filled element for duct mounting.

Honeywell

Part No.	Temperature Sensing Range (°F)	Element Length (Ft.)	Mounting	Price
LP915A1044	0–200	18 1/2	Duct	**493.16**

HUMIDITY

One- or two-pipe, direct-acting humidity sensor used with RP908/RP920 controllers to provide proportional control of pneumatic valve or damper actuators in systems requiring humidification or dehumidification control.

- Pressure ratings: Operating: 25 psi
  Supply: 3 to 15 psi

Honeywell

Part No.	Type	Humidity Scale Range (% RH)	Comments	Price
HP971A1008	1-, 2-Pipe, DA	15 to 75	Less Cover	**599.48**

HUMIDISTAT

HP970B1007

Two-pipe, single setpoint, pneumatic humidistat used to provide proportional control of pneumatic valves on humidification or dehumidification systems.

- Direct Acting (DA) and Reverse Acting (RA) models are available.

Honeywell

Part No.	Type	Scale Range (% RH)	Throttling Range (% RH)	Flow Comments	Price
HP970A1009	2-Pipe, DA	15 to 75	3 to 15	Order Cover Separately	**539.58**
HP970B1007	2-Pipe, RA	15 to 75	3 to 15	Order Cover Separately	**539.58**

CONTROLLER

LP920A1039

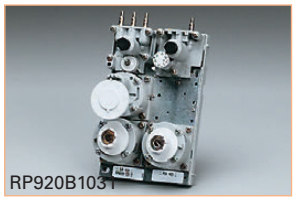
REMOTE BULB TEMPERATURE

Two-pipe, single temperature, pneumatic temperature controller used to provide proportional control of pneumatic valves and damper actuators in heating and air conditioning systems.

- Control is direct-acting, single temperature
- Scale range: 30–150°F
- Throttling range: 5–25°F

Honeywell

Part No.	Element Style and Length	Capillary Length (In.)	Price
LP920A1005	Averaging, Length	96	**532.72**
LP920A1021	3/8 x 5 1/4" Bulb	10	**558.94**
LP920A1039	3/8 x 5 1/4" Bulb	60	**548.08**


RP920B1031

RECEIVER CONTROLLER

Proportional, high capacity, single or dual input pneumatic controller used in conjunction with remote sensors to provide proportional (P) or proportional plus (P+I) control of temperature, humidity, pressure, or dewpoint for heating and air conditioning systems.

- Input signal: 3–15 psi
- Output signal: 3–13 psi

Honeywell

Part No.	Input	Action	Type	Remote Adjustment	Price
RP920A1025	Single	DA	Proportional	With	**461.66**
RP920A1033	Single	DA	Proportional	Without	**461.66**
RP920B1031	Dual	DA	Proportional	Without	**575.42**
RP920B1056	Dual	RA	Proportional	Without	**592.26**
RP920C1021	Single	DA	P+I	With	**822.06**

ACTUATOR, DAMPER

MP909D SERIES

Used for pneumatic proportional control of variable volume terminal units and small dampers.

- Damper load area: 3 sq. in.
- 2 3/8" stroke

Honeywell

Part No.	Spring Range (psi)	Price
MP909D1227	5 to 10	**76.44**

MP909E1018

MP909E SERIES

Used for pneumatic proportional control of dampers and high velocity air valves. The MP909E has an optional adjustable stroke feature.

- Damper load area: 6.6 sq. in.

Honeywell

Part No.	Stroke (In.)	Spring Range (psi)	Includes	Price
MP909E1018	4.0	3 to 13	Mounting Bracket, Ball Joint	**248.32**
MP909E1026	4.0	3 to 13	—	**224.28**
MP909E1034	4.0	5 to 10	Mounting Bracket, Ball Joint, Linkage Kit	**253.14**
MP909E1174	3.1	9 to 13	Mounting Bracket, Ball Joint	**253.14**
MP909E1349	4.0	3 to 13	Internal N.C. Trunnion Bracket	**254.58**
MP909E1364	4.0	5 to 10	External Trunnion Bracket	**248.50**

ACTUATOR

COIL VALVE ACTUATOR

Pneumatic actuators provide proportional control of steam or hot or cold liquids in HVAC systems by operating V33XX, V34XX, V5011 and V5013 valve assemblies.

- 3/4" valve travel
- DA Actuator + DA Valve Body = Normally Open
- RA Actuator + DA Valve Body = Normally Closed

Honeywell

Part No.	Diameter	Action	Spring Range (psi)	Includes	Price
MP953C1000	5	DA	2-7	Standard	121.90
MP953C1018	5	DA	8-12	Standard	121.90
MP953C1026	5	DA	4-11	Standard	121.88
MP953C1067	8	DA	2-7	Standard	467.14
MP953C1075	8	DA	8-12	Standard	467.14
MP953D1172	7 1/8	RA	3-7	EPDM Diaphragm	471.68
MP953D1107	7 1/8	RA	8-13	EPDM Diaphragm	467.14
MP953E1319	5	DA	4-11	Positive Positioner 5 psi span	472.16
MP953E1376	8	DA	4-11	Positive Positioner 5 psi span	625.40
MP953F1101	7 1/8	RA	8-13	Positive Positioner 5 psi span, EPDM Diaphragm	869.46

HEAVY DUTY ACTUATOR

Used for proportional control of medium to large-size dampers in HVAC systems. The MP918 is a rolling diaphragm, piston-type actuator.

- Damper load area: 23.8 sq. in.
- 3 1/2" stroke, 6" stroke (MP920)

Honeywell

Part No.	Spring Range (psi)	Includes	Price
MP918B1006	3 to 13	External Mounting Bracket, Crank Arm	333.70
MP918B1030	3 to 13	Actuator Only	283.14
MP920B1002	7 to 13	Actuator Only	1029.14

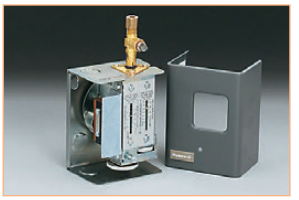
BRAUKMAN ACTUATOR

The MP958 pneumatic valve actuator is direct-acting and used only with Honeywell-Braukman V5852A2xx, V5862A2xx, V5853A2xx, and V5863A2xx terminal unit valves to control hot and/or chilled water.

Honeywell

Part No.	Pressure Rating (psi)	Price
MP958A1017	3 to 10	104.20
MP958A1025	8 to 11	104.20

SWITCH



PNEUMATIC/ELECTRIC, P643 SERIES

Used to convert a pneumatic signal from a controller to an electric switching action to provide start and stop control of equipment such as fans and pumps.

- Setpoint: 0–22 1/2 psi
- Differential: 3–13 psi
- Contact rating: 5.1 F.L. Amp @ 240 Vac

Honeywell

Part No.	Switch	Price
P643A1007	SPDT	609.16

PNEUMATIC/ELECTRIC, P658 SERIES

Pneumatic-electric switches (P658A, B) used to convert a pneumatic signal from a controller to an electrical switching action (spdt) to provide start and stop control of equipment such as fans and pumps.

- Setpoint range: 2–24 psi, adjustable differential: 2 psi, fixed
- Switch: SPDT

Honeywell

Part No.	Mounting	Factory Set (psi)	Comments	Price
P658A1013	Surface	10	Includes Case	120.28
P658B1012	Panel	10	No Case	117.96

DIVERTING

Pneumatic diverting switch used to manually divert, block, or bleed air in pneumatic air lines to revise control sequence with a change in conditions. Commonly applied on day/night, summer-winter, on/off/auto, or start/stop functions.

Honeywell

Part No.	Mount	Number Positions	Comments	Price
SP470A1000	Panel	2	Includes Knob, Scale Plate	154.36
SP470A1018	Panel	3	Includes Knob, Scale Plate	160.42

MANUAL/MINIMUM POSITION

Used to manually position a remote damper actuator or to reset the setpoint of a pneumatic controller. They can also provide minimum damper position by setting a minimum pressure limit in the branchline to the damper actuator.

- Includes knob, scaleplate, and locknuts

Honeywell

Part No.	Span (psi)	Description	Price
SP970A1005	10	3 Port Manual/Minimum w/ Bleed	101.06
SP970A1013	5	3 Port Manual/Minimum w/ Bleed	100.08
SP970C1043	5	4 Port Manual/Isolated Pilot Chamber	133.72

RELAY

RP418A1057

AIR SOLENOID VALVE

Electrically operated pneumatic switches used to interlock an electrical system and a pneumatic control system.

- Usable as a diverting relay, a selector relay, or a stop and bleed relay
- Airflow: .42 scfm @ 20 psi with 1 psi drop

Honeywell

Part No.	Mounting	Voltage	Frequency	Includes	Price
RP418A1057	Surface	120V	50Hz	Splicebox	133.58
RP418A1107	Surface	120V	60Hz	Splicebox	96.00
RP418A1081	Surface	208V	60Hz	Splicebox	132.26
RP818A1004	Surface	24V	60Hz	Splicebox	107.90

SELECTOR

Three-port relays used in HVAC systems to perform a variety of relay functions; transmit the higher of two input signals, lock out one pressure signal when a second signal is higher, or transmit the lower of two pressure signals.

- Operating range: 0–18 psi

Honeywell

Part No.	Description	Price
RP470A1003	High/Low/Lockout Selector	68.08

SNAP ACTING

The four port, snap acting relay converts a proportional air pressure change a controller to a positive (two-position) pressure change. It can also divert a supply line to one of two branches.

- Setpoint range: 3–15 psi
  Differential: 1 psi, fixed

Honeywell

Part No.	Operation	Price
RP471A1002	Proportional to Two Position	122.30

SWITCHING

Pneumatic switching relays block, divert, or bleed pneumatic air lines when pilot pressure is changed from one specific value to another. Commonly applied in day/night, summer/winter, start/stop, on/off/auto and other multiple condition systems where control sequence is changed as conditions change.

Honeywell

Part No.	Switch	Switch Pressure (psi)	Comments	Price
RP670A1001	SPDT	3 and 7	Standard	112.16
RP670B1009	DPDT	3 and 7	Standard	227.12

RP7517A017

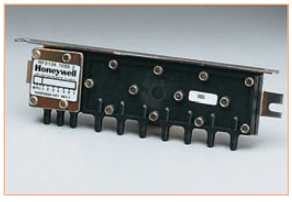
PROPORTIONAL E/P TRANSDUCER

Electronic-pneumatic transducers are used in electronic pneumatic control systems to convert a proportional electric output signal from a controller into a direct-acting, proportional pneumatic signal.

- Nominal range: 3–15 psi at 2–10 Vdc
- **Only available in Long Island NY, West Chester County NY, New York City and Phoenix, AZ.**

Honeywell

Part No.	Includes	Price
RP7517A1017	2-Wire, No Cover without Internal Power Supply	420.46
RP7517B1016	3-Wire, Cover with Internal Power Supply	438.48



LOAD ANALYZER

A diaphragm logic pressure selector selects the highest and/or lowest branch pressure input from zone thermostats to operate final control elements in pneumatic control applications.

- Seven input manifold containing logic diaphragm, air filter, and restrictions
- Two analyzers can be connected together to increase inputs to twelve.

Honeywell

Part No.	Description	Price
RP913A1008	7 Input Relay	302.82

CAPACITY

Direct acting, modulating relay provides increased capacity of the branchline pressure to the final control device.

Honeywell

Part No.	Description	Price
RP970A1008	Capacity Relay	107.96

RATIO SPAN

A four port non-bleed pneumatic relay which produces a modulating pressure output, proportional in a fixed ratio to pilot input changes. It is used to control pneumatic valve or damper actuators in sequence from a single thermostat.

Honeywell

Part No.	Description	Price
RP971A1007	3 psi Input Span for 3–13 psi Output	162.60

RELAY

REVERSING

A modulating relay suitable for all types of heating and air conditioning control systems to reverse and increase the capacity of the branchline pressure to the final control element. The output varies inversely to the input with an adjustable offset.

Honeywell

Part No.	Comment	Price
RP972A1006	Standard with Mounting Clip Only	110.72

AVERAGING

A three-port relay used in HVAC systems averages the signals from two thermostats to control a single device such as a heating coil valve for a multizone unit. The pneumatic averaging relay provides an output pressure equal to the average of two input pressures.

Honeywell

Part No.	Comment	Price
RP973A1005	Standard with Mounting Clip Only	99.96

HESITATION

A three-port hesitation relay provides minimum outside air damper position plus controlled ventilation for large volume unit ventilators.

Honeywell

Part No.	Comment	Price
RP975A1003	Standard with Mounting Clip	159.60

VALVE

3-PIPE SEQUENCING

Three-pipe, sequencing, pneumatically operated water valve for controlling both hot and cold water flow in fan-coil and induction units.

Honeywell

Part No.	Size (In.) (OD SAE)	Flow (Cv) Port A	Flow (Cv) Port B	Price
VP522A1039	5/8	2.5	1.6	870.12
VP522A1047	7/8	4.0	2.5	827.26

3-WAY MIXING

Three-way pneumatic mixing valve provides proportional control of hot and/or cold water in unit air conditioners and fan coil systems.

- M flare connection
- Lower port normally open
- Spring range: 3 to 10 psi
- Flow: 1.6 Cv

Honeywell

Part No.	Tube Size (SAE OD–In.)	Price
VP526A1076	1/2	318.22

THERMOSTAT

These pneumatic room thermostats are designed for proportional temperature control of pneumatic valves and damper actuators to maintain room air temperatures in heating, ventilating and air conditioning systems.

- Small size, approximately 2" x 2"
- Factory calibrated. S.S. ball-in-seat provides pneumatic feedback for linear, stable operation.
- Easy-to-use throttling range adjustment and recalibration
- Includes tubing reducers, tubing, wall plate, mounting plate, 2 mounting screws
- R2211512, R2211513, R2212418, R2212419, R2212518, R2212519 are kits that include cover

1 PIPE, ROOM TEMPERATURE

Robertshaw

Part No.	Description	Dial Range (°F)	Dial Limit Stops	Price
R2211012	1 Temp., 1 Pipe, DA	55 to 85	No	244.00
R2211013	1 Temp., 1 Pipe, RA	55 to 85	No	244.00

2 PIPE, ROOM TEMPERATURE

Robertshaw

Part No.	Description	Dial Range (°F)	Dial Limit Stops	Price
R2212118	1 Temp., 2 Pipe, DA	55 to 85	No	283.00
R2212119	1 Temp., 2 Pipe, RA	55 to 85	No	283.00
R2214121	Day/Night, 2 Pipe, DA	55 to 85 Day, 50 to 80 Night	No	431.00
R2214122	Day/Night, 2 Pipe, RA	55 to 85 Day, 50 to 80 Night	No	431.00

COVER

These thermostat covers are designed for use with 2" x 2" pneumatic controls only.

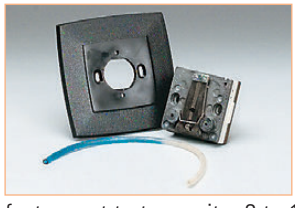
Part No.	Type	Dial Markings	Color	Material	Exterior Thermometer	Price
R21928	Blank	None	Satin Chrome	Metal	No	**64.00**
R21933	Full	55 to 85	Satin Chrome	Metal	Yes	**64.00**

2-PIPE, DUAL SETPOINT/DEADBAND ROOM

Dual setpoint/deadband pneumatic room thermostats are designed for proportional control of pneumatic valves, damper actuators, and other final control devices in environmental control systems. These devices are for use when it is desirable to set up a temperature span within which the HVAC system uses no energy for heating or cooling between selected heating and cooling setpoints. The high capacity, two pipe, pilot-operated relay type design provides pneumatic feedback for accuracy and stability over the entire operating range.

Part No.	Action	Price
R2212318	DA, Proportional	**369.00**
R2212319	RA, Proportional	**369.00**

TRANSMITTER



ROOM TEMPERATURE

The temperature transmitter measures room temperature and transmits a proportional pneumatic signal to a calibrated receiver gauge and/or receiver controller. The device is factory set to transmit a 3 to 15 psig signal over a 50 to 90°F range.

- Permits remote readout and control of room temperature
- Highly sensitive bimetal sensing element
- Linear response to room temperature changes
- Field adjustable "zero" adjustment
- Temperature range: 50 to 90°F, non adjustable

Part No.	Action	Price
R2220053	DA, Proportional	**489.00**

TEMPERATURE

Designed to measure air or fluid temperatures in pneumatic control systems and transmit a fixed span, 3 to 15 psig signal to controlling and indicating devices such as receiver controllers, receiver gauges, sensitive pressure switches, or snap-acting R503-1 diverting relays. These transmitters are available with several types of sensing elements.

These transmitters are "one-pipe" devices requiring an externally restricted source of constant pressure control air. Their design features pneumatic feedback to assure accuracy and stability over their temperature span.

Part No.	Temperature Range (°F)	Mounting	Element	Price
R2252110	-40 to 160	Duct or Immersion	Rigid, 1/4" x 7 1/16	**571.00**
R2252151	-25 to 125	Duct or Outdoor Air	Bulb, 1/4" x 4", 3' Cap.	**677.00**
R2252250	0 to 100	Duct or Immersion	Rigid, 1/4" x 9 3/8"	**571.00**
R2252502	40 to 140	Duct	Rigid Coiled, 10"	**677.00**
R2252610	40 to 240	Duct or Immersion	Rigid, 1/4" x 7 1/16	**571.00**

RELAY

PRESSURE SELECTOR

These pressure selector relays are designed for use in pneumatic control systems where the application requires the comparison, selection, and transmission of the higher or lower of two proportional signals. R2372351 can also be used as a booster relay.

- Proportional output

Part No.	Action	Price
R2372351	Selects Lowest of 2 Inputs	**140.00**
R2372352	Selects Highest of 2 Inputs	**122.00**

United Refrigeration - we are committed to your success!

SWITCH

R2364220

PNEUMATIC/ELECTRIC

Pneumatic electric switches are used in control systems requiring conversion of gradual air pressure changes to positive electrical switching actions.

Robertshaw

Part No.	Switch	Setpoint (psig)	Differential (psi)	Price
R2364211	1-SPDT	3 to 25	2, Fixed	**215.00**
R2364220	2-SPDT	4 to 20	2.5 to 3.0, Fixed	**368.00**

PNEUMODULAR® CONTROL

The Pneumatic Modular Control System (MCS) is designed to ease the assembly and installation of a pneumatic control system in several ways. The modularity of design and assembly speeds the prebuilding of panels and simplifies field hookup through the use of easily identified connections. The modular format allows the use of simplified engineering drawing symbols developed specifically for modular controls so that panels may be built "as drawn" directly from the submittal drawings. In addition, final system start-up and calibration checks are made easier because the panels match the drawings they were built from, thereby saving field labor time.

- Most compact panel-mounted pneumatic control system. Several control devices perform dual functions. No control device need be made up of separate parts.
- All modular control devices mount on MCS-S socket, which snaplocks to MCS-BP backplate (available in several sizes)
- Sockets form pneumatic piping field above control devices, and provide places for slip-in electrical connectors below them, physically separating pneumatic tubing and wiring
- Control devices may be removed from socket and replaced without disturbing tubing, wiring, or other control devices
- Pneumodular controllers, relays and switches may be mounted as stand-alone devices using available mounting brackets

REVERSING RELAY

A proportioning device designed for use in pneumatic control systems where the application requires the reversing of a proportional signal from a controlling device. The branch line pressure decreases in direct proportion to an increase in input signal pressure and also amplifies the volume of air available for the final control device, thereby minimizing system lag.

The unit is factory calibrated to decrease the branch line pressure from 16 psig to 0 psig as the signal pressure increases from 0 psig to 16 psig.

Robertshaw

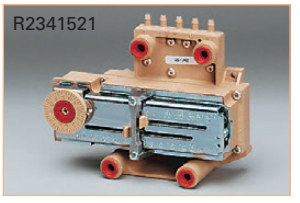
Part No.	Action	Price
R2360501	Reverses Input Signal, Proportional	**226.00**

ELECTRIC PNEUMATIC RELAY

The electric pneumatic relays are three-way two-position, electrically activated air valves for use in pneumatic control systems where the application requires a variety of switching, diverting, or interlocking functions, actuated by an electrical circuit.

Robertshaw

Part No.	Coil Voltage (Vac)	Price
R2368501	24	**395.00**
R2368502	110	**366.00**


R2341521

RECEIVER CONTROLLER

The receiver controllers are used with remote pneumatic transmitters to provide proportional control in pneumatic control systems. They are designed primarily for use with pneumatic transmitters; however, they maybe used with any pneumatic device having an output of 3 to 15 psig, such as thermostats or humidistats. Both direct and reverse acting models are available and each device is of the dual input type, with remote setpoint capability. These devices may be used as single input devices by using only the desired input.

- Nozzle and flapper relay-type receiver-controller; linear, stable and responsive. Three inputs for primary, reset and remote control point adjustment (may be used with one or two inputs).
- Slide-type throttling range and authority adjustments

Robertshaw

Part No.	Action	Comment	Price
R2341521	Direct (DA)	Includes Mtg. Bracket	**639.00**
R2341522	Reverse (RA)	Includes Mtg. Bracket	**639.00**
R2341501	Direct (DA)	Controller Only	**566.00**
R2341502	Reverse (RA)	Controller Only	**566.00**

DIVERTING RELAY, R2353 SERIES

Snap-acting devices with adjustable setpoints designed for a variety of switching and interlocking functions in pneumatic control systems where the application requires one or more of the following functions: feeding and exhausting branch lines, diverting a supply line to either one of two branch lines, or diverting one of two supply lines to one branch line. The primary function of these devices is to convert a proportional pneumatic signal, at a predetermined setting, into a positive pneumatic switching action.

R2353503 is a nonadjustable, snap-acting, signal-comparing diverting relay designed for use in pneumatic control systems where the application requires a pneumatic switching function based on the comparison of two proportional pneumatic input signals.

- Positive two-position snap-action, SPDT pneumatic switching

Part No.	Setpoint Range (psig)	Differential (psi)	Application	Price
R2353501	3 to 20	0.2 to 0.6	Transmitter Pilot	428.00
R2353502	4.5 to 20	2 to 4	Controller Pilot	406.00

PRESSURE RELAY

The volume booster relay is a proportioning device designed for use in pneumatic control systems where the application requires amplifying the volume of control air to final control devices. System transmission lag is minimized by using this relay in conjunction with a proportional controller operating several diaphgragm valves or damper actuators. This device may also be used as a low pressure selector when the application requires the comparison, selection and transmission of the lower of two proportional input signals.

The high pressure selector relay is a device designed for use in pneumatic control systems where the application requires the comparison, selection, and transmission of the higher of two proportional input signals.

Part No.	Application	Price
R2372501	Volume Booster/Low Pressure Selector	209.00
R2372502	High Pressure Selector	114.00

HI/LOW SELECTOR RELAY

A device designed for use in pneumatic control systems where the application requires the comparison, selection, and transmission of the highest and/or the lowest of up to six pneumatic input signals. All input ports are "dead-ended" and no signal air passes through the relay to the output ports.

Part No.	Description	Price
R2373501	6 Input Selector Relay	407.00

ACCESSORIES

PRESSURE GAUGE

Pressure gauges for continuous indication of air pressure in pneumatic control systems.

Part No.	Dial Size (In.)	Range (psi)	Mounting	Air Connection	Price
R2420001	1 1/2	0 to 30	Stem	1/8" MPT, Back	53.00
R2420002	2	0 to 30	Stem	1/8" MPT, Bottom	74.00
R2420003	2	0 to 30	Stem	1/8" MPT, Back	62.00
R2420004	2	0 to 160	Stem	1/8" MPT, Back	69.00
R2420005	2	0 to 30	Flush	1/4" barb, Back	98.00

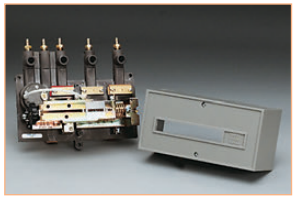
RECEIVER GAUGE

Receiver gauges for continuous indication of temperature, differential static pressure, differential pressure, pressure, enthalpy, or humidity in conjunction with a transmitter-receiver system.

- Adjustable pointer: dial face overlay required (supplied in kit)

Part No.	Dial Size (In.)	Mount	Air Connection	Price
R2422001	2 1/2	Flush, U-Clamp	3/16" Barb	214.00
R2422002	3 1/2	Flush, U-Clamp	3/16" Barb	236.00
R2422003	2	Stem	1/8" MPT, Center Back	106.00

CONTROLLER



RECEIVER CONTROLLER

For use in conjunction with remote proportional transmitters for proportional control of pneumatic actuated dampers, valves, etc., in air conditioning systems. The transmitter-receiver-controller system may be used to control temperature, humidity, or pressure.

- Nozzle and flapper relay type receiver controllers
- Direct acting. Field changeable to reverse acting
- Two pipe
- Proportional band: 2 1/2% to 40% of primary span

Note: RKS4002 input 2 has a reverse acting reset only. For direct acting the output pressure increases as input 2 increases. For reverse acting the output pressure increases as input 2 decreases

Part No.	Description	Authority	Price
RKSR4000	Replacement, Single or Dual Input	10% to 200% of Primary Span	959.00

ACTUATOR

PROPORTIONAL VALVE TO 6"

Proportional pneumatic actuator with 50 sq. in. effective diaphragm area used to control 1 1/2" to 4" VB-9X13 Series and 1 1/2" to 6" VB-9323 Series valves.

