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P70, P72 Series Pressure Controls With Weather Resistant Enclosure

Application

These pressure controls are for a variety of applications where the controls may be subjected to dust and water. The controls with "All Range" construction can be used with R-12, R-22, R-500 and R-502 refrigerants. Controls are also available for ammonia refrigerants.

The controls have snap-acting contacts that are not affected by "roll and pitch" or extreme vibrations as encountered on marine vessels, trucks, engines and similar applications. The electrical contacts are operated from pressure sensing elements.

Controls are available in single and dual function models with DPST or main and separate reverse-acting auxiliary contact construction.

All Series P70, P72 controls are designed for use *only* as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of, control failure.

Features

- Full adjustability of all R-12, R-22, R-500 and R-502 low side, high side or dual pressure applications.
- High safety factor for the most severe R-502 standby pressure conditions.
- Minimum differential to meet most requirements for commercial R-12 applications.



Fig. 1 -- Exterior view of single function control.

- Heavy gauge "low profile" stainless steel cup to protect against mechanical damage.
- Long life contact structure with high contact force.
- Manual reset models are "trip-free."

General Description

The controls have heavy duty drawn steel enclosures with two mounting feet. The cover, screws and plugs have gaskets to seal the control.

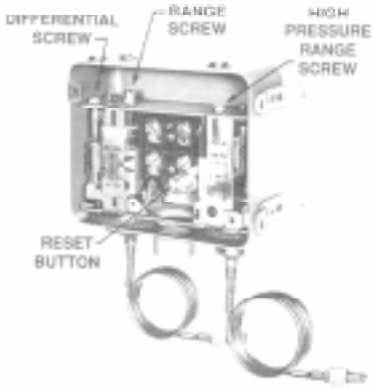


Fig. 2 -- Interior view of a dual function control with manual reset on high side.

Specifications

Product	**P70**	Single Pole, See Type Number Table
	P72	Two Pole, See Type Number Table
Enclosure		Weather Resistant Enclosure With Gaskets On Cover, Screws and Plugs
Contact Action		DPST or Main and Auxiliary. Main Contacts Open On Pressure Rise, Or Open On Pressure Drop, As Specified.
Contact Unit		Snap-Acting High Contact Force Right Up to Contact Break Point, No Bounce, Beryllium Copper Conductor Leaves With Silver-Cadmium Oxide Contacts
Adjusting		Square Head Adjusting Screws With Screwdriver Slots for Screwdriver Adjustment With Gasketed Plugs Removed, A Service Wrench Can Be Used With Plugs Left In Place
Conduit Opening		¾" Female Conduit Fitting
Material		.070" (1.78 mm) Cold Drawn Steel
Finish		Gray Baked Enamel

Shipping Weight (Approx)* Lb (kg)

Type of Control	Individual Pack	Overpack of 10	Overpack of 12
Single Function	3.5 (1.6)	36.5 (16.6)	—
Dual Function	5.0 (2.3)	—	61.5 (27.9)

*Weights will vary depending on construction features supplied, type of element, etc.

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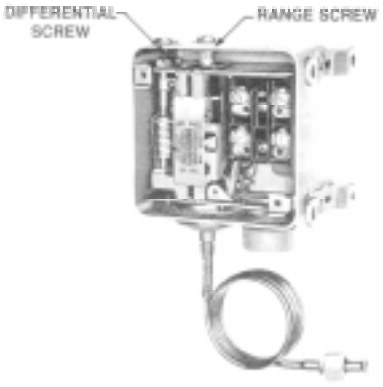


Fig. 3 -- Interior view of a single function control.

All controls have a single "sight-set" calibrated scale which shows directly both the cut-in and cutout settings. It is visible when the gasketed cover is removed.

The P72 controls provide a number of application advantages such as:

- Control of polyphase motors without use of magnetic starters where protection against overloading and single phasing is otherwise provided.
- Provides two separate control circuits necessary for the control of multiple systems.
- One set of contacts break the "hot" line when wired as a two-pole switch in single phase circuits.
- Permits control of two separate load circuits.
- Automatic control of heavy electrical loads.

