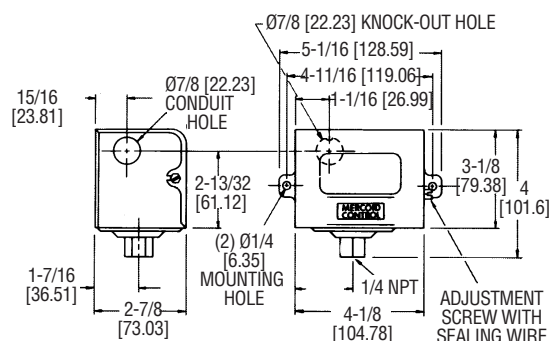




Series AP Pressure Switches with Mercury Switches

Specifications - Installation and Operating Instructions



Series AP Diaphragm Operated Pressure Switches are reliable, convenient, compact, low-cost switches for instrument air or other low-pressure applications. Visible set point and external adjustment add convenience. Used on air, non-corrosive gas or liquid service compatible with wetted parts. These switches are available with optional weather-proof and explosion-proof housings.

OPERATING RANGES – TYPE AP & AP-41

With Mercury Switch (mm/w.c.), [bar]

Deadband Range Number	Circuit Suffix Number	Switch Action On Press. Increase	Approx. Switch Deadband	
			Low	High
33	-2	SPST Opens	8 in w.c. (205)	10" w.c. (250)
	-3	SPST Closes	8 in w.c. (205)	10" w.c. (250)
	-88	SPST Closes	3 in w.c. (80)	3 in w.c. (80)
	-89	SPST Opens	4 in w.c. (102)	4 in w.c. (102)
36	-153	SPST	5 in w.c. (127)	6 in w.c. (152)
	-2	SPST Opens	1.0 psig [0.07]	2.0 psig [0.14]
	-3	SPST Closes	1.0 psig [0.07]	2.0 psig [0.14]
	-26	SPST Closes	1.5 psig [0.10]	2.5 psig [0.17]
37	-36	SPST Opens	1.5 psig [0.10]	2.5 psig [0.17]
	-88	SPST Closes	4 in w.c. (102)	8 in w.c. (205)
	-89	SPST Opens	6 in w.c. (152)	12" w.c. (305)
	-153	SPST	0.3 psig [0.02]	0.5 psig [0.03]
39	-2	SPST Opens	2.0 psig [0.14]	3.0 psig [0.21]
	-3	SPST Closes	2.0 psig [0.14]	3.0 psig [0.21]
	-26	SPST Closes	2.5 psig [0.17]	3.5 psig [0.24]
	-36	SPST Opens	2.5 psig [0.17]	3.5 psig [0.24]
39	-88	SPST Closes	6 in w.c. (152)	12 in w.c. (305)
	-89	SPST Opens	8 in w.c. (205)	16 in w.c. (406)
	-153	SPST	0.8 psig [0.06]	1.5 psig [0.11]
	-2	SPST Opens	6 psig [0.41]	16 psig [1.10]
39	-3	SPST Closes	8 psig [0.55]	17 psig [1.17]
	-26	SPST Closes	8 psig [0.55]	20 psig [1.38]
	-36	SPST Opens	8 psig [0.55]	20 psig [1.38]
	-88	SPST Closes	1.5 psig [0.10]	3.0 psig [0.21]
39	-89	SPST Opens	1.5 psig [0.10]	3.0 psig [0.21]
	-153	SPST	4 psig [0.28]	10 psig [0.69]

SPECIFICATIONS

Wetted Materials: Nylon reinforced Buna-N and steel. PTFE and 316 SS optional.

Temperature Limits: -30 to 150°F (-35 to 66°C).

Pressure Limit: See model chart.

Enclosure Rating: General purpose. Weatherproof and explosion-proof optional.

Switch Type: SPDT mercury switch or SPDT snap switch. Other switch types available.

Electrical Rating: Mercury switch: 4A @ 120 VAC/DC, 2A @ 240 VAC/DC.

Snap switch: 15A @ 120 VAC, 8A @ 240VAC, 0.5A @ 120 VDC, 0.25A @ 240 VDC.

Electrical Connections: Screw terminal.

Conduit Connection: 7/8" (22.23 mm) hole for 1/2" (12.7 mm) conduit hub.

Process Connection: 1/4" female NPT.

Mounting Orientation: Vertical for mercury switch models, any position for snap switch models.

Set Point Adjustment: External screw.

Weight: General purpose: 2 lb (0.9 kg).

Deadband: See model chart.

Agency Approvals: CE, UL, CSA. For FM consult factory. (Mercury switch units are not CE approved.)

