

Installation, Maintenance and Operating Instructions

Series SWT Pressure Switch

WARNING: In the event that the diaphragm should develop a leak, fluid could come into direct contact with the electrical switch and wiring. It is imperative that the unit be wired by a qualified electrician, and that the unit be properly fused. See "Fail Dry Port" below.

I. SPECIFICATIONS:

1/2" NPT system inlet fitting.

Materials:

Wetted Parts: PVC type 1, grade 1, and PTFE
There are no wetted elastomers

Non-wetted Parts: PVC, type 1, grade 1, Ethylene Propylene Rubber (EPR), stainless steel, nylon, Buna-N.

Pressure Rating: Maximum inlet pressure: 150 psi.

Operating Pressure: There are three ranges, 15-50 PSI, 50-100 PSI, 100-150 PSI, each according to the spring that is installed. All three springs are included with the assembly. The middle range spring (50-100 PSI) is installed by the factory. The spring is changed by removing the Adjusting Screw. Do not disassemble the main housing. See "Setting the Switch" for further details.

Electric Switch Rating: 16 amps @125 VAC, 1/2 HP, 16 amps @ 250 VAC, 1/2 HP.

UL recognized and CSA approved.

NOTE: A 25 Amp switch and a low deadband 3 Amp switch are available. See Section V, "Deadband". Minimum order quantities may apply. Consult factory for additional details.

Other: NEMA 4X construction; water and corrosion resistant.

Operating Temp. Range: PVC: 40°F to 140°F

TEMPERATURE DERATING CHART							
Maximum Inlet Pressures and Temperatures							
Material	Maximum Temp.	75°F (24°C)		110°F (43°C)		140°F (60°C)	
		PSI	Bars	PSI	Bars	PSI	Bars
PVC	140°F (60°C)	140	9,6	100	6,8	40	2,7

Consult factory for metric or schedule 80 socket connections or other valve materials (i.e. CPVC, Polypropylene, PVDF). Minimum order quantities may apply.

II. BASIC OPERATION

The Plast-O-Matic model SWT Pressure Switch can be used to activate or de-activate equipment when pressure in the system either rises or falls to a set pressure. The set pressure is set by simply threading the Adjusting Screw in or out. The Pressure Switch contains a snap-action electric switch with three terminals. One is Common (C), one is Normally Open (NO) and one is Normally Closed (NC). The NO switch will close upon reaching the set pressure and the NC switch will open when set pressure is reached. Set pressure can be reached by higher pressure falling to the set value, or lower pressure rising to the set pressure. See "Setting the Switch"

for further details. The SWT design has been laboratory tested to 1,000,000 (one million) cycles. The number of cycles the SWT will endure in actual use may vary due to amperage, chemical corrosion, temperature and pressure differences, and other environmental factors. For example, using the switch at its maximum amperage rating may reduce cycle life of switch to 25,000 cycles.

III. INSTALLATION

The SWT has a 1/2" FNPT inlet thread. Use PTFE tape on the male fitting to assure leak tightness. Switch should be threaded hand-tight, then 1/4 turn more with a strap wrench. DO NOT use metal pipe wrench. DO NOT overtighten. The SWT can be mounted in any orientation. The setting may vary if the SWT is set in one orientation and changed to another (e.g. setting the SWT with the adjusting screw facing upwards, and then mounting the SWT with the adjusting screw facing downward). Set the SWT in the orientation in which it will be used. See the wiring diagram for proper wiring in each situation. All wiring must be done in accordance with local electrical codes. **NOTE:** A wiring nut has been supplied with the unit. Any unused wire (i.e. not connected to a terminal) must be capped by the wire nut or other suitable means. The unused wire will be "hot" at different times during switch operation. See the wiring diagram. Determine what your pressure range will be, then select and install the proper spring. To change the pressure range, completely remove the adjusting screw and remove the spring. If the SWT is installed and cannot be inverted to remove the spring you will need a tool that can grab the top of spring and remove it through the threaded hole. Because the springs are stainless steel, they exhibit weak magnetism, but a strong magnet in direct contact with the spring will be useful. Insert the correct spring. Replace the adjusting screw. The ranges of the springs overlap each other.

The following will help to identify the springs:

Range	Part Number	Free Length	Outside Diameter
15 to 50 psi	LC059E-10-SS	1.1"	.36"
50 to 100 psi	7377-SS	1.16"	.437"
100 to 150 psi	7368-SS	1.06"	.468"

CAUTION: Do not connect metal fittings into this valve. Use plastic only. Metal pipe should only be installed with an intervening plastic nipple.

IV. FAIL DRY PORT

The model SWT has a port on the side of the Housing. In the rare event of a Diaphragm failure, the process fluid will leak from the Fail Dry port before it will contact the electrical switch. There are seals that provide this temporary protection. If fluid is emerging from the Fail Dry port, the Pressure Switch should be de-energized and removed for service. In most cases a simple overhaul with a new seal kit will resolve the problem.



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V. SETTING THE SWITCH

Each switch contact remains in its Normal position (NC or NO) until rising or falling pressure reaches the set pressure. The switch will then change position and remain changed as the pressure continues to rise or fall. See the wiring diagram for proper wiring in each situation.