The sensing element construction combined with the in-line, direct reading cut-in and cutout adjustments and the long stroke, long life contact structures provides even higher standards of performance and dependability.

Type Number Table

Type Number	Contact Structure	Main Contact Action	Lockout With Manual Reset
Single Function			
P70GE	Main and Auxiliary	Open Low*	No
P70JE	Main and Auxiliary	Open High*	No
P72AE	DPST	Open Low	No
P72CE	DPST	Open High	No
P72DE	DPST	Open High	Yes
Dual Function			
P70PE	Main and Auxiliary	Low Side - Open Low*	No
		High Side - Open High*	No
P72LE	DPST	Low Side - Open Low	No
		High Side - Open High	No
P72ME	DPST	Low Side - Open Low	No
		High Side - Open High	Yes
P72NE	DPST	Low Side - Open Low	Yes
		High Side - Open High	Yes

*Main contacts (LINE-M2) open and simultaneously the auxiliary contacts (LINE-M1) close.

Pressure Ranges — PSIG

Range (PSIG)	Differential (PSI)		Maximum Allowable Pressure (PSIG)
	Minimum	Maximum	
20" Vacuum to 100	6**	50	325
0 to 150	12	70	325
50 to 240 (Ammonia)	20	70	270
50 to 450	60	150	475
100 to 300*	25	75	425
100 to 425 (High side of dual controls)	Set up to 300: 55 Over 300: 65		475

* All-Range Condenser or Tower Fan Control.
**7 PSI on open high action.

Pressure Ranges — Metric — kPa

Range (kPa)	Differential (kPa)		Maximum Allowable Pressure (kPa)
	Minimum	Maximum	
–68 to 690	41**	345	2241
0 to 1034	83	483	2241
345 to 1655 (Ammonia)	138	483	1862
345 to 3103	414	1034	3275
690 to 2069*	172	517	2930
690 to 2930 (High side of dual controls)	Set up to 2069: 379 Over 2069: 448		3275

* All-Range Condenser or Tower Fan Control.
**48 kPa on open high action.

Optional Constructions

The following options are available on quantity orders only.

Adjustable Cutout Stops

Cutout stops, factory set as specified, available on high pressure controls or on the high side of dual function controls. Complies with applicable UL requirements.

Capillary Tubing

The standard capillary length is 36 in. (914 mm) for the Style 13 and 34 elements. Other lengths are available on quantity orders. See the Element Styles on Page 3 for additional styles that are available.

Metric Scale Plates

Models are available with metric plates when required.

Manual Reset

When lockout occurs on controls with the lockout feature, manual reset is required before a restart is possible. Manual reset is "trip-free" and the button cannot be blocked or tied down. The reset button must be pressed and released before operation will resume. If lockout is supplied on high pressure safety cutout mechanism of dual function controls (see Fig. 2) the button provides for manual reset after operation of the high pressure cutout. Lockout with manual reset may be supplied for both low and high pressure on dual models.

Repairs and Replacement

Field repairs must not be made except for replacement of the cover. For a replacement control or cover, contact the nearest Johnson Controls wholesaler.

Ordering Information

When ordering, please specify:

1. Quantity on order.
2. Product Number, if available.
3. If Product Number is not available, specify type number and the following specifications:
   a. Pressure range.
   b. Style of pressure connector.
   c. Setting -- switch contacts to close at ____ and open at _____. Also specify stop if required and at what setting.

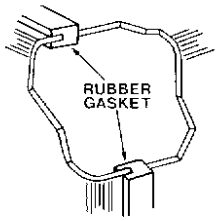


Fig. 4 — Cut-away view of case and cover assembly.

