General Specifications For Pneumatic Temperature Controls

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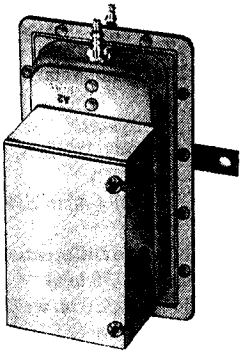
CLEAFS405 and CLEAFS460 Airflow Differential Switches



R3168

Senses positive, negative, or differential air pressures in HVAC systems. They provide high or low limit with alarm or with manual reset, high limit shutdown. UL and CSA Listed, FM approved.

Models:
- ☐ CLEAFS405: Spdt, 1/4 in. compression fittings
- ☐ CLEAFS405-112: Spdt, dual barb 1/4 and 3/8 in. fittings
- ☐ CLEAFS460: Spst n.c., manual reset

Setpoint:
Adjustable 0.05 to 12.0 wc (0.012 to 2.98 kPa)

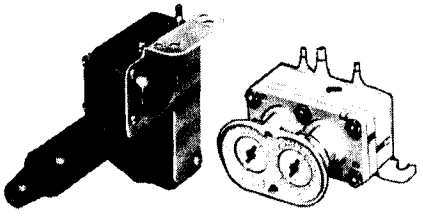
Switching Differential:
CLEAFS405: 0.02 to 0.8 in. wc (0.005 to 0.2 kPa)
CLEAFS460: 0.5 to 1.0 in. wc (0.12 to 0.25 kPa)

Maximum Differential Pressure:
0.5, psi, 13.85 in. wc, or 3.44 kPa

Electrical Rating:
CLEAFS405: Pilot duty 300 VA, 115 to 277V ac; noninductive 10A to 277V ac maximum; dry circuit 10 mA at 5V dc
CLEAFS460: 15A, 125 to 277V ac; 1/4 hp, 125V ac; 1/2 hp, 250V ac; 1/2A, 125V dc, 1/4A, 250V dc

Ambient Temperature Limits:
-40 to 180F (-40 to 82C)

CP980C-F Velocitrol™ Velocity Controller



R2650

Combines an ultra-sensitive air velocity sensor with a direct- or reverse-acting controller to detect and control air velocity in duct systems, regardless of static pressure

Models:
- ☐ CP980C: Direct-acting controller for one-pipe thermostats
- ☐ CP980D: Reverse-acting controller for one-pipe thermostats
- ☐ CP980E: Direct-acting controller for capacity-type thermostats
- ☐ CP980F: Reverse-acting controller for capacity-type thermostats

Velocity Setting:
10 to 100% of maximum

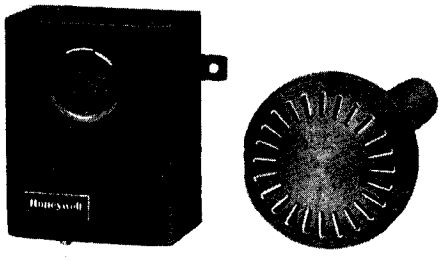
Maximum Velocity:
500 ft/min (2.5 m/sec)basic sensor.
750, 1250, 1500, 2000, 2500, or 3000 ft/min (3.7, 6.3, 7.6, 10.1, 12.6, or 17.7 m/sec) when used with range extending nozzles

Air Consumption:
0.029 scfm (13.7 mL/s). Includes air supply for one-pipe thermostat

Ambient Temperature Limits:
40 to 130F (5 to 55C)

Maximum Safe Air Pressure:
30 psi (207 kPa)

CP981A,B Velocitrol™ Velocity Controller



R2648-1

Senses and controls static pressure differential between areas in space pressurization applications by controlling velocity through a sampling tube. The controller mounts in the wall between the room to be controlled and an adjacent space.

Models:
- ☐ CP981A: Direct-acting controller
- ☐ CP981B: Reverse-acting controller

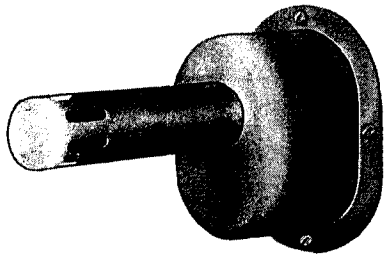
Control Range:
Minimum: 0.003 in. wc (1 Pa)
Maximum: 0.030 in. wc (10 Pa)

Air Consumption:
0.029 scfm (13.7 mL/s)

Ambient Operating Limits:
Temperature: 40 to 130F (5 to 55C)
Humidity: 5 to 95% rh

Maximum Safe Air Pressure:
30 psi (207 kPa)

☐ CP983 Velocitrol™ Fume Hood Controller



R2917

Maintains an adequate face velocity in fume hood applications for any sash opening position, allowing the quantity of air exhausted to vary. The Velocitrol Fume Hood Controller is used with horizontal or vertical sash hoods in laboratories for energy savings.

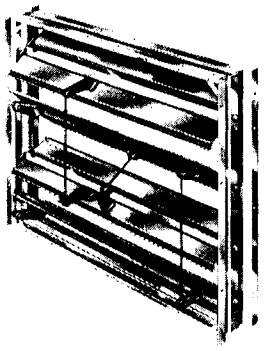
Adjustment Range:
75 to 225 ft/min (0.25 to 0.75 m/sec)

Air Consumption:
0.029 scfm (13.7 mL/s)

Ambient Operating Limits:
Temperature: 40 to 130F (5 to 55C)
Humidity: 5 to 95% rh

Maximum Safe Air Pressure:
30 psi (207 kPa)

D640-D645 Moduflow Dampers



R3424

Controls airflow in HVAC systems. Dampers are available with horizontal or vertical blades, interlocking edges, and either parallel or opposed blade action. The D642 and D643 models are equipped with self-inflating compression seals.

Models:

- ☐ D640: Standard parallel-blade damper
- ☐ D641: Standard opposed-blade damper
- ☐ D642: Low-leakage parallel-blade damper
- ☐ D642L: Low-leakage, low-static parallel-blade damper
- ☐ D643: Low-leakage opposed-blade damper
- ☐ D643LS: Low-leakage, low-static opposed-blade damper
- ☐ D644: High-temperature, low-leakage parallel-blade damper
- ☐ D645: High-temperature, low-leakage opposed-blade damper

Bearings:
Plated steel axle with nylon sleeve bearings. Oilite sleeve bearings available

Sizes:
From 8 to 48 in (203 to 1220 mm) each dimension in 2-in. (51 mm) increments

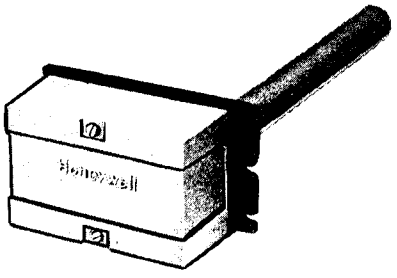
Ambient Temperature Limits:
D640, D641, D642, D643, D642LS, D643LS: -40 to 200F (-40 to 93C)
D644, D645: -40 to 400F (-40 to 204C)

Maximum Static Pressure Differential:
D640, D641: 3 in. wc (0.75 kPa)
D642, D643, D644, D645: 6 in. wc (1.5 kPa)
D642LS, D643LS: 2 in. wc (0.50 kPa)

Maximum Approach Velocity:
D640, D641: 1500 ft/min (7.6 m/s)
D642, D643, D644, D645: 4000 ft/min (20 m/s)
D642LS, D643LS: 1200 ft/min (6.1 m/s)

Duct Sampling Chamber and Airstream Mounting Bracket

☐ **Duct Sampling Chamber 14002362-001**

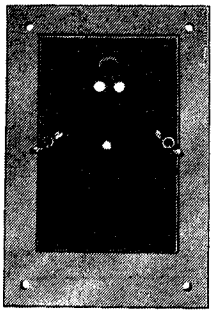


R1472

Provides an easy means for sampling air within a duct to provide humidity or temperature control. Used with HP970 Series Humidistats or TP970 Series Thermostats.

Insertion Depth:
12 in. (305 mm)

☐ **Airstream Mounting Bracket AK3996**

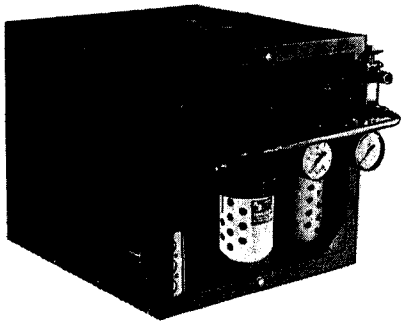


R2747

For mounting room thermostats, humidistats, or Velocitrol sensors in a duct in return air, mixed air, or discharge air application. An optional thermometer kit consisting of a thermometer and mounting means is available as listed.

- ☐ AK3992A: 25 to 125F (-4 to 52C)
- ☐ AK3992B: -40 to 160F (-40 to 71C)

HKN Compressed Air Dryers



R2711

Removes dirt, moisture, and oil from HVAC system air and provides clean, dry air to the system. Compressed Air Dryers are needed in all pneumatic systems and are sized to the air consumption of the system. The unit is positioned between the compressor and the controlled devices on the high pressure (upstream) side of the pressure reducing valve.

Models:

√	Model Number	Maximum Flow scfm (L/s)*	Nominal Pressure Drop at Rated Flow, psi (kPa)	Compressor Size, hp
	HNK8005	5 (2.24)	2.0 (14)	1/10
	HNK8005B†	5 (2.24)	2.0 (14)	1/10
	HNK8005C§	5 (2.24)	2.0 (14)	1/10
	HKN8010	10 (4.7)	2.5 (17)	1/6
	HKN8015	15 (7.1)	3.0 (21)	1/5
	HKN8025	25 (11.8)	2.0 (14)	2
	HKN8035	35 (16.5)	4.5 (31)	1/3
	HKN8045	45 (21.2)	2.0 (14)	1/2
	HKN8055	55 (26)	2.0 (14)	1/2
	HKN8070	70 (33)	2.5 (17)	3/4
	HKN80100	100 (47.2)	4.0 (28)	3/4
	HKN8210B†	10 (4.7)	2.5 (17)	1/6
	HNK8210C§	10 (4.7)	2.5 (17)	1/6

* Flow capacity is rated with inlet pressure at 100 psi (689 kPa), inlet temperature at 100F (38C), and an ambient temperature of 100F (38C).
† With the PP901A Pressure Reducing Valve and a coalescing filter.
§ With the PP901B Pressure Reducing Valve and a coalescing filter.

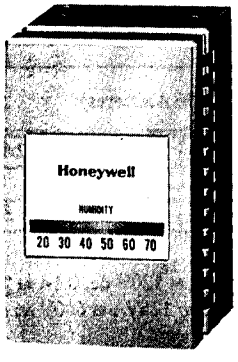
Maximum Inlet Compressed Air Temperature:
120F (49C)

Maximum Ambient Temperature:
110F (43C)

Electrical Rating:
150 or 230V ac, 60 Hz, all single phase

Minimum-Maximum Inlet Air Pressure:
60 psi (414 kPa) minimum
150 psi (1034 kPa) maximum

HP970A,B, and HP972B Pneumatic Humidistats



R3386

Controls valves and dampers in HVAC systems requiring humidification and/or dehumidification.