Requires AV430 Linkage for VB7000 Series valves
Requires AV495 Linkage for VB9000 Series valves

- Spring range: 8 to 13 psig
- Nominal stroke: 1"

Part No.	Stroke (In.)	Price
MK6821	1	699.00

PROPORTIONAL VALVE TO 1 1/4"

For proportional pneumatic control of 1/2" to 1 1/4" VB-111 and VB-7000, VB9000 Series valves.

Requires AV400 linkage for all applications.

Part No.	Stroke	Price
MK2690	1/2" Nominal	133.00

See valves page 1067

RELAY

POSITIVE POSITIONING

Positive positioner pneumatic relay is used to accurately position an actuator stroke with respect to signal pressure from the controller. It can also be used to change the effective spring range of an actuator and increase the capacity of a controller.

- All necessary linkage provided to assemble AK-42309-500 to MK-2690-0-0-1, 3000, 4600-0-0-2, 4700, 4800, 6800, 6900, 7000, 8800 and 8900 actuators

Part No.	Action	Price
AK42309500	DA	400.00

ACTUATOR ACCESSORIES

VALVE LINKAGE

AV401

AV400

AV400 includes parts for VB-7xxx valves and discontinued 1/2 to 1 1/4" VB-9xxx valves.

AV7400 is for VB-7xxx valves only

Part No.	Usage	Valve Size (In.)	Price
AV400	MK2690	1/2 to 1 1/4	39.00
AV7400	MK2690	1/2 to 1 1/4	39.00
AV401	MK46**	1/2 to 1 1/4	39.00

VALVE LINKAGE KIT

For assembling MS-80000 and MSR-80000 Series hydraulic actuators to 1 1/2 to 2" VB-92XX and VB-9313, 1 1/2" to 3" VB-9323 valve bodies.

For assembling MK-6800 Series 50 sq. in. pneumatic actuators to 1 1/2" to 2" VB-9XXX and 1 1/2" to 6" VB-9323 valve bodies.

Part No.	Description	Price
AV430	MK6800 Series with VB7000 Series Valve	156.00

VALVE LINKAGE KIT

For assembling MS-80000 and MSR-80000 Series hydraulic actuators to 2 1/2 to 4" VB-92XX and VB-931X valve bodies.

For assembling MK-68X1 pneumatic actuators to 2 1/2" to 4" VB-92XX and VB-931X valve bodies.

Part No.	Description	Price
AV495	Mk6800 Series with VB9000 Series Valve	156.00

LINKAGE EXTENSION

The AV-601 valve extension kit is used to increase the allowable ambient temperature ratings of MA, MF, MP-5X1X-XXX, MPR-5X1X and MP- 541X Series actuators on applications with hot water or steam. The MF-5X1X, MP-541X, and MPR-5X1X Series of actuators require the A-601 extension.

Part No.	Description	Price
AV601	MA Extension	150.00

THERMOSTAT

Designed for proportional control of pneumatic valve and damper actuators used in HVAC systems. A highly sensitive bimetal element with feedback is used for accuracy and stability. The throttling range is factory set at 3°F and is field adjustable.

- Setpoint range: 55 to 85°F
- Throttling range: 3 to 12°F
- HF00010—restrictor tee (14.4 scim) required for CTC16* series.

Requires cover and/or scaleplate for complete installation

1 PIPE, ROOM TEMPERATURE

Part No.	Type	Action	Price
CTC1611	1 Pipe	DA	75.02
CTC1612	1 Pipe	RA	75.02

2 PIPE, ROOM TEMPERATURE

Part No.	Type	Action	Price
CTC1621	2 Pipe	DA	137.58
CTC1622	2 Pipe	RA	137.58

COVER

Covers for CTC16** Series thermostats

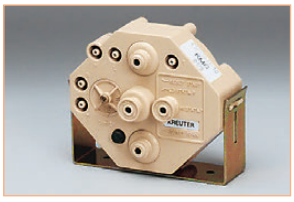
Part No.	Type	Color	Construction	Price
HPO1501	Blank	Almond	ABS	14.74
HPO1511	Window	Almond	ABS	14.74

CONTROLLER

RESET VOLUME, VAV

- Designed for use on VAV terminal units in HVAC systems
- Submaster air velocity controllers whose velocity setpoint is reset between adjustable minimum and maximum limits by a master controller, typically a room thermostat
- For DA cooling or RA heating applications, no dampers
- Set point range: Minimum—0 to 1" wg
  Maximum—min. + 1" wg

Part No.	Description	Price
CSC2003	Reset Volume Control	218.88



RESET VOLUME, UNIVERSAL

Designed for use on variable air volume terminal units in HVAC systems.

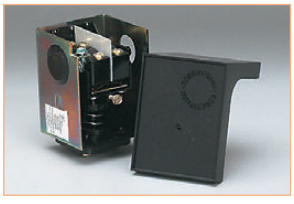
It is a submaster air velocity controller whose velocity setpoint is reset between an adjustable minimum and maximum limit by a master controller, typically a room thermostat.

Used for either direct or reverse acting reset for normally open or normally closed VAV terminal units. It has a factory set reset start point and reset span which can be field adjusted. The reset span is always constant no matter what minimum and maximum limits have been set.

- For cooling or heating, DA or RA applications

Part No.	Description	Price
CSC301110	0 to 1" Range; 8 Psig Start	291.74
CSC302110	0 to 1" Range; 3 Psig Start	291.76
CSC302510	0 to 2" Range; 8 Psig Start (High Flow, for Trane® Units)	291.76

RELAY

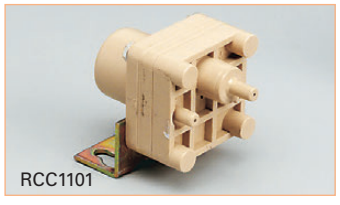


PNEUMATIC-ELECTRIC

- Designed for use in control circuits of HVAC systems
- Ideal for applications such as starting fan coil unit fans, exhaust fans, and direct control of electric duct heaters
- With case and cover

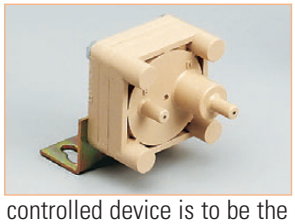
Part No.	Switch	Price
CCE1001	SPDT	157.50

REVERSING



Designed for reversing a proportional signal from a controlling device. Factory adjusted to decrease branch line pressure as the input pressure increases. With bracket.

Part No.	Type	Price
RCC1101	Pilot, 9 psi Calibration	41.90
RCC1501	Main, 8 psi Calibration	115.08



AVERAGING

Designed for applications that do not require large amounts of output air volume. Suitable for room or zone applications such as VAV terminals. Use where desired output signal to the controlled device is to be the average of two source signals.

- With bracket

Part No.	Description	Price
RCC1102	Averaging Relay	38.06

RELAY

DIVERTING

Adjustable diverting relays are SPDT devices that divert one signal to either of two branch circuits or select one of two inputs and transmit it to another control device. They also can be used to feed or exhaust a circuit.

KMC CONTROLS

Part No.	Description	Price
RCC1109	Diverting Relay	74.06

DIFFERENTIAL PRESSURE FLOW SENSOR

Designed to sense differential pressure in the inlet section of variable air volume terminal units and fan terminal units. They can also be used to sense differential pressure at other locations in the main or branch duct systems. Normally used in conjunction with the CSC-1000, 2000, and 3000 series of VAV terminal controllers for individual zone control in HVAC systems.

KMC CONTROLS

Part No.	Sensing Length (In.)	Price
SSS1003	5 13/32	30.26
SSS1005	9 29/32	41.46

ACTUATOR

HYDRAULIC, 1 11/16" STROKE

Designed to control small dampers such as air terminal units.

Furnished with a right-angle mounting bracket for mounting to the side of a VAV terminal. The bronze bushing actuator may be rotated in the bracket so the air connection can be placed where desired. The end of the shaft has a slot and clevis pin to allow direct connection to the damper linkage of a VAV terminal. The metal body allows them to be used in ceiling plenums where concern for local safety codes is a factor.

- Bronze bushing
- Effective area: 8 sq. in. with clevis and cotter pins

KMC CONTROLS

Part No.	Spring Range (psi)	Description	Price
MCP80312101	3 to 12	Bronze Bushing with Clevis and Cotter Pins	132.08
MCP80313101	5 to 10	Bronze Bushing with Clevis and Cotter Pins	132.08
MCP80313102	5 to 10	Delrin Bushing without Clevis and Cotter Pins	132.08
MCP80315101	8 to 13	Bronze Bushing with Clevis and Cotter Pins	33.00

Designed for use in pneumatic control systems positioning automatic air dampers and can be used for gradual or two position applications.

- With 1/2" crank arm, bracket mount
- Effective area 1030: 7 sq. in.; 1040:11 sq. in.

HYDRAULIC, 3" STROKE

KMC CONTROLS

Part No.	Spring Range (psi)	Price
MCP10302111	3 to 12	343.98
MCP10303111	5 to 10	343.98
MCP10305111	8 to 13	343.98

HYDRAULIC, 4" STROKE

KMC CONTROLS

Part No.	Spring Range (psi)	Price
MCP10402211	3 to 12	412.76
MCP10403211	5 to 10	412.76
MCP10405211	8 to 13	412.76

THERMOSTAT

2 PIPE, HIGH VOLUME

Provides proportional single output, single setpoint, 2-pipe pneumatic room temperature control.

- Requires cover to complete installation

SIEMENS

Part No.	Action	Price
192202	Direct Acting	180.38
192203	Reverse Acting	180.38

2 PIPE, CONVERSION KIT

Pneumatic room thermostat kit converts most existing pneumatic room thermostats to a Powerstar 192, 2-pipe, single setpoint unit.

- Includes cover and back plate

SIEMENS

Part No.	Action	Price
192840	Direct Acting	204.18
192841	Reverse Acting	204.18

COVER KIT

Retrostat plastic thermostat cover kit with dial plates that expose or conceal the setpoint indicator and/or thermometer. Thumb wheel covers to conceal setpoint adjustment. Snap-out tab for day/night lever.

- Desert beige (standard)
- For use with 192 series pneumatic thermostats

SIEMENS

Part No.	Description	Price
192868	Powers Thermostat Cover Kit	56.74

CONTROLLER

1950011

RECEIVER CONTROLLER

The 195 series controller receives a pneumatic input of 3 to 15 psi from a transmitter and then provides a pneumatic output based on the net pneumatic input and the mechanical settings of the setpoint and proportional band. The controller can be easily changed from direct to reverse acting.

SIEMENS

Part No.	Transmitter Inputs	Price
1950011	One	472.22
1950003	Up to three	677.64

ACTUATOR DAMPER

3312904

4" STROKE

Designed with a 4-inch stroke, the No. 4 pneumatic actuator is a rugged, metal-fabricated devce that provides gradual or positive actuation of HVAC and fire/smoke dampers.

- UL recognized
- Replacement purposes, integral pivot mounting (no bracket)

SIEMENS

Part No.	Spring Range	Price
3312904	3 to 7 psi	185.40
3312906	5 to 10 psi	185.40
3312961	8 to 13 psi	185.40

TUBING

PLT532BLK

PLEXCO flame retardant polyethylene tubing is produced for pneumatic control applications where high quality plastic tubing with flame retardant and superior stress-crack resistance properties are required for long term, reliable performance. Its light weight and flexibility provide for ease of handling and installation. Tubing systems are marked with a white ink numbering system over the full length of the tubing. "Flame Retardant" indicates that the tubing materials have the ability to retard and extinguish the flame once its source is removed. Standard test results on actual extruded tubing meet or exceed the requirements of ASTM D-635.

5/32" OD

- Nominal I.D.: .096"
- Nominal wall thickness: .030"
- Burst pressure: > 500 psi @ 75°F
- P532TT are twin connected tubes
- Coil length: 500'

CPChem PERFORMANCE PIPE

Part No.	Color	ID Stripe	Price
PT532BLK	Black	None	90.54
PT532TT[1]	Black	None	228.72

[1]Twin connected tubes.

1/4" OD

- Nominal I.D.: 170"
- Nominal wall thickness: .040"
- Burst pressure: > 500 psi @ 75°F
- PT14TT are twin connected tubes
- Coil length: 250'

CPChem PERFORMANCE PIPE

Part No.	Color	ID Stripe	Price
PT14BLK	Black	None	61.28
PT14TT[1]	Black	None	176.84
PT14BLU	Black	Blue	74.18
PT14GRN	Black	Green	74.18
PT14ORG	Black	Orange	74.18
PT14RED	Black	Red	74.18
PT14VIO	Black	Violet	74.18
PT14WHT	Black	White	74.18
PT14YEL	Black	Yellow	74.18

[1]Twin connected tubes.

3/8" OD

- Nominal I.D.: .250"
- Nominal wall thickness: .062"
- Burst pressure: > 500 psi @ 75°F
- Coil length: 250'

CPChem PERFORMANCE PIPE

Part No.	Color	ID Stripe	Price
PT38BLK	Black	None	138.54
PT38BLU	Black	Blue	165.46
PT38GRN	Black	Green	165.46
PT38ORG	Black	Orange	165.46
PT38RED	Black	Red	165.46
PT38VIO	Black	Violet	165.46
PT38WHT	Black	White	165.46
PT38YEL	Black	Yellow	165.46

1/2" OD

- Nominal I.D.: .375"
- Nominal wall thickness: .062"
- Burst pressure: > 350 psi @ 75°F
- Coil length: 250'

CPChem PERFORMANCE PIPE

Part No.	Color	ID Stripe	Price
PT12BLK	Black	None	210.00

See pneumatic fittings page 934

NEOPRENE

- Pressure Range -20 to 20" W.C.
- Temperature Range 0°F to 160°F
- Black neoprene
- Use with air pressure switches (i.e.: Robertshaw 2374499)

Supco

Part No.	Dimensions (In.)	Length (Ft.)	Price
SNAT3165	3/16 ID	5	9.84

SILICONE

- Temperature Range -100°F to 500°F
- NSF 51, Soft , Red
- 5 Foot Rolls

Supco

Part No.	Dimensions (In.)	Working Pressure	Burst Pressure	Price
SSRT185	1/8 ID x 5/16 OD	25 psi	75 psi	9.84

See motors page 15

ACCESSORIES

AIR DRYER

- Eliminate water from your compressed air lines
- Improve the efficiency of your compressed air system
- Reduce operating costs

- Designed to cool your air supply to the specified dew point with minimum pressure drop
- Two stage separator efficiently removes condensed moisture
- Automatic condensate drain
- Cooling temperatures are automatically and accurately controlled over a wide range of load and ambient conditions
- Voltage: 115/1/60

Hankison

Part No.	Capacity (SCFM)	Connection Type	Connection Size (In.)	Dim. (In.) H x W x D	Ship Wt. (Lbs.)	Price
HPR5-10	5 to 10	OD	3/8	15 13 13	64	**1564.00**
HPR25	25	MPT	3/4	22 15 15	88	**2530.00**
HPR35	35	MPT	3/4	22 15 15	92	**3240.00**

AIR COMPRESSOR, TANK DRAIN, ELECTRIC

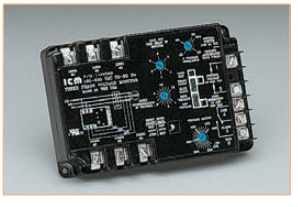
Electrically operated automatic condensate drain for pneumatic control systems and all other compressed air services.

Voltage: 110V/60Hz

DRAINVIEW PRODUCTS

Part No.	Connection, FPT (In.)	MWP (psc)	Price
DP150	1/2	150	**388.00**
DP3800	3/8	300	**366.00**

VOLTAGE MONITOR



3Ø

- Identifies front and back side faults
- Built-in short cycle protection, knob adjustable delay on break, 0.1 to 5 minutes

- Monitors: voltage unbalance, high/low voltage, phase loss, reversal, incorrect sequencing, rapid short cycling

Input:
- Voltage: 190–630 Vac, 50/60 Hz
- Voltage unbalance: Adjustable 2–25%
- Control: 18–240 Vac

Output:
- Relay, SPDT—Normally open: 10 amps Normally closed: 6 amps

ICM CONTROLS

Part No.	Description	Price
ICM400C	3-Phase Voltage Monitor	**241.44**

3Ø, DISPLAY

- Monitors front and back side of system
- Programmable: 25-fault memory storage
- Independent high/low voltage settings for dual voltage compressor applications

- High temperature LCD to 167°F
- Simultaneous voltage display: No scrolling
- Line voltage programmable
- Reset: Auto or manual
- Monitors: Voltage unbalance, high/low voltage, phase loss, reversal, incorrect sequencing, rapid short cycling
- Does not require control voltage for operation

Input:
- Voltage: 190–630 Vac
- Voltage unbalance: Adjustable 2–25%
- Control: 18–240 Vac

Output:
- Relay, SPDT—Normally open: 10 amps Normally closed: 6 amps

ICM CONTROLS

Part No.	Description	Price
ICM450C	3-Phase Voltage Monitor w/Display	**287.74**

3Ø, SINGLE SIDE ECONOMY

- Low cost, single side 3-phase protection
- Monitors for phase reversal, phase loss, phase unbalance % as a function of input voltage

- Less than 1 second phase loss response
- Automatic reset from a fault condition

Input: Line voltage: 190–600 Vac
Control voltage: 115–230 Vac
50/60 Hz

Output: Relay, SPST normally open: 30 amps

ICM CONTROLS

Part No.	Description	Price
ICM402	3-Phase Monitor	**59.44**

1Ø

Protects against high/low voltage and rapid system recycling, 95–270 Vac operation and adjustable anti short-cycle timer.

- Integral anti short-cycle protection "delay on break" circuit provides adjustable (.1–10 minute) lockout delay to prevent rapid system recycling
- Contact rating: SPDT 5 amps @ 240 Vac
- Voltage dropout: ±12%
- Voltage pickup: ±8%

ICM CONTROLS

Part No.	Description	Price
ICM491C	Single Phase Monitor	**66.56**

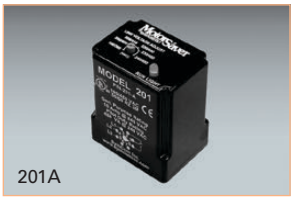
1Ø WITH SURGE PROTECTION

The ICM493 is an advanced, single-phase line voltage monitor with a bank of surge arresters for added protection against lightning strikes. Includes a built-in 40A contactor. Ideal for Mini-Splits or other single phase equipment.

- Voltage Setpoint: 200-240 VAC
- Anti-Short Cycle Delay: 0.5-10 Minutes
- Number of Surge Arresters Required for Operation: 0-5
- Number of Retries: 1-5, Auto
- Input Line Voltage: 180-264 VAC, 50-60 Hz
- Accuracy: +/- 2%, User Calibration
- Type: Contactor; 2-Pole
- Contactor Ratings: 40A FLA, 240A LRA
- NEMA Rated 3R Outdoor Enclosure
- Dimensions: 8"L x 8"W x 4"H

ICM CONTROLS

Part No.	Description	Price
ICM493	Single Phase Monitor With Surge Protection	456.00



3Ø

Auto-ranging, dual-range voltage monitor that protects 190-480 VAC, 50/60Hz motors regardless of size. The product provides a user selectable nominal voltage setpoint and the voltage monitor automatically selects between the 200V and 400V range. Includes advanced single LED diagnostics. Five different light patterns distinguish between faults and normal conditions.

This unique microcontroller-based voltage and phase-sensing device constantly monitors the 3-phase voltages to detect harmful power line conditions. When a harmful condition is detected, the MotorSaver's output relay is deactivated after a specified trip delay. The output relay reactivates after power line conditions return to acceptable levels.

- Low voltage trip, single-phase trip, reverse-phase trip
- High voltage trip for 250A (optional for 102A, 201A)
- Fixed 6% voltage unbalance trip
- 10A @ 240VAC General Purpose
- Adjustable or manual restart delay (102A and 250A only)

SymCom your electronic control & protection specialists

Part No.	Description	Switch	Price
102A	3-Phase Voltage Monitor, Panel Mount	SPDT	382.66
201A	3-Phase Voltage Monitor, 8-Pin Socket mount	SPDT	283.36
250A	3-Phase Voltage Monitor, Panel Mount	DPDT	487.70

POWER MONITORING

- Switches upon activation of current in sensed line

Johnson Controls

Part No.	Output Voltage	Input Range	Price
R310AD1	24	0.5 to 200 Amps	141.30
R310AE2	120/240	0.75 to 200 Amps	156.64

SENSOR

Application:

- Detect belt loss, coupling shear and motor failure; ideal for fan and pump status
- Replace pressure switches-mechanical devices
- Verify lighting circuit loads and run times
- Monitor critical motors
- Monitor industrial process equipment status

Features:

- Output status LEDs for easy setup and local indication
- 100% solid state; no mechanical parts
- Adjustable setpoint
- Output amps rated at 30 Vac/Vdc

VERIS INDUSTRIES

Part No.	Input Range	Price
H608	1.25 to 50 Amps	70.56
908H	2.5 to 135 Amps	132.64

ENCLOSED SPLIT CORE SENSOR

- Operating Temperature: -30 to 140°F
- Max Sense Voltage: 600 Vac
- Adjustable threshold
- Mounting/Installation: removable mounting tab provided. The wire clamp locks against the load wire, securing the unit in place.

Functional Devices, Inc. RIB

Part No.	Input Range	Output	Switch	Price
RIBXGTA	0.75 to 150 A	30 Vac/dc; 0.4 Amps Max (Terminal Strip, Accepts #14-22 AWG Wire)	Solid State Switch SPST	64.80

SENSOR

Senses air handler motor amperage to initiate humidifier or electronic air cleaner operation

- Requires minimum 4 amps to activate relay

Aprilaire Trusted Solutions for a Healthy Home

Part No.	Voltage	Price
RP50	24	57.16
RP51	120	71.77

POWER MONITORING

SENSOR RELAY

The Hawkeye 735 Series is the ideal solution for the automation installer. It combines a current switch and relay into a single package, reducing the space required for total control of fans and pumps. The integral current switch and relay operate independently of one another. H735 facilitates the functions of start/stop and status with one device instead of two.

Applications

- Starting/stopping and monitoring positive status of fan and pump motors
- Replaces pressure switches and other electromechanical devices

Features

- Reduces number of components installed; fits better in small starter enclosures
- Commands relay and status in a single unit
- Replaces pressure switches and other electromechanical devices
- Detects belt loss and motor failure...ideal for fan and pump status

VERIS INDUSTRIES

Part No.	Input Range	Price
H735	1 to 135 Amps	140.06

SENSOR ASSEMBLY

The X Series contains current sensors with or without a 10 or 20 amp relay. An internal 10 amp relay can be used to activate an external contactor, and currents up to 150 amps are sensed externally with a solid or split current sensing ring. Other units control and sense up to 20 amp loads, without the use of an external current ring, greatly reducing installation time. Externally visible LEDs indicate the status of the relay coil and current sensor trigger.

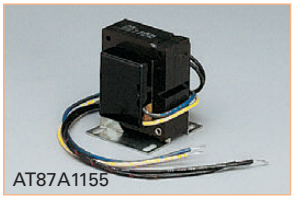
Sensor-relay X Series models have been packaged to save the installer the time, trouble and expense of buying separate components (current sensor, relay, LED indicator, socket, mounting rail and housing) and assembling them on the job or at the shop.

- Adjustable threshold for sensor/relay combinations, fixed threshold for solid core sensor RIBXKF

Functional Devices, Inc. RIB

Part No.	Description	Input Range	Switch	Resistive Amps	Pilot Load (VA)	Override Switch	Price
RIBXKF	Sensor	0.25 to 150 A	SPNO	0.4	—	—	38.34
RIBX24SBA	Internal Sensor/Relay	0.50 to 20 A	SPST	20	1110	Yes	118.94
RIBXLSRA	External Sensor/Relay	1.25 to 150 A	SPST	10	480	Yes	125.08

TRANSFORMER



FOOT MOUNT NEMA STANDARD

Honeywell

Part No.	Power Rating (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Mount	Comment	Price
AT87A1106	50	120/208/240	24	Foot, Plate	Screw Terminal Secondary	74.82
AT87A1155	48	480	24	Foot	12" Lead Secondary	102.62
AT87A1189	48	277	24	Foot	12" Lead Secondary	88.66

FOOT MOUNT

- Foot mount
- Connection: 12" lead wires

Honeywell

Part No.	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
AT88A1005	75	120	24	173.30
AT88A1021	75	208/240	24	163.70
AT88A1047	75	480	24	174.30

MULTI-MOUNT NEMA STANDARD

- Foot mounted
- Screw terminal secondary

Honeywell

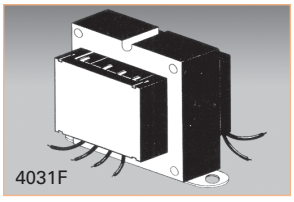
Part No.	Power Rating (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
AT72D1683	40	120	24	56.36
AT72D1691	40	208/240	24	62.90

MULTI-MOUNT

- 9" lead wire primary connection
- Screw terminal secondary connection
- Foot, plate (2" x 4" or 4" x 4" outlet box) clamp or panel mounting
- 60 Hz only

Honeywell

Part No.	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
AT140A1000	40	120	24	**30.68**
AT140A1018	40	120/208/240	24	**33.72**
AT150A1007	50	120/208/240	24	**39.42**
AT175A1008	75	120/208/240	24	**86.12**



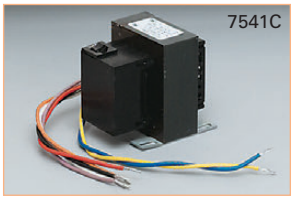
FOOT MOUNTED

Open construction, wire leads.

