

P12 Series Differential Pressure Control

Application

The P12 differential pressure control is suitable for use with oil and/or non-corrosive refrigerants. The switch is actuated by a difference in pressure between the two sensing elements. The control is factory set to the original equipment manufacturer's specifications and is not field adjustable. The setting is stamped on each control.

Note: This control may be connected to a P28 oil failure cutout control, with time delay, to give complete monitoring of lubrication on two refrigeration compressors driven by one motor. (See Fig. 3.)

All Series P12 controls are designed for use *only* as operating controls. An operating control is *not* authorized for use where its failure in any mode can result in personal injury and/or loss of property. It is the responsibility of the user to add those necessary devices that protect against undesirable system failure modes.

Do not mount where the control will be exposed to the weather or to ambient temperatures less than 32°F (0°C) or more than 104°F (40°C). The P12AE must be mounted in a suitable electrical enclosure.

Specifications

Type Number	Range psi (kPa)	Description	Max. Allowable Pressure psig (kPa)
P12AA	7 to 60 (48 to 414)	With NEMA 1 enclosure	425 (2930)
P12AE	7 to 60 (48 to 414)	Less enclosure	425 (2930)

Installation

Mounting

The controls may be mounted in any position on a flat surface or panel by the two mounting holes provided in the back of the control. Mounting bracket No. 271-51 is regularly supplied for the P12 enclosure. If possible, mount the control so the pressure connections are above the liquid level of the equipment on which it is being used. This provides drainage of liquid from the pressure elements and connecting capillaries.

Pressure Connections

CAUTION: Do not use the P12 control on systems with corrosive refrigerants such as ammonia.

1. Avoid sharp bends or kinks in the capillary tubing.
2. Purge all tubing and lines before connecting the pressure controls. When the P12 is used as an auxiliary refrigeration oil failure cutout control, connect the oil pressure line to the pressure connector labeled "OIL" and the crankcase line to the pressure connector labeled "LOW." (See Fig. 1.)

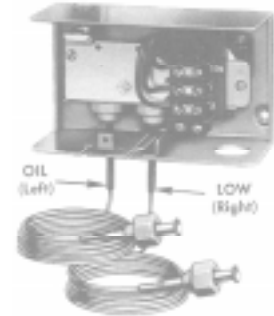


Fig. 1 -- The P12AA Differential Pressure Control with the cover removed.

CAUTION: With 1/4 in. male S.A.E. flare fitting and 1/4 in. tubing, a pulsation dampener must be used where there is a possibility of pulsation.

3. Coil and secure excess capillary to avoid vibration. Allow some slack in the capillary to avoid "violin string" vibration which can cause the tubing to break. Do not allow the tubing to rub against metal surfaces where friction can damage the capillary.

Wiring

CAUTION: Disconnect the power supply before wiring and mounting connections are made to prevent possible electrical shock or damage to equipment.

All wiring should conform to the National Electrical Code and local regulations using copper conductors only. The terminal "COM" is common. COM to terminal "2" contacts *open* on differential pressure *decrease*; simultaneously COM to terminal "1" contacts close.

Operation

The COM to 2 electrical contacts remain closed as long as the pressure difference is greater than the cutout setting of the control; the COM to 1 electrical contacts remain open. In a pressure lubricated refrigeration compressor application, this pressure difference is the total oil pressure (OIL pressure element) minus the crankcase pressure (LOW pressure element) or net oil pressure.

The COM 2 electrical contacts open when the pressure difference drops to the cutout setting; simultaneously the COM to 1 electrical contacts close.

Note: When a control is shipped as an accessory to a compressor unit, pressures are set to manufacturer's specifications. Replacement controls should duplicate manufacturer's pressure setting specifications.

Checkout Procedure

Before leaving the installation, observe at least three complete operating cycles to see that all components are functioning properly.

Repairs and Replacement

Field repairs must not be made. For a replacement control, contact the nearest Johnson Controls wholesaler.

"COM" to "1" terminal contacts open on a differential pressure increase.

"COM" to "2" terminal contacts open on a differential pressure decrease.

Models less enclosure have color coded terminals ("COM" is red; "1" is blue; "2" is yellow).

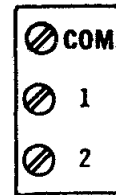


Fig. 2 — Terminal identification.

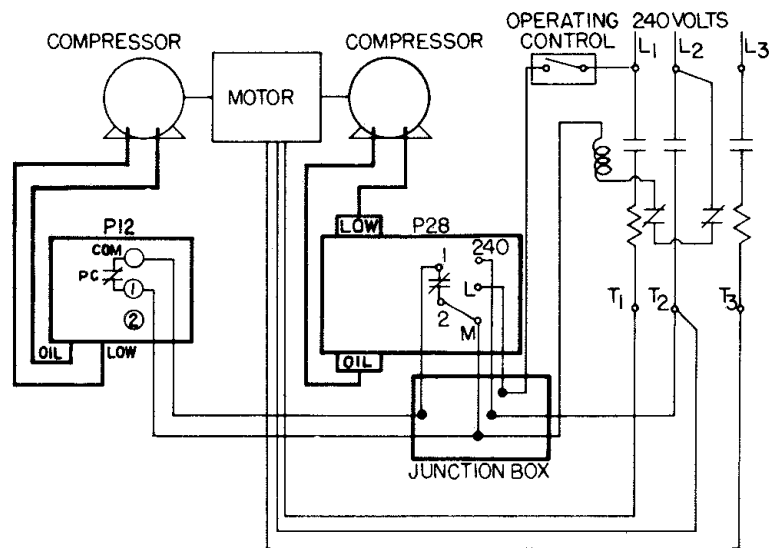


Fig. 3 — Wiring diagram for a P12 connected to a P28.

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