

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

- 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. 2)

(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. 2)

(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 ¼" 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 Copeland catalogue for standard factory settings.

MANUAL RESET/UNIVERSAL RESET (Fig. 3)

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

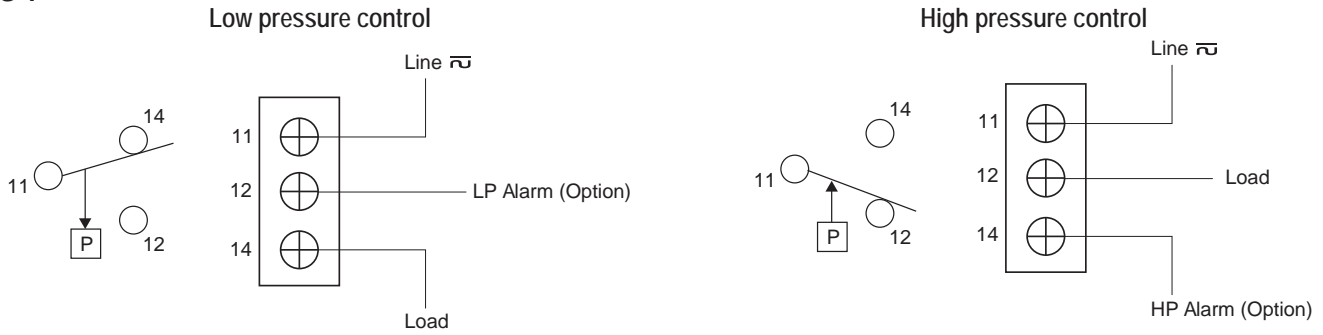
CHECK-OUT LEVER #5 (Fig. 2)

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

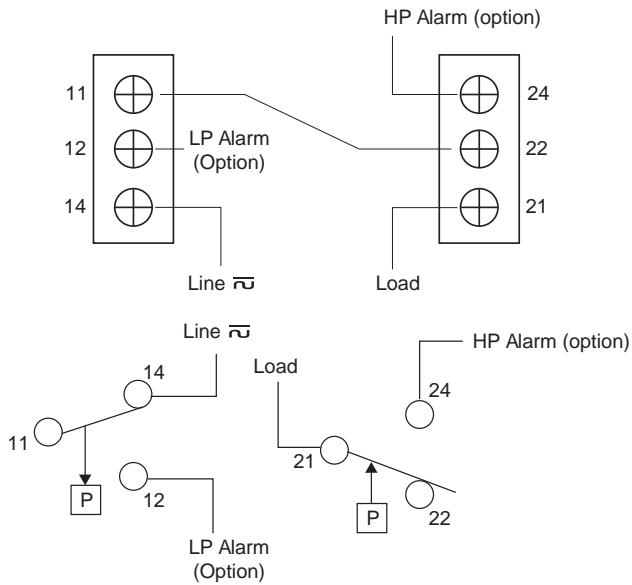
- Use the check-out lever to manually override the electrical contact position for testing out the system.
- Use the check-out lever on low pressure switches to manually override the electrical contact position for evacuating the refrigeration system.

FIG. 1

PS 1



PS 2



TECHNICAL DATA

Electrical rating

- Heating load (AC1):12A / 230V AC
- Inductive load (AC15):10A / 230V AC
- Inductive load (DC13):0.1A / 230V DC
3A / 24V DC
- Start-up (AC3):72A / 230V AC
- Motor rating (FLA):16A / 120/240V AC
- Locked rotor (LRA):96A / 120/240V AC
- Medium compatibility: HFC, HCFC
- Control Pollution Degree – PD3

Not released for flammable refrigerants

FIG. 2

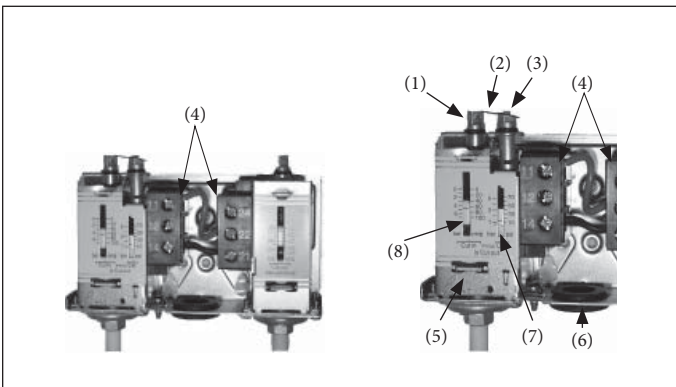


FIG. 3