- Safety agency approved
- Inherently limited design provides protection from short circuiting

IRP International Refrigeration Products

Part No.	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
2031F	20	120/208/240	24	**20.22**
4031F	40	120/208/240	24	**27.54**
40271F	40	277	24	**21.26**
5031F	50	120/208/240	24	**28.92**
5032F	50	120/208/240	24/12/2.5	**35.94**
10048PC	100	208-240	120/24	**130.04**



CIRCUIT BREAKER

- All models feature a UL recognized manual reset circuit breaker
- Safety agency approved
- Foot mounted

IRP International Refrigeration Products

Part No.	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
5041C	50	120/208/240/480	24	**54.26**
7541C	75	120/208/240/480	24	**69.68**
10041C	100	120/208/240/480	24	**84.16**

MULTI-MOUNT

Closed construction, 4" x 4" plate.

- Optional 3-way mounting for maximum flexibility: foot, plate or conduit
- Safety agency approved
- Welded laminations for quiet operation

IRP International Refrigeration Products

Part No.	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
4031M	40	120/208/240	24	**32.12**
5031M	50	120/208/240	24	**38.34**
7541M[1]	75	120/208/240/480	24	**64.16**
TMM15052	150	240/480	120/240	**137.50**

[1]In-Line Fuse

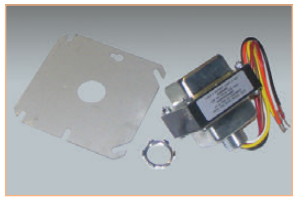
CIRCUIT BREAKER

Intended for use in systems with predictable, uniform loads. Includes button for manually resetting the circuit breaker.

- Foot mounted

Honeywell

Part No.	Output (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
AT150F1022	50	120/208/240	24	**66.70**
AT150F1030	50	208/277/480	24	**68.46**
AT175F1023	75	120/208/240	24	**106.68**
AT175F1031	75	208/277/480	24	**108.24**



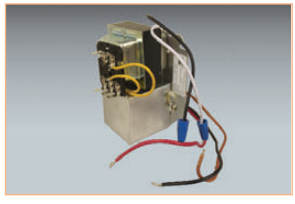
JOHNSON CONTROL

- Y65 Series transformers have energy limiting overload protection ONLY; all others have integral circuit breakers
- Y65G130 is a low voltage isolation transformer for sensitive digital circuitry

Johnson Controls

Part No.	Power (Va)	Voltage (Vac) Primary	Secondary	Mounting	Price
Y65G130	40	24	24	Foot	**31.80**
Y65T420	40	120/208-240	24	Plate	**74.40**
Y65F420	40	277/480	24	Plate	**62.88**
Y63T220	50	120/208-240	24	Plate	**96.88**
Y63F220	50	277/480	24	Plate	**97.94**
Y66T120	75	120/208-240	24	Foot	**174.06**
Y66F120	75	277/480	24	Foot	**195.82**
Y64T220	92	120/208-240	24	Plate	**174.98**

FAN CONTROL CENTER

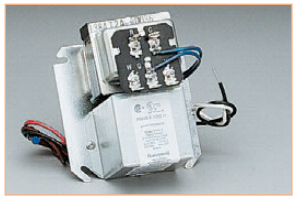


ENCLOSED RELAY

- Relay: 24 VAC, 60 Hz
- Class 2 , not wet
- Class B insulation
- Metal Enclosure
- Replaceable relay

IRP International Refrigeration Products

Part No.	Switch	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
FC1052	SPDT	40	120	24	**61.92**



ENCLOSED RELAY

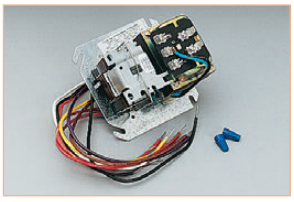
Provides low voltage control of line voltage fan motors and auxiliary circuits in heating, cooling or heating-cooling circuits.

- Enclosed relay
- Power contact rating: 6.9 FL amps @ 240 Vac

Honeywell

Part No.	Switch	Power (VA)	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
R8239A1052	SPDT	40	120	26.5	**100.10**
R8239B1076	DPDT	50	120/208/240	26.5	**140.90**

FAN CONTROL CENTER

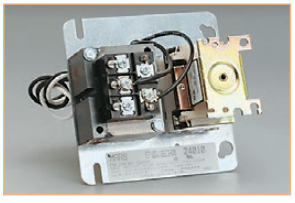


OPEN RELAY

Contact rating: 6 FL amps @ 240 Vac.

Honeywell

Part No.	Switch	Power VA	Primary Voltage	Secondary Voltage	Price
R8285B1053	DPDT	40	120/208/240	26.5	**119.28**
R8285D5001	DPST	50	120	26.5	**91.64**

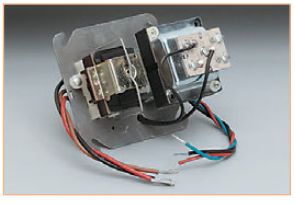


OPEN RELAY

- 40 VA transformer
- 6.9 FL amp relay contacts @ 240V

MARS

Part No.	Switch	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
24010	DPDT	120/240	24	**82.60**



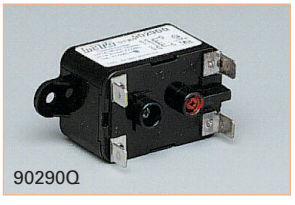
OPEN RELAY

- 40 VA transformer
- 6.9 FL amp relay contacts @ 240V

White-Rodgers

Part No.	MARS Equivalent	Switching	Primary Voltage (Vac)	Secondary Voltage (Vac)	Price
90113	24013	SPDT	120	24	**64.92**

RELAY, SWITCHING

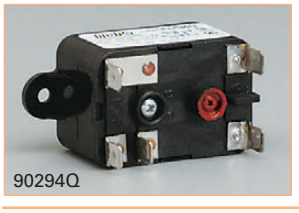


SPNO

- Quick connect terminals
- 50/60 Hz

IRP International Refrigeration Products

Part No.	Full Load Amps @ 240V	Coil Voltage	Price
90290Q	8	24	**12.42**
90291Q	8	120	**15.54**
90292Q	8	208/240	**18.28**

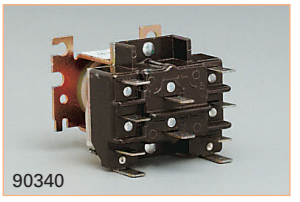


SPDT

- Quick connect terminals
- 50/60 Hz

IRP International Refrigeration Products

Part No.	Full Load Amps @ 240V	Coil Voltage	Price
90293Q	8	24	**15.10**
90294Q	8	120	**21.04**
90295Q	8	208/240	**24.12**



DPDT

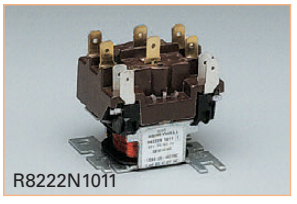
- General purpose switching
- 50/60 Hz

CONTACT RATING (Per Pole)

AC Voltage	Power Inductive	Power Resistive	Pilot Inductive	Pilot Resistive
125	13.8A, 1/2 H.P., 13.8A, Full Load, 82.8A Inrush	15A	1/10 H.P., 125 V.A.	3A
250	1/2 H.P., 6A Full Load, 35A Inrush	15A	1/10 H.P., 125 V.A.	3A
277	15 A @ 75% P.F. (Power Factor)	15A	—	3A

IRP International Refrigeration Products

Part No.	Pole Usage	Coil Voltage	Price
90340	Power-Power	24	**14.30**
90341	Power-Power	120	**14.82**
90342	Power-Power	208/240	**14.30**
90343	Power-Pilot	24	**24.56**



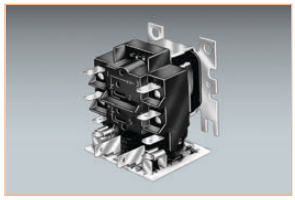
GENERAL PURPOSE

Provides general purpose and heavy duty switching for refrigeration and air conditioning equipment, appliances, vending machines and similar applications.

- Power poles: 6 full load amps @ 277 Vac
- Pilot poles: 125 VA @ 480 Vac
- R4228: 12 full load amps @ 277 Vac

Honeywell

Part No.	Switch	Poles A	Poles B	Coil Voltage	Price
R8222B1067	SPDT	Power	None	24	**35.20**
R8222D1014	DPDT	Power	Power	24	**37.68**
R8222N1011	DPDT	Pilot	Pilot	24	**38.20**
R8222V1003	DPDT	Pilot	Power	24	**40.78**
R4222B1082	SPDT	Power	None	120	**39.12**
R4222D1013	DPDT	Power	Power	120	**40.56**
R4222D1021	DPDT	Power	Power	240	**42.36**
R4222N1002	DPDT	Pilot	Pilot	120	**58.88**
R8228B1012	SPDT	Power	Power	24	**60.02**

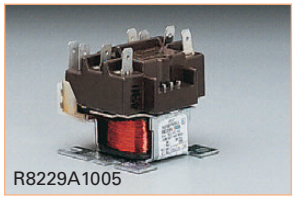


TIME DELAY RELAY

- 80-second delay on break.
- Combination electronic time delay board and R8222 relay saves wiring time.
- Molded terminal numbers and circuit diagram on top of relay and letter-coded terminals on time delay board provide easy identification for wiring and system checkout.
- Laminated magnet construction for high efficiency.
- Reduces stratification and saves energy.
- Contact ratings: 6 FLA @ 240 Vac

Honeywell

Part No.	Switch	Coil Voltage (Vac)	FLA @ 240V	Price
ST82D1004	DPDT	24	6	**68.56**



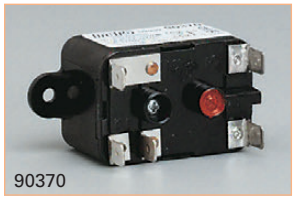
ELECTRIC HEAT

Provides conventional on-off control of heating elements and fan in an electric furnace.

- Maximum temperature rating: 165°F
- Coil voltage: 24 Vac

Honeywell

Part No.	1st Pole Resistive Amps (@ 277 Vac)	Number 5 kW Elements	Includes	Price
R8229A1005	25	2	—	**132.82**
R8229A1021	25	2	Mounting Plate, Hardware	**173.94**
R8246A1038	48	4	Mounting Plate, Hardware	**191.38**



HEAVY DUTY

- Switches 18 amp resistive loads
- 50/60 Hz

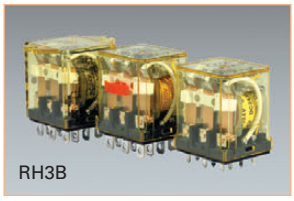
IRP International Refrigeration Products

Part No.	Switch Type	Full Load Amps @ 240V	Coil Voltage	Price
90370	SPDT	8	24	**15.80**
90380	SPNO-SPNC	8	24	**15.80**

ENCLOSED

- 50/60 Hz
- 3/16" blade terminals

Part No.	Switch Type	Full Load Amps @ 125V	Coil Voltage	Mount Type	Price
43053	DPDT	12	24	Bracket	**39.44**
43056	3PDT	11	24	Bracket	**47.00**
43057	3PDT	11	120	Bracket	**47.00**
43058	3PDT	11	240	Bracket	**49.50**
43063	DPDT	12	24	Plug In	**37.76**
43066	3PDT	11	24	Plug In	**48.74**
43067	3PDT	11	120	Plug In	**48.74**
43068	3PDT	11	240	Plug In	**50.24**



ENCLOSED

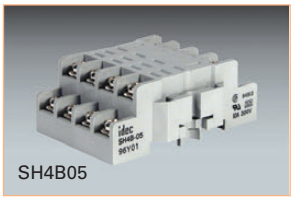
RH series uses silver cadmium oxide contacts to help reduce voltage arcing. Available in 1 to 4 poles, with either .187" blade plug-in (stock) or PCB terminals (special order). Options include manual check buttons, LED indicators, and top flange covers for direct surface mounting. All models carry worldwide approvals including UL, CSA, TUV and CE. Using a standard terminal arrangement, the RH series will plug into many competitors' sockets.

- Compact midget size saves space
- High switching capacity
- ULAC models feature indicator light, RH3BULCAC24V has indicator light and momentary check button

IDEC

Part No.	Switch Type	Coil Voltage	Resistive Amps @ 240V	Price
RH1BUAC24V	SPDT	24	10	**15.50**
RH1BULAC24V	SPDT	24	10	**18.04**
RH1BUAC120V	SPDT	120	10	**17.32**
RH1BULAC120V	SPDT	120	10	**30.00**
RH2BUAC24V	DPDT	24	10	**35.38**
RH2BULAC24V	DPDT	24	10	**20.60**
RH2BUAC120V	DPDT	120	10	**28.30**
RH2BULAC120V	DPDT	120	10	**20.80**
RH2BULAC240V	DPDT	240	10	**31.84**
RH3BULAC24V	3PDT	24	7.5	**26.78**
RH3BULCAC24V	3PDT	24	7.5	**45.46**
RH3BULAC120V	3PDT	120	7.5	**28.70**
RH3BULAC240V	3PDT	240	7.5	**35.00**
RH4BULAC24V	4PDT	24	7.5	**38.36**
RH4BUAC120V	4PDT	120	7.5	**42.40**
RH4BULAC120V	4PDT	120	7.5	**49.68**

RELAY, SWITCHING


SH4B05

SOCKET

- Worldwide Approvals: UL, CSA, TUV, CE
- UL94-V0 flame resistant material
- Unbreakable nylon construction
- Hold-down springs and clips available for most models
- Receptacles with four contact points per blade

IDEC

Part No.	Description	Price
SH1B05	Socket, DIN/Surface mount, RH1B	8.44
SH3B05	Socket, DIN/Surface mount, RH3B, RH2LB	11.74
SH4B05	Socket, DIN/Surface mount, RH4B	25.52

17015

TOTALLY ENCLOSED

- Replaces WR/Essex 90-12* relays

Part No.	Switch Type	Full Load Amps	Coil Voltage	Price
17015	SPST	18	24	78.24
17018	SPDT	18	24	78.88

R8225A1017

ADD-A-RELAY

Provides control of line voltage fan motors and auxiliary circuits in heating, cooling or heating-cooling systems.

- Contact rating: 7.0 FL amps @ 240 Vac
- Auxiliary rating: 2.0 FL amps @ 240 Vac
- Coil voltage: 24 Vac

Honeywell

Part No.	Switch	Price
R8225A1017	SPDT	132.22
R8225D1003	DPST, Normally Open, 1-Main, 1-Auxiliary	148.02

HEAVY DUTY

Provides switching for high-current loads such as cooling compressors.

- Contact rating: 10 full load amps @ 240 Vac
- Integral transformer for control circuit
- Coil voltage: 24V

Honeywell

Part No.	Input Voltage	Switch	Price
R847A1085	120	DPST	213.48

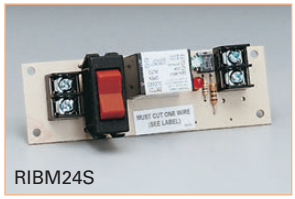
RIBU1S

RELAY IN A BOX, ENCLOSED

- In enclosed plastic box
- All wires exiting from nipple
- Selected models have override switch which allows manual control of switching action
- Pilot duty rated at 277 Vac
- RIBU1SM is set up to send a switch monitoring signal to a controller

Functional Devices, Inc. RIB

Part No.	Coil Voltage	Switch	Resistive Amps (A)	Inductive Load (VA)	Override Switch	Price
RIBU1C	10–30 ac/dc, 120 ac	SPDT	10	480	—	28.88
RIBU2C	10–30 ac/dc, 120 ac	2-SPDT	10	480	—	52.88
RIBU1S	10–30 ac/dc, 120 ac	SPNO	10	480	Yes	48.76
RIBU1SM	10–30 ac/dc, 120 ac	SPNO	10	480	Yes	53.42
RIBU1S-NC	10–30 ac/dc, 120 ac	SPNC	10	480	Yes	48.76
RIBH1S	10–30 ac/dc, 208/240/277 ac	SPNO	10	480	Yes	47.96
RIBH1C	10–30 ac/dc, 208/240/277 ac	SPDT	10	480	—	32.38
RIB2401D	24 ac/dc, 120 ac	DPDT	10	180	—	48.22
RIB2401B	24 ac/dc, 120 ac	SPDT	20	1110	—	42.86
RIB24P	24 ac/dc	DPDT	20	1110	—	86.06
RIB243P	24 ac/dc	3PNO	20	1110	—	136.02
RIB01P	120 ac	DPDT	20	1110	—	108.24
RIB02P	208/240/277 ac	DPDT	20	1110	—	109.68


RIBM24S

RELAY IN A BOX, PANEL STYLE

Panel style relays are exposed track mount suitable for wiring enclosures.

- Selected models have override switch which allows manual control of switching action

Functional Devices, Inc. RIB

Part No.	Coil Voltage	Switch	Resistive Amps (A)	Inductive Load (VA)	Override Switch	Price
RIBMU1C	10–30 ac/dc, 120 ac	SPDT	15	480	—	**29.76**
RIBMU2C	10–30 ac/dc, 120 ac	2-SPDT	15	480	—	**50.76**
RIBM24C	24 ac/dc	SPDT	15	470	—	**19.62**
RIBM24S[1]	24 ac/dc	SPST	15	470	Yes	**23.58**

[1]Must cut appropriate jumper to select N.O. or N.C.

RELAY IN A BOX, T STYLE

T style relays have a class 2 wiring compartment with terminal strips for high/low voltage separation.

- Wires exit from nipple

Functional Devices, Inc. RIB

Part No.	Coil Voltage	Switch	Resistive Amps (A)	Inductive Load (VA)	Override Switch	Price
RIBH1CW	10–30 ac/dc, 208/240/277 ac	SPDT	15	480	—	**41.72**

ELECTRIC HEAT

Use with 2-wire, 24 Vac thermostat to control electric heating equipment such as baseboards, ceiling cables and duct heaters.

Honeywell

Part No.	Switch	Primary Voltage	Application	Price
R841C1227	SPST	240	Controls 1 Load, Integral Transformer	**158.86**
R841E1068	DPST	240	Controls 2 Loads, Integral Transformer	**324.32**

SWITCHING RELAY

Provides intermediate switching of a line voltage device from a low voltage controller.

- Integral transformer provides low voltage power for control circuit

Honeywell

Part No.	Voltage	Switch	Application	F.L. Amps	Price
RA889A1001	120	SPDT + PowerPile® rated low voltage SPST relay	1-Line Voltage Load, 1-Low/Millivolt Load, 2- or 3-Wire Control	15 @ 120 Vac	**121.90**
RA89A1074	120	SPST	1-Line Voltage Load, 2-Wire Control	5.1 @ 240 Vac	**137.90**
RA832A1066	120	DPST	1-Line Voltage Load, 1-Low/Millivolt Load, 2-Wire Control	3.7 @ 240 Vac	**174.10**
R845A1030	120	DPST	1-Line Voltage Load, 1 Low Voltage Load	—	**171.64**

CONTACTOR, DEFINITE PURPOSE

- Non-reversing contactor
- Open with metal mounting plate

Power Terminals Keys:

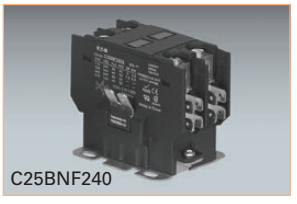
B: Binding Head Screw and Quick Connect Terminals (Side by Side)
D: Screw/Pressure Plate and Quick Connect Terminals (Side by Side)
E: Box Lugs (Posidrive Setscrew)
F: Box Lugs (Posidrive Setscrew) and Quick Connect Terminals (Side by Side)
J: Box Lugs (Posidrive Setscrew) and Quick Connect Terminals (Vertical In-Line)

C25CNB125T

COMPACT 1 POLE W/SHUNT

EATON Powering Business Worldwide

Part No.	Full Load Amps	Coil Voltage	Power Terminals	Price
C25CNB125T	25	24	B	18.38
C25CNB125A	25	110/120	B	18.38
C25CNB130T	30	24	B	18.82
C25CNB130A	30	110/120	B	19.16
C25CNB130B	30	208/240	B	18.82
C25CNB140T	40	24	B	23.30


C25BNF240

COMPACT 2 POLE

EATON Powering Business Worldwide

Part No.	Full Load Amps	Coil Voltage	Power Terminals	Price
C25BNB220T	20	24	B	20.36
C25BNB220A	20	110/120	B	20.36
C25BNB220B	20	208/240	B	20.36
C25BNB225T	25	24	B	22.10
C25BNB225A	25	110/120	B	21.36
C25BNB230T	30	24	B	22.56
C25BNB230A	30	110/120	B	22.56
C25BNB230B	30	208/240	B	22.56
C25BNB230H	30	277	B	23.74
C25BNB230C	30	480	B	23.38
C25BNB240T	40	24	B	27.54
C25BNF240T	40	24	F	32.94
C25BNB240A	40	110/120	B	30.38
C25BNB240B	40	208/240	B	30.38

2 POLE

EATON Powering Business Worldwide

Part No.	Full Load Amps	Coil Voltage	Power Terminals	Price
C25DND230B	30	220	D	43.76
C25DNF240T	40	24	F	45.92

C25DNF340

3 POLE

C25GNF* features:

- 100% increase in electrical and mechanical life - 200,000 and 500,000 operations
- RoHS compliance
- Load-side coil quick connection for easy installation
- Panel space savings due to shallower depth
- cULus certification

EATON Powering Business Worldwide

Part No.	Full Load Amps	Coil Voltage	Power Terminals	Price
C25DND325T	25	24	D	44.28
C25DND325A	25	110/120	D	42.94
C25DND325B	25	208/240	D	42.94
C25DND330T	30	24	D	41.90
C25DND330A	30	110/120	D	41.74
C25DND330B	30	208/240	D	41.90
C25DNF330T	30	24	F	44.28
C25DNF330A	30	110/120	F	44.28
C25DNF330B	30	208/240	F	44.28
C25DNF340T	40	24	F	45.24
C25DNF340A	40	110/120	F	45.24
C25DNF340H	40	277	F	54.04
C25DNF340B	40	208/240	F	45.24
C25DNF340C	40	440/480	F	46.56
C25DNJ350T	50	24	J	76.40
C25DNJ350A	50	110/120	J	76.74
C25DNJ350B	50	208/240	J	76.40
C25FNF360T	60	24	F	138.72
C25FNF360A	60	110/120	F	137.76
C25FNF360B	60	208/240	F	137.76
C25FNF375A	75	110/120	F	189.76
C25FNF375B	75	208/240	F	195.64
C25GNF390T	90	24	F	253.72
C25GNF390A	90	110/120	F	255.54
C25GNF390B	90	208/240	F	255.54
C25HNE3120A	120	110/120	E	539.00
C25HNE3120B	120	208/240	E	539.00

4 POLE

EATON Powering Business Worldwide

Part No.	Full Load Amps	Coil Voltage	Power Terminals	Price
C25END430T	30	24	D	92.84
C25END430A	30	110/120	D	93.82
C25END430B	30	208/240	D	93.22
C25ENF440T	40	24	F	98.82
C25ENF440A	40	110/120	F	98.82
C25ENF440B	40	208/240	F	95.86

C320KG3

SIDE MOUNTED AUXILIARY CONTACT

C320DPG* features:

- 100% increase in electrical and mechanical life - 200,000 and 500,000 operations
- RoHS compliance
- cULus certification
- Panel space savings due to shallower depth
- Load-side coil quick connection for easy installation

EATON Powering Business Worldwide

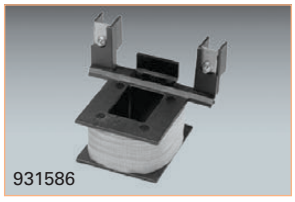
Part No.	Use With	Type	Circuit	Price
C320KG1	15-75 Amps Contactor	1-NO	With Standard Pressure Plate Terminals	**20.58**
C320KG3	15-75 Amps Contactor	1-NO 1-NC	With Standard Pressure Plate Terminals	**24.98**
F1C320DPG01	90 Amps Contactor	1-NC	With Pressure Plate and Quick Connect Terminals	**44.80**
F1C320DPG10	90 Amps Contactor	1-NO	With Pressure Plate and Quick Connect Terminals	**45.92**
F1C320DPG11	90 Amps Contactor	1-NO 1-NC	With Pressure Plate and Quick Connect Terminals	**67.88**
C320KGS20	120-360 Amps Contactor	1-NO	With Standard Pressure Plate Terminals	**89.80**
C320KGS21	120-360 Amps Contactor	1-NC	With Standard Pressure Plate Terminals	**89.80**
C320KGS22	120-360 Amps Contactor	1-NO 1-NC	With Standard Pressure Plate Terminals	**138.18**
C320KGS31	120 Amps Contactor	1-NO	N/A	**86.70**
C320KGS32	120 Amps Contactor	1-NO 1-NC	With Standard Pressure Plate Terminals	**138.18**

C320SNP11

SIDE MOUNTED SNAP SWITCH

EATON Powering Business Worldwide

Part No.	Amps	Type	Price
C320SNP11	15-75	1-NO 1-NC	**23.08**
C320SNP22	15-75	2-NO 2-NC	**23.78**


931586

REPLACEMENT COIL

EATON Powering Business Worldwide

Part No.	Class	Coil Voltage	Price
931856	15-40A, 2 and 3 Pole (Series D1)	24	**35.00**
9-3185-1	15-40A, 2 and 3 Pole (Series D1)	110/120	**22.70**
931852	15-40A, 2 and 3 Pole (Series D1)	208/240	**35.00**
9-3186-1	50A, 2 and 3 Pole (Series D1)	110/120	**22.66**
9-3079-3	60-70A, 2 and 3 Pole 25-40A, 4 Pole	104/120	**274.06**
932566	60-75A, 2 and 3 Pole 25-40A, 4 Pole	24	**36.82**
9-3256-1	60-75A, 2 and 3 Pole 25-40A, 4 Pole	104/120	**33.96**
932562	60-75A, 2 and 3 Pole 25-40A, 4 Pole	208/240	**36.78**
932563	60-75A, 2 and 3 Pole 25-40A, 4 Pole	440/480	**36.82**
927562	90A, 2 and 3 Pole	208/240	**516.78**

SURESWITCH™ RELAY

Universal electronic upgrade for mechanical compressor contactors: 5x contactor life, sealed to keep out ants and debris.

