P70, P72, and P170 Series Controls for Low Pressure Applications

Product/Technical Bulletin

The P70, P72, and P170 controls for low pressure applications are designed primarily for low-pressure cut-out control, pump-down control, and capacity control on commercial refrigeration and air conditioning applications.

These controls are available in several pressure ranges and are compatible with most common refrigerants. They may also be used on other non-corrosive fluid applications. Ammonia compatible models are also available.

Controls also are available in several different electrical ratings and switch configurations. The P72 models provide direct control of 208/240 volt motors up to 5 horsepower.

Table 1: Features and Benefits

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Steel Case and Cover</td>
<td>Built to provide long lasting, rugged protection for internal components.</td>
</tr>
<tr>
<td>Sight-Set Calibrated Pressure Adjustment</td>
<td>Displays a visible pressure scale, fully adjustable through the range without removing the cover (on NEMA 1 enclosure models).</td>
</tr>
<tr>
<td>MICRO-SET® Differential Option</td>
<td>Allows for precise control on critical low pressure applications.</td>
</tr>
<tr>
<td>Manual Reset Lockout Option</td>
<td>Provides trip-free low pressure lockout that cannot be overridden or reset until pressure returns to specified level.</td>
</tr>
<tr>
<td>Limited Knob Adjustment Option</td>
<td>Restricts control adjustment ranges and deters tampering and over-adjustment.</td>
</tr>
</tbody>
</table>

Figure 1: P70AB-12 Low Pressure Control

Refer to the QuickLIT website for the most up-to-date version of this document.
Applications

P70, P72, and P170 Series Controls for Low Pressure Applications provide low-side pressure control on commercial refrigeration and air-conditioning applications.

IMPORTANT: Use this P70, P72, or P170 Series Control for Low Pressure Applications only as an operating control. Where failure or malfunction of the P70, P72, or P170 Series Control could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the P70, P72, or P170 Series Control.

P70A and P170A type models with Single-Pole Single-Throw (SPST) Open-Low switch action are the most popular models and are typically used for Open-Low operation and pump-down control. See Table 2 through Table 5.

P70 and P170 Series control models are also available with SPST Open-High switch action and are typically used for capacity control. See Table 4 and Table 5. Control models with Single-Pole Double-Throw (SPDT) or 4-wire, 2-circuit switch action allow users to install alarm devices or other control circuits. See Table 5.

P72 Series control models have a Double-Pole Single-Throw (DPST) switch with load-carrying contacts that provide direct control of 208/240 VAC single-phase motors up to 3 hp, 480 VAC single-phase, non-compressor motors, and 208/220 VAC 3-phase motors up to 5 hp. See Table 5.

These controls are available in several pressure ranges and are compatible with most common refrigerants. They may also be used on air, water, and other non-corrosive fluid applications. Ammonia-compatible models are also available. See Table 4.

The MICRO-SET® option provides fine adjustment of the differential setting for precision pressure control of critical low pressure applications.

Some models feature Limited Knob Adjustment, which restricts adjustment of the pressure settings and deters overadjustment or tampering. See Limited Knob Adjustment.

The Manual Reset Lockout mechanism does not allow the control to automatically reset after the control has Cutout, providing shutdown capability for unmonitored equipment. See Manual Reset Operation.

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

Table 2 through Table 5 list the standard models and features of P70, P72, and P170 controls for low pressure applications. These standard models are available through most authorized Johnson Controls/PENN® distributors.