Electrical Ratings

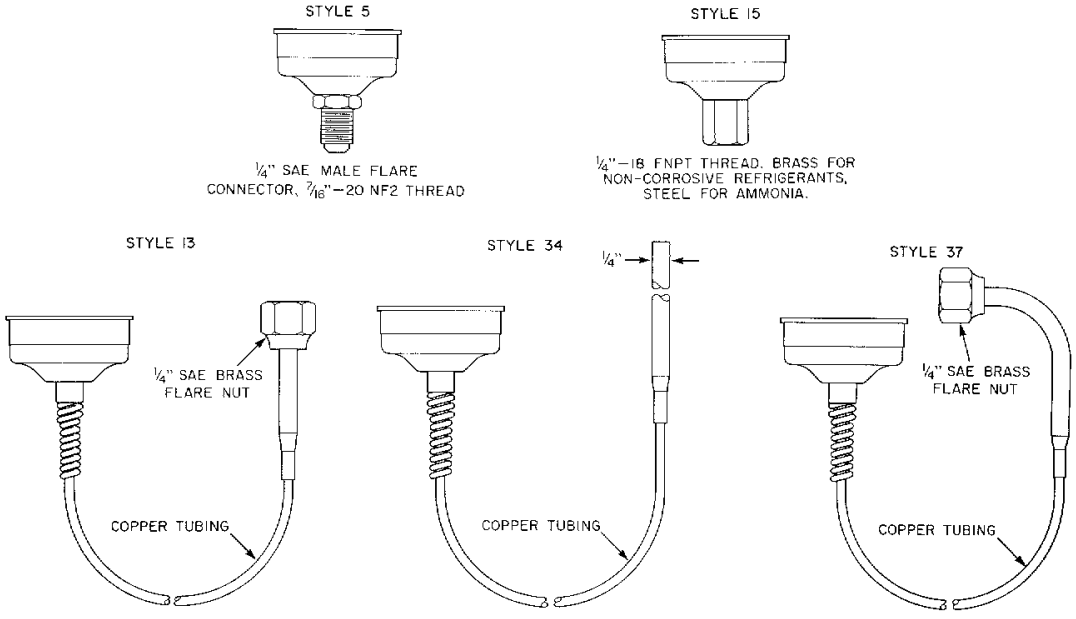
P70, Main and Auxiliary Contact

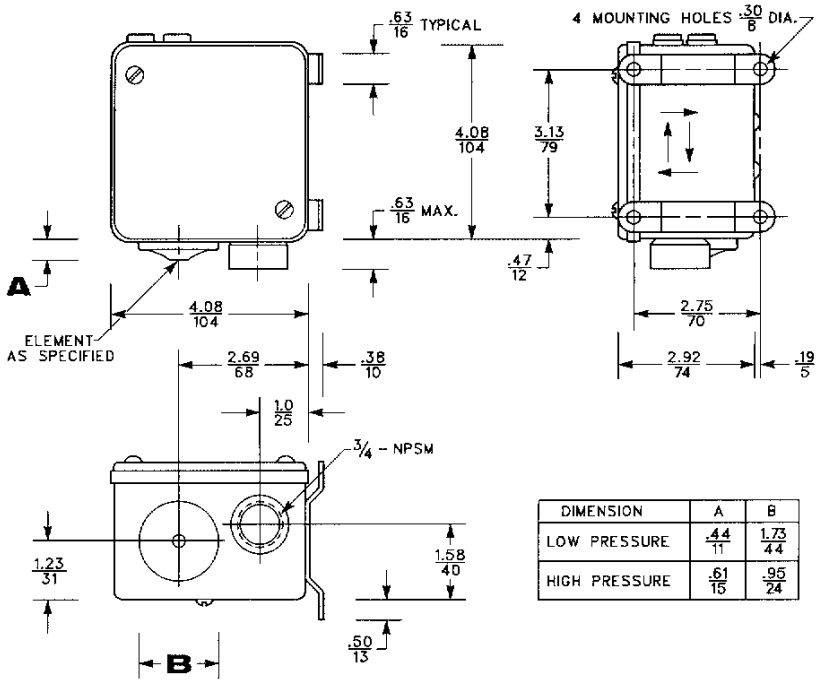
Pole Number	LINE-M2(Main)				LINE-M1 (Auxiliary)			
Motor Rating	**120 V**	**208 V**	**240 V**	**277 V**	**120 V**	**208V**	**240 V**	**277V**
AC Full Load Amp	16.0	9.2	8.0	—	6.0	3.3	3.0	—
AC Locked Rotor Amp	96.0	55.2	48.0	—	36.0	19.8	18.0	—
AC Non-Inductive Amp	16.0	9.2	8.0	7.2	6.0	6.0	6.0	6.0
Pilot Duty — Both Poles	125 VA, 120 to 600 VAC 57.5 VA, 120 to 300 VDC							