- Microprocessor controlled sealed compressor switching
- Line voltage brownout protection
- Short cycle protection
- Tricolor LED displays
- Heavy-duty lug connectors
- Zero chatter latching relay
- Four-hole mounting matches mechanical contactors
- Random start delay on power up and brownout recovery
- Compressor test and cycle count by push-button

Microprocessor controlled switching algorithms reduce arcing, virtually eliminating contact pitting and welding.

White-Rodgers

Part No.	Full Load Amps	Coil Voltage	Price
49P11843	30	24	**100.66**

CONTACTOR, DEFINITE PURPOSE

Effective on compressors sold after January 1, 2002, Copeland will no longer issue credit for 4, 6, or 8 model semi-hermetic service compressors that are determined to have a single-phase motor burn caused by a non-Copeland contactor.

- Silver cadmium oxide contacts for longer life
- Quiet, reliable operation with adjusting magnet armatures
- Compact design
- Snap-on accessories
- Quick connect terminals
- Non-position sensitive for convenient mounting

2 POLE

COPELAND

Part No.	Full Load Amps	Coil Voltage	Price
912202500	25	24	75.06
912203000	30	24	25.20
912203001	30	120	25.20
912203002	30	208/240	25.20
912204000	40	24	45.10

3 POLE

COPELAND

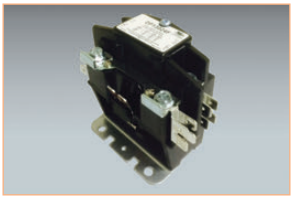
Part No.	Full Load Amps	Coil Voltage	Price
912302500	25	24	62.44
912302501	25	120	62.44
912302502	25	208/240	62.44
912303000	30	24	61.80
912303001	30	120	61.80
912303002	30	208/240	61.80
912304000	40	24	67.96
912304001	40	120	67.96
912304002	40	208/240	67.96
912305000	50	24	164.32
912305001	50	120	164.32
912305002	50	208/240	164.32
912306001	60	120	191.32
912306002	60	208/240	191.32
912307501	75	120	317.60
912307502	75	208/240	317.60
912312001	120	120	788.62
912312002	120	208/240	788.62
912320001	200	120	2342.64
912320002	200	208/240	2342.64

AUXILIARY SWITCH

COPELAND

Part No.	Application	Switch	Price
912000112	15 to 75 Amp	1 NO/1 NC	63.30
912000113	15 to 75 Amp	2 NO	106.20
912000120	120 to 360 Amp	1 NC	102.50
912000121	120 to 360 Amp	1 NO/1 NC	118.72

1 POLE WITH SHUNT



- Furnas style definite purpose
- UL recognized
- Heavy duty silver contacts

IRP International Refrigeration Products

Part No.	Full Load Amps	Coil Voltage	Price
DP13024F	30	24	18.04
DP130120F	30	120	18.04
DP130240F	30	240	18.04
DP14024F	40	24	21.82

2 POLE

- Furnas style definite purpose
- UL recognized
- Heavy duty silver contacts

IRP International Refrigeration Products

Part No.	Full Load Amps	Coil Voltage	Price
DP22024F	20	24	19.34
DP220120F	20	120	19.34
DP220240F	20	240	19.34
DP23024F	30	24	20.90
DP23024LF*	30	24	21.28
DP230120F	30	120	20.90
DP230240F	30	240	20.90
DP230277F	30	277	20.90
DP230480F	30	480	21.74
DP24024F	40	24	29.08
DP240120F	40	120	29.08
DP240240F	40	240	29.08

* With Lugs

2 POLE IN 3 POLE BASE

- Furnas style definite purpose
- UL recognized
- Heavy duty silver contacts

IRP International Refrigeration Products

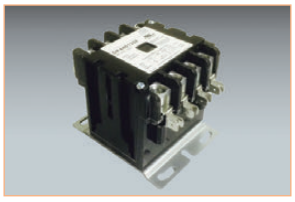
Part No.	Full Load Amps	Coil Voltage	Price
DP2X4024F	40	24	43.60

3 POLE

- Furnas style definite purpose
- UL recognized
- Heavy duty silver contacts

IRP International Refrigeration Products

Part No.	Full Load Amps	Coil Voltage	Price
DP33024F	30	24	**41.82**
DP330120F	30	120	**41.82**
DP330240F	30	240	**41.82**
DP330480F	30	480	**45.70**
DP34024F	40	24	**43.26**
DP340120F	40	120	**43.12**
DP340240F	40	240	**43.26**
DP340480F	40	480	**47.48**
DP35024F	50	24	**74.54**
DP350120F	50	120	**74.54**
DP350240F	50	240	**74.54**
DP36024F	60	24	**131.44**
DP360120F	60	120	**131.44**
DP360240F	60	240	**131.44**
DP37524F	75	24	**189.08**
DP375120F	75	120	**189.08**
DP375240F	75	240	**189.08**
DP39024F	90	24	**241.64**
DP390120F	90	120	**241.64**
DP390240F	90	240	**241.64**
DP312024	120	24	**416.32**
DP3120120	120	120	**416.32**
DP3120240	120	240	**416.32**



4 POLE

- Furnas style definite purpose
- UL recognized
- Heavy duty silver contacts

IRP International Refrigeration Products

Part No.	Full Load Amps	Coil Voltage	Price
DP43024F	30	24	**82.54**
DP430120F	30	120	**82.54**
DP430240F	30	240	**82.54**
DP44024F	40	24	**83.62**
DP440120F	40	120	**83.62**
DP440240F	40	240	**83.62**

AUXILIARY CONTACT SWITCH

Use with NEW IRP contactors *F Series

IRP International Refrigeration Products

Part No.	Description	Price
1950243	For All 3 and 4 Pole Contactors below 75 Amps	**19.70**
1950244	For All 3 Pole Contactors 75 to 120 Amps	**19.70**

VARIABLE SPEED DRIVES

MICRO DRIVE

Three-Phase Input

- 1-25HP @ 480 VAC
- 1-15HP @ 230 VAC
- 1-7.5HP @ 575 VAC

Single-Phase Input

- 1/4-1.5HP @ 115V
- 1/4-3HP @ 230V

OnBoard Communication

- RS-485: Modbus

Features

- Setup Wizard/Preset Applications
- Temperature Controlled Fan
- Conformal Coated Boards
- 50C Standard
- PID / Sleep Modes
- Plenum Rated

TYPICAL APPLICATIONS

Application

Controlling the speed of the condenser fan(s) to maintain a constant head pressure.

Input Sensor

Pressure Transducer connected to the high side of the refrigeration circuit.

Benefits

Maintain a constant temperature and pressure of the liquid refrigerant to the expansion valve, optimizing performance.

OPEN DRIVE

Three-Phase Input

- 1-250HP @ 480 VAC
- 1-125HP @ 208-230 VAC

OnBoard Communication

- RS-485: Modbus, BACnet, N2
- Ethernet: Modbus TCP, BACnet IP

Features

- Active Energy Control Algorithm
- Setup Wizard
- Graphic Display and Keypad
- Real Time Clock / Calendaring
- 5% DC Link Choke
- Thin Film High Efficiency Capacitors (five year shelf life)
- Conformal Coated Boards
- EN 61800-3 C2 Filtration for Commercial Networks

TYPICAL APPLICATIONS

Application

Controlling the speed of the Supply Fan in a Variable Air Volume (VAV) Airhandler (AHU).

Input Sensor

Static Pressure Transducer connected 2/3 down stream on the longest duct run.

Benefits

Maintain a constant static pressure on the supply duct feeding air to VAV boxes.

FEATURING THE NEXT GENERATION OF VARIABLE SPEED DRIVES AVAILABLE THROUGH ALL UNITED REFRIGERATION LOCATIONS

ENCLOSED DRIVE

Three-Phase Input

- 1-150HP @ 480 VAC
- 1-75HP @ 208 or 230 VAC

OnBoard Communication

- RS-485: Modbus, BACnet, N2
- Ethernet: Modbus TCP, BACnet IP

Enclosure Type

- NEMA 1 (indoor)
- NEMA 12 (dust tight)
- NEMA 3R (outdoor)

Features

- Industrial Grade Enclosure
- Two or Three Contactor Bypass
- Disconnect
- PSG Power Supply
- UL508C Listed
- MMP - Motor Controller/Disconnect, Overload & Short Circuit Protection

TYPICAL APPLICATIONS

Application

Controlling the speed of tower fan(s) to maintain a constant condenser water temperature entering the water cooled chillers

Input Sensor

Condenser Water Supply Temperature Sensor

Benefits

Water cooled chillers performance increases with lower condenser water temperatures and less variation in the supply temperature.

Johnson Controls

THE RIGHT DRIVE?

APPLICATION	COMMUNICATION REQUIRED	MANUAL OR ELECTRONIC
HP OR FLA	BYPASS REQUIRED	FUSES OR MMP
VOLTAGE	DISCONNECT	PILOT LIGHTS
ENCLOSURE TYPE REQUIRED	2 OR 3 CONTACTOR	

Product		Full Load Amps			VAC	Encl Rating	Drive Style	Rev. #	Dash	Comm Trunk	1	2	3	4
V	S	1	D	7	0	0	4	B	-	M	0	0	0	0

BASE PRODUCT
VS = VSD Series II

VOLTAGE
0 = 120 VAC
2= 230 VAC
4 = 480 VAC
5 = 575 VAC

STYLE
3 = 3 Phase
4 = 1 Phase

OPTION
000 = None
EM00 = EMC Filter

			1 PHASE		3 PHASE		
HP	AMPs		120 VAC	230 VAC	208/230 VAC	480 VAC	575 VAC
1/4	1.7	1D7	X	X	X		
1/2	2.4	2D4	X	X	X		
3/4	2.8	2D8	X	X	X		
1.0	3.7	3D7	X	X	X		
1.5	4.8	4D8	X	X	X		
2	7.0	7D0		X	X		
3	9.6	9D6		X			
3	11	011			X		
5	17	017			X		
7.5	25	025			X		
10	31	031			X		
15	38	038			X		
1/2	1.3	1D3				X	
3/4	1.9	1D9				X	
1	2.4	2D4				X	
1.5	3.3	3D3				X	
2	4.3	4D3				X	
3	5.6	5D6				X	
4	7.6	7D6				X	
5	9.0	9D0				X	
7.5	12	012				X	
10	16	016				X	
15	23	023				X	
20	31	031				X	
25	38	038				X	
1	1.7	1D7					X
2	2.7	2D7					X
3	3.9	3D9					X
5	6.1	6D1					X
7.5	9.0	9D0					X

MICRO DRIVE OPTIONS
Ordered Separately

VSM2-IP21-FS1 = Type 1/IP21 kit
VSM2-IP21-FS2 = Type 1/IP21 kit
VSM2-IP21-FS3 = Type 1/IP21 kit
VSM2-TEXTKEYPAD = Micro Drive Keypad
VSM2-PCADAPTER = For MaxConnect
VSM2-KEY ADAPTER= Remote Keypad Kit

Product	Full Load Amps			VAC	Encl Rating	Drive Style	Rev. #	Dash	Comm Trunk	1	2	3	4
V	S	3	D	7	2	1	0	B	-	0	0	0	0	0

BASE PRODUCT
VS = VSD Series II

VOLTAGE
2= 230 VAC
4 = 480 VAC

ENCLOSURE
1 = NEMA 1
2 = NEMA 12

RS-485 COMMUNICATION
0=STD (BACnet/N2 Bus/Modbus)
S=JCI SA Bus
L=Lon Works

OPTION
000 = None
EM00 = EMC Filter

480 VAC

	HP	AMP
3D4	1.5	3.4
4D8	2	4.8
5D6	3	5.6
8D0	4	8
9D6	5	9.6
012	7.5	12
016	10	16
023	15	23
031	20	31
038	25	38
046	30	46
061	40	61
072	50	72
087	60	87
105	75	105
140	100	140
170	125	170
205	150	205
261	200	261
310	250	310

230 VAC

	HP	AMP
3D7	3/4	3.7
4D8	1	4.8
6D6	1.5	6.6
011	3	11
012	4	12
018	5	18
024	7.5	24
031	10	31
048	15	48
062	20	62
075	25	75
088	30	88
105	40	105
140	50	140
170	60	170
205	75	205
261	100	261

Product	Full Load Amps			VAC	Encl Rating	Drive Style	Rev. #	Dash	Comm Trunk	1	2	3	4
V	S	4	D	6	1	1	1	B	-	M	0	0	0	0

BASE PRODUCT
VS= VSD Series II

VOLTAGE
1= 208 VAC
2= 230 VAC
4= 480 VAC

ENCLOSURE
1= NEMA 1
2= NEMA 12
3= NEMA 3R

STYLE
1= Bypass
2= Disconnect

OPTION
0000 = None
EM00 = EMC Filter
M1 = Manual Bypass Switch - on front door (for FS 4-7 IPASS that includes L4 = HMAX Pilot Lights)
P3 = Drive Isolation Fuses (for FS 4-7 IPASS & IDisc - not available with IPASS, P6 option)
P4= Drive Output contactor (IDisc only)
P6 = Drive Isolation Contactor includes drive test switch (for FS 4-7 IPASS - not available with P3 option)
P7 = Drive Isolation Fuses and Drive Output Contactor (IDisc only)
P9 = Both P3 and P6 available only in Type 3R (or larger FS8 & FS9 Type12 boxes)
L3 = HMAX Pilot Lights (IDisc only)
L4 = HMAX Pilot Lights (IPASS only)

208 VAC

	HP	AMP
4D6	1	4.6
7D5	2	7.5
011	3	10.6
017	5	16.7
025	7.5	24.2
031	10	30.8
047	15	46.2
060	20	59.4
075	25	74.8
088	30	88.0

230 VAC

	HP	AMP
4D2	1	4.2
6D8	2	6.8
9D6	3	9.6
016	5	15.2
022	7.5	22.0
028	10	28.0
042	15	42.0
054	20	54.0
068	25	68.0
080	30	80.0
104	40	104

480 VAC

	HP	AMP
2D1	1	2.1
3D4	2	3.4
5D6	3	4.8
7D6	5	7.6
11	7.5	11.0
014	10	14.0
021	15	21.0
027	20	27.0
034	25	34.0
040	30	34.0
052	40	52.0
065	50	65.0
077	60	65.0
096	75	96.0

Johnson Controls

VSD SERIES II

VARIABLE SPEED MICRO DRIVES

Specifically engineered for today's HVAC mid-market applications.

These micro-processor-based drives have standard features that can be programmed to tailor the drive's performance to suit a wide variety of application requirements. The JC-VSM II product line uses a 32-bit microprocessor and insulated gate bipolar transistors (IGBTs) that provide quiet operation, high efficiency, and smooth low-speed performance for three-phase induction motors.

- Preset application macros, startup wizard, and diagnostic capabilities allow for quick and easy startup
- Rugged construction offers 122°F rated, conformal coated boards
- DIN rail and screw mountable chassis reduces installation time
- Compact, space saving design allows for side-by-side installation resulting in less mounting space
- Integrated EMC filters and brake choppers are standard features in 3-phase applications, which make the unit suitable for commercial and industrial applications.
- IP 20 Enclosure Class Available as Standard
- Temperature-controlled fan ensures extended product reliability
- RS-485/Modbus® includes a standard communication protocol
- PID Controller provides stand-alone, closed-loop control
- Nema 1

Johnson Controls

Part No.	HP	Voltage	Amps	Price
VS017203BM0000	5	230	17.0	**1909.56**
VS9D0403BM0000	5	480	9.0	**1610.88**
VS025203BM0000	8	230	25.0	**2246.56**
VS012403BM0000	8	480	12.0	**1793.68**
VS031203BM0000	10	230	31.0	**2629.76**
VS014403BM0000	10	480	14.0	**2079.30**

More than 50,000 items in stock and available for immediate shipment

OPEN DRIVES

Specifically engineered for HVAC, pump, and fluid control applications. The ultra-efficient DC capacitor and power structure allows the drives to consume less energy, lowering greenhouse gases.

- Patented Active energy control algorithm: achieves an additional 2% to 8% energy savings when compared to competitive products
- HAND/OFF/AUTO and DRIVE/BYPASS selector on keypad simplifies control
- Copy/paste function allows the transfer of parameter settings from one drive to the next
- Versatile keypad displays up to nine monitored parameters simultaneously
- Motor overload, underload, and stall protections protect against premature motor failure
- BACnet® MS/TP, BACnet IP, Modbus®, and N2 Network Protocols provide a wide variety of communication protocols to meet the needs of many applications
- Anti-trip DC bus regulation
- Additional I/O and communication cards provide plug-and-play functionality
- Real-time clock with PLC functionality
- Two independent PID functions
- On-screen troubleshooting diagnostics with embedded manual assistance
- Onboard RS-485 (BACnet, N2, Modbus)
- Onboard Ethernet-based communications (BACnet/IP, Modbus/TCP)
- Standard NEMA Type 12 keypad on all drives
- Quickstart wizard built into programming of drive ensures a smooth startup
- I/O connections with simple quick connection terminals
- Standard I/O,6DI, 2AI, 1AO 2 Form C RO (NO/NC), 1 Form A RO (NO)
- Hard-wired external/damper interlock
- Nema 1

Johnson Controls

Part No.	HP	Voltage	Amps	Price
VS011210B00000	3	208-230	11.0	**1786.36**
VS5D6410B00000	3	480	5.6	**1536.70**
VS012210B00000	4	208-230	12.0	**1999.20**
VS8D0410B00000	4	480	8.0	**1575.90**
VS018210B00000	5	208-230	18.0	**2103.54**
VS9D6410B00000	5	480	9.6	**1667.02**
VS024210B00000	8	208-230	24.0	**2442.96**
VS012410B00000	8	480	12.0	**1862.72**
VS031210B00000	10	208-230	31.0	**2809.78**
VS016410B00000	10	480	16.0	**2232.56**
VS048210B00000	15	208-230	48.0	**3041.14**
VS023410B00000	15	480	23.0	**2867.02**
VS062210B00000	20	208-230	62.0	**3609.66**
VS031410B00000	20	480	31.0	**3567.54**
VS075210B00000	25	208-230	75.0	**4156.34**
VS038410B00000	25	480	38.0	**4430.82**
VS088210B00000	30	208-230	88.0	**4775.16**
VS046410B00000	30	480	46.0	**5323.98**
VS105210B00000	40	208-230	105.0	**7086.22**
VS061410B00000	40	480	61.0	**6487.12**

ENCLOSED INTELLIPASS DRIVES

The IntelliPass bypass is a two- or three-contactor design using the Eaton 24 VDC Series of contactors and power supplies. The features, function, and form allow the drive and bypass to become an integrated design. The IntelliPass drives come standard with an Eaton/Cutler-Hammer® MMP integrated into the drive and bypass design.

- Network Connectivity for Drive and Bypass (BACnet®, SA Bus, N2, and LON) allows for compatibility with current and future Johnson Controls network architecture
- Software Parameters That Utilize Engineering Units Common to the HVAC Industry allow for quick and easy startup using the onboard startup wizard with engineering units transmitted over a communications bus
- Top and Bottom Removal Conduit Plate provides access to cabling and components for ease of installation
- Johnson Controls Support That Includes Ordering, Estimating, and Project Management Tools: Advanced Order Management System (AOMS), Advanced Installation Management (AIM) Tools - QuickLIT, Catalog, PRESTO, and STORE allow users to easily identify and order products
- Closed-Loop Control Programmed with Engineering Units for Specific HVAC Applications: Standard, PID, or multi-pump provide software parameters using engineering units common to the HVAC industry
- Standard TYPE 12 Keypad on all Drives with Copy and Paste Function; Capable of Monitoring Three Parameters Simultaneously
- Drive Programming Capability Using Auxiliary 24 V Power Supply (VS-AUX24V) allows variable speed drive programming (including network communication validation) prior to wiring 3-phase power to the drive
- Nema 1

Johnson Controls

Part No.	HP	Voltage	Amps	Comments	Price
VS2D1411B00000	1	480	2.1	With Bypass	**3314.84**
VS2D1411B0M100	1	480	2.1	3-Contactor Bypass with Manual Switch	**4122.10**
VS5D6411B00000	3	480	4.8	With Bypass	**3446.32**
VS5D6411B0M100	3	480	4.8	3-Contactor Bypass with Manual Switch	**4264.50**
VS017111B00000	5	208	16.7	With Bypass	**4712.72**
VS016211B0M100	5	230	15.2	3-Contactor Bypass with Manual Switch	**5404.60**
VS7D6411B00000	5	480	7.6	With Bypass	**3554.70**
VS7D6411B0M100	5	480	7.6	3-Contactor Bypass with Manual Switch	**4372.86**
VS022211B00000	8	230	22.0	With Bypass	**5007.88**
VS022211B0M100	8	230	22.0	3-Contactor Bypass with Manual Switch	**5837.04**
VS011411B00000	8	480	11.0	With Bypass	**3793.12**
VS011411B0M100	8	480	11.0	3-Contactor Bypass with Manual Switch	**4611.30**
VS028211B00000	10	230	28.0	With Bypass	**5776.02**
VS028211B0M100	10	230	28.0	3-Contactor Bypass with Manual Switch	**6681.78**
VS014411B00000	10	480	14.0	With Bypass	**4224.50**
VS014411B0M100	10	480	14.0	3-Contactor Bypass with Manual Switch	**5113.38**
VS042211B00000	15	230	42.0	With Bypass	**6157.98**
VS021411B00000	15	480	21.0	With Bypass	**4664.72**
VS021411B0M100	15	480	21.0	3-Contactor Bypass with Manual Switch	**5566.30**
VS054211B00000	20	230	54.0	With Bypass	**6532.40**
VS054211B0M100	20	230	54.0	3-Contactor Bypass with Manual Switch	**7632.60**
VS027411B00000	20	480	27.0	With Bypass	**5556.92**
VS027411B0M100	20	480	27.0	3-Contactor Bypass with Manual Switch	**6540.98**
VS034411B00000	25	480	34.0	With Bypass	**6764.42**
VS034411B0M100	25	480	34.0	3-Contactor Bypass with Manual Switch	**7847.22**
VS080211B00000	30	230	80.0	With Bypass	**8456.10**
VS080211B0M100	30	230	80.0	3-Contactor Bypass with Manual Switch	**9663.82**
VS040411B00000	30	480	40.0	With Bypass	**7614.58**
VS040411B0M100	30	480	40.0	3-Contactor Bypass with Manual Switch	**8712.84**
VS052411B00000	40	480	52.0	With Bypass	**8778.12**
VS052411B0M100	40	480	52.0	3-Contactor Bypass with Manual Switch	**9979.84**

Saving Energy the Smart Way

Honeywell

Buildings consume more than 70% of the electricity produced in North America — and roughly half of that is used to circulate air and water. Honeywell SmartVFD HVAC, BYPASS and COMPACT variable frequency drives maximize energy savings by modulating the speed of fans and pumps. VFDs achieve these savings by operating within a building's control system or independently through its internal PID capabilities. Additionally, Honeywell's VFDs are loaded with labor-saving features such as startup wizards, PC programming, and an intuitive graphical interface that allows for faster, more accurate commissioning and reliable maintenance over the life of the drive.

SmartVFD HVAC

The Honeywell SmartVFD HVAC makes installation and commissioning easy while providing significant energy savings! The easy-to-use, high-resolution graphic interface displays industry-leading system details and allows for easy commissioning via the startup wizard. Plus, parameters can be uploaded and downloaded to the keypad for transferring from drive to drive. Analyzing and making energy-saving adjustments is easy thanks to the nine data element, multi-monitor display, freeware PC programming tool and intuitive, easy-to-read menu structure. Building integration is a snap with the wide range of communication protocols available out of the box, including BACnet® and Modbus® — available in RS-485 and over Ethernet and N2. LonWorks™ and other industrial protocols are available as option cards.