Models:
- ☐ HP970A: Direct acting (BLP increases with an rh increase)
- ☐ HP970B: Reverse acting (BLP decreases with an rh increase)
- ☐ HP972B: Reverse acting (BLP decreases with an rh increase)

Setpoint Range:
HP970A: 15 to 75% rh
HP970B: 15 to 75% rh or 65 to 95% rh
HP972B: 15 to 75% rh

Air Consumption:
0.011 scfm (5.2 mL/s)

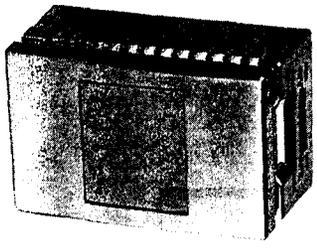
Ambient Temperature Limits:
45 to 125F (7 to 52C)

Maximum Safe Air Pressure:
25 psi (172 kPa)

Supply Air Pressure:
18 psi (124 kPa) nominal

Throttling Range:
HP970A and B: Adjustable 3 to 15% rh
HP972: Adjustable 7 to 35% rh

HP971A Pneumatic Humidity Sensor



R3363

Provides direct-acting, proportional, relative humidity sensing for control and indication in a one- or two-pipe pneumatic application. This sensor is used in conjunction with a pneumatic controller.

Ranges:
- ☐ 65 to 95% rh
- ☐ 15 to 75% rh
- ☐ 15 to 85% rh (for use with HP973 Enthalpy Controller)

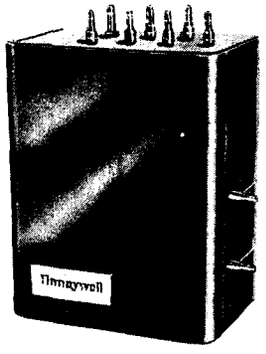
Output:
3 to 15 psi (21 to 103 kPa)

Maximum Safe Air Pressure:
25 psi (172 kPa)

Ambient Temperature:
45 to 125F (7 to 52C)

Air Consumption:
0.022 scfm (10.38 mL/s)

☐ HP973A Pneumatic Enthalpy Controller



R1557

Optimizes energy conservation and minimizes operating costs in HVAC systems. With LP914 and HP971A sensors, it measures the enthalpy (total heat content) by combining the temperature and relative humidity of outdoor and return air. It then initiates damper operation to select the air source (OA or RA) with the lowest total heat upstream of the cooling coil.

Maximum Safe Pressure:
25 psi (173 kPa)

Enthalpy Range:
Return Air: 19 to 40 Btu/lb
Dry Bulb Temperature: 65 to 85F (18 to 29C)
Relative Humidity: 20 to 75%
Outside Air: 8 to 50 Btu/lb
Dry Bulb Temperature: 32 to 110F (0 to 43C)
Relative Humidity: 15 to 85%

Air Consumption:
0.021 scfm (9.4 mL/s)

Capacity:
0.04 scfm (18.9 mL/s)

Required Accessories:
Temperature Sensors, LP914A: -40 to 160F (-40 to 70C)
Humidity Sensors, HP971A: 15 to 85% rh
Restrictions: 0.007-in. (14002913-002), and 0.005-in. (14002913-001)

L91B Proportioning Pressuretrol™ Controller

R3324

Converts a pneumatic control signal to a variable resistance as input to an electronic controller

Electrical Rating:
24V ac

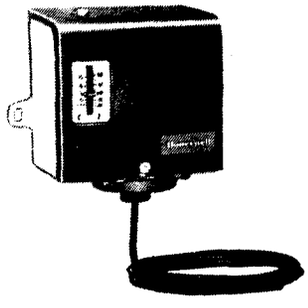
Potentiometer Action:
Wiper moves toward "W" on pressure rise; toward "B" on pressure fall

Potentiometer Resistance:
140 Ohms (nominal)

Ambient Temperature Limits:
150F (66C) maximum, 32F (0C) minimum

√	Range, psi (kPa)	Prop. Midscale Range, psi (kPa)		Maximum Safe Pressure psi (kPa)
		Minimum	Maximum	
	0 to 15 (0 to 105)	1 (7)	12 (83)	20 (138)
	5 to 150 (35 to 1034)	5 (35)	23 (160)	225 (1551)
	10 to 300 (69 to 2086)	28 (195)	110 (758)	325 (2240)

L480B, G Temperature Controllers



R3222

Responds to the lowest temperature of any one-ft portion of the 20-ft temperature sensitive element. Primarily used to close dampers and shut off fan motors when temperature falls below a critical point. The L480G has a manual reset lever. UL Listed.

Models:
- ☐ L480B: Temperature controller with spdt snap switch. Automatically recycles
- ☐ L480G: Temperature controller with spst snap switch. Manual reset

Temperature Ranges:
20 to 60F (-5 to 15C)

Electrical Rating (in Amperes):

Type	120V ac	240V ac
Full Load	10.2	6.5
Locked Rotor	61.2	39.0

DC Rating: 0.2A at 120V dc, 0.1A at 240V dc
Pilot Duty Rating: 125VA at 600V ac

Ambient Temperature Limits:
Maximum: 140F (60C)
Minimum: 20F (11C) above setpoint
Maximum Sensor Temperature: 225F (107C)

□ L4029E Limit Control

R540

Shuts down fan operation in HVAC systems when duct temperature rises to a point that indicates the presence of a fire. Must be manually reset to resume fan operation. UL Listed.

Cutout Setting (Fixed):
To break the circuit at 125, 135, 165, 200, or 240F

Electrical Rating (in Amperes):

Type	30V ac	120V ac	240V ac
Full Load	2	10	5
Locked Rotor	—	60	30

0.25A full load at 0.25 to 12V dc

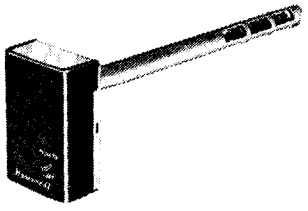
Switching Action:
Normally closed spst, opens on temperature rise to setpoint. Must be manually reset.

Maximum Ambient Temperature:
At switch 190F (88C); at bimetal 350F (177C)

Differential:
Manual reset only

Element Insertion Length:
3 or 7 in.

□ L4064K Airstat Fan Safety Cutoff Controller



R3229

Shuts down fan operation in an HVAC system when duct temperature rises to a point that indicates the presence of a fire. Must be manually reset before the fan can resume operation. UL Listed.

Temperature Setting Range:
50 to 165F (10 to 74C); adjustment lever behind cover

Electrical Rating (in Amperes):

Type	24V ac	120V ac	240V ac	0.25 to 12V dc
Full Load	2	8	4	0.25
Locked Rotor	—	48	24	—

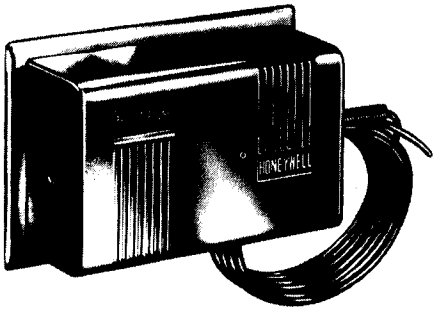
NOTE: Limit switch also rated at 125VA at 480V ac

Maximum Ambient Operating Temperature:
32 to 190F (0 to 88C) at switches, 350F (177C) at sensing element

Switching:
Spst, breaks on temperature rise to setpoint. Requires manual reset.

Element:
Helical bimetal, maximum insertion length 11-1/2 in. (292 mm)

LP906A Insertion Safety Grad-U-Stat Controller



R1455

Two-pipe, nonbleed direct- or reverse-acting controller for sensing low limit temperature. May be used to control dampers and valves. Guards against freezing of heating or cooling coils.

Setpoint Range:
35 to 65F (2 to 18C), factory set at 50F (10C)

Throttling Range:
Adjustable from 2 to 8F (1 to 4C) direct acting, 2 to 4F (1 to 2C) reverse acting. Factory set direct acting.

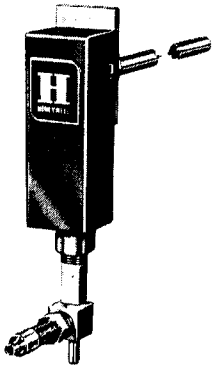
Maximum Safe Air Pressure:
20 psi (138 kPa)

Air Consumption:
0.008 scfm (3.78 mL/s)

Maximum Safe Temperature:
200F (93C)

Element:
- □ Single: 2 in. (51 mm) armored connecting capillary tube plus a 20-foot (6.1 m) sensing capillary tube
- □ Multiple: 26 in. (660 mm) armored connecting capillary tube plus four 7-1/2 foot (2.3m) elements

□ LP907A Pneumatic Airstream Insertion Thermostat



R565

Direct-acting, one-pipe, bleed-type controller commonly used as a low limit controller in HVAC systems. Invar rod and seamless brass tube insertion type sensing element provides direct acting, proportional control of valves and damper operators in the system.

Throttling Range:
Adjustable from 10 to 70F (6 to 39C), factory set at 25F (14C). Duct mounted model adjustable from 5 to 35F (3 to 19C), factory set at 15F (8C).

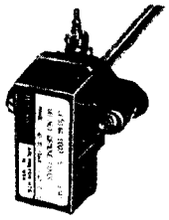
Scale Markings:
10, 20, 30, 50, and 70

Maximum Safe Air Pressure:
25 psi (172 kPa)

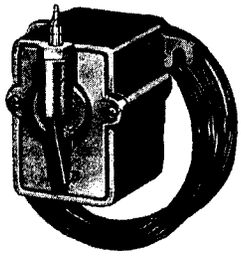
Air Consumption:
0.021 cfm (9.9 mL/s)

Temperature Limits:
20 to 250F (-7 to 121C)

LP914A and LP915A Pneumatic Temperature Sensors



LP914A



LP915A

R3430
R573

Suitable for continuous temperature indicating when the sensing signal is put to a gage, or temperature controlling when used with the RP920 controller. The LP914 may be duct-mounted, well-mounted, or through-the-wall mounted. The LP915 is duct-mounted.