Table 2: Standard P70, P72 and P170 MICRO-SET® Control Models for Low Pressure Applications (for Non-corrosive Refrigerants)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Switch Action</th>
<th>Range in. Hg to psig (kPa)</th>
<th>Differential psi (kPa)</th>
<th>Pressure Connection</th>
<th>Maximum Overpressure psig (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70AB-12</td>
<td>SPST Open-Low</td>
<td>12 in. Hg to 80 psig (-41 to 551 kPa)</td>
<td>Minimum 5 (34) Maximum 35 (241)</td>
<td>36 in. Cap. with 1/4 in. Flare Nut</td>
<td>325 (2,241)</td>
</tr>
<tr>
<td>P170AB-12</td>
<td></td>
<td></td>
<td></td>
<td>1/4 in. Male Flare Connector</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Standard P70, P72 and P170 Control Models for Low Pressure Applications (For High Pressure Non-Corrosive Refrigerants)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Switch Action</th>
<th>Range in. Hg to psig (kPa)</th>
<th>Differential psi (kPa)</th>
<th>Pressure Connection</th>
<th>Maximum Overpressure psig (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70AA-2</td>
<td>SPST Opens-Low</td>
<td>0 to 150 psig (0 to 1,034 kPa)</td>
<td>Adjustable 10 to 70 (69 to 483)</td>
<td>36 in. Capillary with 1/4 in. Flare Nut</td>
<td>325 (2,241)</td>
</tr>
<tr>
<td>P170AA-2</td>
<td></td>
<td></td>
<td></td>
<td>1/4 in. Male Flare Connector</td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Standard P70, P72 and P170 Control All-Range Models for Low Pressure Applications (Ammonia Compatible)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Switch Action</th>
<th>Range in. Hg to psig (kPa)</th>
<th>Differential psi (kPa)</th>
<th>Pressure Connection</th>
<th>Maximum Overpressure psig (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70AA-5</td>
<td>SPST Open-Low</td>
<td>20 in. Hg to 100 psig (-68 to 690 kPa)</td>
<td>Minimum 7 (48) Maximum 50 (345)</td>
<td>1/4 in. SS Female NPT</td>
<td>325 (2,241)</td>
</tr>
<tr>
<td>P70CA-4</td>
<td>SPST Open-High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Standard P70, P72 and P170 All-Range Control Models for Low Pressure Applications (for Non-corrosive Refrigerants)

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Switch Action</th>
<th>Range in. Hg to psig (kPa)</th>
<th>Differential psi (kPa)</th>
<th>Pressure Connection</th>
<th>Maximum Overpressure psig (kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P70AB-1</td>
<td>SPST Open-Low</td>
<td>20 in. Hg to 100 psig (-68 to 690 kPa)</td>
<td>Minimum 7 (48) Maximum 50 (345)</td>
<td>1/4 in. Male Flare Connector</td>
<td>325 (2,241)</td>
</tr>
<tr>
<td>P70AB-2</td>
<td></td>
<td></td>
<td></td>
<td>36 in. Cap. with 1/4 in. Flare Nut</td>
<td></td>
</tr>
<tr>
<td>P70CA-1</td>
<td>SPST Open-High</td>
<td></td>
<td></td>
<td>36 in. Cap. with 1/4 in. Flare Nut</td>
<td></td>
</tr>
<tr>
<td>P70EA-10</td>
<td>SPDT 1 to 3 Open-Low 1 to 2 Close-Low</td>
<td>5 (34) Fixed</td>
<td></td>
<td>1/4 in. Male Flare Connector</td>
<td></td>
</tr>
<tr>
<td>P72AA-1</td>
<td>DPST Open-Low</td>
<td></td>
<td></td>
<td>Minimum 7 (48) Maximum 50 (345)</td>
<td>36 in. Cap. with 1/4 in. Flare Nut</td>
</tr>
<tr>
<td>P72AB-1</td>
<td></td>
<td></td>
<td></td>
<td>1/4 in. Male Flare Connector</td>
<td></td>
</tr>
<tr>
<td>P170AB-2</td>
<td>SPST Open-Low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P170CA-1</td>
<td>SPST Open-High</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Operation
A pressure-actuated bellows on the control is connected to a pressure tap on the controlled system by a capillary or a field-installed hose. The bellows responds to system pressure changes and operates a snap-action electrical switch.

Installation

Dimensions
See Figure 2 and Figure 3 for dimensional information. These dimensions are nominal and are subject to accepted manufacturing tolerances and application variables.
Mounting

CAUTION: Risk of Property Damage.
Mount the pressure control separately from the electrical cabinet and seal all electrical piping to prevent ammonia from migrating to electrical components. Where there may be exposure to ammonia, use only ammonia-compatible control modules and pressure connections. System shutdown due to improper adjustment may cause property damage.

CAUTION: Risk of Property Damage.
Mount the P70, P72, or P170 Pressure Control according to the instructions and guidelines included with the control. These instructions and guidelines are intended to reduce the risk of malfunction of the product and resulting property damage. Failure to follow these instructions and guidelines could cause the control to malfunction, resulting in property damage.

IMPORTANT: Use only the mounting screws supplied with the Universal Mounting Bracket to avoid damaging internal components. Be careful not to distort or bend the control case when mounting the control to an uneven surface. Using other screws or bending the control case will void the warranty.

