



# P70, P72, and P170 Series Controls for Dual Pressure Applications Catalog Page

## Description

The P70, P72, and P170 Controls for Dual Pressure Applications are designed primarily for use as combination high and low pressure controls on commercial refrigeration and air conditioning applications.

These controls are available in several pressure ranges and are compatible with most common refrigerants. Ammonia compatible models are also available.

These controls respond directly to system pressure changes on both high and low sides, and can provide single-device control of the compressor.

Controls are available in several different electrical ratings and switch configurations, including independent high and low pressure switches (on P70S and P170S models). The P72 models provide direct control of 208 to 240 volt, single-phase motors up to three horsepower, and 208 to 220 volt, three-phase motors up to five horsepower.

Refer to the *P70, P72, and P170 Series Controls for Dual Pressure Applications Product Bulletin (LIT-125455)* for important product application information.

## Features

- all-steel case and cover built to provide long lasting, rugged protection for internal components
- sight-set calibrated pressure adjustment displays a visible pressure scale, fully adjustable through the range without removing the cover (on NEMA 1 enclosure models)
- MICRO-SET™ differential option allows for

precise control on low pressure applications

- independent high and low pressure switches (P70S and P170S Models) satisfies a variety of dual pressure application wiring requirements with a single versatile control
- convertible high pressure reset—auto reset or manual reset lockout (P70S and P170S Models) reduces inventory—one control can be adapted to several dual pressure applications in the field

## Applications

- P70S and P170S models** have independently operated high and low pressure single-pole, double-throw (SPDT) switches that can be wired to satisfy a variety of control requirements. These adaptable controls also come with a high pressure manual reset lockout mechanism that may be converted to automatic reset.
- P70L, M, N, and P170L, M, N models** have a single-pole, single-throw (SPST) switch. Models are available with automatic or manual reset lockout options. Models with manual reset are available with either high-side-only manual reset, or low-side and high-side manual reset. Ammonia-compatible models are also available (P70L and P70M only).
- P72 models** have a double-pole, single-throw (DPST) switch with load-carrying contacts that can provide direct control of 208 to 240 VAC, single-phase motors up to 3 hp, and 208 to 220 VAC, three-phase motors up to 5 hp. See the DPST Electrical Ratings (P72L, M, and N Types) that follow.

Some models are available with **Limited Knob Adjustment**, which restricts adjustment



**P70MA-1 Dual Pressure Control**

of the pressure settings and deters over-adjustment or tampering.

**NEMA 1 enclosures** are standard on most models. **NEMA 3R enclosures** are also available.

## Repair Information

If the P70, P72, and P170 Series Controls for Dual Pressure Applications fail to operate within its specifications, replace the unit. For a replacement control, contact the nearest Johnson Controls® representative.