	HP	AMPS	Frame	NEMA1 Drive Alone	NEMA12 Drive Alone	NEMA 3R Drive Alone
460 Vac	1.5	3.4	4	HVFDSD3C0015G100	HVFDSD3C0015G200	HVFDSD3C0015G300
	2	4.8	4	HVFDSD3C0020G100	HVFDSD3C0020G200	HVFDSD3C0020G300
	3	5.6	4	HVFDSD3C0030G100	HVFDSD3C0030G200	HVFDSD3C0030G300
	4	8	4	HVFDSD3C0040G100	HVFDSD3C0040G200	HVFDSD3C0040G300
	5	9.6	4	HVFDSD3C0050G100	HVFDSD3C0050G200	HVFDSD3C0050G300
	7.5	12	4	HVFDSD3C0075G100	HVFDSD3C0075G200	HVFDSD3C0075G300
	10	16	5	HVFDSD3C0100G100	HVFDSD3C0100G200	HVFDSD3C0100G300
	15	23	5	HVFDSD3C0150G100	HVFDSD3C0150G200	HVFDSD3C0150G300
	20	31	5	HVFDSD3C0200G100	HVFDSD3C0200G200	HVFDSD3C0200G300
	25	38	6	HVFDSD3C0250G100	HVFDSD3C0250G200	HVFDSD3C0250G300
	30	46	6	HVFDSD3C0300G100	HVFDSD3C0300G200	HVFDSD3C0300G300
	40	61	6	HVFDSD3C0400G100	HVFDSD3C0400G200	HVFDSD3C0400G300
	50	72	7	HVFDSD3C0500G100	HVFDSD3C0500G200	HVFDSD3C0500G300
	60	87	7	HVFDSD3C0600G100	HVFDSD3C0600G200	HVFDSD3C0600G300
	75	105	7	HVFDSD3C0750G100	HVFDSD3C0750G200	HVFDSD3C0750G300
	HP	AMPS	Frame	NEMA1 Drive Alone	NEMA12 Drive Alone	NEMA 3R Drive Alone
208/ 230Vac	.75	3.7	4	HVFDSD3A0007G100	HVFDSD3A0007G200	HVFDSD3A0007G300
	1	4.8	4	HVFDSD3A0010G100	HVFDSD3A0010G200	HVFDSD3A0010G300
	1.5	6.6	4	HVFDSD3A0015G100	HVFDSD3A0015G200	HVFDSD3A0015G300
	2	8	4	HVFDSD3A0020G100	HVFDSD3A0020G200	HVFDSD3A0020G300
	3	11	4	HVFDSD3A0030G100	HVFDSD3A0030G200	HVFDSD3A0030G300
	5	18	5	HVFDSD3A0050G100	HVFDSD3A0050G200	HVFDSD3A0050G300
	7.5	24	5	HVFDSD3A0075G100	HVFDSD3A0075G200	HVFDSD3A0075G300
	10	31	5	HVFDSD3A0100G100	HVFDSD3A0100G200	HVFDSD3A0100G300
	15	48	6	HVFDSD3A0150G100	HVFDSD3A0150G200	HVFDSD3A0150G300
	20	62	6	HVFDSD3A0200G100	HVFDSD3A0200G200	HVFDSD3A0200G300
	25	75	7	HVFDSD3A0250G100	HVFDSD3A0250G200	HVFDSD3A0250G300
	30	88	7	HVFDSD3A0300G100	HVFDSD3A0300G200	HVFDSD3A0300G300
	40	105	7	HVFDSD3A0400G100	HVFDSD3A0400G200	HVFDSD3A0400G300

Pick the Right VFD for the Application

- Drives are typically sized to match the horsepower rating of the motor, which will be accurate 95% of the time. But for the greatest accuracy, drives should be sized based upon the Full Load Amps or current draw of the motor. The VFD must have a slightly larger current rating maximum.
- The environment the drive will operate in is critical for selection. Honeywell offers NEMA1, NEMA12 and NEMA 3R enclosures.
- Because of the complexity of VFDs, a clean, conditioned space with temperatures between 14° F and 140° F provides an environment for ideal operation.

SmartVFD BYPASS

The SmartVFD BYPASS is easy to specify, select and install. It's the perfect complement to the advanced capabilities of the SmartVFD family. The SmartVFD BYPASS is available in four configurations to meet your application needs: Disconnect Only, Two Contactor Bypass, Three Contactor Bypass, and Three Contactor Bypass with Auto-Bypass.

SmartVFD HVAC NEMA 1 Disconnect and SmartVFD BYPASS

	HP	AMPS	Frame	NEMA1 Fused Disconnect	NEMA1 2-Contactor Bypass	NEMA1 3-Contactor Bypass	NEMA1 3-Cont. Bypass + Auto-Bypass
460 Vac	1.5	3.4	4	HVFDSB3C0015G110	HVFDSB3C0015G120	HVFDSB3C0015G130	HVFDSB3C0015G131
	2	4.8	4	HVFDSB3C0020G110	HVFDSB3C0020G120	HVFDSB3C0020G130	HVFDSB3C0020G131
	3	5.6	4	HVFDSB3C0030G110	HVFDSB3C0030G120	HVFDSB3C0030G130	HVFDSB3C0030G131
	4	8	4	HVFDSB3C0040G110	HVFDSB3C0040G120	HVFDSB3C0040G130	HVFDSB3C0040G131
	5	9.6	4	HVFDSB3C0050G110	HVFDSB3C0050G120	HVFDSB3C0050G130	HVFDSB3C0050G131
	7.5	12	4	HVFDSB3C0075G110	HVFDSB3C0075G120	HVFDSB3C0075G130	HVFDSB3C0075G131
	10	16	5	HVFDSB3C0100G110	HVFDSB3C0100G120	HVFDSB3C0100G130	HVFDSB3C0100G131
	15	23	5	HVFDSB3C0150G110	HVFDSB3C0150G120	HVFDSB3C0150G130	HVFDSB3C0150G131
	20	31	5	HVFDSB3C0200G110	HVFDSB3C0200G120	HVFDSB3C0200G130	HVFDSB3C0200G131
	25	38	6	HVFDSB3C0250G110	HVFDSB3C0250G120	HVFDSB3C0250G130	HVFDSB3C0250G131
	30	46	6	HVFDSB3C0300G110	HVFDSB3C0300G120	HVFDSB3C0300G130	HVFDSB3C0300G131
	40	61	6	HVFDSB3C0400G110	HVFDSB3C0400G120	HVFDSB3C0400G130	HVFDSB3C0400G131
	50	72	7	HVFDSB3C0500G110	HVFDSB3C0500G120	HVFDSB3C0500G130	HVFDSB3C0500G131
	60	87	7	HVFDSB3C0600G110	HVFDSB3C0600G120	HVFDSB3C0600G130	HVFDSB3C0600G131
	75	105	7	HVFDSB3C0750G110	HVFDSB3C0750G120	HVFDSB3C0750G130	HVFDSB3C0750G131
	HP	AMPS	Frame	NEMA1 Fused Disconnect	NEMA1 2-Contactor Bypass	NEMA1 3-Contactor Bypass	NEMA1 3-Cont. Bypass + Auto-Bypass
208 Vac	.75	3.7	4	HVFDSB3A0007G110	HVFDSB3A0007G120	HVFDSB3A0007G130	HVFDSB3A0007G131
	1	4.8	4	HVFDSB3A0010G110	HVFDSB3A0010G120	HVFDSB3A0010G130	HVFDSB3A0010G131
	1.5	6.6	4	HVFDSB3A0015G110	HVFDSB3A0015G120	HVFDSB3A0015G130	HVFDSB3A0015G131
	2	8	4	HVFDSB3A0020G110	HVFDSB3A0020G120	HVFDSB3A0020G130	HVFDSB3A0020G131
	3	11	4	HVFDSB3A0030G110	HVFDSB3A0030G120	HVFDSB3A0030G130	HVFDSB3A0030G131
	5	18	5	HVFDSB3A0050G110	HVFDSB3A0050G120	HVFDSB3A0050G130	HVFDSB3A0050G131
	7.5	24	5	HVFDSB3A0075G110	HVFDSB3A0075G120	HVFDSB3A0075G130	HVFDSB3A0075G131
	10	31	5	HVFDSB3A0100G110	HVFDSB3A0100G120	HVFDSB3A0100G130	HVFDSB3A0100G131
	15	48	6	HVFDSB3A0150G110	HVFDSB3A0150G120	HVFDSB3A0150G130	HVFDSB3A0150G131
	20	62	6	HVFDSB3A0200G110	HVFDSB3A0200G120	HVFDSB3A0200G130	HVFDSB3A0200G131
	25	75	7	HVFDSB3A0250G110	HVFDSB3A0250G120	HVFDSB3A0250G130	HVFDSB3A0250G131
	30	88	7	HVFDSB3A0300G110	HVFDSB3A0300G120	HVFDSB3A0300G130	HVFDSB3A0300G131
	40	105	7	HVFDSB3A0400G110	HVFDSB3A0400G120	HVFDSB3A0400G130	HVFDSB3A0400G131
	HP	AMPS	Frame	NEMA1 Fused Disconnect	NEMA1 2-Contactor Bypass	NEMA1 3-Contactor Bypass	NEMA1 3-Cont. Bypass + Auto-Bypass
230 Vac	.75	3.7	4	HVFDSB3B0007G110	HVFDSB3B0007G120	HVFDSB3B0007G130	HVFDSB3B0007G131
	1	4.8	4	HVFDSB3B0010G110	HVFDSB3B0010G120	HVFDSB3B0010G130	HVFDSB3B0010G131
	1.5	6.6	4	HVFDSB3B0015G110	HVFDSB3B0015G120	HVFDSB3B0015G130	HVFDSB3B0015G131
	2	8	4	HVFDSB3B0020G110	HVFDSB3B0020G120	HVFDSB3B0020G130	HVFDSB3B0020G131
	3	11	4	HVFDSB3B0030G110	HVFDSB3B0030G120	HVFDSB3B0030G130	HVFDSB3B0030G131
	5	18	5	HVFDSB3B0050G110	HVFDSB3B0050G120	HVFDSB3B0050G130	HVFDSB3B0050G131
	7.5	24	5	HVFDSB3B0075G110	HVFDSB3B0075G120	HVFDSB3B0075G130	HVFDSB3B0075G131
	10	31	5	HVFDSB3B0100G110	HVFDSB3B0100G120	HVFDSB3B0100G130	HVFDSB3B0100G131
	15	48	6	HVFDSB3B0150G110	HVFDSB3B0150G120	HVFDSB3B0150G130	HVFDSB3B0150G131
	20	62	6	HVFDSB3B0200G110	HVFDSB3B0200G120	HVFDSB3B0200G130	HVFDSB3B0200G131
	25	75	7	HVFDSB3B0250G110	HVFDSB3B0250G120	HVFDSB3B0250G130	HVFDSB3B0250G131
	30	88	7	HVFDSB3B0300G110	HVFDSB3B0300G120	HVFDSB3B0300G130	HVFDSB3B0300G131
	40	105	7	HVFDSB3B0400G110	HVFDSB3B0400G120	HVFDSB3B0400G130	HVFDSB3B0400G131

MOTOR STARTER

SOLID STATE ELEMENT

Class 14 industrial magnetic starters are designed for across the line starting of single phase and polyphase motors. Across the line or full voltage starting is used when motor starting torque can be applied safely and current inrush does not produce an objectional voltage drop. All starters are supplied with a NO holding interlock that in conjunction with an appropriate pilot device will provide low voltage protection or release.

ESP200™ starters (14*U models only; 14*S models provide ESP100 overloads) combine the rugged NEMA contactors with a state of the art solid state overload that provides phase loss, phase unbalance ground fault protection. It offers the user greater motor protection and extended life in heavy duty applications. The ESP200™ ultimately results in a cost savings to the user.

Standard Features

- True phase loss protection; trips within 3 seconds
- Phase unbalanced prevents motor running inefficiently
- Ground fault trip when selected
- Selectable trip class 5, 10, 20 or 30
- Reset trip can be selected
- Auto/Manual restart
- Easy to select and use, Dip Switch selectable
- Overload is self powered, no need for external power source

Furnas

Part No.	Enclosure	Size	Amps	Coil Voltage (Vac)	Price
14CUB32AA	Open	0	0.75–3.4A	120/240	**709.14**
14CUB32BA	NEMA 1	0	0.75–3.4A	120/240	**702.08**
14CUC32AA	Open	0	3–12A	120/240	**709.14**
14CUC32BA	NEMA 1	0	3–12A	120/240	**702.08**
14CUC32BJ	NEMA 1	0	3–12A	24	**702.08**
14CUD32BA	NEMA 1	0	5.5–22A	120/240	**702.38**
14DUC32AA	Open	1	3–12A	120/240	**805.96**
14DUC32BA	NEMA 1	1	3–12A	120/240	**793.40**
14DUD32AA	Open	1	5.5–22A	120/240	**805.96**
14DUD32BA	NEMA 1	1	5.5–22A	110/240	**793.40**
14DUE32AC	Open	1	10–40A	220/440	**805.96**
14DUE32BA	NEMA 1	1	10–40A	120/240	**793.40**
14EUE32AA	Open	1 3/4	10–40A	110/240	**1069.38**
14EUE32BA	NEMA 1	1 3/4	13–27A	110/240	**1051.64**
14FUF32BA	NEMA 1	2	13–52A	110/240	**1488.40**
14GUG32AA	Open	2 1/2	25–100A	120/240	**1949.18**
14GUG32BA	NEMA 1	2 1/2	25–100A	120/240	**1956.46**
14HUG32AA	Open	3	25–100A	120/240	**2154.70**
14HUG32BA	NEMA 1	3	25–100A	120/240	**2423.06**

CONTACT KIT

Kit includes 1 pole stationary and movable contacts and contact springs.

Use with Models P or S (4th position in part#)

Fits classes 14, 17, 18, 22, 25, 26, 30, 32, 40, 43, 83, 84, 87, 88

Furnas

Part No.	NEMA Size	Price
75DF14	1	**142.92**
75FP14	2	**186.64**
75HF14	3	**332.24**

AC COIL

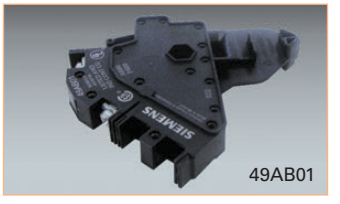
Use with Models P or S (4th position in part#)

Fits classes 14, 17, 18, 22, 25, 26, 30, 32, 40, 43

Furnas

Part No.	NEMA Size	Voltage (Vac)	Price
75D73070J	00 - 2.5	24	**181.20**
75D73070A	00 - 2.5	110-120/220-240	**181.20**
75D73070C	00 - 2.5	220-240/440-480	**181.20**

ACCESSORIES



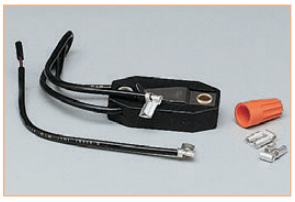
Push buttons and selector switches for NEMA 1 enclosures only; Class 14, 40 and LEN

Auxiliary switches universally fit classes 14, 17, 18, 22, 25, 26, 30, 32, 36, 37, 40, 43, 83, 84, 87, 88

Furnas

Part No.	Class	Amps	Price
49AB10	Auxiliary switch, SPNO	00 to 4	**36.28**
49AB01	Auxiliary switch, SPNC	00 to 4	**36.28**
49SBPB5	Push button, start/stop, NEMA 1	00 to 4	**144.12**
49SBSB1	Hand-Off-Auto selector switch, NEMA 1	00 to 4	**144.12**
49SBSB4	Off-On selector switch, NEMA 1	00 to 4	**144.12**

MOTOR ASSISTS/RELAYS



CURRENT RELAY

- One size for all compressors from 1/12–1/2 horsepower
- These two solid state relays will replace all current type relays
- Can be used with or without a start capacitor

Supco

Part No.	Voltage (Vac)	Price
ICG1	120	9.50

PUSH-ON RELAY

- One size for all compressors from 1/12–1/2 horsepower
- Replaces all push-on current type relays
- For use on compressors with "pin type" terminals
- Can be used on all capacitor and noncapacitor start motors

Supco

Part No.	Voltage (Vac)	Price
P0115	115	11.50
P0230	230	12.84

RELAY OVERLOAD

- Relay & overload in one combination unit
- Prewired for fast, simple installation
- Superior locked rotor protection eliminates start winding overheating

Supco

Part No.	Horsepower	Voltage (Vac)	Price
R041	1/4, 1/3	115	12.84
R081	1/12–1/5	115	14.16
R042	1/4, 1/3	230	21.66
RO82	1/12–1/5	230	21.66

RELAY OVERLOAD/PUSH-ON, "ULTIMATE" SERIES

- "Push-on" relay overload
- Quick connect push-on terminals for run and/or start capacitor

Supco

Part No.	Horsepower	Voltage (Vac)	Price
UPRO81	1/12 to 1/5	115	23.16
UPRO41	1/4 to 1/3	115	23.16
UPRO21	1/3 to 1/2	115	23.16

RELAY OVERLOAD/PUSH-ON

Same as RO Series but pushes onto compressor pin terminals.

Supco

Part No.	Horsepower	Voltage (Vac)	Price
PR041	1/4, 1/3	115	14.16

RELAY, CAP, OVERLOAD

Designed to be the most reliable and efficient starting capacitor in its class

- Protection timing circuit
- Instantaneous starting
- Voltage monitoring
- Compressor leads with flag terminals
- Solid state design
- UL recognized

IRP International Refrigeration Products

Part No.	Horsepower	Voltage (Vac)	Price
HS206	1/4-1/3	115	19.12
HS207	1/12-1/5	115	19.12
HS210	1/2	115	29.60

RELAY, CAP, OVERLOAD

This all-in-one unit replaces all 3 electrical components, relay, overload and start capacitor, on all capillary systems.

- For units without run capacitor

Supco

Part No.	Horsepower	Voltage (Vac)	Price
RCO210	1/2	115	29.84
RCO410	1/4, 1/3	115	19.16
RCO810	1/12–1/5	115	19.16
RCO220	1/2	230	29.84

4 N' 1 "ULTIMATE" SERIES RELAY, CAPACITOR, OVERLOAD AND RUN CAPACITOR

- "Push-on" compressor terminals, and 1/4" capacitor terminals
- Designed for modern high efficiency compressors
- Helps older compressors to start and run cooler
- Easy mount clip for quick installation
- Prevents low voltage starting problems
- Adds a closely matched system run capacitor

Supco

Part No.	Horsepower	Run Cap (µf)	Voltage (Vac)	Price
URCO810RC	1/12 to 1/5	12.5	115	29.96
URCO410RC	1/4 to 1/3	15	115	29.96
URCO210RC	1/3 to 1/2	20	115	35.84

RELAY, CAPACITOR

- A combined solid state starting relay and capacitor
- Replaces current type relays
- Provides added boost for hard start and unbalanced systems

Supco

Part No.	Horsepower	Voltage (Vac)	Price
RSC10	1/12–1/2	115	26.64

MOTOR ASSISTS/RELAYS

START RELAY

Voltage: 115/230 Vac.

Supco

Part No.	Increased Torque (Oz. -In.)	Price
SPP	210	16.64

RELAY, CAPACITOR

- For low voltage and hard starting compressors
- Room air conditioning units
- Residential and commercial PSC air conditioning units and heat pumps
- For all PSC air conditioning units from 4,000 through 120,000 BTU's (1/2–10 horsepower)
- Can be used on 120–288 Vac units

Supco

Part No.	Increased Torque (Oz. -In.)	Price
SPP5	270	15.00
SPP6	390	21.66

RELAY, CAPACITOR

Hard Start Kit

IRP International Refrigeration Products

Part No.	Usage	Price
HS195	120-288V, 1/2 to 5 HP	13.96
HS196	120-288V, 1/2 to 10 HP	21.26

ELECTRONIC RELAY, CAP

The SUPCO E-Class Series comprise the most advanced developments in start device technology:

- Electronic potential relay technology
- Backup electronic timing circuit to protect the compressor
- Voltage sensing
- Instant re-start
- Easy 2-wire connection

Supco

Part No.	Usage	Price
SPP4E	90-130V, 1/8 to 1 HP	46.50
SPP5E	90-277V, 1/3 to 2 HP	38.34
SPP6E	90-277V, 1/2 to 3 HP	43.50
SPP7E	90-277V, 1 to 4 HP	55.84
SPP8E	90-277V, 1 HP and up	53.30
SPP10E	90-277V, 3 HP and up	89.84

3-WIRE MECHANICAL POTENTIAL RELAY, CAPACITOR

The 3 Series Hard Starts provide the service professional with an OEM option when the application calls for a hard start.

- Voltage sensing
- Instant re-start
- 35 amp relay contacts
- For use on all 208/240 V single phase compressors, scroll, reciprocating compressors and single or dual run capacitors
- 208/240 volts
- Includes EZ snap bracket for quick installation

Supco

Part No.	Horsepower	Capacitor	Price
3W1	1 to 3	88 - 108 µF; 330V	46.66
3W2	3.5 to 4.5	189 - 227 µF; 330V	53.34
3W3	4 to 5	270 - 324 µF; 330V	63.34

ULTRASTART

Incorporating OEM approved technology, the UltraStart hard start kits provide reliable starting ability for all single phase compressors. Maximum performance and productivity with an easy 2-wire installation.

For use on all single phase reciprocating, scroll and rotary compressors; 208V, 230V and 265V

Supco

Part No.	Horsepower	Price
MPR5	1 to 3	61.66
MPR1	3.5 to 5	71.66

START ASSIST/TIME DELAY

This package combines a powerful starter Power Pak (to provide increased starting torque), and an adjustable "Delay on Break" time delay (to prevent compressor short cycling).

- Adjustable time delay from 6 seconds to 5 minutes
- Can be used on 115–288 Vac units

Supco

Part No.	Increased Torque (Oz.-In.)	Price
SPP5TD	270	39.84

POTENTIAL RELAY, ADJUSTABLE

APR5 allows the exact wire by wire replacement of virtually all potential relays on the market. The patented state-of-the-art electronic circuitry also provides additional motor protection. The contacts of the APR5 will open after 1–1 1/2 seconds if the motor does not start for any reason. This important safety feature prevents the start winding from overloading during a locked rotor condition by removing it from the circuit. You can preset the pick-up voltage of the APR5 to the voltage of the defective relay.

Supco

Part No.	Pick-up Voltage (Vac)	Price
APR5	130–370	46.64

UNIVERSAL POTENTIAL RELAY

SUPR is a time function potential relay designed to be a wire-to-wire replacement for virtually any potential relay on the market. It can be used on any single phase motor or air conditioning and refrigeration compressor up to 5 hp.

- Operating voltage: 110–270 vac, single phase
- Start time: 0.5 ±0.1 seconds
- Terminals: screw on; push-on adapters provided

Supco

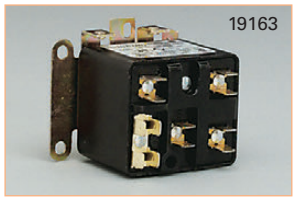
Part No.	Description	Price
SUPR	Universal Potential Relay	38.34

POTENTIAL RELAY SCREW-ON TERMINAL

- Conversion kit included for quick connect fitting

MARS

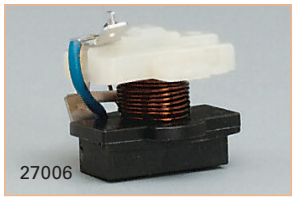
Part No.	MARS No.	Continuous Coil Voltage	Pick-Up Min.	Pick-Up Max.	Drop-Out Max.	Price
19002	63	170	139	153	55	72.80
19003	64	395	260	275	120	79.44
19004	65	332	168	182	90	76.50
19005	66	395	215	225	120	79.44
19006	67	420	295	315	125	82.46
19007	68	502	325	345	135	87.06
19008	69	336	180	195	105	76.50
19009	70	253	285	305	77	75.46
19010	71	420	212	232	121	82.46



POTENTIAL RELAY QUICK CONNECT

MARS

Part No.	MARS No.	Continuous Coil Voltage	Pick-Up Min.	Pick-Up Max.	Drop-Out Max.	Price
19163	63	170	139	153	55	27.80
19164	64	395	260	275	120	27.80
19165	65	332	168	182	90	27.80
19166	66	395	215	225	120	27.80
19167	67	420	295	315	125	27.80
19168	68	502	325	345	135	27.80
19169	69	336	180	195	105	27.80
19170	70	253	285	305	77	27.80
19171	71	420	212	232	121	27.80



UNIVERSAL CURRENT

- Replaces plug-on, bracket-type, split-phase and capacitor-start current relays

MARS

Part No.	Amps Max. Pick-Up	Amps Min. Drop-Out	Most Commonly Used Horsepower @ 115V	Price
27001	3.8	3.2	1/12	29.78
27002	5.2	4.4	1/8	28.92
27012	31.0	25.0	1/2, 3/4	25.96

OVERLOAD

UNIVERSAL, LIGHT DUTY

Used in refrigeration, room air conditioners, heating, appliances and electric motors.