Observe the following guidelines when installing this device:

- Mount the control in an accessible position, where the control and pressure-connection lines are not subject to damage.
- Mount the pressure control upright and level.
- Position the pressure-connection lines to allow drainage away from control bellows.
- Locate pressure-tap points on the topside of the refrigerant lines to reduce the possibility of oil, liquids, or sediment accumulating in the bellows, which could cause control malfunction.
- Mount controls with NEMA 1 enclosures on horizontal or vertical flat surfaces.
  - Use two screws or bolts through the two outer holes on the back of the control case when mounting the control directly to a flat vertical surface. See Figure 4.
• Use the two inner holes with the Universal Mounting Bracket (and screws supplied) when mounting the control to a flat horizontal surface. See Figure 4.

Figure 4: Mounting the P70, P72, and P170 Low Pressure Controls with NEMA 1 Enclosures

• Mount controls with NEMA 3R enclosures in a level, upright position with the bellows and conduit connection facing down. Ensure that all gaskets are in place. Mounting controls with NEMA 3R enclosures in any position other than upright and level may trap water in the enclosure and submerge internal components.

Wiring

WARNING: Risk of Electric Shock.
Disconnect or isolate all power supplies before making electrical connections. More than one disconnect or isolation may be required to completely de-energize equipment. Contact with components carrying hazardous voltage can cause electric shock and may result in severe personal injury or death.

IMPORTANT: Use copper conductors only. Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the control's electrical ratings.

IMPORTANT: Use terminal screws furnished in the switch block. Using other terminal screws will void the warranty and may damage the switch.

P70, P72, and P170 controls for low pressure applications are available with several switch options and electrical ratings. Check the label inside the control cover for model number, switch action, and electrical rating. Check the wiring terminal designations on the control switch block, and see the following applicable wiring diagrams, when wiring the control. See Figure 5 through Figure 8 and Table 6 for switch actions and models. Also see Technical Specifications.

Figure 5: Typical Wiring for SPST Open-Low Switch and Open-High Switch (P70A, B, C, D and P170A, C, D Type Models)

Figure 6: Typical Wiring for SPDT Switch (P70E and F Type Models)
<table>
<thead>
<tr>
<th>Switch and Action</th>
<th>Low Event</th>
<th>High Event</th>
<th>Model Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Pole Single-Throw (SPST) Open-Low</td>
<td>Cutout (Opens Line to M1)</td>
<td>Cut In (Closes Line to M1)</td>
<td>P70A, P70B, P170A</td>
</tr>
<tr>
<td>Single-Pole Double-Throw (SPDT)</td>
<td>Opens 1 to 2 and Closes 1 to 3</td>
<td>Closes 1 to 2 and Opens 1 to 3</td>
<td>P70E</td>
</tr>
<tr>
<td>4-Wire, 2-Circuits, 1 N.O., 1 N.C. Open-Low</td>
<td>Cutout (Opens M2 to Line and Closes M1 to Line)</td>
<td>Cut In (Closes M2 to Line and Opens M1 to Line)</td>
<td>P70G, P70H</td>
</tr>
<tr>
<td>4-Wire, 2-Circuits, 1 N.O., 1 N.C. Open-High</td>
<td>Cut In (Closes M2 to Line and Opens M1 to Line)</td>
<td>Cutout (Opens M2 to Line and Closes M1 to Line)</td>
<td>P70J, P70K, P170K</td>
</tr>
<tr>
<td>Double-Pole Single-Throw (DPST) Open-Low</td>
<td>Cutout (Opens M1 to Line and M2 to Line)</td>
<td>Cut In (Closes M1 to Line and M2 to Line)</td>
<td>P72A, P72B</td>
</tr>
<tr>
<td>DPST Open-High</td>
<td>Cut In (Closes M1 to Line and M2 to Line)</td>
<td>Cutout (Opens M1 to Line and M2 to Line)</td>
<td>P72C, P72D</td>
</tr>
</tbody>
</table>

**Piping**

**CAUTION: Risk of Environmental and Property Damage.**

Avoid sharp bends in the capillary tubes. Sharp bends can weaken or kink capillary tubes, which may result in refrigerant leaks or restrictions of flow.

**CAUTION: Risk of Environmental and Property Damage.**

Coil and secure excess capillary tubing away from contact with sharp or abrasive objects or surfaces. Vibration or sharp or abrasive objects in contact with capillary tubes can cause damage that may result in refrigerant leaks [or loss of element charge], which may result in damage to the environment or property.