Models:
- ☐ LP914A: Rod and tube element, direct acting
- ☐ LP915A: Averaging element, direct acting

Element:
LP914A: Rod and tube, 6 in. (152 mm) or 15 in. (381 mm) lengths for water and air
LP915A: Liquid filled, 8-1/2 ft, (2.6m) or 20 ft (6.1m)

Sensing Range (Nonadjustable):
LP914A:
-40 to 160F (-40 to 71C)
+40 to 240F (+5 to 116C)
-20 to 80F (-29 to 27C)
+25 to 125F (-4 to 52C)

LP915A:
0 to 200F (-18 to +93C)
25 to 125F (-4 to 52C)

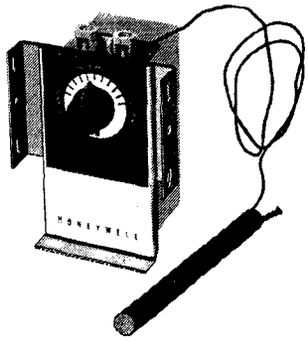
Maximum Safe Air Pressure:
25 psi (172 kPa)

Pressure Output:
3 to 15 psi (21 to 103 kPa)

Air Consumption:
0.021 scfm (9.9 mL/s)

Maximum Safe Temperature at Element:
LP914A: 265F (130C)
LP915A: 225F (118C)

LP916A-C Unit Mounted Return Air Pneumatic Thermostat



R3167

Proportionally controls induction units, fan coil units, and unit ventilators. Wide range models are for duct mounting in HVAC systems providing proportional control of valves and dampers.

Models:
- ☐ LP916A: Direct acting
- ☐ LP916B: Direct acting at 18 psi (124 kPa), reverse acting at 9 or 13 psi (60 or 90 kPa) with switchover mechanism
- ☐ LP916C: Reverse acting

Sensing Range:
40 to 80F (4 to 27C), 60 to 80F (16 to 27C), 65 to 85F (18 to 30C)

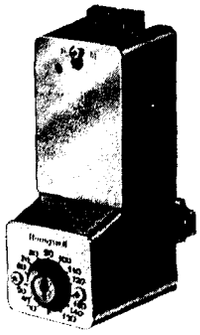
Element:
Liquid-filled bulb with capillary

Maximum Safe Air Pressure:
25 psi (172 kPa)

Air Consumption:
0.021 scfm (9.9 mL/s), 0.007 restrictor
0.011 scfm (5.2 mL/s), 0.005 restrictor

Maximum Safe Temperature:
Duct mounted 190F (88C), others 135F (57C)

LP920A, B Pneumatic Temperature Controller



R1525

Proportionally controls dampers and valves regulate air or water temperature, sensed by an integral, liquid filled element

Models:
- ☐ LP920A: Direct acting
- ☐ LP920B: Reverse acting

Setpoint Range:
35 to 150F (-1 to 66C)

Throttling Range:
5 to 25F (3 to 15C). Factory set at 10F (6C).

Maximum Safe Air Pressure:
30 psi (210 kPa)

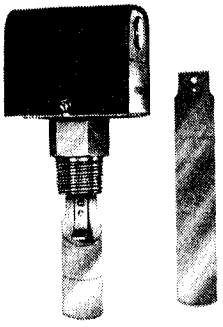
Branch Line Pressure Output:
3 to 13 psi (21 to 90 kPa)

Air Consumption:
0.011 scfm (5.2 mL/s)

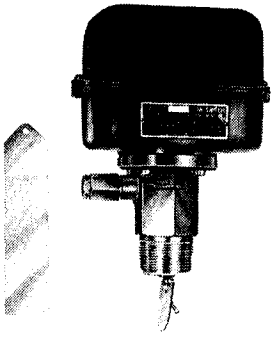
Element:
3 in, 10 in., or 5 ft capillary with 5-1/4 x 3/8 in. bulb, or 8 ft averaging capillary

Maximum Safe Temperature:
Element: 230F (110C)
Controller: 160F (70C)

MAMFS43 and MAMFS74 Water Flow Switches



R1533



R1534

Provides indication and/or alarm when water flow starts or stops. They are paddletype switches and are usable with 1- to 16-in. diameter pipe.

Models:

- ☐ MAMFS43: For 1 to 6 in. pipe
- ☐ MAMFS74: For 1-1/4 to 16 in. pipe
- ☐ MAMFS74E: NEMA 7 enclosure; UL Listed for Class 1, Groups C, D; and Class 2, Groups E, F, and G atmospheres
- ☐ MAMFS74V: NEMA 4X, watertight, dust-tight, and corrosion resistant enclosure
- ☐ MAMFS74AA: Pneumatic Switch

Flow Rates (Factory set for minimum):

MAMFS43:
6.0 to 79.2 gpm (2.24 to 0.88 fps) minimum
10.2 to 166.0 gpm (3.91 to 1.84 fps) maximum

MAMFS74:
4.8 to 513 gpm (1.03 to 0.90 fps) minimum
7.7 to 998.0 gpm (1.66 to 1.75 fps) maximum

Pressure Rating:

MAMFS43: 150 psi (1034 kPa)
MAMFS74: 300 psi (2068 kPa)

Maximum Air Valve Pressure (MAMFS74AA):

50 psi (345 kPa)

Ambient Temperature Limit:

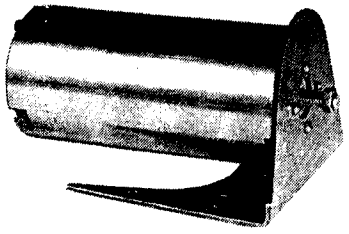
300F (149C)

Electrical Rating:

Type	120V dc	240V dc	120V ac	240V ac
DC Rating	0.3	0.15		
Motor Duty:				
Full Load			7.4	3.7
Locked Rotor			44.4	22.2

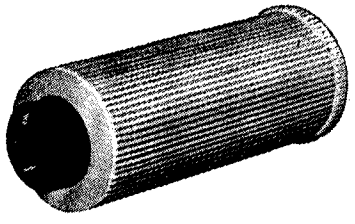
Pilot Duty: 125 VA, 120 to 240V ac.

MP909A, D, E, H Pneumatic Actuators



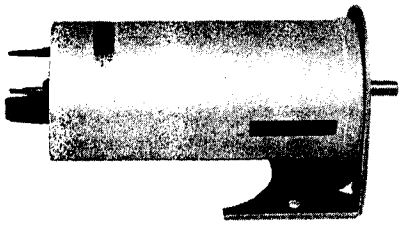
MP909A

R602



MP909D

R2918



MP909E

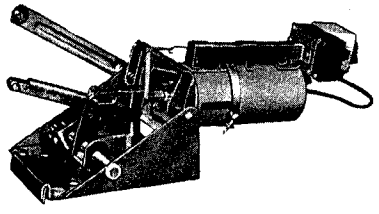
R2438

Provide proportional control of dampers in air terminal units, fan coil units, and unit ventilators, MP909D, E, and H control variable-volume terminal units, mixing boxes, and small-to-medium-sized dampers. Low-friction shaft bearings. Versatile mounting and connecting hardware, optional for MP909A and D. Close tolerance on operating range and stroke.

Models:

√	Model	Operating Range psi (kPa)	Maximum Safe Air Pressure	Ambient Temperature Range	Stroke in. (mm)	Net Force in Pounds (N) Exerted at Various Pressures		
						0 psi (0 kPa)	18 psi (124 kPa)	20 psi (140 kPa)
	MP909A	2-7 (14-48) 5-10 (34-69) 3-13 (21-90) 7-13 (40 -90)	25 (172)	-20 to 160F (-29 to 70C)	1.0-3.5 (25-89)	—	—	—
	MP909D	3-8 (21-55) 5-10 (34-69) 8-13 (55-90)	30 (207)	50 to 140F (10 to 60C)	2.4 (61) 3.0 (76)	9 (40) 15 (67) 24 (107)	— — —	36 (160) 30 (133) 21 (93)
	MP909E	3-13 (21-90) 5-10 (34-69)	29 (200)	-28 to 160F (-33 to 70C)	4.0 (100)	19.8 (88) 33 (147)	33 (147) 53 (236)	46.2 (206) 66 (294)
		2.5-6.5 (17-45) 5-10 (34-69) 9-13 (62-90)			3.1 (80)	16.5 (73) 33 (147) 59.4 (264)	76 (338) 53 (236) 33 (147)	89 (396) 66 (294) 46.2 (206)
	MP909H	All spans*	29 (200)†	-20 to 160F (-29 to 70)†	4.0 (100)	33 (147)	53 (236)	66 (294)

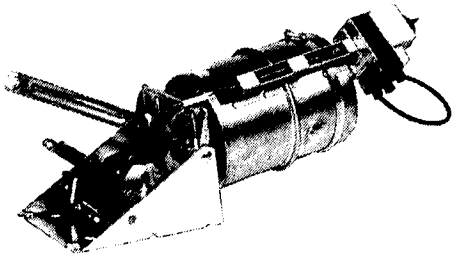
*Operating spring range of 5-10 psi (34-69 kPa). †Limited by positioner.



MP909H

R2776

MP918A, B Pneumatic Damper Actuators



R2750

Controls dampers in HVAC systems. These actuators are piston-type rolling diaphragm operated and can be mounted in any position. Slaving other actuators from an MP918A provides increased capacity to operate large damper installations.

Models:

- ☐ MP918A: Actuator with positive positioner, adjustable start point
- ☐ MP918B: Actuator without positive positioner

Maximum Safe Air Pressure:
MP918A: 25 psi (172 kPa)
MP918B: 29 psi (200 kPa)

Stroke:
3-1/2 in. (90 mm)

Air Consumption (MP918A):
0.021 scfm (9.9 mL/s)

Operating Pressures:
MP918A: 3, 5, or 10 psi (21, 34, or 69 kPa) span, nonadjustable
MP918B: 3 to 7, 3 to 13, 5 to 10, 8 to 13 psi (21 to 48, 21 to 90, 34 to 69, 55 to 90 kPa)

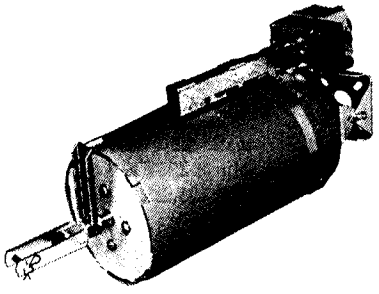
Effective Area:
23.8 in.^{2} (154 cm^2)

Ambient Temperature Range:
MP918A: -20 to 158F (-29 to 70C)
MP918B: -40 to 158F (-40 to 70C)

Net Force Exerted in lb (N):

Model No.	Range psi (kPa)	0 psi (0 kPa)	18 psi (124 kPa)
MP918A	—	160 (712)	83 (370)
MP918B	3-7 (21-48)	52 (230)	244 (1087)
	3-13 (21-103)	50 (223)	89 (396)
	5-10 (34-69)	96 (427)	162 (719)
	8-13 (55-103)	160 (712)	83 (370)

☐ MP920B Pneumatic Damper Actuator



R2992

Controls fan inlet vanes in a variable air volume system. This actuator can be swivel mounted from either end to pipe, floor, or wall surface. An optional positive positioner 14004345-001 provides accurate positioning under varying load conditions.