- 3/4" diameter

MARS

Part No.	Application Survey, HP 115V	Application Survey, HP 230V	Price
35001	1/20	1/12, 1/8, 1/6	18.06
35003	1/20, 1/12	1/6, 1/5, 1/4	18.06
35004	1/12	1/5, 1/4, 1/3	18.60
35006	1/12, 1/8	1/4, 1/3	18.60
35009	1/8, 1/6, 1/5	1/3, 1/2	21.36
35010	1/8, 1/6, 1/5, 1/4	1/3, 1/2	20.70
35011	1/6, 1/5, 1/4	1/3, 1/2	21.94
35012	1/6, 1/5, 1/4	1/3, 1/2	21.94
35014	1/5, 1/4	1/2	21.94
35015	1/5, 1/4, 1/3	1/2	20.70
35016	1/5, 1/4, 1/3	1/2	20.70
35018	1/4, 1/3, 1/2	1	20.70
35019	1/3, 1/2	—	20.70

OVERLOAD

OV36

OVERLOAD

Supco

Part No.	Locked Rotor Amps	Normal Usage Type Condenser	HP	Price
OV32	12.0–13.5	Fan, Static	1/12	13.16
OV34	14.0–15.5	Fan	1/8	13.16
OV36	16.0–18.0	Fan, Static	1/6, 1/8	13.16
OV38	18.5–22.0	Fan, Static	1/5, 1/8	13.16
OV40	22.5–26.5	Static	1/5	13.16
OV42	27.0–31.0	Fan	1/4	13.16
OV44	31.5–35.5	Static	1/4	13.16
OV46	36.0–40.0	Fan	1/3	13.16
OV48	40.5–44.5	Static	1/3	13.16
OV50	45.0–49.0	Fan	1/2	13.16

CAPACITOR

CR2X370

RUN, 370 VOLT

- Physical interrupter design for safety

IRP International Refrigeration Products

Part No.	Value (µf)	Price
CR4X370	4	4.90
CR5X370	5	4.70
CR7.5X370	7.5	5.92
CR10X370	10	6.12
CR12.5X370	12.5	9.24
CR15X370	15	9.66
CR17.5X370	17.5	10.88
CR20X370	20	11.74
CR25X370	25	12.86
CR30X370	30	15.24
CR35X370	35	15.30
CR40X370	40	15.76
CR45X370	45	17.28
CR50X370	50	18.36
CR70X370	70	21.82
CR80X370	80	25.74

RUN, 440 VOLT

IRP International Refrigeration Products

Part No.	Value (µf)	Price
CR2X440	2	4.52
CR3X440	3	5.38
CR4X440	4	4.84
CR5X440	5	4.64
CR6X440	6	6.00
CR7.5X440	7.5	5.94
CR10X440	10	6.12
CR12.5X440	12.5	9.28
CR15X440	15	9.68
CR17.5X440	17.5	10.90
CR20X440	20	11.74
CR25X440	25	12.84
CR30X440	30	15.18
CR35X440	35	15.34
CR40X440	40	20.98
CR45X440	45	23.00
CR50X440	50	18.34
CR55X440	55	19.60
CR60X440	60	22.44

CD15X370R

RUN, 370 VOLT, ROUND

IRP International Refrigeration Products

Part No.	Value (µf)	Price
CR5X370R	5	5.04
CR7.5X370R	7.5	6.26
CR10X370R	10	6.46
CR15X370R	15	9.80
CR30X370R	30	14.68
CR35X370R	35	16.60
CR45X370R	45	17.28
CR50X370R	50	16.62
CR60X370R	60	21.68

RUN, 440 VOLT, ROUND

IRP International Refrigeration Products

Part No.	Value (µf)	Price
CR5X440R	5	4.98
CR7.5X440R	7.5	6.26
CR10X440R	10	6.48
CR15X440R	15	9.80
CR20X440R	20	12.10
CR25X440R	25	14.68
CR30X440R	30	14.66
CR35X440R	35	16.58
CR40X440R	40	19.18
CR45X440R	45	17.30
CR50X440R	50	16.64
CR55X440R	55	19.68
CR60X440R	60	21.68
CR80X440R	80	23.02

CD355X440

DUAL CAPACITOR

Used primarily to serve two separate applications. May be connected in parallel to obtain other ratings.

DUAL, 370 VOLT

IRP International Refrigeration Products

	Value (µf)		
Part No.	1	2	Price
CD15/3X370	15	3	14.34
CD15/4X370	15	4	14.48
CD15/5X370	15	5	15.16
CD15/10X370	15	10	18.90
CD20/4X370	20	4	18.16
CD25/3X370	25	3	15.92
CD25/4X370	25	4	16.06
CD25/5X370	25	5	19.72
CD25/10X370	25	10	17.18
CD30/3X370	30	3	19.68
CD30/5X370	30	5	16.42
CD35/3X370	35	3	17.44
CD35/4X370	35	4	17.28
CD35/5X370	35	5	19.66
CD40/5X370	40	5	19.64
CD45/5X370	45	5	20.46
CD55/5X370	55	5	23.16
CD55/10X370	55	10	39.66
CD60/5X370	60	5	22.80
CD60/7.5X370	60	7.5	23.10
CD60/10X370	60	10	23.46

DUAL, 440 VOLT

IRP International Refrigeration Products

	Value (µf)		Price
Part No.	1	2	Price
CD15/5X440	15	5	15.16
CD20/5X440	20	5	17.54
CD20/15X440	20	15	15.04
CD25/5X440	25	5	14.80
CD30/5X440	30	5	16.40
CD35/3X440	35	3	17.46
CD35/5X440	35	5	14.76
CD40/5X440	40	5	19.66
CD45/5X440	45	5	20.42
CD50/5X440	50	5	20.76
CD55/5X440	55	5	18.54
CD60/5X440	60	5	22.82

CD60/5X370R

DUAL, 370 VOLT, ROUND

IRP International Refrigeration Products

	Value (µf)		
Part No.	1	2	Price
CD20/5X370R	20	5	16.60
CD25/5X370R	25	5	15.78
CD30/3X370R	30	3	16.62
CD30/5X370R	30	5	17.08
CD35/5X370R	35	5	17.60
CD40/7.5X370R	40	7.5	20.30
CD60/5X370R	60	5	25.54
CD70/5X370R	70	5	32.60
CD80/7.5X370R	80	7.5	38.40
CD80/10X370R	80	10	39.46

DUAL, 440 VOLT, ROUND

IRP International Refrigeration Products

	Value (µf)		
Part No.	1	2	Price
CD25/5X440R	25	5	15.78
CD30/3X440R	30	3	13.30
CD30/4X440R	30	4	26.12
CD30/5X440R	30	5	17.10
CD35/4X440R	35	4	22.24
CD35/5X440R	35	5	17.56
CD35/7.5X440R	35	7.5	18.88
CD40/3X440R	40	3	20.70
CD40/5X440R	40	5	19.54
CD40/7.5X440R	40	7.5	20.30
CD45/5X440R	45	5	19.44
CD45/7.5X440R	45	7.5	20.30
CD50/3X440R	50	3	24.02
CD50/5X440R	50	5	23.16
CD50/7.5X440R	50	7.5	20.70
CD55/5X440R	55	5	23.42
CD55/7.5X440R	55	7.5	20.70
CD60/5X440R	60	5	25.56
CD60/7.5X440R	60	7.5	23.38
CD60/10X440R	60	10	24.24
CD80/5X440R	80	5	27.42

CAPACITOR

START, 110 VOLT

- Round body

International Refrigeration Products

Part No.	Range (µf)	Price
CS30X110	30–36	8.06
CS36X110	36–43	8.30
CS43X110	43–56	7.68
CS88X110	88–108	7.82
CS108X110	108–130	7.68
CS124X110	124–156	7.76
CS130X110	130–156	16.80
CS145X110	145–175	7.96
CS161X110	161–193	8.16
CS189X110	189–227	8.44
CS200X110	200–240	9.66
CS216X110	216–259	9.12
CS233X110	233–292	9.32
CS270X110	270–324	9.86
CS300X110	300–360	12.26
CS324X110	324–388	10.06
CS340X110	340–408	13.26
CS378X110	378–440	11.62
CS400X110	400–480	12.58
CS430X110	430–520	12.72
CS460X110	460–552	12.78
CS540X110	540–648	13.40
CS590X110	590–708	15.58
CS708X110	708–850	17.06
CS1000X110	1000–1200	22.38

START, 165 VOLT

International Refrigeration Products

Part No.	Range (µf)	Price
CS124X165	124–156	11.50
CS145X165	145–175	11.62
CS161X165	161–193	14.42
CS233X165	233–292	15.58
CS270X165	270–324	16.86

START, 220 VOLT

International Refrigeration Products

Part No.	Range (µf)	Price
CS21X220	21–25	8.02
CS25X220	25–30	8.16
CS30X220	30–36	7.74
CS36X220	36–43	7.88
CS43X220	43–56	9.86
CS56X220	56–72	9.04
CS72X220	72–88	10.88
CS88X220	88–108	11.76
CS108X220	108–130	12.64
CS124X220	124–156	15.16
CS145X220	145–175	15.44
CS161X220	161–193	16.86
CS189X220	189–227	19.52
CS216X220	216–259	15.96
CS233X220	233–292	16.62
CS270X220	270–324	18.76

START, 330 VOLT

International Refrigeration Products

Part No.	Range (µf)	Price
CS21X330	21–25	8.16
CS25X330	25–30	8.22
CS30X330	30–36	8.44
CS43X330	43–56	9.18
CS53X330	53–70	9.92
CS56X330	56–72	9.92
CS72X330	72–88	13.66
CS88X330	88–108	14.08
CS108X330	108–130	14.56
CS130X330	130–156	16.80
CS145X330	145–175	18.90
CS161X330	161–193	19.78
CS189X330	189–227	16.22
CS216X330	216–259	15.96
CS270X330	270–324	19.58

UNIVERSAL

The world's first multiple tapped, fluid-filled, metal can, motor-run capacitor, which eliminates the need to inventory more than 200 individual single or dual value capacitors.

Each part comes individually boxed, including 5 jumper wires.

The Turbo®200 is manufactured using AmRad Engineering's patented Ultramet™ capacitor technology, which allows a metallized film capacitor to be tapped with a built-in common or ground connection and eliminates the necessity of separate capacitors or of packaging two or more capacitors in one can.

Part No.	Description	Price
12100	Turbo®200 Mini Run Capacitor Replacement, 2.5 to 12.5 µf, 370V or 440V	20.34
TURBO200	Turbo®200 Run Capacitor Replacement, 2.5 to 67.5 µf, 370V or 440V	128.76
12300	Turbo®200X Run Capacitor Replacement, 5.0 to 97.5 µf, 370V or 440V	166.52
11200	Turbolytic™ 50 Universal Motor Start Capacitor, 23 to 302 µf, 125V to 330V	178.50

THERMOSTAT

33430

TUBE MOUNT

- Maximum load:
  L, F, D Primary: 10A @ 240V
  D Secondary: 3A @ 240V
  Type Code:
  D = SPDT, L = Open High,
  F = Open Low
- Includes listed size clip

Part No.	Temperature (°F) Open	Closed	Tube Size (In.)[1]	Temp Code	Price
33405	70	20	5/8	D70-5	**79.66**
33415MA	65	20	5/8	D65-4.5	**96.70**
33420	35	55	3/8	F55-2	**77.50**
33430	50	35	1/2	D50-1.5	**94.38**
33435	20	5	3/4	L20-1.5	**103.68**
33440	20	30	3/4	F30-1	**58.70**
33455	20	60	5/8	F60-4	**67.22**
33460	35	5	5/8	L35-3	**85.12**
33470	50	30	5/8	L50-2	**110.24**
33475	40	20	5/8	L40-2	**108.70**
33480	80	50	5/8	L80-3	**180.34**
33490[2]	80	30	3/8	L80-5	**43.60**
33492[2]	80	30	1/2	L80-5	**38.36**

[1]Mounting designed for, but not limited to posted size.

33010

TUBE MOUNT OR SURFACE

- Maximum load: 2.9A @ 240 Vac

Part No.	Temperature Code	Temperature (°F) Open	Closed	Price
33008	L45-3	45	15	**22.78**
33010	L55-3	55	25	**22.78**
33011	L60-3	60	30	**22.78**
33020	L80-3	80	50	**22.78**

FREEZE PROTECTION CONTROL

Freeze Protection Control

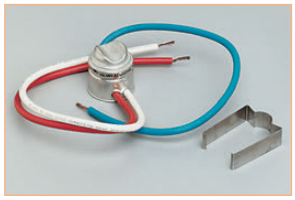
- Protects air conditioning evaporator coil from freezing.
- Opens 35°F/Close 50°F
- Replaces: Trol A Temp FPC

Part No.	Description	Price
SFPC	Freeze Protection Control	**29.84**

HEATCRAFT REPLACEMENT

Replaces common flush mount defrost controls on Heatcraft evaporators

Part No.	Description	Price
SL5708	Defrost Termination, SPST, L75-35	**49.48**
SL5709	Defrost Termination, SPDT, D55-20	**69.16**



CHANGEOVER SWITCH

For summer-winter changeover in hydronic heat/cool fan coil units.

- SPDT switch
- Contact rating:
  Term 1 and 3, 25A @ 240V
  Term 1 and 2, 5A @ 240V

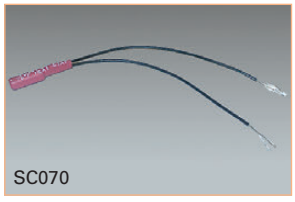
Part No.	Temperature (°F) Open	Closed	Price
39004	88	73	**48.62**

CHANGEOVER SWITCH

Provides automatic changeover of thermostat to permit proper operation of zone valve on combination hot and chilled water systems.

- Switch: SPDT
- Contact rating: 3.75 F.L. Amp @ 240 Vac

Part No.	Temperature Setting (°F)	Differential (°F)	Temp Code	Price
7521	85	15	D85-1.5	**82.78**


SC070

CONSTRUCTION

Low cost single set-point thermostats intended for use as a temporary device to provide heating to allow drywall to dry during construction.

- 2- wire, 24 volt, 2 amp maximum
- Accuracy: ±5°F

Part No.	Temperature Setting	Application	Price
SC060	60°F	Heat	**12.06**
SC065	65°F	Heat	**12.06**
SC070	70°F	Heat	**12.06**
SC075	75°F	Cool	**15.40**

DISC FAN AND LIMIT

3F01130

FAN

Snap disc fan controls for regulation of fan or blower.

- Last three numbers indicate cut-in temperatures on fan controls
- Switch: SPST, close rise
- Contact rating: 5 F.L. Amp @ 240 Vac

Part No.	Cut In (°F)	Cut Out (°F)	Differential (°F)	Temp Code	Price
3F01110	110	90	20	F110-2	**11.82**
3F01120	120	110	10	F120-1	**11.82**
3F01130	130	115	15	F130-1.5	**11.82**
3F01140	140	120	20	F140-2	**11.82**
3F01150	150	130	20	F150-2	**11.82**
3F01160	160	140	20	F160-2	**11.82**
3F01180	180	160	20	F180-2	**11.82**
3F01200	200	180	20	F200-2	**11.82**
3F01350	350	320	30	F350-3	**11.82**

DISC FAN AND LIMIT

3F051

FAN, ADJUSTABLE

This adjustable snap disc thermostat allows you to vary the temperature set-point to match your specific needs.

- Adjustable snap disc controls
- Switch: SPST, close rise
- Contact rating: 10 F.L. Amp @ 240 Vac

IRP International Refrigeration Products

Part No.	Range (°F)	Differential (°F)	Includes	Price
AT021	90 to 130	20	1/4" Q.C terminals	21.02
AT022	140 to 180	20	1/4" Q.C terminals	21.02
AT023	90 to 130	20	1/4" Q.C terminals	25.34

MARS

Part No.	Range (°F)	Differential (°F)	Price
39205	90 to 130	20	28.86
39210	140 to 180	20	28.86

LIMIT, ADJUSTABLE

This adjustable snap disc thermostat allows you to set the temperature set point to match your specific needs.

- Contact rating: 10 F.L. Amp @ 240 Vac
- Adjustable snap disc controls
- Switch: SPST, open rise

IRP International Refrigeration Products

Part No.	Range (°F)	Differential (°F)	Includes	Price
AT012	135 to 175	40	1/4" Q.C terminals	21.02
AT013	175 to 215	40	1/4" Q.C terminals	21.02
AT014	210 to 250	40	1/4" Q.C terminals	21.02
AT015	250 to 290	40	1/4" Q.C terminals	19.50

White-Rodgers

Part No.	Range (°F)	Differential (°F)	Includes	Price
3L0510	135 to 175	20	Tab to Screw Terminals	29.52
3L0513	250 to 290	40	Tab to Screw Terminals	29.52

MARS

Part No.	Range (°F)	Differential (°F)	Price
39220	135 to 175	40	28.86
39225	175 to 215	40	28.86
39230	210 to 250	40	28.86

3L01150

HIGH LIMIT

- Snap disc control for high limit safety
- Switch: SPST, open rise
- Contact rating: 5 F.L. Amp, 25 Resistive Amp @ 240 Vac

White-Rodgers

Part No.	Cut Out (°F)	Cut In (°F)	Differential (°F)	Temp Code	Price
3L01120	120	110	10	L120-1	11.82
3L01130	130	115	15	L130-1.5	11.82
3L01140	140	100	40	L140-4	11.82
3L01150	150	110	40	L150-4	11.82
3L01165	165	125	40	L165-4	11.82
3L01170	170	130	40	L170-4	11.82
3L01180	180	140	40	L180-4	11.82
3L01190	190	150	40	L190-4	11.82
3L01200	200	160	40	L200-4	11.82
3L01230	230	190	40	L230-4	11.82
3L01250	250	210	40	L250-4	11.82
3L01300	300	250	50	L300-5	11.82
3L01350	350	310	40	L350-4	11.82

HIGH LIMIT

MARS

Part No.	Cut Out (°F)	Cut In (°F)	Differential (°F)	Temp Code	Price
39310	110	90	20	L110-2	34.06

HIGH LIMIT

- Switch: SPST, open rise
- Contact rating: 10 F.L. Amp, 25 Resistive Amp @ 240 Vac
- Adapter flange plate included

Supco

Part No.	Cut Out (°F)	Cut In (°F)	Differential (°F)	Price
SHL120	120	110	10	12.16
SHL140	140	100	40	12.16
SHL150	150	110	40	12.16
SHL160	160	120	40	12.16
SHL170	170	130	40	12.16

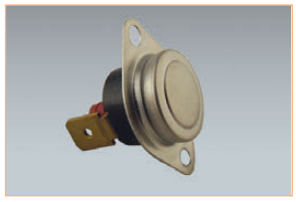
3L02160

LIMIT, MANUAL RESET

- Switch : SPST, open rise
- Contact rating : 5 FL Amp, 25 Resistive Amp @ 240 Vac

White-Rodgers

Part No.	Cut Out (°F)	Price
3L02160	160	19.58
3L02170	170	19.58
3L02180	180	19.58
3L02190	190	19.58
3L02200	200	19.58



LIMIT, AUTOMATIC RESET

- Switch: SPST, open rise
- Contact rating: 1.5 F.L. Amp, 10 Resistive Amp @ 240 Vac
- Terminals: vertical 1/4"

Supco

Part No.	Cut Out (°F)	Replaces	Price
SRL135	135	Rheem 47-22453-02	**13.66**
SRL220	220	Nordyne 626354	**13.66**
SRL230	230	Nordyne 626353	**13.66**
SRL240	240	Nordyne 626355	**13.66**
SRL250	250	Nordyne 626352	**13.66**
SRL260	260	Nordyne 626350	**13.66**
SRL300	300	Nordyne 626343 Rheem 47-22861-02	**13.66**
SRL350	350	Goodman B13701-54	**13.66**

LIMIT, SPDT

- 20°F differential

White-Rodgers

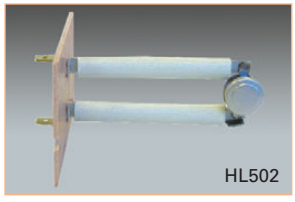
Part No.	Cut Out (°F)	Price
3L03140	140	**18.28**
3L03190	190	**18.28**

LIMIT, AUTOMATIC RESET

- Switch: SPST, open rise
- Contact rating: 1.5 F.L. Amp, 10 Resistive Amp @ 240 Vac
- Terminals: 45° angle 1/4"

Supco

Part No.	Cut Out (°F)	Cut In (°F)	Differential (°F)	Price
SLS140	140	100	40	**11.84**
SLS150	150	110	40	**11.84**
SLS160	160	120	40	**11.84**
SLS170	170	130	40	**11.84**
SLS180	180	140	40	**11.84**
SLS200	190	150	40	**11.84**



OEM REPLACEMENT

Direct replacement gas furnace limits

Supco

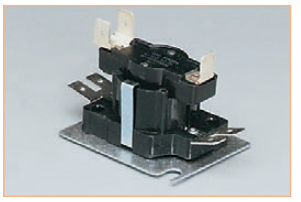
Part No.	Close (°F)	Open (°F)	Replaces	Price
HL501	130	170	BDP HH12ZA174A, HH12ZA176A, P331-2203	**18.84**
HL502	150	180	BDP HH12ZA178A, Carrier B1370001	**18.84**
HL503	150	190	BDP HH12ZA189, HH12ZB190, HH12ZA193A, P331-2205	**18.84**
HL504	200	240	BDP HH12ZA240, HH12ZA252A, P331-2217	**18.84**
HL507	110	140	BDP HH12ZA140, Goodman 87F16, York 025-29041-0055	**18.84**
HL508	170	190	BDP HH12ZB190, HH12ZA193, HH12ZA189, P331-2005, Carrier B1370913, Lennox 47-21711-03, Trane SWT1260, York 025-29041-006	**18.84**
HL509	210	240	BDP HH12ZB240, HH12ZA240, HH12ZA252, P331-2217, Carrier B1370903	**18.84**
HL512	150	170	BDP HH12ZB170, Lennox 47-25350-06	**18.84**
HL513	130	170	BDP HH12ZB170, Goodman 26H66, Rheem SWT1258	**18.84**
HL515	160	200	Carrier HH12ZB200, HH12ZA199, HH12ZA201, Goodman 49L03, Lennox 47-25349-05, Trane SWT1260, York 025-29041-006	**18.84**
HL516	170	210	Carrier HH12ZB210	**18.84**

ELECTRIC HEAT STAGING

SEQUENCER, DISC

IRP International Refrigeration Products

Part No.	Number Timings	Number Switches	Replaces Klixon Number	Price
Q101	1	1	60000A0M-98	**18.70**
Q102	1	1	60000A0M-97	**18.70**
Q103	1	2	60000EOM-84	**21.58**
Q104	1	2	60000EOM-86	**21.58**
Q105	2	3	51172-32	**34.68**
Q106	2	4	51172-33	**41.66**
Q114	4	5	—	**49.98**



SEQUENCER

- Direct replacement for most fan/heat sequencing functions
- Solid-state reliability
- Ambient rated from -40 to +165°F
- Multi-poise mounting
- Single load rating @ 240 Vac, 30 resistive
- Delay times are random between range

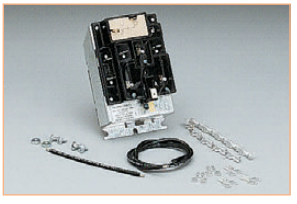
Part No.	Switch Type	Klixon Number	Price
33243	SPST/NO	6000AOM	**24.54**
33246	DPST/NO	6000EOM	**32.66**
33247	SPDT	6000COM-21	**28.06**
33255[1]	DPST/NO	6000E4	**41.38**

[1]Control voltage 120Vac

SEQUENCER TIMING*

	ON				OFF			
	M1-M2	**M3-M4**	**M5-M6**	**M7-M8**	**M1-M2**	**M3-M4**	**M5-M6**	**M7-M8**
Q101	1-20				40-110			
Q102	30-90				1-30			
Q103	1-20	1-20			40-110	40-110		
Q104	30-90	30-90			1-30	1-30		
Q105	1-110	1-110	1-110		1-110	1-110	1-110	
Q106	1-110	1-110	1-110	1-110	1-110	1-110	1-110	1-110
Q114	1-160	1-160	1-160	1-160	1-160	1-160	1-160	1-160
	1-3	**4-5**			**1-3**	**4-5**		
33243	1-60				1-45			
33246	1-60	1-60			1-45	1-45		
33247	1-24				15-75			
33255	30-110				15-65			
	M1-M2	**M3-M4**	**M5-M6**	**A1-A2**	**M1-M2**	**M3-M4**	**M5-M6**	**A1-A2**
33222	1-24	30-70			45-75	1-40		

*Delay times are random between range



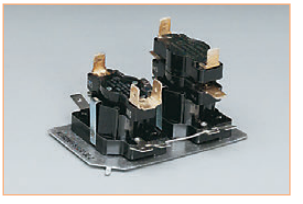
SEQUENCER

One control switches a fan and up to three elements on and off in sequence.

- Isolated fan switch has positive interlock to assure fan is on when the element is on and fan is off when the last element is off
- Control voltage: 24 Vac
- Contact rating: 25A resistive @ 240 Vac

Honeywell

Part No.	Stages	Switches	Price
R8330D1039	3	4	**305.22**



SEQUENCER, 2 SWITCH

- Single load rating @ 240 Vac, 30A resistive, all contacts including auxiliary
- Supply voltage: 24 Vac

Part No.	Switch Type	Number Timings	Klixon Number	Price
33222	2–SPST/NO	2	51172-22	**60.16**

ELECTRIC HEAT

ELEMENT, REPAIR KIT

Each kit contains one close wound, stretch to length, resistance coil with welded terminal bolts; two each male and female ceramic terminal insulators; two each .375 and .450 inch standard ceramic bushings; two each .375 and .450 inch extra long ceramic bushings; necessary nuts, washers, and installation instructions.

Part No.	Watts	Voltage	Price
34604	5,000	480	**46.46**
34606	5,000	277	**65.34**
34610	3,500	480	**18.64**
34616	2,500	240	**43.50**

ELEMENT, REPAIR KIT

- Nichrome heavy gauge construction.
- Welded terminal bolts for low resistance and longer life.
- Contains close wound coil to fit many applications, two male and two female bushings, terminal screws, nuts, washers to make a proper repair and the SUPCO STC in line series thermal cutoffs.