OPERATING RANGES – TYPE AP

With Snap Switch (mm w.c.), [bar]

Range Number	Adjustable Range	Max. Press. psig	Approx. Switch Deadband			
			Single SPDT		(2) SPDT Snap Switches	
			Low	High	Low	High
33	10" vac-50 in w.c. (250 vac-1250)	15 [1.0]	8 in w.c. (205)	10 in w.c. (250)	4.5 in w.c. (127)	5 in w.c. (127)
36	1-20 psig [0.07-1.4]	60 [4.1]	0.5 psig [0.04]	1.5 psig [0.11]	0.75 psig [0.05]	1.5 psig [0.11]
37	1-30 psig [0.07-2.1]	60 [4.1]	0.75 psig [0.05]	1.5 psig [0.11]	0.75 psig [0.05]	1.5 psig [0.11]
39	10-125 psig [0.7-8.6]	160 [11]	3 psig [0.2]	7 psig [0.49]	1.25 psig [0.09]	4 psig [0.3]

Model Chart – Series AP									
Example	AP	–	–	153	–	36	AP-153-36 Pressure Control, fixed deadband, automatic reset, SPDT mercury switch, adjustable range 1-20 psig (0.07-1.4 bar), maximum pressure 60 psig (4.1 bar)		
Construction	AP						General Purpose enclosure, NEMA-1.	UL	CSA
	AS						Low pressure steam switch, NEMA-1, range 34 only. Circuits, 2, 3, 26, 36, 153 only. PTFE covered diaphragm, plated steel pressure port.	UL	
Reset Options	F						Factory Mutual approved, NEMA-1, circuit 153 only. Range 37 only. APF-153-37 or APF-7021-153-37 only.	UL	FM CSA
	R				U		Manual reset – operates on decrease automatically. NEMA-1 only.	UL	CSA
Housing Options	R				L		Not available with circuit 88, 89 or snap switch type.	UL	CSA
							Manual reset – operates on increase automatically. NEMA-1 only. Not available with circuit 88, 89 or snap switch type.	UL	CSA
Circuit (Switching) Options	S						Less enclosure	UL	CSA
	WT						Weather-proof enclosure, NEMA-4.	UL	CSA
Wetted Materials	W						Weather-proof enclosure with condensate drain, NEMA-2, 3R.	UL	CSA
	H						Explosion-proof enclosure, NEMA-7, 9, Class I Group, C & D; Class II Group E, F & G.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	2				SPST mercury switch, Electrical Code P* – opens on pressure increase.	UL	CSA
		–	3				SPST mercury switch, Electrical Code P* – closes on pressure increase.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	26				SPST mercury switch, Electrical Code R* – closes on pressure increase.	UL	CSA
		–	36				Not available with range 33.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	88				SPST mercury switch, Electrical Code R* – opens on pressure increase.	UL	CSA
		–	89				Not available with range 33.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	153				SPST magnetic mercury switch, Electrical Code T* – closes on pressure increase.	UL	CSA
		–	89				SPST magnetic mercury switch, Electrical Code T* – opens on pressure increase.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	153				SPDT mercury switch, Electrical Code S*.	UL	CSA
		–	()				Other circuits available, consult factory.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		70__	153				SPDT snap acting switch, rated 15A at 120 VAC, 8A at 240 VAC, 0.5A at 120 VDC, 0.25A at 240 VDC, 3/4 hp at 120 VAC, 1 hp at 240 VAC.	UL	CSA
		70__	804				DPDT: 2 each SPDT snap acting switches, rated 5A at 120/240 VAC, 5A at 30 VDC resistive	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		80__	153				SPDT snap acting switch, rated 15A at 120 VAC, 8A at 240 VAC, 4A at 480 VAC, 6A at 24 VDC resistive, 0.5A at 120 VDC, 0.25A at 240 VAC, 3/4 hp at 120 VAC, 1.5 hp at 240 VAC.	UL	CSA
		80__	153					UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		–	41				Mercury switch type. Plated steel pressure port, Buna-N diaphragm.	UL	CSA
		7021					Mercury switch type. 316 stainless steel pressure port, PTFE diaphragm.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		8021					Snap switch type. Plated steel pressure port, Buna-N diaphragm.	UL	CSA
		7041					Snap switch type. Plated steel pressure port, Buna-N diaphragm.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures		8041					Snap switch type, 316 stainless steel pressure port, PTFE diaphragm.	UL	CSA
		8041					Snap switch type, 316 stainless steel pressure port, PTFE diaphragm.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures					33		Adjustable range 10" wc VAC –50" wc (250 mm VAC to 1250 mm wc), maximum pressure 15 psig.	UL	CSA
					34		Adjustable range 1-15 psig (0.07 to bar), AS only, maximum pressure 30 psig (2.1 bar), maximum temperature 275°F (135°C) psig.	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures					36		Adjustable range 1-20 psig (0.07-1.4 bar), maximum pressure 60 psig (4.1 bar)	UL	CSA
					37		Adjustable range 1-30 psig (0.07-2.1 bar), maximum pressure 60 psig (4.1 bar).	UL	CSA
Adjustable Pressure Ranges & Maximum Operating Pressures					39		Adjustable range 10-125 psig (0.7-8.6 bar), maximum pressure 160 psig (11 bar).	UL	CSA
								UL	CSA

* See Chart below.