Maximum Safe Air Pressure:
29 psi (200 kPa)
25 psi (172 kPa) with positioner

Stroke:
6 in. (150 mm)

Effective Area:
24.8 in.^{2} (160 cm^2)

Spring Range:
7 to 13 psi (48 to 90 kPa)

Net Force Exerted:
173 lb (770 N) at 0 psi (0 kPa), 298 lb (1326 N) at 20 psi (138 kPa)

Ambient Temperature Range:
-20 to 158F (-30 to 70C)

Positioner Start Point:
1-1/2 to 13 psi (10 to 90 kPa)

Positioner Input Span:
10 psi (69 kPa)

Air Consumption (with positioner):
0.021 scfm (9.9 mL/s)

MP953C-F Pneumatic Coil Valve Actuators

R2620

Provides direct or reverse acting proportional control of V5011 or V5013 Valves. May or may not be supplied with positive positioner.

Models:
- ☐ MP953C: Direct acting, no positive positioner
- ☐ MP953D: Reverse acting, no positive positioner
- ☐ MP953E: Direct acting, no positive positioner
- ☐ MP953F: Reverse acting, no positive positioner

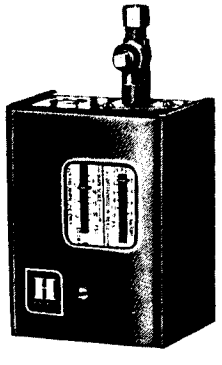
Range:
MP953C: (5, 8, and 13 in.): 2 to 7, 4 to 11, 8 to 12 psi (14 to 48, 28 to 76, 55 to 83 kPa)
MP953D: (7-1/8 in.): 3 to 7, 4 to 11, 8 to 13 (21 to 48, 28 to 76, 55 to 90 kPa)
MP953E: (5, 8, and 13 in.): 3, 5, or 10 psi (21, 34, or 69 kPa) span
MP953F: (7 in.): 3, 5, or 10 psi (21, 34, or 69 kPa) span

Stroke:
MP953C: 1/2, 3/4, or 1-1/2 in. (13, 19, or 38mm)
MP953D: 1/2, 3/4,. (13 or 19mm)
MP953E: 3/4 or 1-1/2 in. (19 or 38mm)
MP953F: 3/4 in. (19mm)

Maximum Diaphragm Temperature:
160F (71C) Standard
250F (121C) High-temperature models (MP953C and D only)

Air Consumption (MP953E, F):
0.021 scfm (9.9mL/s)

☐ P643A Pressuretrol Controller



R3313

Uses a pneumatic signal to start and stop HVAC fans. Setpoint and switching differential are field adjustable. UL and CSA Listed.

Setpoint Range:
0 to 22.5 psi (0 to 155 kPa)

Differential:
Adjustable, 3 to 13 psi (20 to 90 kPa)

Electrical Rating (in Amperes):

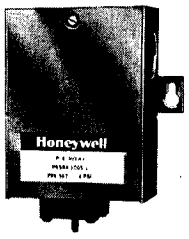
Type	120V ac	208, 240V ac	277V ac	277V ac
Full Load	8.0	5.1	—	3.5
Locked Rotor	48.0	30.6	—	21.0
Resistance Load	17.0	17.0	17.0	10.0

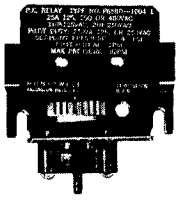
Maximum Safe Air Pressure:
25 psi (175 kPa)

Switching:
Spdt, makes R to W on pressure rise, makes R to B on pressure fall

Ambient Temperature limits:
-30 to 125F (-34 to 52C)

P658A-C Pneumatic/Electric Switch





R3312

Converts a pneumatic signal from a controller or other pneumatic device to a two-position electric switch action. It provides on/off control of fans, pumps, electric heaters or other electrical equipment commonly found in mechanical systems.

Models:
- ☐ P658A: Includes enclosure for surface mounting
- ☐ P658B: Bracket model, for internal panel mounting, no enclosure
- ☐ P658C: Bracket model, for internal panel mounting, no enclosure; for DELTA 2000 Remote Data Gathering Panels

Setpoint:
P658A and B: Factory set at 4, 10 or 14 psi (28, 69, or 97 kPa)
P658C: Factory set at 10 psi (69 kPa)

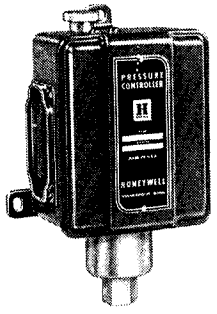
Setpoint (field adjustment):
2 to 24 psi (14 to 170 kPa)

Maximum Safe Air Pressure:
30 psi (210 kPa)

Electrical Rating:
P658A and B: 25A at 125, 250, or 480V ac
1 hp at 125V ac, 2 hp at 250V ac
Pilot Duty: 750 VA at 125, 250, or 277V ac
P658C: 5 mA, 5V dc

Differential:
P658A, B: Fixed at 2 psi (14 kPa)
P658C: Fixed at 1.5 psi (10.5 kPa)

☐ PP97A Pressure Controller



R623

Provides proportional control of pneumatic motors and valves. It is a one-pipe, bleed type pressure controller which may be used to control the pressure of steam, air, or noncorrosive liquids and gases. A changeover link provides simple changeover to either direct-or reverse-acting.

Adjustment Means:
External knob on top of case for setting control point. External slotted screw for throttling range.

Branch Line Range:
3 to 13 psi (21 to 90 kPa)

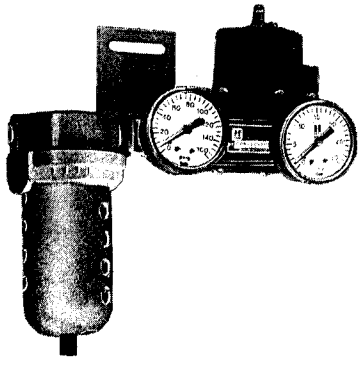
Type of Element:
Bellows

Air Connections:
1/8 in. NPT female

Pressure Connection to Bellows:
1/4 in. NPT male

Setpoint Range	Mid-Scale Throttling Range psi (kPa)		Controlled Medium Max. Allowable Pressure, psi (kPa)
	Minimum	Maximum	
22 in. Hg Vac to 35 psi (-74-241 kPa)	0.5 (3)	3.5 (24)	85 (586)
0-1 psi (7 kPa)	0.03 (0.04)	0.2 (1.4)	5 (34)
0-4 psi (28 kPa)	0.1 (0.7)	1.4 (10)	10 (69)
0-15 psi (103 kPa)	0.1 (0.7)	1.5 (10)	25 (172)
2-50 psi (14-345 kPa)	0.4 (3)	4.1 (28)	85 (586)
5-150 psi (34-1034 kPa)	0.9 (6)	6.5 (45)	185 (1276)
10-300 psi (69-2068 kPa)	2.5 (171)	12.0 (83)	350 (2413)

PP901A, B and PP902C, D Pressure Reducing Valves and Filter Station



R2692

Provides control of air pressure in pneumatic control systems. The PP901 is the prv alone. The PP902 includes a filter station.

Models:
- ☐ PP901A: Use in single-pressure systems
- ☐ PP901B: Use in two-pressure systems. Switchover from one setting to the other is provided by a two-position switch actuated either electrically or pneumatically.
- ☐ PP902C: With filter. Use in single-pressure systems.
- ☐ PP902D: With filter. Use in two-pressure systems. Switchover from one setting to the other is provided by a two-position switch actuated either electrically or pneumatically.

Inlet Pressure:
45 to 150 psi (310 to 1034 kPa)

Outlet Pressure (Regulated):
0 to 25 psi (0 to 172 kPa), factory set at 0 psi (0 kPa)

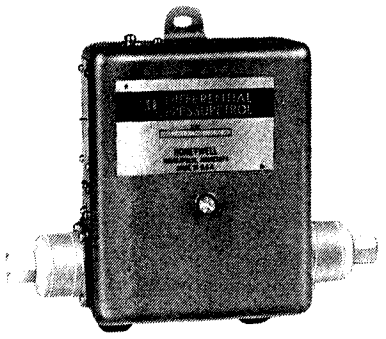
Safety Pressure Relief:
12 to 25 psi (83 to 172 kPa), factory set at 23.5 psi (162 kPa)

Gages (PP902):
0 to 160 psi inlet, 0 to 30 psi outlet

Filter Rating (PP902):
Oil Removal: 99 percent
Solid Removal: 100 percent of particles 0.6 micron or larger; 90 percent of particles 0.4 micron or larger

Air Consumption:
PP901A, B: 0.053 scfm (25.0 mL/s)
PP902C, D: 0.060 scfm (28.3 mL/s)

☐ PP903A Differential Pressuretrol



R628

Provides proportional control of pneumatic motors and valves. This pressure-operated, bleed type, one-pipe controller varies the air pressure piped to it in relation to water pressure differential.

Maximum Safe Air Pressure:
18 psi (124 kPa)

Operating Pressure Limits of Bellows Assembly:
22 in. Hg vac to 85 psi (586 kPa)
2 to 85 psi (14 to 586 kPa)
0 to 300 psi (0 to 2068 kPa)

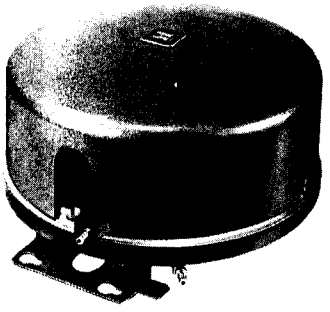
Adjustment Means:
External slotted screws for throttling range and pressure range

Type of Element:
Brass Bellows

Pressure Connection to Bellows:
1/4 NPT

Air Consumption:
0.030 scfm (14.2 mL/s)

☐ PP904A Differential Pressure Regulator



R1477

Controls the static, differential, or velocity pressures in central fan installations, or is used as an adjustable range differential pressure transmitter with pneumatic control devices.

Setpoint Range:
Adjustable 0.01 to 8 in. wc (0.0025 to 2.0 kPa)

Throttling Range:
PP904A: Adjustable, 0.02 to 0.5 in. wc (0.005 to 0.12 kPa)

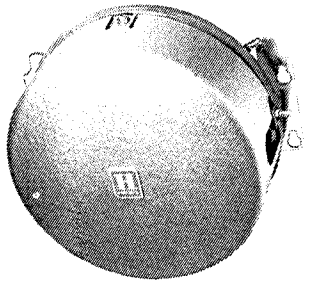
Maximum Safe Air Pressure:
25 psi (172 kPa)

Safe Static Pressure:
28 in. wc (6.96 kPa)

Air Consumption:
0.021 scfm (9.9 mL/s)

Ambient Temperature Limits:
40 to 120F (4 to 49C)

☐ PP905B Static Pressure Sensor



R2879

Senses static or differential pressure in central fan installations. Used with calibrated gage, the sensor continuously indicates pressure. Direct or reverse acting.

Span:
2 in. wc (0.5 kPa), nonadjustable

Setpoint Range:
Adjustable 0 to 6 in. wc (0 to 1.5 kPa), direct or reverse acting, factory set at 1 in. wc (0.25 kPa), direct acting. Setpoint determines the midpoint of the span.