Part No.	Watts	Voltage	Length (In.)	Price
DH500FC	5,000	240	12	**25.80**
DH500	5,000	240	18	**20.54**

FUSIBLE LINK

Part No.	Temperature Limit (°F)	Description	Price
34702	283	Fuse Link Only	**2.66**
34706	300	Fuse Link Only	**2.36**
34708	300	Round Ceramic Base	**7.96**
34710	227	Oblong Ceramic Base	**7.96**
34712	300	Oblong Ceramic Base	**7.96**

THERMAL CUTOFFS

- Provides reliable back up protection for temperature controlling thermostats and other over temperature conditions
- One time operation
- Three configurations available to accommodate in line or face plate mounting
- Rated for continuous operating currents of up to:
  15 amps @ 120 VAC (Series 1)
  25 amps @ 120 VAC (Series 2)
- Used with the Supco DH series duct heaters.

Part No.	Temperature Limit (°F)	Description	Series	Price
STC4257	262	In Line	1	**1.54**
STC4283	291	In Line	1	**1.54**
STC4333	333	In Line	1	**1.96**
STC5257	262	Face Plate Straight	1	**6.00**
STC5333	333	Face Plate Straight	1	**6.00**
STC6257	262	Face Plate Right Angle	1	**6.00**

ELECTRIC HEAT

INSERTION, 1/2" NPT

- Copeland replacement

Part No.	Length (In.)	Watts	Voltage	Application Model	Price
32408	4.25	100	480	4R, 6R, 6T, 4D, 6D	**177.62**
32409	4.25	100	240	4R, 6R, 6T, 4D, 6D	**156.84**
32410	4.25	100	120	4R, 6R, 6T, 4D, 6D	**156.84**

INSERTION, 1/2" DIAMETER, ELBOW

- Copeland replacement

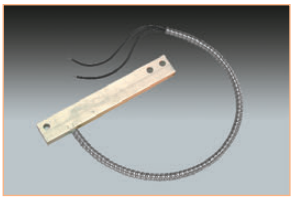
Part No.	Length (In.)	Watts	Voltage	Application Model	Price
32432	3.5	200	240	6RJ, 4RJ, 4RR	**187.08**

BAR, BOLT ON

- Copeland replacement

Part No.	Length (In.)	Watts	Voltage	Application Model	Price
32439	5	50	120	K, H	**224.88**

CRANKCASE HEATER



BAR

Part No.	Length (In.)	Watts	Voltage	Application Model	Price
32416	10	65	240	E, 9R, 3A, 3R, LA, MR, NR	211.64

INSERTION, 1/2" DIAMETER, ELBOW

- Carlyle replacement

Part No.	Length (In.)	Watts	Voltage	Application Model	Price
32462	2.75	75	230	6D, 06D	160.16

DEFROST HEATER

BRAIDED HEATER

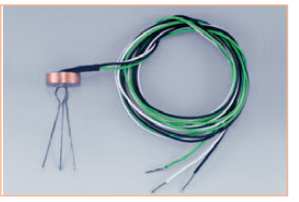
Flexible braided aluminum heaters are designed for use in heating drain troughs, drain tubes and drain pans.

Part No.	Length (In.)	Lead Length (In.)	Voltage (Vac)	Watts	Price
SH201	18	23	115	15	23.16
SH202	29	23	115	45	29.84
SH203	44	23	115	55	29.84

DOOR AND MULLION

For commercial refrigeration applications to prevent moisture and eliminate frost build-up on door and cabinet fronts

Part No.	Watts/Ft.	Voltage	Htg. Length (Ft.)	Lead Length (Ft.)	Price
SH281	3	120	36 1/2	6	38.34
GH282	3	120	18	6	30.16



UNIVERSAL DRAIN HEATER

Used with existing heater or where no heater exists

Designed for "series wiring connection" only.

Part No.	Lead Length (In.)	Voltage (Vac)	Watts	Diameter (In.)	Price
SH250	56	115	3	0.91	29.84

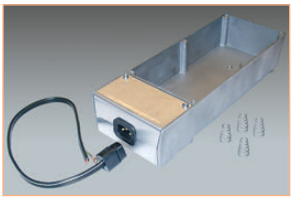
DRAIN, SH500 SERIES

Durable Metal Braid

- Heater tip 7/16" diameter
- Silicone construction
- Designed for waterproof low wattage heat

Part No.	Length (In.)	Lead Length (In.)	Voltage (Vac)	Watts	Price
SH500	9	18	115	11	33.16
SH502	13	18	115	15	33.16
SH503	13	18	230	15	33.16
SH504	21	18	115	25	33.16
SH505	21	18	230	25	33.16

CONDENSATE PAN



EVAPORATOR PAN, SELF-REGULATING

- State-of-the-art, solid state, PTC control
- Self-regulating, conserves power, eliminates thermostat
- Removable cord set for ease of cleaning and installation
- Dimensions: 12 1/4" L x 4 3/4" W x 3" H

Part No.	Voltage (Vac)	Watts	Capacity (Oz.)	Evaporation Rate (Oz./Hr.)	Price
N070	115	300	50	6	165.00

30OS

EVAPORATOR PAN

Standard cast aluminum condensate drains complete with long life heating element and mounting legs.

Part No.	Voltage (Vac)	Watts	Capacity (Oz.)	Evaporation Rate (Oz./Hr.)	Size (In.) L	W	H	Price
30OS	120	160	38	8	10	4	2 7/8	**65.00**
N075	120	320	75	14	10	9	2 3/4	**260.84**
75220	240	320	75	14	10	9	2 3/4	**294.00**

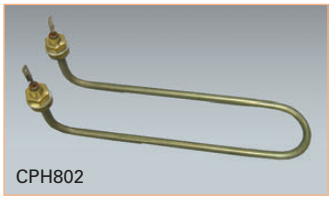
EVAPORATOR PAN, SELF-REGULATING

For condensate applications where no drain is available

- Corrosion resistant stainless steel construction
- High limit safety and float switch operation
- UL, NSF approved

Part No.	Voltage (Vac)	Watts	Capacity (Oz.)	Evaporation Rate (Oz/Hr)	Dimensions (In.) L	W	H	Price
CP801	120	400	56	16	10	7	2 1/2	**219.46**
CP802	120	800	80	32	13	7	2 1/2	**226.66**
CP804	120	1000	144	53.3	13	7	4	**235.24**
CP804-240	240	1000	144	32	13	7	4	**259.14**
CP816	120	500	224	24	13	10	4	**250.16**
CP817	208	1000	224	42.7	13	10	4	**269.16**
CP818	208	1000	224	42.7	13	10	4	**269.16**
CP819	120	1500	224	64	13	10	4	**250.16**
CP820	208	1500	224	64	13	10	4	**269.16**
CP804HD	120	1000	240	32	13	10	4	**254.00**
CP807	120	1000	240	53.3	13	10	4	**245.50**
CP807-240	240	1000	240	53.3	13	10	4	**259.14**
CP815	120	1440	480	64	21	13	4	**327.46**
CP815-240	240	1440	480	64	21	13	4	**354.66**
CP821	208	1500	224	64	21	13	4	**354.66**

CPFLOAT


CPH802

REPAIR PARTS

Repair parts for CP800 series condensate evaporators

Part No.	Description	Usage	Price
CPH801	400W Heater	CP801	**40.00**
CPH802	800W Heater	CP802	**40.00**
CPH8047	1000W Heater	CP804	**50.00**
CPH804-240	1000W Heater	CP804-240	**50.00**
CPH804HD	1000W Heater	CP804HD	**80.00**
CPH807-240	1000W Heater	CP807-240	**50.00**
CPH815	1500W Heater	CP815	**80.00**
CPH815-240	1500W Heater	CP815-240	**80.00**
CPH816	500W Heater	CP816	**80.00**

Part No.	Description	Usage	Price
CPH817	1000W Heater	CP817	**80.00**
CPH818	1000W Heater	CP818	**50.00**
CPH819	1500W Heater	CP819	**80.00**
CPH820	1500W Heater	CP820	**80.00**
CPH821	1500W Heater	CP821	**80.00**
CPFLOAT	3" Float	CP801, CP802	**42.50**
CPFLOAT4	4.5" Float	CP804, CP807, CP815	**34.84**
CPS800	Microswitch	All	**39.16**
CPT800	Thermostat	All	**32.50**

CONTROL FLAG

TATTLE-TALE® CONTROL FLAG

Identifies open controls in seconds. A single use monitoring device for determining which, if any, safety control has opened in response to a malfunction. When a control opens, the Tattle-tale's red indicator flag pops up.

- Tolerance on all voltages: ±20%

CAUTION

Not to be used with lockout relays.

DIVERSITECH

Part No.	Voltage	Price
TT24	24	27.36
TT120	120	27.36
TT240	240	27.36

FLEXIBLE CONDUIT

TUBING

- Nonmetallic seal tight
- Flexible conduit

NATIONAL REFRIGERATION PRODUCTS

Part No.	Description	Roll Length (Ft.)	Price/Ft.
12SEALTITE	Flexible Conduit, 1/2"	100	1.14
34SEALTITE	Flexible Conduit, 3/4"	100	1.58
1SEALTITE	Flexible Conduit, 1"	100	1.98

FITTING

- Nonmetallic liquid tight conduit fitting
- Sealtight connection x box fitting

NATIONAL REFRIGERATION PRODUCTS

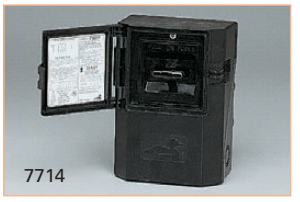
Part No.	Description	Color	Price/Ft.
LT7500S	1/2" Straight Connection	Grey	1.78
LT7501S	3/4" Straight Connection	Grey	2.30
LT7504S	1/2" 90° Connection	Grey	2.38
LT7505S	3/4" 90° Connection	Grey	3.42

OUTSIDE DISCONNECT

HEAT PUMP

Multiple disconnect devices are offered for heat pump applications that require individual disconnects for the heating and cooling cycles. Units require four fuses.

Part No.	Description	Price
83325	100 Amps, Fused	321.46



CARTRIDGE FUSE, UL LISTED

Part No.	Description	NEMA Case	Price
83336	30 Amps, 240V, 3-Pole Exterior Switch	3R	200.66
7714	60 Amps, 240V, 3-Pole Exterior Switch	3R	286.62

HEAVY DUTY, OUTDOOR

Type 3R NEMA case.

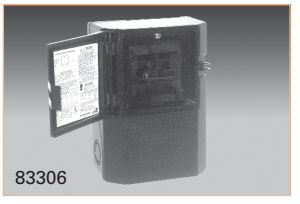
SIEMENS

Part No.	Description	Price
HF361R	30 Amps, 600V, 3-Pole, Outdoor Fused	776.16
HF362R	60 Amps, 600V, 3-Pole, Outdoor Fused	1006.08

PULLOUT

Offers both fusible and non-fusible single phase air conditioner disconnects. These units provide a disconnecting means which should be located within sight to and readily accessible from air conditioning or refrigerating equipment. UL Listed.

Part No.	Description	Price
7711	60 Amps, Non Fused, 1ø	24.16
7712	60 Amps, Fused, 1ø	27.94
7713	30 Amps, Fused, 1ø	27.94



NONMETALLIC

These horse power rated units are constructed of Noryl® thermoplastic for extended and rugged durability. Units are corrosion resistant, weatherproof, and maintenance free. UL Listed and CSA Certified.

Part No.	Description	Price
83306	30 Amps, Fused, 1ø	48.58
83307	60 Amps, Fused, 1ø	48.58

NON-FUSED

- 60 amp switch rated for 10 HP motors at 240 VAC.
- On-Off circuit breaker type switch. No pull-out head that can be lost or stolen.
- Four, one-inch combination knockouts – two in back and two in bottom end wall.
- Removing the cover housing provides open access to lugs for easy wiring.
- Metallic - rain proof and ice proof (indoor/outdoor)

DIVERSITECH

Part No.	Description	Price
DPB222R	Molded Case AC Disconnect Switch, 60 Amps, 2-Wire, 240V, 2-Pole, Non-Fused	50.66

SURGE PROTECTION

Connects to the furnace/air handler disconnect to protect high-efficiency furnaces, hydronic heating systems, and ductless mini-splits from surges and spikes.

- Unmatched surge protection ratings
- 120/240 VAC single split phase SPD for use on a variety of HVAC equipment
- Green LED protection indicator
- 18 in. 10 gauge leads
- Type 4x Enclosure

INTERMATIC

Part No.	Description	Price
AG3000	Surge Protective Device	115.28

FUSE, POWER

FRNR30

DUAL ELEMENT, TIME DELAY, 250 VAC

- Class RK5
- 250 Vac maximum, 125 Vdc
- Interrupting rating—200,000A RMS symmetrical
- 10 seconds delay (minimum) at 500% rated current
- Blade connections 70 amps and larger

Bussmann by EATON

Part No.	Amps	Price
FRNR3-2/10	3 2/10	13.22
FRNR5	5	12.66
FRNR6	6	13.22
FRNR8	8	13.22
FRNR10	10	12.66
FRNR15	15	10.16
FRNR20	20	10.16
FRNR25	25	10.16
FRNR30	30	10.16
FRNR35	35	18.54
FRNR40	40	18.54
FRNR45	45	18.54
FRNR50	50	18.54
FRNR60	60	18.54
FRNR70	70	41.72
FRNR80	80	41.72
FRNR90	90	43.76
FRNR100	100	41.72
FRNR110	110	103.88
FRNR125	125	91.68
FRNR150	150	91.68
FRNR200	200	91.70

FRSR30

DUAL ELEMENT, TIME DELAY, 600 VAC

- Class RK5
- 600 Vac maximum, 300 Vdc
- Interrupting rating—200,000A RMS symmetrical
- 10 seconds delay (minimum) at 500% rated current
- Blade connections 70 amps and larger

Bussmann by EATON

Part No.	Amps	Price
FRSR2	2	27.44
FRSR5	5	25.48
FRSR10	10	25.48
FRSR15	15	22.50
FRSR20	20	22.50
FRSR25	25	22.50
FRSR30	30	22.50
FRSR35	35	38.62
FRSR40	40	38.62
FRSR45	45	38.62
FRSR50	50	38.62
FRSR60	60	38.62
FRSR70	70	79.80
FRSR80	80	79.80
FRSR90	90	79.80
FRSR100	100	79.80
FRSR110	110	159.60
FRSR125	125	159.60
FRSR175	175	159.60
FRSR200	200	159.60

SC10

MELAMINE, TIME DELAY

- Class G
- 480 Vac maximum, 300 Vdc (25 to 60A)
- Interrupting rating—100,000A RMS symmetrical
- Diameter—.41"

Bussmann by EATON

Part No.	Amps	Length (In.)	Price
SC-1	1	1.319	12.54
SC-2	2	1.319	12.54
SC-3	3	1.319	12.54
SC-4	4	1.319	12.34
SC-5	5	1.319	11.76
SC-6	6	1.319	11.76
SC10	10	1.319	11.76
SC15	15	1.319	8.66
SC20	20	1.419	9.10
SC25	25	1.639	20.78
SC30	30	1.639	16.18
SC40	40	2.259	17.96
SC45	45	2.259	20.32
SC50	50	2.259	20.32

FUSE, POWER

KTK5

MELAMINE, FAST ACTING

- Supplementary fuse
- Dimension—13/32" dia. x 1 1/2" Lg
- 600 Vac maximum
- Interrupting rating—100,000A RMS

Bussmann by EATON

Part No.	Amps	Price
KTK2	2	22.58
KTK3	3	22.58
KTK4	4	23.02
KTK5	5	22.58
KTK6	6	21.98
KTK10	10	22.58
KTK15	15	22.58
KTK20	20	22.66

MELAMINE, FAST ACTING, CLASS CC

- Class CC—Rejection type
- Dimension—13/32" diameter x 1 1/2" length
- 600 Vac maximum
- Interrupting rating—200,000A
- Branch circuit

Bussmann by EATON

Part No.	Amps	Price
KTKR10	10	24.50
KTKR15	15	24.50

MELAMINE, TIME DELAY, 600 VAC

- Rejection-type fuse
- Dimension—13/32" dia. x 1 1/2" Lg
- 600 Vac maximum
- Interrupting rating—200,000A RMS symmetrical

Bussmann by EATON

Part No.	Amps	Price
FNQR5	5	29.96
FNQR7	7	34.98
FNQR15	15	29.78
FNQR20	20	30.82

FNM10

FIBRE TUBE, TIME DELAY, 250 VAC

- Supplementary fuse
- Dimension—13/32" diameter x 1 1/2" length
- 250 Vac (1–10 amps) maximum
- 32 Vac (20–30 amps) maximum
- Interrupting rating—10,000A @ 125 Vac

Bussmann by EATON

Part No.	Amps	Price
FNM2	2	9.38
FNM7	7	9.94
FNM10	10	9.38
FNM20	20	9.78
FNM25	25	11.12
FNM30	30	9.78

FIBRE TUBE, TIME DELAY, 500 VAC

- Supplementary fuse
- 500 Vac maximum
- Interrupting rating—10,000A
- Dimension—13/32" dia. x 1 1/2" Lg

Bussmann by EATON

Part No.	Amps	Price
FNQ5	5	27.00
FNQ10	10	27.00
FNQ15	15	27.00
FNQ20	20	27.00

T15

PLUG, TIME DELAY

- 125 Vac maximum
- Dual element
- Edison base

Bussmann by EATON

Part No.	Amps	Price
T8	8	7.84
T10	10	31.90
T15	15	16.20
T20	20	16.20
T25	25	14.00
T30	30	12.36

PLUG, TIME DELAY, REJECTING BASE

- 125 Vac maximum
- Dual element
- Rejection base

Bussmann by EATON

Part No.	Amps	Price
S3-2/10	3 2/10	37.36
S-5	5	31.16
S-8	8	31.16
S9	9	33.40
S10	10	29.56
S15	15	14.30
S20	20	13.50
S25	25	12.50
S30	30	13.50

AGC1

GLASS TUBE, FAST ACTING

- Dimension— 1/4" dia. x 1 1/4" length
- 250 Vac maximum to 10 amps
- 32 Vac maximum to 30 amps

Bussmann by EATON

Part No.	Amps	Interrupt Rating Amps	Price
AGC1/2	1/2	35	1.28
AGC1	1	35	0.80
AGC1-1/2	1 1/2	100	1.46
AGC2	2	100	0.80
AGC3	3	100	0.80
AGC4	4	200	1.04
AGC5	5	200	1.24
AGC6	6	200	2.14
AGC8	8	200	1.04
AGC10	10	200	1.04
AGC15	15	1,000	1.00
AGC20	20	1,000	1.00
AGC25	25	1,000	1.00
AGC30	30	1,000	1.00

FUSE, ELECTRONIC, PC BOARD

ABC25

CERAMIC TUBE, FAST ACTING

- Dimensions: 1/4" diameter x 1 1/4" length
- 250 Vac maximum

Bussmann by EATON

Part No.	Amps	Interrupt Rating Amps	Price
ABC1	1	35	1.96
ABC2	2	100	3.50
ABC3	3	100	1.96
ABC5	5	200	1.92
ABC8	8	200	1.92
ABC10	10	200	1.92
ABC12	12	750	1.92
ABC15	15	750	1.92

MDA5

CERAMIC TUBE, TIME DELAY

- 250 Vac maximum
- Dimension—1/4" diameter x 1 1/4" length

Bussmann by EATON

Part No.	Amps	Interrupt Rating Amps	Price
MDA5	5	200	5.40
MDA10	10	200	5.14
MDA20	20	400	5.14

ATC4

BLADE TYPE, FAST ACTING

- 32 Vac maximum

Bussmann by EATON

Part No.	Amps	Color Code	Price
ATC2	2	Gray	1.44
ATC3	3	Violet	1.00
ATC4	4	Pink	1.00
ATC5	5	Tan	1.00
ATC15	15	Blue	1.00
ATC20	20	Yellow	1.00
ATC30	30	Green	1.00

MDL8

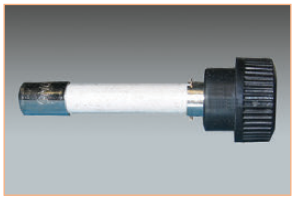
GLASS TUBE, TIME DELAY

- Dimension—1/4" diameter x 1 1/4" length

Bussmann by EATON

Part No.	Amps	Max. Volts	Interrupt Rating Amps	Price
MDL8	8	250	200	3.30
MDL15	15	32	1,000	4.70

FUSE, IN LINE



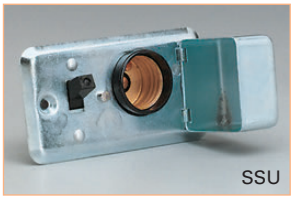
CERAMIC, TIME DELAY, GMQ

- Size rejecting
- 300 Vac maximum
- Interrupt rating—10,000A
- Use fuse holder HLQ3210

Bussmann by EATON

Part No.	Amps	Price
GMQ3210	3 2/10	6.90

FUSE, ACCESSORIES


SSU

PLUG FUSE BOX COVER

- Single fuse
- Switch control
- Installs easily in standard electrical box
- 125 Vac, 15A

Bussmann by EATON

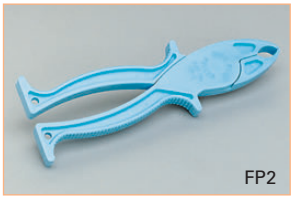
Part No.	Type Box	Price
SSU	2 1/4" Handy	57.10
SSY	4" Square	96.96

IN LINE FUSE HOLDER

- Furnished with 3 springs for different length fuses
- 8" leads
- 1/4" diameter, 7/8" to 1 1/4" length fuse

Bussmann by EATON

Part No.	Description	Price
HRK	Fuse Holder	10.80


FP2

FUSE PULLER

Bussmann by EATON

Part No.	Application Diameter Fuse (In.)	Price
FP2	13/32 to 13/16	50.32
FP3	1 to 1 3/4	64.12
FP6	0 to 60A T-Tron Fuse	95.22

CONDUIT FITTING

BUSHING

Part No.	Description	Package Qty.	Price
N0028	Bushing, Screw-On Washer	5	11.90
N0331	Anti-Short Bushing, 14/2, 14/3, 12/2, 5/16	35	4.78

REDUCING WASHER

Part No.	Description	Package Qty.	Price
N0310	Reducing Washer, 3/4"–1/2"	28	8.40

CONDUIT STRAP

Part No.	Size (In.)	Package Qty.	Price
N1306	1/2	20	5.90
N1307	3/4	12	5.00
N1304	1	8	5.70
N1305	1 1/4	6	7.20

CONNECTOR, BX

Part No.	Description	Package Qty.	Price
N1311	BX Connector, 1/2" Knockouts, 3/8" Trade	25	24.50

CONNECTOR, 90

Part No.	Description	Package Qty.	Price
N1315	90° Connector, Steel Cover, 1/2" Knockouts, 3/8" Trade	3	8.30

CONNECTOR, DUPLEX

Part No.	Description	Package Qty.	Price
N1318	Duplex Connector, Clamp Type, 1/2" Knockouts, 3/8" Trade	2	7.80

BUSHING, CONDUIT

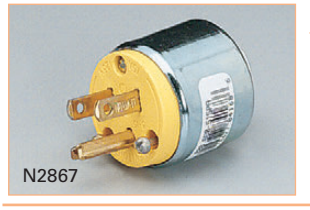
Part No.	Description	Package Qty.	Price
N1301	1/2 Offset Conduit Bushing	2	12.30
N1303	1/2 Straight Conduit Bushing	2	9.20

CONNECTOR, ROMEX

Part No.	Description	Package Qty.	Price
N1320	Romex Connector, Clamp Type,1/2" Knockouts, 3/8" Trade	25	23.80

PLUG ADAPTER

PLUG

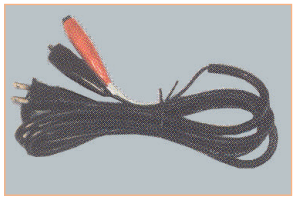


Part No.	Description	Package Qty.	Price
N2867	Armored Plug, Male, 2 Pole, 3 Wire 15A-125V	1	8.60
N2887	Armored Connector, Female, 2 Pole, 3 Wire, 15A-125V	1	14.40
N5223	Triple Outlet, Heavy Duty Grounding Adapter, 15A-125V	1	12.64

PIGTAIL

- UL/CSA Listed
- 16/3 AWG
- PT6S is straight out, PT6 is top out

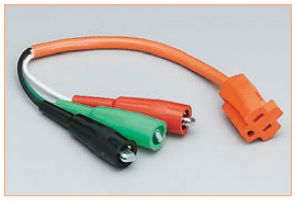
Part No.	Length (Ft.)	Weight (Lbs.)	Price
PT6	6	1.00	**7.90**
PT6S	6	1.00	**7.74**
PT9	9	1.00	**24.72**



PATCH CORD

6', 16 Ga Wire
Male plug to medium duty spring clips

Part No.	Description	Price
TC103	Male, 6', 2 wire Cord	**23.16**



PATCH CORD

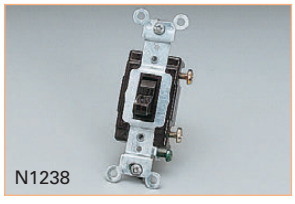
- Female plug x (3) large alligator clips
- 12" long

Part No.	Description	Price
69522	15A Patch Cord	**52.28**

BOX, SWITCH, COVER

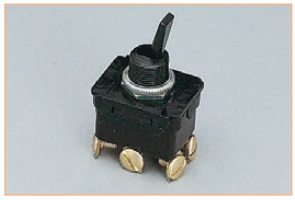
RECEPTACLE

Part No.	Description	Package Qty.	Price
N0270	Duplex Receptacle, 2 Pole, 3 Wire,15A-125V	1	**4.90**
N2701	Duplex Receptacle, 2 Pole, 3 Wire, 15A-125V	1	**2.66**
N0877	Duplex Receptacle, 2 Pole, 3 Wire, 20A-125V	1	**11.40**
N1876	Single Receptacle, 2 Pole, 3 Wire, 20A-250V	1	**14.50**