**IMPORTANT:** If the control is installed on equipment that contains hazardous or regulated materials such as certain refrigerants or lubricants, you must comply with all standards and regulations governing the containment and handling of those materials.
P70, P72, and P170 low pressure controls are connected to the controlled equipment by a capillary or flexible hose (except ammonia models). Controls are available with a variety of pressure-connection styles. Avoid severe pressure pulsation at high side pressure connections. Install pressure connection to pressure-tap points away from the compressor, to minimize the effects of pressure pulsation from reciprocating compressors.

Adjustment of the P70, P72, and P170 low pressure controls varies, depending on the model. The following guidelines and diagrams illustrate the procedures for adjusting these controls. Refer to the product label inside the control cover for model number and switch action, and check the front of the control cover to determine if the control is an All-Range or MICRO-SET® model. See Table 6 for switch action, low event, and high event of the various control models. See Figure 8 for an illustration and instructions on control adjustments.

Adjusting All-Range Controls
All-Range pressure controls have scaleplates that display the Cut In and Cutout setpoints. (Refer to the visible scale on the control.) Turn the range screw to adjust the Cut In and Cutout setpoints up or down simultaneously while maintaining a constant pressure differential. Turn the differential screw to adjust (only) the low event on the left side of the scale (which changes the differential pressure value).

MICRO-SET® Controls
MICRO-SET® low-side pressure controls have scaleplates that display the Cut In setpoint and Differential setting. (See visible scale on control.) Turn the range screw to adjust the Cut In setpoint on the right side of the scale. Turn the differential screw to adjust the differential setting on the left side (which changes the Cutout pressure value).

Limited Knob Adjustment
Some models are supplied with a Limited Knob Adjustment Kit which limits adjustments to the pressure control and helps to deter over-adjustment or tampering.

To lock the differential setting and allow limited adjustment of the low event and high event setpoints, install the knob on the range screw.

To lock the high event setpoint and allow limited adjustment of the low event setpoint (on All-Range controls) or differential setting (on MICRO-SET® controls), install the knob on the differential screw.

To install the Limited Knob Adjustment Kit:
1. Adjust control pointers to desired high event and low event setpoints (on All-Range controls) or differential setting (on MICRO-SET® controls).
2. Place spacer on the proper adjustment screw.
   • All-Range controls (with Limited Knob Adjustment Kit) have round and knurled adjustment screws; the spacer must always be placed on the range screw.
Step 1. Set high event by adjusting range screw.

- **All-Range Controls**: Turn screw clockwise to raise high event.
- **MICRO-SET® Controls**: Turn screw clockwise to lower CUT IN setpoint.

Step 2. Adjust the differential screw.

- **All-Range Controls**: Turning the differential screw changes the low event.
  - Turn screw clockwise to lower Low Event.
- **MICRO-SET® Controls**: Turning the differential screw changes the differential setting.
  - Turn screw clockwise to increase DIFFERENTIAL.

Figure 8: Adjusting P70, P72, and P170 Controls for Low Pressure Applications

- MICRO-SET® controls have square adjustment screws. Always place the spacer on the same adjustment screw as the knob.
- Place the indicator plate, as shown in Figure 9, to lock either the range screw or differential screw in the desired setting.
- Install the knob on the other adjustment screw and tighten the setscrew. A stop on the bottom of the knob limits screw adjustment to less than one turn. See Figure 9.
Checkout Procedure for Low Pressure Cut-out Controls

3. Slowly front seat the suction valve and allow the low side to pump down. Observe the control’s low event switching pressure on the gauge.

4. Slowly back the suction valve off the front-seated position and allow the low side pressure to rise. Observe the control’s high event switching pressure on the gauge.

5. Adjust settings as needed. (See Figure 8.) Repeat checkout procedure if necessary.

**Manual Reset Operation**

Pressure controls with the Manual Reset option lock out when they reach Cutout pressure and must be manually reset by the user to restart the controlled equipment. The manual reset mechanism is trip-free and cannot be overridden by blocking or tying the reset button down.

On equipment with locked out controls, first determine and remedy the cause of the lockout, and allow the sensed pressure to return to the Cut In setpoint. Then, press and release the reset button on the front of the control to restore operation of the controlled equipment.

**Ordering Information**

P70, P72, and P170 controls for low pressure applications are available in a variety of standard and non-standard models.