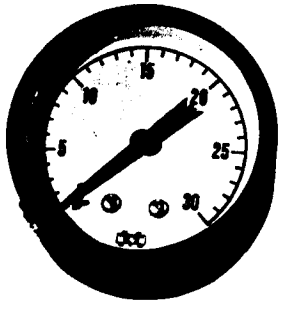
Maximum Safe Air Pressure:
25 psi (172 kPa)

Safe Static Pressure:
28 in. wc (6.96 kPa)

Air Consumption:
0.021 scfm (9.9 mL/s)

Ambient Temperature Limits:
40 to 120F (4 to 49C)

Pneumatic Gages



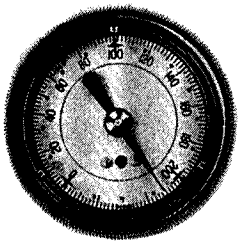
R3238

Provides continuous indication of various conditions in a pneumatic control system

Indication Gages

Use indication gages wherever pneumatic system pressure indication is required

√	Part No.	Range psi	Mounting	Dial Size
	305965	0-30	1/8 in. MPT Back Connected	1-1/2 in.
	305914		1/8 in. MPT	2 in.
	305916		1/4 in. MPT Back Cover	
	305912	0-100	1/8 in. MPT Back Cover	
	305911	0-160		
	804191B	0-30	Flush	2-1/2 in.
	804191C	0-60		
	804191E	0-160		
	804190B	0-30		3-1/2 in.
	804190C	0-60		
	804190E	0-160		



R3067

Receiver Gages

Provides indication in measured variable units on a 3 to 15 psi (21 to 103 kPa) signal from a pneumatic sensor. Scaleplates are replaceable for 2-1/2 and 3-1/2 in. models.

Center-Back Mounting 1-1/2 In. (38 mm) Dial Gages:

√	Part No.	Range	Unit
	305972	50 to 100	Degrees Fahrenheit
	305931	40 to 240	
	14000786-001	25 to 125	
	305930	0 to 200	
	305986	-20 to 80	
	305929	-40 to 160	
	305973	10 to 38	Degrees Celsius
	14000786-002	-5 to 55	
	305616	0 to 2	Inches Water
	305617	1 to 3	
	305618	2 to 4	
	305619	3 to 5	
	305620	4 to 6	
	14000786-004	65 to 95	Percent
	14000786-003	15 to 75	Relative Humidity
	14000786-005	15 to 75	

Surface Mounted 3-1/2 In. (89 mm) Dial Gages:

√	Part No.	Range	Unit
	305935	-40 to 160	Degrees Fahrenheit
	305984	-20 to 80	
	305936	0 to 200	
	14000785-001	25 to 125	
	305990	40 to 75	
	305937	40 to 240	
	305970	50 to 100	
	305950	-40 to 70	Degrees Celsius
	305951	-20 to 80	
	305991	5 to 25*	
	305993	5 to 25	
	305952	5 to 105	
	305955	5 to 105*	

*For 1-4 in. O.D. plastic tube.

Stem Mounted 3-1/2 In. (89 mm) Dial Gages:

√	Part No.	Range	Unit
	305962	-40 to 70	Degrees Celsius

Flush Mounted Receiver Gage Bodies (Less Scaleplate):

14505895-001, 2-1/2 in. (38 mm) dial, ±2% accuracy

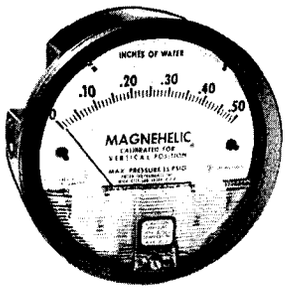
14505895-101, 2-1/2 in. (38 mm) dial, ±1% accuracy

14505896-001, 3-1/2 in. (89 mm) dial, ±2% accuracy

14505896-101, 3-1/2 in. (89 mm) dial, ±1% accuracy

14505896-201, 3-1/2 in. (89 mm) dial, ±1/4% accuracy

Differential Pressure Gages



R2975

R2979

Provides continuous indication of static pressure, total pressure, velocity pressure, differential pressure, or airflow

√	Model No.	Scale Range
	DWY2000-00	0 to 0.25 in. wc
	DWY2000-0	0 to 0.50 in. wc
	DWY2001	0 to 1.0 in. wc
	DWY2002	0 to 2.0 in. wc
	DWY2003	0 to 3.0 in. wc
	DWY2004	0 to 4.0 in. wc
	DWY2005	0 to 5.0 in. wc
	DWY2006	0 to 6.0 in. wc
	DWY2008	0 to 8.0 in. wc
	DWY2010	0 to 10.0 in. wc
	DWY2310	0.5-0-0.5 in. wc
	DWY2000-60 Pa	0 to 60 Pa
	DWY2000-125 Pa	0 to 125 Pa
	DWY2000-250 Pa	0 to 250 Pa
	DWY2000-500 Pa	0 to 500 Pa
	DWY2000-750 Pa	0 to 750 Pa
	DWY2000-1.5 kPa	0 to 1.5 kPa
	DWY2000-2 kPa	0 to 2 kPa
	DWY2000-3 kPa	0 to 3 kPa

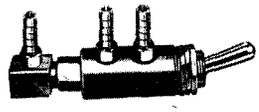
Airflow Gages

Provides continuous indication of airflow. Single Scale DWY24 and DWY25. Dual scale airflow gages use the standard DWY2000-00, DWY2000-0, DWY2001, or DWY2002 Differential Pressure Gages with custom scaleplates.

Models:
- ☐ DWY24: 4% accuracy
- ☐ DWY25: 3 or 2% accuracy

Scaleplate Indication:
0-10, 12, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90

☐ Pneumatic Toggle Switch 802550



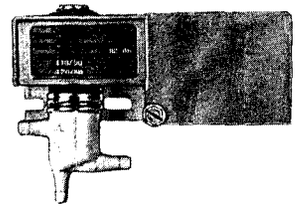
R28

Maintains two-position switching. The exhaust port permits the switch to supply and exhaust a branch line or divert flow from one branch line to another.

Type:
3-way, two-position, positive-acting

Maximum Safe Air Pressure:
25 psi (172 kPa)

RP418A, C; RP818A



R2624

Electrically operated pneumatic switches that interlock between an electrical system and a pneumatic control system. They are stop and bleed, diverting, or selector relays.

Models:
- ☐ RP418A: Wall mounted with splice box
- ☐ RP418C: Wall mounted with splice box plus cord and plug
- ☐ RP818A: Wall mounted with splice box

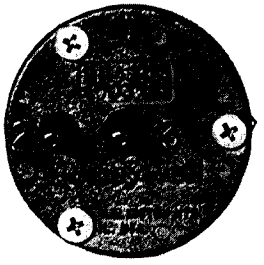
Maximum Safe Air Pressure:
50 psi (345 kPa)

Air Capacity:
At 20 psi (138 kPa) supply; 1 psi (7 kPa) pressure drop 0.42 scfm (0.20 L/s)

Power Consumption:
12.5 VA Inrush
7.1 VA Holding

Available Voltage/Frequency:
RP418A: 110-120/50-60, 120/50, 208/60, 208-220/50, 220-240/50-60, 240/50, 277/60, 440-480/50-60
RP818A: 24/50 or 60

RP470A, B Pneumatic Relays



R734

Three-port relay used in pneumatic systems

Models:
- ☐ RP470A: Transmits the higher of two input signals
- ☐ RP470B: Performs one of the following functions:
  - Locks out one signal when a second signal is higher
  - Acts as a repeater isolating a signal line
  - Transmits the lower of two signals

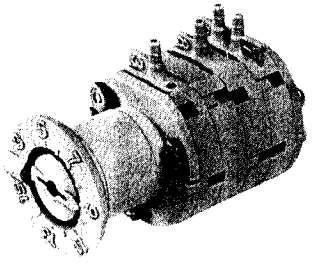
Operating Range:
0 to 18 psi (0 to 124 kPa)

Maximum Safe Air Pressure:
30 psi (207 kPa)

Ambient Operating Limits:
Temperature: 0 to 140F (-18 to 60C)
Humidity: 5 to 95%

Air Handling Capacity:
0.039 scfm at 1 psi differential (18 mL/s at 5 kPa differential.)

☐ RP471 Pneumatic Snap-Acting Relay



R1633

Transforms a gradual air pressure change from a controller to a positive (two-position) pressure change at a pneumatic valve or damper operator. It can also divert a supply line to one of two branches by snap action.

Setpoint Range:
3 to 15 psi (21 to 103 kPa), adjustable

Differential:
0.2 to 0.8 psi (1.4 to 5.5 kPa), nonadjustable

Maximum Safe Air Pressure:
30 psi (207 kPa)

Range:
3 to 15 psi (21 to 103 kPa) on scale

Ambient Operating Limits:
Temperature: 0 to 140F (1 to 60C)
Humidity: 5 to 95 %

Air Consumption:
0.002 scfm (0.9 mL/s)

RP670A, B Pneumatic Switching Relays

RP670A

RP670B

R738
R737

Switches a valve or damper actuator from one circuit to another. In pneumatic heating and cooling control systems, switchover pilot pressure must be two-position, not modulated.

Models:
- ☐ RP670A: Spdt
- ☐ RP670B: Dpdt

Switching Action:
RP670A: 3-7, 13-17, 18-22, 20-25 psi (21-48, 90-117, 124-152, 138-172 kPa)
RP670B: 3-7, 13-17 psi (21-48, 90-117 kPa)

Maximum Safe Air Pressure:
25 psi (172 kPa)

Air Handling Capacity:
0.039 scfm (18.4 mL/s) at 1 psi (7 kPa) pressure drop

Ambient Operating Limits:
Temperature: 20 to 140F (-7 to 60C)
Humidity: 5 to 95%

☐ RP913A Optimatic Load Analyzer

R3654

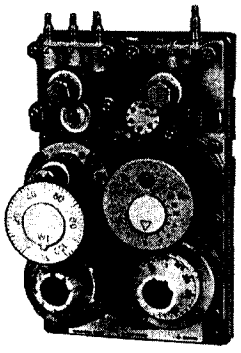
Selects the highest and/or lowest pressure input from zone thermostats. It selects the highest pressure demand (cooling) and/or lowest pressure demand (heating) to operate final control devices. Up to seven inputs may be fed into a single RP913A.

Maximum Safe Air Pressure:
25 psi (172 kPa)

Air Consumption:
0.04 scfm (18.9 mL/s)

Operating Temperature Range:
40 to 140F (4 to 60C)

RP920A-D Modular Pneumatic Controller



R2801

Provides proportional (P) or proportional plus integral (P+I) direct or reverse acting control of temperature, humidity, pressure, or dewpoint in conjunction with remote sensors. All models available with Control Point Adjustment (CPA).