DEADBAND: Deadband is dependent on spring used and set pressure.

SWT050T-3A-PV: Approx. deadband 9-22 psi

SWT050T-16A-PV: Approx. deadband 10-40 psi

IMPORTANT: Because of deadband (friction in the SWT) the switch must be “set” in the same manner in which it is expected to operate. i.e. if you want the switch to actuate on falling pressure, set the switch with the pressure falling to the desired set pressure. Similarly, if you want the switch to actuate on rising pressure, set the switch with the pressure rising to the desired set pressure.

To assure the NEMA 4X rating, make certain the shim washer, O-ring, and jam nut are in place and tightened; hand tight and 1/4 turn.

VI. MAINTENANCE

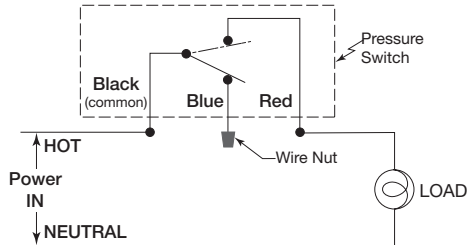
Plast-O-Matic recommends keeping a spare seal kit on hand. Seal life will vary based on chemical compatibility, temperature (higher temperature means shorter seal life), cycles. A periodic inspection should be made based on history of the application. Seal kit part numbers are “SK” followed by the valve part number less the final material suffix. (SKSWT050T).



ELECTRICAL HOOK UP

Rising pressure to energize the load. Normally-Open (NO) switch will close when set pressure is reached.

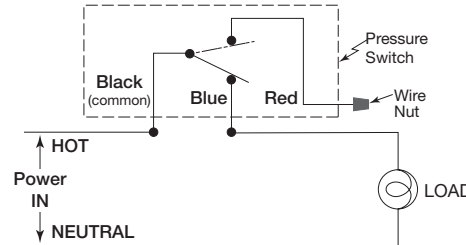
Falling pressure to de-energize the load (switch leg shown in phantom) Normally-Closed (NC) switch will open when set pressure is reached.



Indicates blue wire must be capped with wire nut or other suitable means. See *Installation, Maintenance & Operating Instructions*.

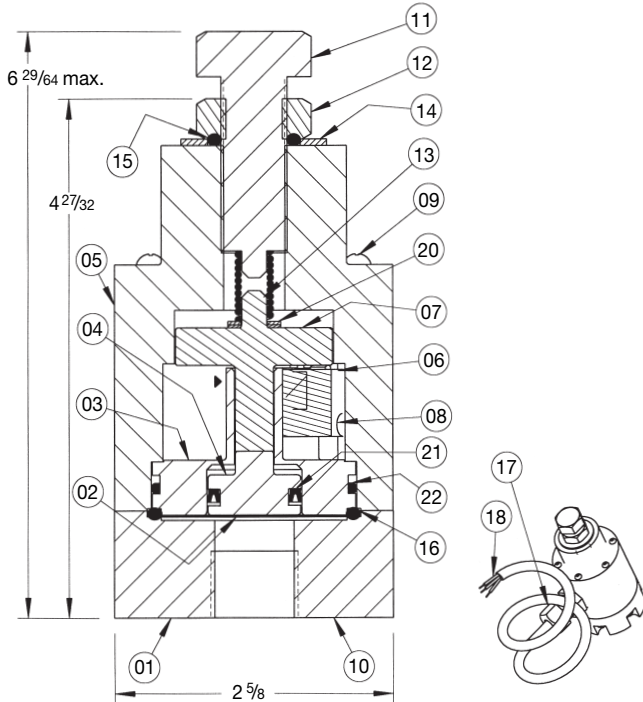
Rising pressure to de-energize the load. Normally-Closed (NC) switch will open when set pressure is reached.

Falling pressure to energize the load (switch leg shown in phantom) Normally-Open (NO) switch will close when set pressure is reached.



Indicates red wire must be capped with wire nut or other suitable means. See *Installation, Maintenance & Operating Instructions*.

DIAGRAM AND PART NUMBERS



Item	Qty.	Part. No.	Description
01	1	7381	Housing, Lower
02	1	1017T	Diaphragm, Flat
03	1	7370	Mount, Switch
04	1	7371	Piston
05	1	7372	Housing
06	1	7256	Switch
07	1	7373	Cap, Piston
08	2	F-MSRH4C100-S	Machine Screw, Round Head
09	6	F-MSRH6C300-S	Machine Screw, Round Head
10	6	F-NK06-S	Keyp Nut (Not Shown)
11	1	7374	Screw, Adjust
12	1	F-NF J62C-S	Hex Nut
13	1	LC059E-10-SS	Spring, Low Range: or
	1	7377	Spring, Mid Range: or
	1	7368	Spring, High Range
14	1	F-WSM62N-S	Washer, Shim
15	1	0208	O-Ring
16	1	0224	O-Ring
17	1	7149	Cord Grip
18	1	7385	Cable
19	2	F-NFH04C-S	Nut, Size 4 (Not Shown)
20	2	7388	Washer, Anti-Friction
21	1	125X625X875	U-Cup
22	1	0132	O-Ring



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