WALL SWITCH

Part No.	Description	Package Qty.	Price
N0777	On-Off, 15A, 120V	1	**6.60**
N1238	Silent, 1 Pole, 20A-120/277 Vac	1	**15.00**
N1262	Silent, 2 Pole, 15A-120/277 Vac	1	**20.40**



TOGGLE SWITCH

- Bat handle
- All switches rated 15A, 125/250 Vac

Part No.	Description	Package Qty	Price
N0447	SPST, On-Off	1	**12.20**
N0454	SPDT, On-On	1	**15.98**
N0455	DPST, On-Off	1	**17.20**
N0494	DPDT, On-Off-On	1	**20.64**

BOX, ELECTRICAL

- Steel

Part No.	Description	Dimensions (In.) W	L	D	Price
N0360	Utility, 1/2" Knockouts	2 1/8	4	1 7/8	**6.70**
N0361	Utility, 1/2" Knockouts, Deep	2 1/8	4	2 7/8	**7.40**
N0362	1900 Shallow, 21.0 cu. in., 1/2" and 3/4" Knockouts	4	4	1 1/2	**6.50**
N0363	1900 Deep, 30.3 cu. in., 1/2" and 3/4" Knockouts	4	4	2 1/8	**8.30**
N0364	Octagon, 1/2" and 3/4" Knockouts	4	4	1 1/2	**6.50**

BOX COVER, UTILITY

- Covers 2 1/8" x 4" box
- Plated finish

Part No.	Description	Price
N0365	Wall Switch Utility Cover, 2 1/8" x 4 1/8"	**3.30**
N0366	Duplex Receptable Cover, 2 1/8" x 4 1/8"	**3.30**
N0367	Blank Utility Cover, 2 1/8" x 4 1/8"	**3.00**
N0372	Octagon Electrical Box Cover, Blank, 3 5/8" x 3 5/8"	**2.60**
N0375	Utility Box Cover, 250V Receptable, 2 1/8" x 4 1/8"	**5.50**

BOX COVER, 1900 BOX

- Covers 4" x 4" box
- Plated finish

Part No.	Description	Price
N0368	Wall Toggle Duplex Cover, 4" Square	**6.50**
N0369	Square Cover/Duplex Receptable, 4" Square	**5.20**
N0371	Square Cover, Blank, 4" x 4"	**2.90**
N0377	Single Wall Toggle Utility Cover, 4" Square	**7.20**

BOX, SWITCH, COVER

BOX ASSEMBLY

- Dimensions—4 9/16" x 2 7/8" x 2 1/8"

Part No.	Description	Price
N0384	Weatherproof Box w/Switch and Cover	28.30

FUSE, RECEPTACLE AND COVER

Part No.	Description	Price
N0381	Fuse/Outlet and Cover, 1/2 HP, Single Pole Switch, 125V	38.60

SOLDERLESS TERMINAL

BUTT CONNECTOR, INSULATED

Part No.	Wire Size (AWG)	Package Qty.	Price
N6232L	22-18	50	11.60
N6217	16-14	24	7.90
N6217L	16-14	50	12.40
N6231	12-10	19	7.90

DEAD-END CONNECTOR, INSULATED

Part No.	Wire Size (AWG)	Package Qty.	Price
N6222L	22-14	50	9.00
N6223L	16-10	50	11.50
N6250N	18-8	25	11.70

FEMALE FLAG SLIP ON

- Compressor applications

Part No.	Wire Size (AWG)	Tab Size (In.)	Package Qty.	Price
N6258C	16-14	.250	100	33.00
N6270L	12-8	.250	50	24.70

FEMALE FLAG SLIP ON

Part No.	Wire Size (AWG)	Tab Size (In.)	Insulated	Package Qty.	Price
N6213C	16-14	.250	No	100	28.00
N6277N	16-14	.250	Yes	25	17.10
N6224C	12-10	.250	No	100	26.70

FULLY INSULATED SLIP ON

Part No.	Wire Size (AWG)	Tab Size (In.)	Gender	Package Qty.	Price
N6229L[1]	16-14	.250	F	50	20.20
N6233L	16-14	.250	F	50	20.90
N6234L	16-14	.250	M	50	18.70
N6240	16-14	.250	M/F	25 pairs	12.80
N6220	16-14	.250	M/F	11	4.66

[1]With insulated grip

FEMALE INSULATED SLIP ON

Part No.	Wire Size (AWG)	Tab Size (In.)	Insulated	Package Qty.	Price
N6235L	22-18	.250	Yes	50	11.80
N6214C	16-14	.250	No	100	13.40
N6218	16-14	.250	Yes	24	7.10
N6218L	16-14	.250	Yes	50	11.50
N6251	12-10	.250	Yes	19	7.00
N6251L	12-10	.250	Yes	50	15.50
N6282L	22-18	.187	Yes	50	12.10
N6281L	16-14	.187	Yes	50	11.60

MALE INSULATED SLIP ON

Part No.	Wire Size (AWG)	Tab Size (In.)	Package Qty.	Price
N6219	16-14	.250	24	6.90

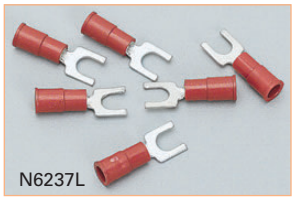
BULLET PLUG/RECEPTACLE

- Insulated

Part No.	Wire Size (AWG)	Tab Size (In.)	Package Qty.	Price
N6285L	16-14	Plug/.157	50	17.50
N6286L	16-14	Receptacle/.157	50	16.30

INSULATED RING

Part No.	Wire Size (AWG)	Stud Size	Package Qty.	Price
N6236L	22-18	8	50	10.80
N6272L	16-14	8	50	11.20
N6216L	16-14	10	50	11.90
N6252L	12-10	10	50	17.30
N6253L	12-10	1/4"	50	18.00
N6257N	8	1/4"	25	18.30



INSULATED SPADE

Part No.	Wire Size (AWG)	Stud Size	Package Qty.	Price
N6237L	22-18	8	50	10.90
N6274L	16-14	6	50	11.40
N6227L	16-14	8	50	11.40
N6228L	16-14	10	50	11.40
N6255L	12-10	10	50	15.90

INSULATED SPRING SPADE

Part No.	Wire Size (AWG)	Stud Size	Package Qty.	Price
N6238L	22-18	8	50	10.30
N6239L	16-14	8	50	10.80
N6276L	16-14	8	50	11.00

TAB ADAPTER

Part No.	Qty. Gender	Tab Size (In.)	Package Qty.	Price
N6210	1 M/1 F	.250	24	8.00
N6211C	2 M/1 F	.250	100	20.50
N6212	2 M/1 F	.250	24	7.70

TERMINAL KIT

- N6200A—16-14 wire range; stud sizes 8 and 10
- N6200D—12-10 wire range; stud size 10
- In plastic container

Part No.	Description (Qty.)	Price
N6200A	Includes N6211 (15), N6213 (20), N6217 (10), N6218 (15), N6227 (10)	35.30
N6200D	Includes N6211 (10), N6224 (10), N6231 (10), N6251 (10), N6252 (10), N6255 (15)	37.00

TERMINAL REPAIR

- Includes 3 color coded wires and hex wrench

Part No.	Description	Price
TLC310	10 Gauge Compressor Stake Kit	57.76
TLC312	12 Gauge Compressor Stake Kit	52.50

MAGJUMPER™

- Ideal for recessed terminals, and low voltage troubleshooting
- No more popping off terminals
- Great for troubleshooting thermostats, control boards, sensors and switches
- Stays flexible in cold weather

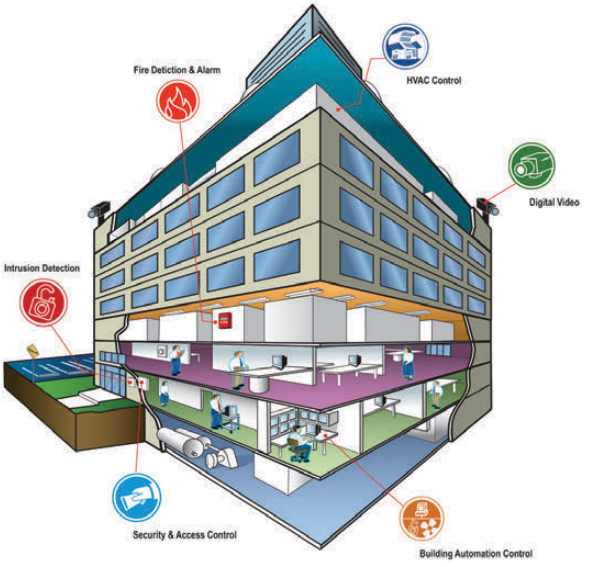
Part No.	Description	Price
MJ1	MagJumper 20" Leads, 1/4" Yellow Tip	23.16

Honeywell We've Got a Cable for That!

Mini Split Brand	Models	Cable Description	Honeywell #
Carrier®	RASLK/RASLA, 40GXM/38GXM	14/4 Stranded THHN 600V cable	1070
	40QNC/38HDF, 40KMC/38HDF	18/2 Stranded CM/CL2 Cable (up to 50 feet)	1118
		16/2 Stranded CM/CL2 Cable (up to 200 feet)	1125
	40GXQ/38GXQ, 40GXC/38GXC, 40MVQ/38MVQ, 40MVC/38MVC	18/4 Stranded CM/CL2 Cable (up to 50 feet)	1119
		16/4 Stranded CM/CL2 Cable (up to 65 feet)	1126
	40QAQ/38QRR	18/5 CL2 T-Stat Cable	4713
	40QAC/38HDR	18/2 CL2 T-Stat Cable	4710
Environair	Cooling Only Models	14/4 Stranded THHN 600V cable	1070
	Heating Models	14/7 Stranded THHN 600V cable (uses 6 conductors)	1073
	WLCG, UNCG, CACG, CACH (Cooling Only)	18/2 Stranded CM/CL2	1118
Friedrich®		14/4 Stranded THHN 600V cable	1070
Fujitsu®		14/4 Stranded THHN 600V cable	1070
Grunaire		14/4 Stranded THHN 600V cable	1070
Heat Controller Inc.		14/4 Stranded THHN 600V cable	1070
LG®		18/4 Stranded CM/CL2 cable	1119
		If the installation location requires a shielded cable, use	1215
	Line Voltage – Inverter Models	14/4 Stranded THHN 600V cable	1070
Mitsubishi®		14/4 Stranded THHN 600V cable	1070
	City-Multi Units	16/2 Stranded CM/CL2 Cable	1125
NORDYNE	IQ Drive	T-Stat: 18/4 Stranded OAS CM/CL2 cable	1215
		Communication: 18/3 Stranded Shielded CM/CL2	1228
		Power: 18/2 Stranded CM/CL2	1118
Quietside®	Single & Multizone Inverter Models; QSVSI, QSVMI	14/4 Stranded THHN 600V cable	1070
	Single-Zone Rotary Models	14/7 Stranded THHN 600V cable (uses 6 conductors)	1073
Samsung®	(Both cables required)	Power: 14/3 Stranded THHN 600V cable	1069
		Comm: 16/2 Stranded Shielded CM/CL2	1221
York®	Cooling Only Models	14/4 Stranded THHN 600V cable	1070
	Heat Pump Models	14/5 Stranded THHN 600V cable	1071

Cable Description	Voltage Rating & Listing	Part #
18/2 STR	300V CM	1118
18/4 STR	300V CM	1119
16/2 STR	300V CM	1125
16/4 STR	300V CM	1126
18/2 STR OAS	300V CM	1214
18/4 STR OAS	300V CM	1215
16/2 STR OAS	300V CM	1221
16/4 STR OAS	300V CM	1222
14/3 STR	600V THHN	1069
14/4 STR	600V THHN	1070
14/5 STR	600V THHN	1071
14/7 STR	600V THHN	1073

Contact your local United Refrigeration Branch to order



HVAC AND CONTROL CABLES

Honeywell Building Automation System

Application	Cable Description	Honeywell #
C-Bus™ (EIA-485 / BACnet®)	22/1PR STR OAS CMP	3320
LonWorks® / E-Bus	22/1PR STR CMP	3252

Alerton®

Application	Cable Description	Honeywell #
TUX Trunk/Sensors	18/2 STR OAS CMP	3214
BACtalk® MS/TP, Sensors, VLX	22/1PR STR OAS CMP	3320
IBEX Microset	18/3 STR CMP	3126
BACtalk Microset	18/3 STR OAS CMP	3226

Automated Logic®

Application	Cable Description	Honeywell #
ARC156	22/1PR STR OAS CMP	3320
Logistat	22/4 STR CMP	3104

Carrier®

Application	Cable Description	Honeywell #
MS/TP Network (EIA-485)	22/1PR STR OAS CMP	3320
Rnet	18/4 STR CMP	3115
Power	18/2 STR CMP	3114
Analog & Discrete Sensor Wiring	18/2 STR CMP	3114
	18/2 STR OAS CMP	3214

Fujitsu®

Application	Cable Description	Honeywell #
LON® Communication	22/1PR STR OAS CMP	3254
	22/2PR STR OAS CMP	3255

Johnson Controls®

Application	Cable Description	Honeywell #
24VAC Power	18/2 STR CMP	3114
Inputs & Outputs (AI/AO/DI/DO)	18/2 STR CMP	3114
	18/3 STR CMP	3126
N2 BUS EIA-485	22/1PR OAS CMP	3320
FC BUS (EIA-485)	22/1PR OAS CMP	3320
SA BUS (EIA-485)	22/2PR OAS CMP	3255
Metasys® Thermostat	24/3PR Cat 3 CMP	5042
	24/4PR Cat 3 CMP	5043

Schneider Electric® – TAC Controls

Application	Cable Description	Honeywell #
Type H (DO), Type D (AI/DI)	18/2 STR CMP	3114
Type I (AO/DO)	18/3 STR CMP	3126
Lon	22/1PR STR CMP	3252

Siemens®

Application	Cable Description	Honeywell #
Power	14/2 STR CMP	3123
TEC Valves/Dampers	18/2 STR CMP	3114
	18/3 STR CMP STR	3126
M/RBC DO	18/2 STR CMP STR	3114
SBT M/RBC AI	18/2 STR CMP STR	3114
DI, DO, AI, AO	18/2 STR CMP STR	3114
	18/3 STR CMP STR	3126
Field Level Network (FLN) BACnet	22/1PR STR OAS CMP	3320
Building Level Network (BLN) BACnet	22/1PR STR OAS CMP	3320
Automation Level Network (ALN) BACnet	22/1PR STR OAS CMP	3320
TEC Stat	24/3PR Cat 3 CMP	5042
Lon	22/1PR STR CMP	3252

Trane®

Application	Cable Description	Honeywell #
Comm 3/4	18/1PR STR TC OAS CMP	4652
Comm 5 (Echelon)	22/1PR STR CMP	3252
	22/1PR STR OAS CMP	3254
	22/2PR STR CMP	3253
Sensors	18/2 STR OAS CMP	3214
	18/3 STR OAS CMP	3226
	18/4 STR OAS CMP	3215

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BACnet® is a registered trademark of ASHRAE.
Metasys® is a registered trademark of Johnson Controls.
All other trademarks property of their respective owners.

Application	Cable Description	Recommended Genesis Cables	
		Gen. Purpose CM	Plenum CMP
Echelon LonWorks	22/1PR STR Unshd	1061	3252
	22/2PR STR Unshd	1062	3253
	22/1PR STR OAS	1063	3254
	22/2PR STR OAS	1064	3255
BACnet MS/TP EIA-485	22/1PR STR OAS (EIA-485)	–	3320
Misc. Other	18/1PR STR TC OAS (25 pF/ft., 60 Ω)	–	4652
Inputs & Outputs	18/2 STR	1118	3114
	18/3 STR	1130	3126
	18/4 STR	1119	3115
	18/2 STR OAS	1214	3214
	18/3 STR OAS	1228	3226
	18/4 STR OAS	1215	3215

Honeywell | Contractor PRO™

Are you a CPRO member? Earn points and rewards when you purchase select Honeywell Cables.

SOLDERLESS TERMINAL

QWIKLUG™ TERMINAL REPAIR KIT

QwikLug™ easily attaches to damaged or corroded spade connectors. Simply push the connector on and tighten it from the front with a Phillips screwdriver. QwikLug™ comes with color coded leads for connecting to existing wiring. The outer connector housing is a nylon insulator so the connectors can touch without shorting.

MAINSTREAM ENGINEERING

Part No.	Description	Price
QT2810	Terminal Lugs, 30 Amps, 10 AWG / 2 ft. Leads with Nut, Pkg of 3	55.46
QT2812	Terminal Lugs, 20 Amps, 12 AWG / 2 ft. Leads with Spade, Pkg of 3	53.70
QT2910	Terminal lugs, 30 Amps, 10 AWG / 4 ft. Leads with Nut, Pkg of 3	65.86

WIRE

18 GAUGE

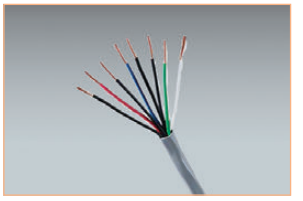
- UL Listed type CL2
- CUL Listed type CM or CHM/FT1
- NEC article 725

Part No.	No. of Conductors	Comment	Length Reel (Ft.)	Wt. (Lbs.)	Price
UL1825	2	—	500	7.00	108.34
UL1825S	2	Shielded	500	10.00	168.58
UL1835	3	—	500	9.50	160.36
UL1835S	3	Shielded	500	13.00	233.36
UL184250	4	—	250	6.25	108.84
UL1842S	4	Shielded	250	8.25	141.20
UL1852	5	—	250	7.75	107.32
UL1852S	5	Shielded	250	19.25	197.10
UL1862	6	—	250	9.25	156.34
UL1872	7	—	250	11.00	173.66
UL1882	8	—	250	12.50	161.66
UL1882S	8	Shielded	250	28.00	245.76
UL1892	9	—	250	13.75	238.84
UL18102	10	—	250	15.25	242.58
UL18122	12	—	250	16.25	306.70

18 GAUGE PLENUM CABLE

- UL Listed type CMP/MPP/CL2P
- CUL Listed type CMP/FT6
- NEC article 725 and 800

Part No.	No. Conductors	Length Reel (Ft.)	Wt. (Lbs.)	Price
PLN5502	2	500	10.25	154.56
PLN5503	3	500	11.00	180.50
PLN5504	4	250	7.25	126.12
PLN5505	5	250	8.75	137.20
PLN5506	6	250	10.50	174.80
PLN5508	8	250	11.25	232.92
PLN5510	10	250	15.25	328.98



18 GAUGE PLENUM CABLE

- Plenum rated: CMP, CL2P, C(UL), FT6 Listed
- Overall shielded

Part No.	No. Conductors	Length Reel (Ft.)	Wt. (Lbs.)	Price
32145012	2	500	9.98	183.40
32141012	2	1000	19.96	367.90
32265012	3	500	13.12	236.90
32261012	3	1000	26.24	572.24
32155012	4	500	13.36	296.56
32151012	4	500	32.72	593.14
32765012	5	500	19.37	415.54
32761012	5	1000	38.63	838.16
32165012	6	500	22.72	415.90
32161012	6	1000	45.45	830.50
32175012	8	500	29.19	528.22
32171012	8	1000	58.38	1144.50

ECHELON® LONWORKS® CONTROL CABLES

- Plenum rated: CMP, CL2P Listed
- Unshielded

Part No.	Wire Size	No. of Pairs	Length (Ft.)	Price
32531102	22	2	1000	714.20
	Echelon-Lonworks for Unshielded			
3320210X	22	2	1000	586.38
	Bacnet Stranded Shielded			

HOOK-UP WIRE

- Stranded
- Capacity—600V
- 48' lengths
- UL Listed

NATIONAL REFRIGERATION PRODUCTS

Part No.	Gauge	Color	Price
N632B	16	Black	21.70
N632R	16	Red	21.70
N632W	16	White	21.70
N633B	14	Black	26.30
N633R	14	Red	26.30
N633W	14	White	26.30
N634B	12	Black	39.30
N634R	12	Red	39.30
N634W	12	White	39.30
N635B	10	Black	61.00
N635R	10	Red	61.00
N635W	10	White	61.00
N631B	8	Black	92.58
N631R	8	Red	92.58

N6336

THERMOSTAT WIRE

Part No.	Wire Size/Conductors		Package Length (Ft.)	Price
N6336	18	3	40	26.30
N6337	18	5	40	43.60
N6338	18	8	40	51.54

N6341

SJT SERVICE CORD

- 300V capacity
- UL listed

Part No.	Gauge	Conductors	Package Length (Ft)	Price
N6341	16	3	20	30.50
N6343	14	3	20	45.00

WIRE MANAGEMENT

N1327

WIRE CONNECTOR

Part No.	Description	Package Qty.	Price
N1327	Split Bolt Connector, #8 Wire	3	16.78
N1328	Split Bolt Connector, #6 Wire	3	22.90

N63124

WHIP

- Nonmetallic sealtite

Part No.	Length (Ft.)	Connector (In.)	Wire Size	Price
N63124	4	1/2	#10	25.90
N63126	6	1/2	#10	31.50
N63344	4	3/4	#8	34.60
N63346	6	3/4	#8	37.60

CABLE STAPLE

Part No.	Description	Package Qty.	Price
N0273	Insulated Staples, 5/8" x 1/4"	50	5.32

N6293C

WIRE NUT

Color-coded connector shells are made from high dielectric, smooth polypropylene plastic to eliminate porosity and surface cracking. Resists practically all chemical action—unaffected by gasolines, oils, diluted acids and alkaline solutions. Heat-resistant up to 105°C (221°F).

Part No.	Color Code	Size	Package Qty.	Price
N6291C	Grey	Mini	100	12.30
N6292C	Blue	Mini	100	13.70
N6293C	Orange	Small	100	15.50
N6294C	Yellow	Medium	100	23.18
N6296C	Red	Large	100	29.34

Part No.	Description	Price
N6295	Assortment: Yellow (15), Orange (15), Grey (15), Red (10)	12.00

N6183

TERMINAL BLOCK

Part No.	Description	Price
N6183	6 Position, 20A, 250V, 14 AWG Maximum	5.54
N6185	10 Position, 20A, 250V, 14 AWG Maximum	8.90
N6187	14 Position, 20A, 250V, 14 AWG Maximum	12.76
N6193	6 Position, 30A, 600V, 12 AWG Maximum	10.18
N6195	10 Position, 30A, 600V, 12 AWG Maximum	16.08

N1002

CABLE MARKER

Made of vinyl impregnated cloth and mounted on dispenser cards in a portable book. All markers are designed for both above and below ground applications.

Part No.	Description	Price
N1002	""A-Z" and "0-15""	32.10
N1003	""#1 to #45""	32.10

WIRE MANAGEMENT

N6262BC

CABLE TIE, BLACK

- Ties rated to 50 lb. tensile strength

Part No.	Length (In.)	Maximum Diameter (In.)	Package Qty.	Price
N6262BC	7	1 3/4	100	7.66
N6262BM	7	1 3/4	1,000	70.74
N6263BC	11	3	100	9.96
N6263BD	11	3	500	49.28
N6265BC	14	4	100	17.46

N6263L

CABLE TIE, NYLON

- Ties rated to 50 lb. tensile strength

Part No.	Length (In.)	Maximum Diameter (In.)	Package Qty.	Price
N6261L[1]	5	1 3/8	50	3.36
N6262L	7	1 3/4	50	3.54
N6262M	7	1 3/4	1,000	58.34
N6263D	11	3	500	64.76
N6263L	11	3	50	7.14

[1]30 lb. tensile strength

CABLE TIE, MOUNTING HOLE

Part No.	Length (In.)	Maximum Diameter (In.)	Package Qty.	Price
N6264N	7	1 3/4	25	3.74

CABLE TIE MOUNT

Part No.	Description	Package Qty.	Price
N6269L	1", Adhesive Backing	50	21.98

N5381

NYLON CABLE CLAMP

Part No.	Pipe OD (In.)	Package Qty.	Price
N5381	1/8	54	5.38
N5382	1/4	45	6.22
N5383	3/8	41	6.22
N5384	1/2	39	6.22
N5385	5/8	37	6.22

HEAT SHRINK TUBE ASSORTMENT

- Assorted 6" lengths
- Includes 2 pieces each of:
  1/8" Black , 1/8" White
  1/4" Black, 1/4" White
  1/2" Black, 1/2" White

Part No.	Description	Price
N6370	Heat Shrink Tube Assortment	17.50

TEST LEAD

N5031

JUMPER

Part No.	Description	Pkg. Qty.	Price
N5031	Leads, Color Coded, Alligator Clip, Small	8	14.70
N5032	Leads, 18" Wire, Alligator Clip, Medium	2	14.50
N6025	Compressor Lead Kit	3	19.70

EZ HOOK

Part No.	Description	Pkg. Qty.	Price
N5042	EZ Hook, 18 Ga.	2	31.32

N5035

ALLIGATOR CLIP

Part No.	Description	Pkg. Qty.	Price
N5035	Alligator Clip (Med.), 2", 4 Ea.	4	7.00
N5036	Test Clip (Lg.), 2 1/2", 2 Ea.	2	9.50