

# PS1 Single High and Low Pressure & PS2 Dual Pressure Refrigeration Controls

## SAFETY INSTRUCTIONS

- Read installation instructions thoroughly. Failure to comply can result in device failure, system damage or personal injury.
- Before opening any system make sure pressure in system is brought to and remains at atmospheric pressure.
- Ensure supply voltage and current of electric device match rating on PS1/PS2 name plate. Disconnect supply voltage from system and PS1/PS2 before installation or service.
- Do not exceed test pressure.
- Keep temperatures within nominal limits.

## FUNCTION/TYPE OF SWITCH (Fig. 1)

- PS1/PS2 Pressure switches are equipped with SPDT snap action contacts.
- After the pressure rises or drops by a fixed or adjustable differential, the switch will automatically or manually reset.

## Function of Control

### PS1 followed by:

A or W = Automatic Reset – Adjustable, B or R = Manual Reset – Fixed  
X = Automatic Reset – Externally Adjustable  
Y = Manual Reset – Externally Adjustable

### PS2 followed by:

A = Automatic Reset – Adjustable / Automatic Reset – Fixed, L = Automatic Reset – Adjustable / Manual Reset – Fixed, M = Automatic Reset – Fixed / Manual Reset – Fixed, Y = Automatic Reset – Adjustable / Convertible Reset – Fixed – Externally Adjustable

### Type of Safety Control Designation:

Low Pressure Auto = 1.B.L  
High Pressure Auto = 2.B.L  
Low Pressure Manual = 2.B.L.H  
High Pressure Manual = 2.B.L.H

## MOUNTING (Fig. 2)

- PS1/PS2 controls may be installed by using a mounting plate or as a wall-mounted device against a flat surface.
- Use universal thread M4 or UNC8-32 mounting holes for installation via mounting plate.
- Use the standard mounting holes at the backside for wall mounting.
- Use mounting screws supplied with control.
- Mounting screws must not penetrate control backside by more than 8mm to ensure proper operation.
- Do not use PS1/PS2 in pulsating operating conditions!**  
In order to achieve protection class IP44, the following instructions must be observed:
  - Cover must be closed and cover screw fastened
  - Control must be mounted against a flat surface so that all openings on the housing backside are fully covered.
  - Do not remove white backing.

## MOUNTING DIRECTION

Any direction except upside down.

## PRESSURE CONNECTION

- Connection of the pressure side depends on the exact model / pressure connector.
- On the 7/16-20 UNF and the R 1/4" connectors do not apply torsional load to pressure connector; use second spanner to counter-balance torque when tightening pressure connection.
- With the 7/16-20 UNF connector: high pressure versions (pressure range '5') are equipped with a snubber to dampen pulsations.
- When connecting PS1/PS2 to the hot gas line of a refrigeration system, a pipe, capillary or flexible tube of at least 80 mm shall be used to allow sufficient temperature drop between refrigeration line and pressure switch bellows.

## LEAKAGE TEST

- After completion of installation, a test pressure must be carried out as follows:
- According to EN378 for systems which must comply with European pressure equipment directive 97/23/EC
  - To maximum working pressure of system for other applications

### Warning:

- Failure to do so could result in loss of refrigerant and personal injury.
- The pressure test must be conducted by skilled persons with due respect regarding the danger related to pressure.

## ELECTRICAL CONNECTION (Fig. 3)

(1) Range adjustment	(4) Electrical terminals
(2) Lockplate	(5) Check-out lever
(3) Differential adjustment	(6) Cable entry grommet

**NOTE:** Comply with local electrical regulations when conducting electrical wiring. Wire size must match the electrical load connected to the switch contacts.

- Feed cables through rubber grommet at switch bottom.
- Optionally, the rubber grommet may be replaced by a standard PG 13.5 cable gland.
- Connect wires to terminals by taking into account switch functions as shown in Fig.1
- Fasten terminal screws with torque 1.2 Nm max.
- For electronic applications with low electrical loads (voltage <24V and current < 50mA) gold plated contacts are recommended.

## SETPOINT ADJUSTMENT (Fig. 3)

(7) Differential pointer	(8) Range pointer
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- For "Manual Reset" or "Safety Manual Reset" devices, resetting of the device must be performed by a trained service person only.
- PS1/PS2 pressure switches come with individually adjustable range and differential depending on the exact model.
- Manual reset switches always have a fixed differential.
- Use a flat screw driver or a 1/4" refrigeration (square) wrench to adjust setpoints as described below.
- Adjust upper setpoint using the range adjustment.
- Adjust lower setpoint by turning the differential adjustment.

### Upper setpoint – Differential = Lower setpoint

- A separate gauge must be used for exact adjustment of the setpoints. The integrated display scale can only be used for obtaining approximate settings.
- When changing the upper setpoint the lower setpoint must be re-checked.
- Refer to the Emerson catalogue for standard factory settings.

## MANUAL RESET/UNIVERSAL RESET (Fig. 4)

- Manual reset (external): press the reset button (1) as indicated by Fig. 4a.
- Manual reset (internal): remove the housing cover and press the reset button (2) as indicated by Fig. 4b.
- Note that the reset is 'trip-free', i.e. reset is only possible if the pressure has reached its reset threshold.
- Universal reset Fig. 4c: remove the cover and change the universal toggle to the desired position (manual (3) or auto reset (4)).

## CHECK-OUT LEVER #5 (Fig. 3)

After completion of installation, a test pressure must be carried out as follows:

- Use the check-out lever to manually override the electrical contact position for testing out the system.
- Use the check-out lever on low pressure switches to manually override the electrical contact position for evacuating the refrigeration system.