Table 2 through Table 5 lists the standard models available through most Johnson Controls/PENN® Authorized Distributors.

Table 7 is a model selection matrix that depicts all the potential P70, P72, and P170 control models. Not all control models depicted in Table 7 are manufactured and available.

Figure 10 illustrates the pressure connection styles available on P70, P72, and P170 control models.

Contact your Johnson Controls/PENN Authorized Distributors for availability and price.

---

**IMPORTANT:** Use the pressure control settings recommended by the manufacturer of the controlled equipment. Do not exceed the pressure ratings of the controlled equipment or any of its components when checking pressure control operation or operating the controlled equipment.

**IMPORTANT:** After mounting, wiring and evacuating the control, attach a reliable set of gauges to the controlled equipment, and operate the equipment (at least) three cycles at the pressures necessary to verify control setpoints and proper equipment operation.

Use the following procedure to check control operation on a typical low pressure cut-out application.

1. Check the product label on the inside of the control cover, for model number and switch action. (See Table 6 for low and high events that correspond to control model and switch action.)

2. Attach a reliable gauge to the suction service port and run the system at normal conditions.
Table 7: P70, P72, and P170 Pressure Control Selection Matrix

| P70 | Various pressure connection styles available on many models |
| P170 | 1/4 in. male flare pressure connection only (Style 5) |
| P72 | DPST switch only, 3/4 in. conduit opening on most models, (E, F, G, H, J, and K, models not available) |
| A | SPST switch (DPST in P72), Open-low, automatic reset |
| B | SPST switch (DPST in P72), Open-low, manual reset lockout |
| C | SPST switch (DPST in P72), Open-high, automatic reset |
| D | SPST switch (DPST in P72), Open-high, manual reset lockout |
| E | 1 hp SPDT switch (n/a in P72), automatic reset |
| F | 1/4 hp SPDT switch (n/a in P72), automatic reset |
| G | 4-wire, 2-circuit switch (n/a in P72), main switch Open-low, automatic reset |
| H | 4-wire, 2-circuit switch (n/a in P72), main switch Open-low, manual reset lockout |
| J | 4-wire, 2-circuit switch (n/a in P72), main switch Open-high, automatic reset |
| K | 4-wire, 2-circuit switch (n/a in P72), main switch Open-high, manual reset lockout |
| A | NEMA 1 enclosure, no adjustment knob |
| B | NEMA 1 enclosure, with adjustment knob |
| C | No enclosure, no adjustment knob |
| D | No enclosure, with adjustment knob |
| E | NEMA 3R enclosure, no adjustment knob |
| G | NEMA 3R enclosure, no adjustment knob |
| H | NEMA 1 enclosure, no adjustment knob, 1/4 in. quick connects |
| J | NEMA 1 enclosure with adjustment knob, 1/4 in. quick connects |
| N | NEMA 1 enclosure no adjustment knob, transportation application |
| P | NEMA 1 enclosure with adjustment knob, transportation application |
| S | NEMA 3R enclosure, no adjustment knob, transportation application |

1. Not all matrix combinations are available. To verify product availability and for quantity orders of non-standard items, please contact Refrigeration Application Engineering at 1-800-275-5676.
## Technical Specifications

### Table 8: SPST Electrical Ratings (P70L, M, N, and P170L, M, N Types)

<table>
<thead>
<tr>
<th>Standard Single-Phase Ratings</th>
<th>Hermetic Compressor 1Ø Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC</td>
<td>208 VAC</td>
</tr>
<tr>
<td>Motor Horsepower</td>
<td>1.5</td>
</tr>
<tr>
<td>Motor Full Load Ampere</td>
<td>20</td>
</tr>
<tr>
<td>Motor Locked Rotor Ampere</td>
<td>120</td>
</tr>
<tr>
<td>Non-Inductive Ampere</td>
<td>22</td>
</tr>
<tr>
<td>Pilot Duty</td>
<td>125 VA at 120 to 600 VAC; 57.5 VA at 120 to 300 VDC</td>
</tr>
</tbody>
</table>