Models:
- ☐ RP920A: Single Input P Controller
- ☐ RP920B: Dual Input P Controller
- ☐ RP920C: Single Input P+I Controller
- ☐ RP920D: Dual Input P+I Controller

Maximum Safe Air Pressure:
30 psi (200 kPa)

Air Consumption:
Add sensor consumption for total. Values rated for 18 psi MLP and 8.5 psi BLP (125 kPa MLP and 58 kPa BLP).

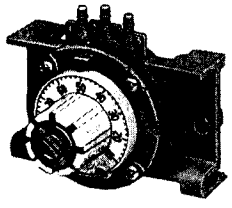
RP920A and C: 0.021 scfm (9.9mL/s)
RP920B and D: 0.046 scfm (21.7mL/s)

Ambient Temperature:
40 to 130F (5 to 55C)

Input Signal:
3 to 15 psi (21 to 103 kPa)

Output Signal:
3 to 13 psi (21 to 90 kPa)

☐ RP922A Pneumatic Potentiometer



R2919

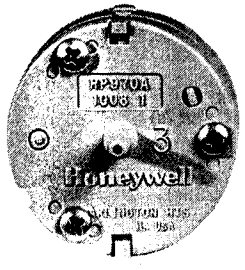
Three-port multipurpose device used in control systems for the following:
- Sum of two input pressures
- Average of two input pressures
- Adjustable flow restriction
- Adjustable pressure supply

Maximum Safe Air Pressure:
30 psi (207 kPa)

Ambient Temperature Limits:
30 to 122F (4 to 50C)

Air Consumption:
Sum of two input pressures: None
Ratio of two input pressures: None
Adjustable flow restriction: None
Adjustable pressure supply application: 0.007 scfm (3.3 mL/sec)

☐ RP970A Pneumatic Capacity Relay



R743

This direct-acting, proportional relay increases the capacity of the branch line signal operating pneumatic actuators for valves or dampers. Can also be used as a lower of two pressure selector relay.

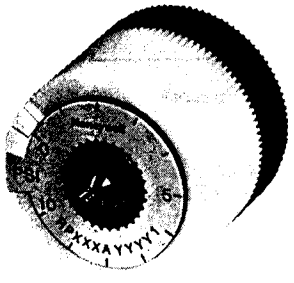
Maximum Safe Air Pressure:
30 psi (205 kPa)

Ambient Operating Limits:
Temperature: 0 to 140F (-18 to 60C)
Humidity: 5 to 95%

Air Handling Capacity:
0.039 scfm at 1 psi (18 mL/s at 7 kPa) differential

Air Consumption:
0.0017 scfm (0.8 mL/s) maximum

☐ RP971A Pneumatic Ratio Relay



R746

Produces a modulating pressure output proportional to pilot pressure changes. This four-port nonbleed direct-acting relay is used to control valves or dampers in sequence from a single pressure input.

Pilot Operating Span:
3 or 5 psi (21 or 34 kPa), nonadjustable

Startpoint Adjustment:
0 to 10 psi (0 to 69 kPa)

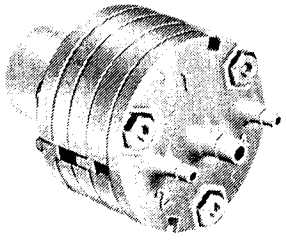
Maximum Safe Air Pressure:
30 psi (205 kPa)

Air Handling Capacity:
0.039 scfm at 1 psi (18 mL/s at 7 kPa) differential

Air Consumption:
0.002 scfm (0.9 mL/s)

Ambient Operating Limits:
Temperature: 0 to 140F (-18 to 60C)
Humidity: 5 to 95%

☐ RP972A Pneumatic Reversing Relay



R751

Reverses and increases the capacity of the branch line pressure to the final control device in all types of HVAC systems. May be set to decrease from 13, 16, or 18 psi (90, 110, or 124 kPa).

Maximum Safe Air Pressure:
30 psi (207 kPa)

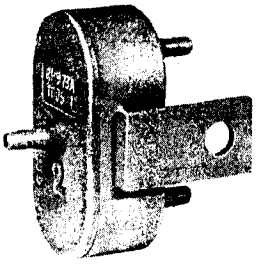
Operating Pressures:
Pilot: 3 to 15 psi (21 to 103 kPa)
Output: 15 to 3 psi (103 to 21 kPa)

Ambient Temperature Limits
0 to 140F (-18 to 60C)

Air Handling Capacity
0.039 scfm at 1 psi (18 mL/s at 7 kPa) differential

Air Consumption
0.0017 scfm (0.8 mL/s)

☐ RP973A Pneumatic Averaging Relay



R753

Direct-acting, three-port relay used in control systems where the average of two input pressures is required to operate a valve or damper actuator, or as a controller input.

Maximum Safe Air Pressure
30 psi (207 kPa)

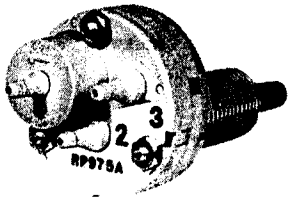
Operating Air Pressure
3 to 15 psi (21 to 103 kPa) input and output

Output accurate to ±15% of difference of the two inputs

Ambient Operating Limits
Temperature: 32 to 125F (0 to 52C)
Humidity: 5 to 95%

Air Consumption:
0.007 scfm (3.3 mL/s) maximum

☐ RP975A Pneumatic Hesitation Relay



R754

Controls damper actuators in large volume unit ventilator applications. It is a three-port hesitation relay.

Output:
Factor calibrated for 7 to 12 psi (48 to 83 kPa), manually adjustable. May be recalibrated for any 5 psi (34 kPa) span in the 9 to 18 psi (0 to 124 kPa) range.

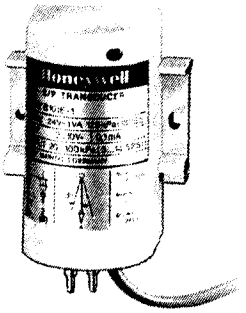
Normal Operating Pressures
Main (Port 1): 18 psi (124 kPa)
Branch Output (Port 2): 0 to 18 psi (0 to 124 kPa)
Pilot Input (Port 3): 0 to 18 psi (0 to 124 kPa)

Maximum Safe Air Pressure
30 psi (207 kPa)

Air Consumption:
0.022 scfm (10 mL/s) maximum

Ambient Operating Limits
Temperature: 32 to 125F (0 to 52C)
Humidity: 5 to 95%

RP7517A, B Electronic/Pneumatic Transducer



R2988

Converts a proportional, electric output signal from a controller into a direct-acting, proportional pneumatic signal for a pneumatic actuator

Models:
- ☐ RP7517A: Two-wire, without internal power supply. Used with Micronik 100 and DeltaNet DDC.
- ☐ RP7517B: Three-wire, with internal power supply. Used with Excel DDC.

Power Supply:
RP7517A: None
RP7517B: 24V, 10%, -15%, 50/60 Hz

Input Signal:
2 to 10V dc

Output Pressure:
3 to 14.5 psi (21 to 100 kPa)

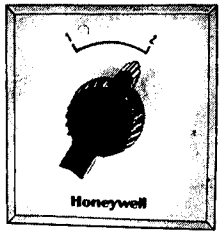
Maximum Safe Air Pressure:
29 psi (200 kPa)

Air Consumption:
0.024 scfm (11.3 mL/s)

Air Capacity:
0.45 scfm (211 mL/s)

Ambient Operating Limit:
Temperature: 41 to 131F (5 to 55C)
Humidity: 5 to 95% rh

SP470A, B Pneumatic Switch



R828

Two- or three-position switches used in pneumatic control systems to manually divert air between system components.

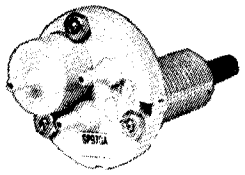
Models:
- ☐ SP470A: Panel or electrical box mounted
- ☐ SP470B: Panel mounted

Maximum Safe Air Pressure
30 psi (205 kPa)

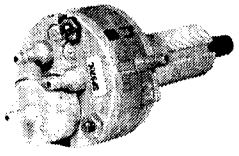
Ambient Operating Limits
Temperature: 0 to 140F (-18 to 60C)
Humidity: 5 to 95%

Air Capacity:
0.715 scfm at 1 psi (82.6 mL/s at 7 kPa) pressure drop

SP970A-D Manual and Minimum Position Switches



SP970A



SP970C

R1325
R833

Manually regulates pressure to an output device such as a damper actuator. May be piped to an input device to provide external override of the manual setting.

Models:
- ☐ SP970A: Three-port manual or minimum position switch with pilot bleed
- ☐ SP970B: Same as SP970A but with wall mounting bracket
- ☐ SP970C: Four-port pneumatic switch with isolated pilot chamber
- ☐ SP970D: Same as SP970C but with wall mounting bracket

Selectable Spans in psi (kPa):

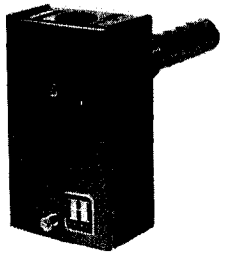
	Knob Rotation*		
Model	188	244	300
Small Span	5 (34	6.5 (45)	8 (55)
Large Span	10 (69)	13 (90)	16 (110)

* The setpoint knob normally rotates 188 degrees. Two breakaway stops allow 244 and 300 degree rotation.

Maximum Safe Air Pressure:
30 psi (207 kPa)

Air Consumption:
0.022 scfm (10 mL/s)

☐ SSP129A Dewprobe Sensor



R3215

Measures dewpoint temperature of air in HVAC systems when used with a sensor and controller. Provides control or limit sensing functions.

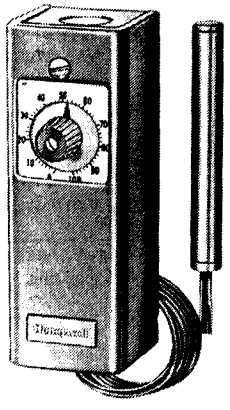
Dewpoint Range:
10 to 90F (-12 to 32C)

Electrical Rating of Transformer:
20V ac

Power Consumption:
25 Watts

Maximum Ambient Temperature:
180F (82C)

T675A, B; T678A Temperature Controllers



R3223

Regulates the temperature of air or liquids in ducts, pipes, tanks, and boilers using two-position switching. Typical uses include control of dampers and valves in HVAC systems.

Models:
- ☐ T675A: Spdt switch that breaks R-B and makes R-W at setpoint on temperature rise
- ☐ T675B: Spdt switch that breaks at setpoint on temperature fall, manual reset low limit
- ☐ T678A: Two spdt switches that operate in sequence. The right switch breaks R-B and makes R-W at setpoint on temperature rise. The left switch breaks R-B and makes R-W if temperature rises through interstage differential.