P72, Two Pole

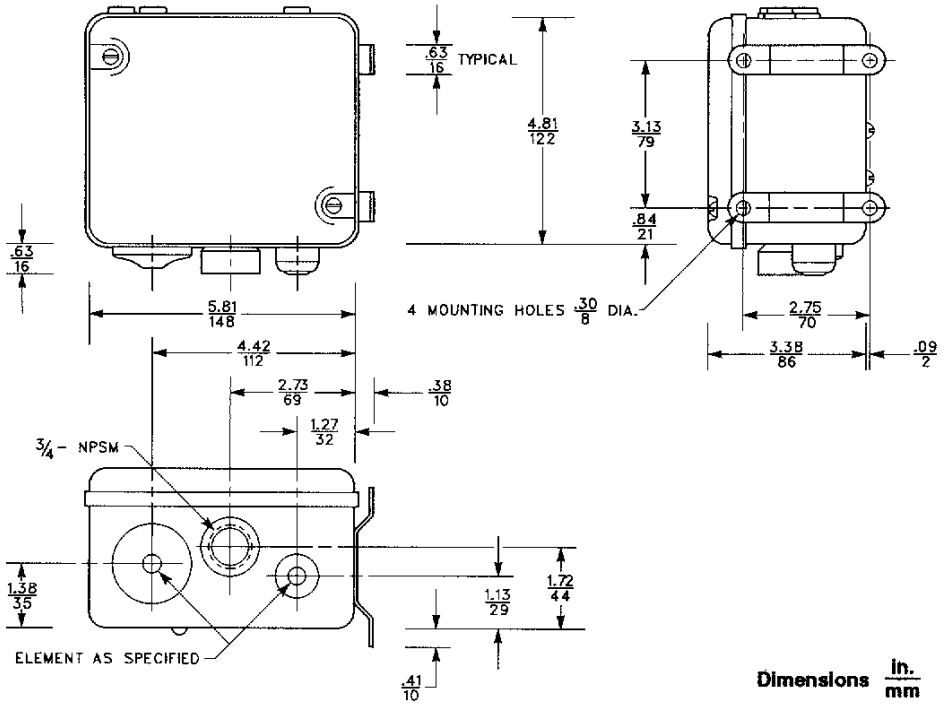
Motor Ratings	120 V 1 Ph.	208 V* 1 Ph.	240 V* 1 Ph.	220 V* 2 Ph.	208 V 3 Ph.	220 V 3 Ph.
Horsepower	2	3	3	5	5	5
AC Full Load Amp	24.0	24.0	24.0	15.0	15.9	15.0
AC Locked Rotor Amp	144.0	144.0	144.0	90.0	95.4	90.0
AC Non-Inductive Amp	24.0	24.0	24.0	—	—	—
DC Non-Inductive Amp	3.0	—	0.5	—	—	—
Pilot Duty	125 VA, 120 to 600 VAC 57.5 VA, 120 to 300 VDC					

*The full load and locked rotor ampere (not horsepower) ratings apply to hermetic compressors only.





Single Function



Dimensions in. / mm

Dual Function

Performance specifications appearing herein are nominal and are subject to accepted manufacturing tolerances and application variables.

JOHNSON CONTROLS

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