ELECTRICAL RATING MERCURY SWITCH

Code	Circuit Suffix No.	AC Capacity			DC Capacity		Horsepower	
		120V	240V	440V	120V	240V	AC	DC
P	-2, -3	10A	5A	3A	10A	5A	3/4	1/3
R	-26, -36	17A AT 120/240/277 VAC, Resistive balance same as above.						
S	-153	4A	2A	NA	4A	2A	1/8	NA
T	-88, -89	0.5A	0.25A	NA	0.25A	0.125A		

Type AP and AP-41 with Suffix No's.
-153, -2, -3, -26, 36, -88, -89

OPERATION

A variation in control pressure causes the diaphragm to actuate the hermetically sealed mercury switch to open or close the electrical contact.

APPLICATION

Type AP with suffix numbers -153, -2, -3, -26, -36, -88, -89 are for use with mediums not injurious to steel, silver solder or Fairprene diaphragm.

Type AP-41 with suffix numbers -153, -2, -3, -26, -36, -88, -89 are for use with mediums not injurious to 316 SS and PTFE.

MOUNTING

Install control firmly in a **LEVEL POSITION** on a panel or smooth wall surface by means of two mounting ears. Where pipe mounting is desired, control may be connected by means of the 1/4" I.P.S. connection. **Do not mount control by twisting the case; use a wrench on the square part of the 4" bottom pipe connection.** To level, sight across the two cover screws or check the lower end of the glass opening in the cover to see that instrument is lined up horizontally.

WIRING

Wire in accordance with local electrical codes or equipment manufacturers' instructions. See nameplate attached to inside of control case for terminal markings and electrical rating. Do not overload. Do not oil any parts. Do not tamper with switch wires. Position of these wires is essential for proper operation. Tampering with these wires will void warranty.

Type AP and AP-41with Suffix No's.
153, -2, -3, -26, 36, -88, -89

OPERATION

A variation in control pressure causes the diaphragm to actuate the snap action switch.

APPLICATIONS

Type AP, APH, APW, APWT with suffix numbers 7021-153 or 8021-153 are for use with mediums not injurious to steel, silver solder, Nylon/Buna-N diaphragm.

Type AP, APH, APW, APWT with suffix numbers 7041-153 or 8041-153 are for use with mediums not injurious to 316 SS and PTFE covered diaphragm.

MOUNTING

Mount in any position.

Type AP (general purpose) can be installed on a panel or smooth surface using the two mounting ears or the 4" NPT bottom connection. **Do not mount by twisting the case; use a wrench on the square part of the 4" bottom pipe connection.**

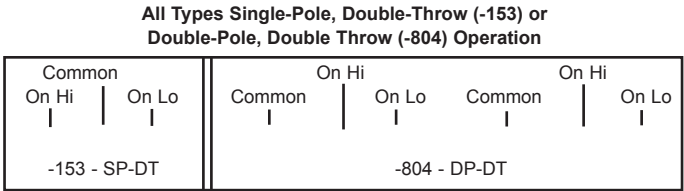
Type APW-NEMA 3 (weather-resistant): 4" male NPT bottom connection.

Type APWT-NEMA 4 (water-tight): 4" male NPT bottom connection.

Type APH (explosion-proof): 4" male NPT bottom connection. Or use mounting bracket No. PP-135-95

WIRING

Wire in accordance with the national Electrical code and local regulations. Observe wiring diagram inside enclosure and details below for type No. and electrical rating. Where control is connected directly into the load circuit, it must be wired into hot side of line. **Do not overload. Do not oil any parts.**



ADJUSTMENTS

Turn adjustment screw "A" (see above) until pointer on dial indicates desired operations pressure.

ELECTRICAL RATING

SERIES 7021-153 & 7041-153 - SPDT

SERIES 8021-153 & 8041-153 - SPDT 15A max. 120V AC; 8A MAX. 240V AC
15A max. 120V AC; 8A 240V AC; 0.5A max. 120V DC; 0.25A 240V DC 4A 480V
AC 3/4 Hp. 120V AC. 1 Hp. 240V AC 0.5A 120V DC; .25A 240V AC. 3/4 Hp.
120V AC; 12 Hp. 240V AC. SERIES 7021-804 & 7041-804 (2 SPDT) 5A
120/240 AC — 30V DC resistive