Electrical Rating (in Amperes):
T675A (Adjustable Differential) and T678A

Type	120V ac	240V ac	277V ac
Full Load	8.0	5.1	4.2
Locked Rotor	48.0	30.6	25.2

Pilot Duty: 125 VA

T675A (fixed differential): 125 VA at 120/208/240/277V ac
T675B: 125 VA pilot duty up to 277V ac
T678A: 2000 VA maximum connected load

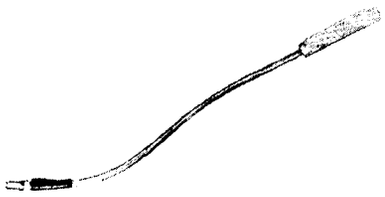
Maximum Sensing Bulb Pressure:
50 psi (345 kPa)

Capillary:
T675A, T678A: 5 ft (1.5m)
T675B: 10 ft (3m)

Model	Differential F (C)	Scale Range*	Maximum Bulb Temperature F	C
T675A	Adjustable	0-100	125	52
	3-10 (1.7-5.6)	160-260	280	138
	3.6-12 (2.0-6.7)	55-175	200	93
	Fixed at 1 (0.6)	0-100	125	52
		160-260	280	138
		55-175	200	93
T675B	Manual Reset	30-50	125	52
T678A	Each Switch:			
	Fixed at 3 (1.7)	0-100	125	52
	Interstage:	160-260	280	138
	Adjustable			
	3-10 (1.7-5.6)			
	Each Switch:			
	Fixed at 3.6 (2.0)	0-100 †	125	52
	Interstage:	55-175	200	93
	Adjustable			
	3.6-12 (2-6.7)			

* Celsius scaleplates available.
† Sensing element is a 12 ft. (3.7 m) with 10 ft (3 m) capillary.

☐ TP925A Air Light Troffer or Dewpoint Sensor



R951

Proportional type temperature sensor used with RP920 Controllers to operate valves and dampers in HVAC systems. May be used with calibrated gage for continuous temperature indication.

Sensing Range:
Nonadjustable, 50 to 100F (10 to 38C)

Maximum Safe Air Pressure:
25 psi (172 kPa)

Pressure Output:
3 to 15 psi (21 to 103 kPa)

Air Consumption:
0.019 scfm (9.0 mL/s)

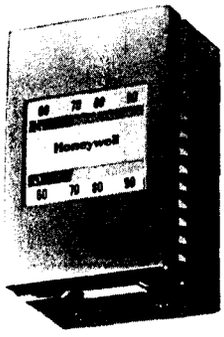
TP970 Series Thermostats

Bimetal element, one-, two-, or three-pipe proportioning pneumatic single or dual temperature thermostats, suitable for controlling valves and dampers in HVAC systems. Available in a variety of covers and finishes.

Maximum Safe Air Pressure:
25 psi (172 kPa)
30 psi (207 kPa) for TP978A-D

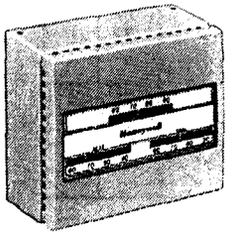
Branch Line Indication:
Self-sealing gage tap accessible from front under thermostat cover

Maximum Safe Temperature:
150F (66C)
100F (38C) for energy conservation models



TP970
TP971
TP972
TP973

√	Model	Setpoint		Action	Throttling Range	Air Consumption	Features
	TP970A	60-90F 40-70F 15-30C		DA	2-10F (1-5C)	0.011 scfm (5.2mL/s)	Single-temperature, pilot-bleed, two-pipe for heating or cooling.
	TP970B	60-90F (15-30C)		RA			
	TP970A*			DA	2-10F (1-5C) Factory set at 4F (2C)		Limited control range (LCR) for energy conservation. Single-temperature, pilot-bleed, two-pipe for heating or cooling
	TP970B*			RA			
	TP970C			DA	5-20F (3-11C)		Wide throttling range. Zero energy band (ZEB) between heating and cooling. Sngle-temperature, pilot-bleed, two-pipe for heating or cooling.
	TP970D			RA			
	TP971A	Day 60-90F or 15-30C	Night 50-75F or 12-24C	DA	2-10F (1-5C)	0.011 scfm (5.2mL/s)	Two-temperature, pilot-bleed, two-pipe for DAY/NITE operation, with automatic switch-over.
	TP971B	60-90F	50-75F	RA			
	TP971C	60-90F or 15-30C	50-75F or 12-24C	DA	2-10F (1-5C)		Three-pipe model for unit veltilator. Two-temperature, pilot-bleed.
	TP971D	60-90F	75-100F	DA	2-10F (1-5C)		Two-temperature, pilot-bleed, two-pipe for DAY/NITE operation, with automatic switch-over.
	TP971E			RA			
	TP972A	60-90F (15-30C)		Heating: DA Cooling: RA	2-10F (1-5C)	0.011 scfm (5.2mL/s)	Summer/Winter cycles with automatic switch-over. Single-temperature, pilot-bleed, two-pipe.
	TP972A*	Heating: 55-75F (12-24C) Cooling: 60-90F (15-30C)			2-10F (1-5C) Factory set at 4F (2C)		Minimum and maximum setpoint stops for energy conservation. Summer/Winter cycles with automatic switchover. Single-temperature, pilot-bleed, two-pipe.
	TP973A	60-90F (15-30C)		DA	2-10F (1-5C)		
	TP973B			RA		0.011 scfm (5.2mL/s)	One- or two-pipe, bleed-type.

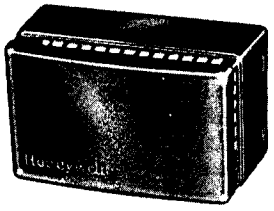


TP979

R3358
R2631

√	Model	Day	Night	Heating	Cooling	Throttling Range	Air Consumption	Features
	TP979A	60-90F (15-30C)	With Setback 50-75F (10-24C) With Setup: Setup: 75-100F (24-36C)	DA	DA	2-10F (1-5C) Factory set at 4F (2C)	0.022 scfm (10.4mL/s)	Dual-thermostat, one- or two-temperature. Two pipes with independent control of heating and cooling.
	TP979B			RA	RA			
	TP979C			DA	RA		0.011 scfm (5.2mL/s)	
	TP979D			DA/Night Setback	DA/Night Setup		0.022 scfm (10.4mL/s)	
	TP979E				RA/Night Setup		0.011 scfm (5.2mL/s)	

☐ TP974A Room Temperature Sensor



R1352

Controls valves and dampers in HVAC systems on one- or two-pipe installations. This sensor is used with RP920 Controllers, and it has a bimetal element, plug-in-air connections and replaceable cartridge-type filter.

Sensing Range:
Nonadjustable, 50 to 100F (10 to 38C)

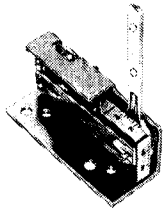
Maximum Safe Air Pressure:
25 psi (172 kPa)

Pressure Output:
3 to 15 psi (21 to 105 kPa)

Air Consumption:
0.019 scfm (9.0 mL/s)

Maximum Safe Temperature:
150F (66C)

TP975A and B Diffuser Thermostats



R974

One-pipe bleed-type thermostats used for proportional control of valves and mixing boxes in HVAC systems. This thermostat, with a two-way setpoint indicator for vertical or horizontal mounting, is placed in one end of a slot or light troffer diffuser, or in a return air grille.

Models:
- ☐ TP975A: Direct acting
- ☐ TP975B: Reverse acting

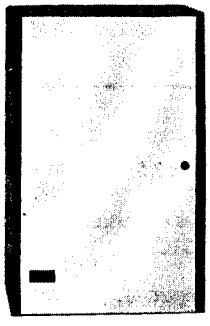
Setpoint Range:
67 to 83F (20 to 28C)

Throttling Range:
Adjustable 2 to 10F (1 to 5C)

Air Consumption:
0.011 scfm (5.2 mL/s)

Maximum Safe Air Temperature:
150F (66C)

General Purpose Cabinet Assemblies



R3625

Honeywell Universal Cabinet Assemblies provide a central control or display location for control devices. They function as enclosures for control devices used in conventional control systems or automation systems. They can also be used as junction boxes. They are surface or recess mounted, or may be attached to mounting legs for a free-standing installation.

Rough-In Ring:
- ☐ 14506635-001 (half size)
- ☐ 14506635-002 (full size)

Door:
- ☐ 14506636-001 (half size)
- ☐ 14506636-002 (full size)

Subpanel:
- ☐ 14506747-002 (half size)
- ☐ 14506747-001 (full size)

Dimensions:
Half size cabinet: 18-3/4 in. high x 23-3/4 in. wide x 9 in. deep (476 x 603 x 229 mm). 8 in. (203 mm) usable depth
Full size cabinet: same as 1/2 size only 37-3/8 in. (949 mm) high

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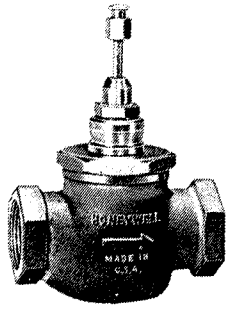
V5011A, B, D-H & J Single Seated Water and Steam Valves



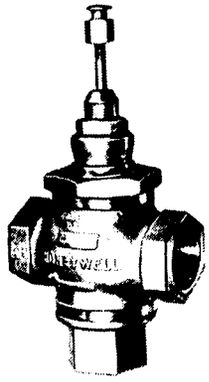
R3005

Provides proportional control of steam, liquids, air, or other noncombustible gases in HVAC systems requiring tight shutoff. They are available in bronze bodies with screwed NPT end connections or cast iron bodies with flanged end connections. Suitable for pneumatic (1/2- to 6-in. valve) or electric (1/2- to 4-in.) actuators.

Models:
- ☐ V5011A: Direct acting, flanged end connections, equal percentage
  Valve Size: 2-1/2 to 6 in.
  ANSI Body Class: 125
  Body Temperature Rating: 275F (135C)
  Capacity Index: 63, 100, 160, 250, or 360
- ☐ V5011B: Reverse acting, flanged end connections, equal percentage
  Valve Size: 4, 5, and 6 in.
  ANSI Body Class: 250
  Body Temperature Rating: 275F (135C)
  Capacity Index: 160, 250, 360
- ☐ V5011D: Direct acting, flanged end connections, equal percentage
  Valve Size: 2-1/2 to 6 in high pressure
  ANSI Body Class: 250
  Body Temperature Rating: 275F (135C)
  Capacity Index: 63, 100, 160, 250, or 360
- ☐ V5011E: Reverse acting, flanged end connections, equal percentage
  Valve Size: 4, 5, or 6
  ANSI Body Class: 250
  Body Temperature Rating: 275F (135C)
  Capacity Index: 160, 250, 360
- ☐ V5011F: Direct acting, threaded connections, equal percentage
  Valve Size: 1/2 to 3 in.
  ANSI Body Class: 150
  Body Temperature Rating: 250F (121C)
  Capacity Index: 0.4 to 100
- ☐ V5011G: Direct acting, threaded connections, linear
  Valve Size: 1/2 to 3 in.
  ANSI Body Class: 150
  Body Temperature Rating: 250F (121C)
  Capacity Index: 0.4 to 100
- ☐ V5011H: Reverse acting, threaded connections, equal percentage
  Valve Size: 1/2 to 1-1/4 in.
  ANSI Body Class: 150
  Body Temperature Rating: 250F (121C)
  Capacity Index: 2.5 to 16
- ☐ V5011J: Reverse acting, threaded connections, linear
  Valve Size: 1/2 to 1-1/4 in.
  ANSI Body Class: 150
  Body Temperature Rating: 250F (121C)
  Capacity Index: 2.5 to 16

Packing:
Teflon cone for ANSI Class 125 flanged V5011A and B Valves and for ANSI Class 150 threaded V5011G and J Valves
Rubber or Teflon/rubber for ANSI Class 150 threaded V5011F and H Valves
Teflon V-ring for ANSI Class 250 V5011D and E Valves

V5013B-F Three-Way Mixing and Diverting Valves



R2578

The V5013B-F are three-way valves for control of hot or chilled water. Valves designed for mixing service have two inlets and one outlet. Those designed for directing service have one inlet and two outlets.