## Selection Chart (Part 1 of 2)

| Product Code Number                                      | Switch Action        | Low Pressure Side psi (kPa)  |                                    | High Pressure Side psi (kPa) |   | Pressure Connector                      | Limited Knob Adjustment |
|--|----------------------|------------------------------|------------------------------------|------------------------------|---|---|-------------------------|
|  |                      | Range                        | Differential                       | Range                        | Differential (Non-Adjustable)                         |   |                         |
| <b>MICRO-SET Controls for Non-Corrosive Refrigerants</b> |                      |                              |                                    |                              |   |   |                         |
| P70LB-6C <sup>1</sup>                                    | SPST                 | 12 in.Hg to 80 (-41 to 552)  | Minimum 5 (34)<br>Maximum 35 (241) | 100 to 500 (690 to 3,447)    | Fixed approx. 65 (448)                                | 36 in. capillary with 1/4 in. flare nut | Low cut-out             |
| P70MA-1C <sup>1</sup>                                    |                      |                              |                                    |                              | Lockout requires manual reset                         |   | None                    |
| P70SA-1C <sup>1</sup>                                    | Two independent SPDT | 12 in.Hg to 80 (-41 to 552)  | Minimum 5 (34)<br>Maximum 35 (241) | 100 to 500 (690 to 3,447)    | Fixed at 65 (448) or<br>Lockout requires manual reset | 1/4 in. external flare connector        | Low cut-out             |
| P170LB-6C <sup>1</sup>                                   | SPST                 |                              |                                    |                              | Fixed approx. 65 (448)                                |   | None                    |
| P170MA-18C <sup>1</sup>                                  | Two independent SPDT | 12 in.Hg to 80 (-41 to 552)  | Minimum 5 (34)<br>Maximum 35 (241) | 100 to 500 (690 to 3,447)    | Fixed at 65 (448) or<br>Lockout requires manual reset | 1/4 in. external flare connector        | Low cut-out             |
| P170SA-1C <sup>1</sup>                                   |                      |                              |                                    |                              | Lockout requires manual reset                         |   | None                    |
| <b>All Range Controls for Non-Corrosive Refrigerants</b> |                      |                              |                                    |                              |   |   |                         |
| P70LB-1C <sup>1</sup>                                    | SPST                 | 20 in.Hg to 100 (-68 to 690) | Minimum 6 (41)<br>Maximum 50 (345) | 100 to 500 (690 to 3,447)    | Fixed Approx. 65 (448)                                | 36 in. capillary with 1/4 in. flare nut | Low cut-out             |
| P70MA-1C <sup>1</sup>                                    |                      |                              |                                    |                              | Lockout Requires Manual Reset                         |   | None                    |
| P70NA-1C   | DPST                 | 20 in.Hg to 100 (-68 to 690) | Fixed (manual reset)               | 100 to 500 (690 to 3,447)    | Fixed approx. 65 (448)                                | 36 in. capillary with 1/4 in. flare nut | Low cut-out             |
| P72LA-1C <sup>1</sup>                                    |                      |                              | Minimum 7 (48)<br>Maximum 50 (345) |                              |   |   |                         |
| P72LB-1C <sup>1</sup>                                    |                      |                              | Fixed (manual reset)               |                              | Lockout requires manual reset                         |   | None                    |
| P72MA-1C <sup>1</sup>                                    |                      |                              |                                    |                              |   |   |                         |
| P72NA-1C <sup>1</sup>                                    |                      |                              |                                    |                              |   |   |                         |

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products. © 2018 Johnson Controls. [www.johnsoncontrols.com](http://www.johnsoncontrols.com)



# P70, P72, and P170 Series Controls for Dual Pressure Applications Catalog Page (Continued)

## Selection Chart (Part 2 of 2)

| Product Code Number                                      | Switch Action | Low Pressure Side psi (kPa)   |                      | High Pressure Side psi (kPa) |                               | Pressure Connector               | Limited Knob Adjustment |
|--|---------------|-------------------------------|----------------------|------------------------------|-------------------------------|----------------------------------|-------------------------|
|  |               | Range                         | Differential         | Range                        | Differential (Non-Adjustable) |                                  |                         |
| <b>All Range Controls for Non-Corrosive Refrigerants</b> |               |                               |                      |                              |                               |                                  |                         |
| P170LB-1C <sup>1</sup>                                   | SPST          | 20 in. Hg to 100 (-68 to 690) | Minimum 7 (48)       | 100 to 500 (690 to 3,447)    | Fixed approx. 65 (448)        | 1/4 in. External flare connector | Low cut-out             |
| P170MA-1C <sup>1</sup>                                   |               |                               | Maximum 50 (345)     |                              | Lockout requires manual reset |                                  | None                    |
| P170NA-1C  |               |                               | Fixed (manual reset) |                              |                               |                                  |                         |
| <b>All Range Ammonia Compatible Controls</b>             |               |                               |                      |                              |                               |                                  |                         |
| P70LA-2C <sup>1</sup>                                    | SPST          | 20 in. Hg to 100 (-68 to 690) | Minimum 7 (48)       | 100 to 500 (690 to 3,447)    | Fixed approx. 65 (448)        | 1/4 in. Internal NPT connector   | None                    |
| P70MA-2C <sup>1</sup>                                    |               |                               | Maximum 50 (345)     |                              | Lockout requires manual reset |                                  |                         |

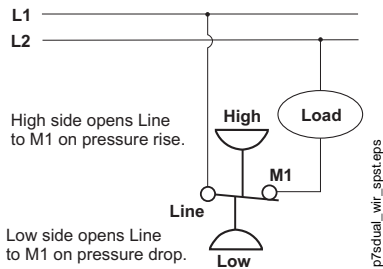
1. Control models with high pressure side (only) that are UL Listed as Refrigeration Pressure Limiting Controls.