1. Not for compressor motor loads.

### Table 9: 4-Wire 2-Circuit Electrical Ratings (P70P, Q, and R Types)

<table>
<thead>
<tr>
<th>Standard Single-Phase Ratings</th>
<th>Line-M2 (Main Contacts)</th>
<th>Line-M1 (Auxiliary Contacts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC</td>
<td>208 VAC</td>
<td>240 VAC</td>
</tr>
<tr>
<td>Motor Full Load Ampere</td>
<td>16.0</td>
<td>9.2</td>
</tr>
<tr>
<td>Motor Locked Rotor Ampere</td>
<td>96.0</td>
<td>55.2</td>
</tr>
<tr>
<td>Non-Inductive Ampere</td>
<td>16.0</td>
<td>9.2</td>
</tr>
<tr>
<td>Pilot Duty (for both sets of contacts)</td>
<td>125 VA at 24 to 600 VAC; 57.5 VA at 120 to 300 VDC</td>
<td></td>
</tr>
</tbody>
</table>

1. Not for compressor motor loads.

### Table 10: SPDT Electrical Ratings (P70S and P170S Types, per switch)

<table>
<thead>
<tr>
<th>Standard Single-Phase Ratings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC</td>
<td>208 VAC</td>
</tr>
<tr>
<td>Motor Full Load Ampere</td>
<td>16.0</td>
</tr>
<tr>
<td>Motor Locked Rotor Ampere</td>
<td>96.0</td>
</tr>
<tr>
<td>Non-Inductive Ampere</td>
<td>16.0</td>
</tr>
<tr>
<td>Pilot Duty</td>
<td>125 VA at 24 VAC, 720 VA at 120 to 277 VAC</td>
</tr>
</tbody>
</table>

### Table 11: DPST Electrical Ratings (P72L, M, and N Types) (Part 1 of 2)

<table>
<thead>
<tr>
<th>Standard Ratings</th>
<th>Hermetic Compressor Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC 1Ø</td>
<td>208 VAC 1Ø</td>
</tr>
<tr>
<td>Motor Horsepower</td>
<td>2</td>
</tr>
<tr>
<td>Motor Full Load Amperes</td>
<td>24</td>
</tr>
<tr>
<td>Motor Locked Rotor Amperes</td>
<td>144</td>
</tr>
<tr>
<td>AC Non-Inductive Amperes</td>
<td>24</td>
</tr>
</tbody>
</table>
Table 11: DPST Electrical Ratings (P72L, M, and N Types) (Part 2 of 2)

<table>
<thead>
<tr>
<th>Standard Ratings</th>
<th>Hermetic Compressor Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC 1Ø</td>
<td>208 VAC 1Ø</td>
</tr>
<tr>
<td>DC Non-Inductive Amperes</td>
<td>3</td>
</tr>
<tr>
<td>Pilot Duty</td>
<td>125 VA at 120 to 600 VAC; 57.5 VA at 120 to 300 VDC</td>
</tr>
</tbody>
</table>

1. Not for compressor motor loads.

**P70, P72 and P170 Series Controls for Low Pressure Applications**

| Product Switch Action | P70, P170: SPST; 4-wire/2-circuit; or SPDT PENN® switch  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P72: DPST</td>
</tr>
</tbody>
</table>
| Pressure Connection    | P70, P72 Standard Models: various connections available.  
|                        | P170 Standard Models: 1/4 in. SAE male flare  
|                        | Ammonia Compatible Models: 1/4 in. stainless steel female NPT connection |
| Ambient Temperature    | P70E and P70F Type Models: 50 to 104°F (10 to 40°C)  
|                        | All Other Models: -40 to 140°F (-40 to 60°C) |
| Case and Cover         | NEMA 1 Enclosures: Case is galvanized steel; cover is plated and painted steel.  
|                        | NEMA 3R Enclosures: Case and cover are plated and painted steel. |
| Dimensions (H x W x D) | NEMA 1 Enclosure: 3-1/4 x 4 x 2-1/16 in. (83 x 101 x 53 mm)  
|                        | NEMA 3R Enclosure: 4-1/16 x 4-1/16 x 2-15/16 in. (104 x 104 x 74 mm) |
| Approximate Shipping Weight | Individual Pack: (NEMA 1 Enclosure) 2.4 lb (1.08 kg);  
|                        | Bulk Pack: (NEMA 1 Enclosure in multiples of 25 controls) 60 lb (27.2 kg) |
| Compliance            | For information on specific models, contact Refrigeration Application Engineering at 1-800-275-5676. |
| Accessories           | 271-51 Universal Mounting Bracket (supplied with standard controls) |

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, contact Refrigeration Application Engineering at 1-800-275-5676. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.