Models:

- ☐ V5013B: Linear Flow Mixing
  End Connections: Flanged
  Valve Size: 2-1/2 to 8 in.
  ANSI Body Class: 125
  Body Temperature Rating: 250F (121C)
  Capacity Index: 63 to 600

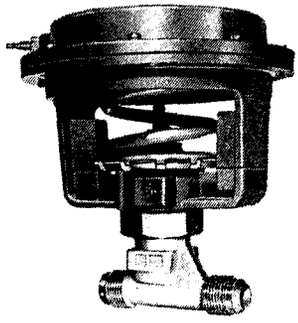
- ☐ V5013C&E: Linear Flow Diverting
  End Connections: Flanged
  Valve Size: 2-1/2 to 8 in.
  ANSI Body Class:
  V5013C: 125
  V5013E: 250
  Body Temperature Rating:
  V5013C: 250F (121C)
  V5013E: 300F (149C)
  Capacity Index: 63 to 600

- ☐ V5013D: Linear Flow Mixing
  End Connections: Flanged
  Valve Size: 2-1/2 to 8 in.
  ANSI Body Class: 250
  Body Temperature Rating: 300F (149C)
  Capacity Index: 63 to 600

- ☐ V5013F: Linear Flow Mixing
  End Connections: Threaded
  Valve Size: 1/2 to 2 in.
  ANSI Body Class: 150
  Body Temperature Rating: 250F (121C)
  Capacity Index: 2.5 to 40

Packing:
Teflon cone for ANSI Class 125 psi flanged
Rubber or teflon for ANSI Class 150 threaded
Teflon V-ring for ANSI Class 250

VP513A and B Pneumatic Water Valves



R1007

High-pressure, single-seated, pneumatic valve for proportional control of unit air conditioners using hot and /or cold water. Small size valve with flare tube connections.

Models:

- ☐ VP513A: Normally open, straight-through
- ☐ VP513B: Normally closed, offset

Valve Size:
1/2 in. for 5/8 in. O.D. flare connections
3/4 in. for 7/8 in. O.D. flare connections

Nominal Body Rating:
250 psi (1724 kPa)

Maximum Body Temperature:
250F (121C)

Capacity Index:
VP513A: 2.5 or 4.0
VP513B: 1.0, 1.6, or 2.5

Control Temperature of Water:
35 to 250F (2 to 121C)

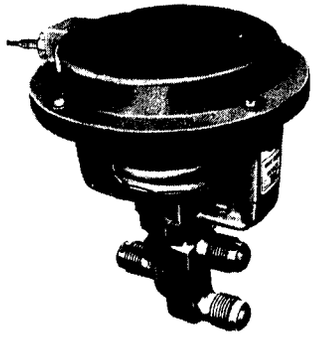
Maximum Pressure Differential:
35 psi (241 kPa)

Operating Range:
VP513A: 3 to 7 or 3 to 10 psi (21 to 48 or 21 to 69 kPa)
VP513B: 9 to 13 psi (62 to 90 kPa)

Maximum Safe Pressure:
25 psi (172 kPa)

Close-Off Rating:
VP513A: 79 psi (545 kPa)
VP513B: 50 psi (345 kPa)

☐ VP517A Three-Way Pneumatic Valve



R2043

Three-way, high pressure water valve for proportional control of unit air conditioners and fan coil units, using hot or cold water. Small size valve with flare connections.

Pipe Size:
3/4 in. for 7/8 in. O.D. flare connections

Body Pressure Rating:
250 psi (1724 kPa)

Control Medium Temperature:
35 to 250F (2 to 121C)

Operating Range:
3 to 10 or 8 to 12 psi (21 to 69 or 55 to 83 kPa)

Close-Off Rating:
50 psi (345 kPa)

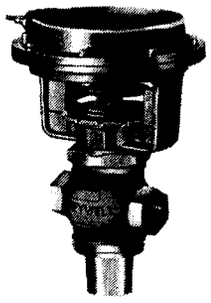
Maximum Safe Air Pressure:
25 psi (174 kPa)

Maximum Ambient Temperature:
160F (71C)

Travel:
1/2 in. (13 mm)

Capacity Index:
3.0, 4.0, and 6.3

☐ VP519C Two-Position Three-Way Air Valve



R1439

Operates as an air switch in large Day-Nite or Summer-Winter switchover systems. Right-angle mounting bracket permits mounting on wall or panel. Bronze body.

Valve Size:
1/2 and 3/4 in.

Body Pressure Rating:
150 psi (1034 kPa)

Agent Limitations:
Packing:
Temperature: 40-337F (4-169C)
Pressure: 150 psi (1034 kPa)

Disc:
Temperature: 35-115F (2-46C)
Pressure Differential: 75 psi (517 kPa)

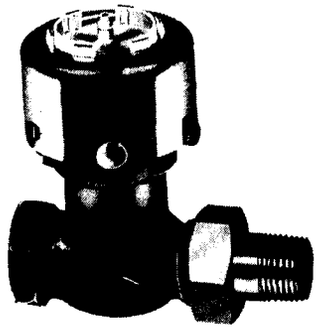
Maximum Safe Air Pressure:
25 psi (172 kPa)

Maximum Ambient Temperature:
160F (71C)

Operating Range:
6 to 9 psi (41 to 62 kPa), nonadjustable

Capacity Index:
5.5 or 7.5

☐ VP525A Pneumatic Radiator Valve



R3422

Provides proportional control of two-pipe hot water or steam systems. Normally open, single-seated, straight-through or angle body valve.

Valve Size:
1/2 and 3/4 in. with threaded and union ends

Body Pressure Rating:
150 psi (1034 kPa) maximum

Controlled Medium Limits:
Temperature: 240F (116C)
Pressure: 150 psi (1034 kPa)

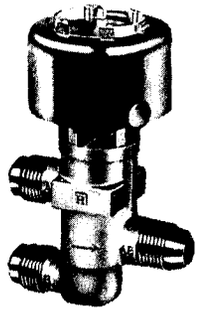
Maximum Safe Air Pressure:
30 psi (207 kPa)

Maximum Diaphragm Temperature:
230F (110C)

Spring Ranges:
2 to 5, 3 to 10, or 8 to 11 psi (14 to 34, 21 to 69, or 55 to 76 kPa)

Capacity Index:
0.63, 2.0, 3.0, or 5.0

☐ VP526A Three-Way High Pressure Water Valve



R1033

Provides proportional control of hot and/or cold water in unit ventilators and fan coil systems

Valve Size:
3/8 in. for 1/2 in. O.D. flare connections, 1/2 in. for 5/8 in. O.D. flare connections

Body Pressure Rating:
250 psi (1724 kPa)

Controlled Medium Temperature:
35 to 250F (2 to 121C)

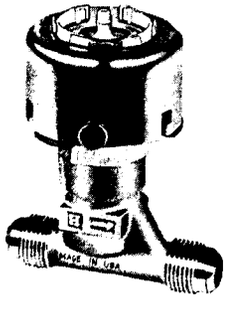
Maximum Safe Air Pressure:
29 psi (200 kPa)

Maximum Diaphragm Temperature:
230F (110C)

Operating Range:
2 to 5, 3 to 10, or 8 to 11 psi (14 to 34, 21 to 69, or 55 to 76 kPa)

Capacity Index:
1.0, 1.6 or 2.5

☐ VP527A Pneumatic Water Valve



R1035

Normally-open, single-seated, high-pressure valve for proportional control of hot or cold water in unit air conditioners and fan coil units. Flare end connections.

Valve Size:
3/8 in. for 1/2 in. O.D. flare connections

Body Pressure Rating:
250 psi (1724 kPa)

Controlled Medium Temperature:
5 to 250F (2 to 121C)

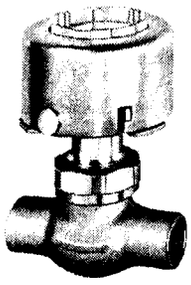
Maximum Safe Air Pressure:
25 psi (172 kPa)

Operating Range:
2 to 5 or 3 to 10 psi (14 to 34 or 21 to 69 kPa)

Maximum Diaphragm Temperature:
230F (110C)

Capacity Index:
0.63, 1.0, or 1.6

☐ VP531A Pneumatic Terminal Unit Valve



R1657

Single-seated, normally-open, straight-through valve for direct-acting proportional control of hot or cold water in terminal units. It is available with threaded NPT or soldered end connections.

Valve Size:
1/2 and 3/4 in.

Body pressure Rating:
150 psi (1034 kPa)

Controlled Medium Temperature:
240F (115C) maximum, 140F (60C) maximum allowable difference for alternating hot and cold water

Maximum Pressure Differential:
Water: 20 psi (138 kPa)
Steam: 10 psi (69 kPa)

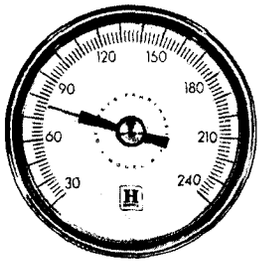
Maximum Safe Air Pressure:
30 psi (207 kPa)

Diaphragm Temperature Limits:
230F (110C)

Spring Range:
2 to 5 or 3 to 10 psi (14 to 34 or 21 to 69 kPa)

Capacity Index:
1.6, 2.3, 2.6 or 3.3

W655E&F Dial Thermometers



R1101

The W655E is used for direct readings of temperatures in air duct. Duct mounting only. The W655F is used for direct reading of liquid temperatures. Immersion well mounting only. Both models have rigid bimetal sensing elements.

Models:

☐ W655E:
Element: 9 in. (229 mm) bimetal
Range: -40 to 140F or 30 to 240F

☐ W655F:
Element: 4-in. (102 mm) bimetal
Range: Same as W655E

Accuracy:
±1-1/2% of scale for central 2/3 of dial, ±3-1/2% for rest of scale

Dial Face:
3-1/2 in. (89 mm) diameter

Maximum Safe Temperature:
60F (33C) above scale range without loss of accuracy

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