**Note:** For information on models not listed, please contact Johnson Controls/PENN® Refrigeration Application Engineering at 1-800-275-5676.

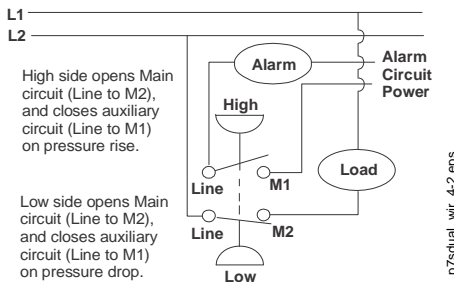
## Technical Specifications

### Maximum Pressures

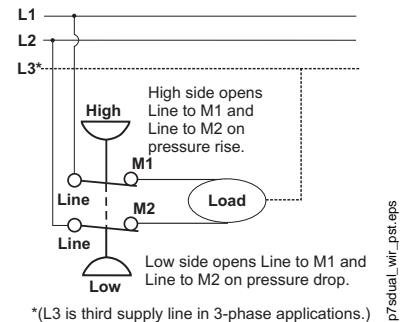
| Pressure                 | Low Side            |                     | High Side           |
|--------------------------|---------------------|---------------------|---------------------|
|                          | All Range           | MICRO-SET           |                     |
| Maximum Working Pressure | 100 psi (552 kPa)   | 80 psi (690 kPa)    | 500 psi (3,447 kPa) |
| Maximum Overpressure     | 325 psi (2,241 kPa) | 525 psi (3,620 kPa) | 525 psi (3,620 kPa) |



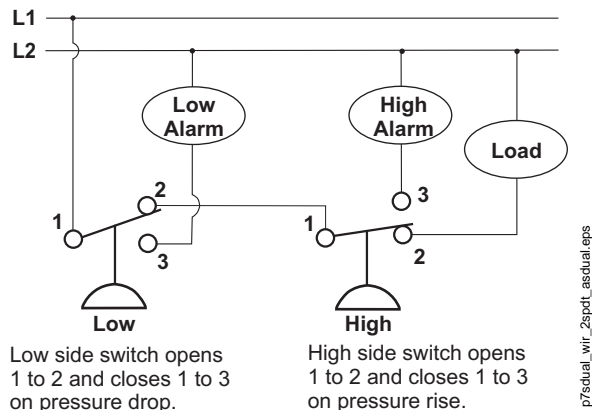
**Typical Wiring for SPST Switch (P70L, M, and N, and P170L, M, and N Models)**



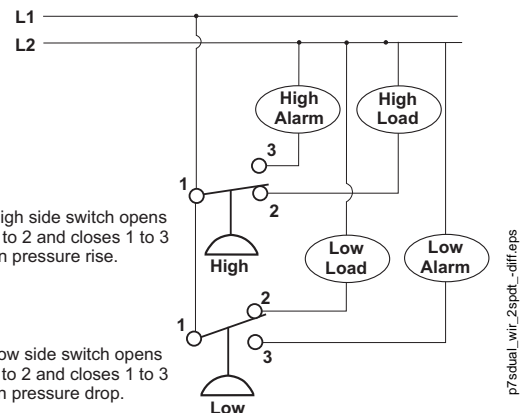
**Typical Wiring for Four-Wire, Two-Circuit Switch (P70P, Q and R Models)**



**Typical Wiring for DPST Switch (P72L, M, and N Models)**



**Two SPDT Switches Wired as a Dual Pressure Control (Switching a Single Load with Optional High Side Alarm and Low Side Alarm) (P70S and P170S Models)**



**Two SPDT Switches Wired to Control Two Different Loads (Optional High Side Alarm and Low Side Alarm) (P70S and P170S Models)**

