Johnson Controls A19QSC Series Temperature Controls Installation Guide

Contents

Johnson

Johnson Controls A19QSC Series Temperature Controls

Specifications

- **Product Name:** A19QSC Series Temperature Controls with Type 4X Enclosures
- **Dimensions:** 3 in. x 1/2 in. conduit knockout, Four 0.20 in. (5 mm) mounting holes, 0.06 in. (1.5 mm) OD, length varies by model
- **Enclosure Type**: Type 4X

Product Usage Instructions

Mounting

- Ensure to avoid sharp bends in the capillary tubes to prevent refrigerant leaks or flow restrictions. Secure excess capillary tubing away from sharp or abrasive objects to prevent damage that may lead to refrigerant leaks.
- Do not dent or deform the sensing bulb as it can affect calibration and cause the control to operate at incorrect temperatures.

Wiring

Before you begin:

- Disconnect the power supply before making electrical connections to avoid the risk of electric shock. Use copper conductors only and follow local regulations for wiring connections.
- Use the terminal screws supplied in the contact block to prevent damage to the switch and voiding the warranty.

Wiring Procedure:

1. Loosen the cover screws and remove the cover without damaging the O-ring seal.
2. Select and remove the desired conduit knockout.
3. Connect an approved watertight conduit fitting to the conduit and then to the A19QSC control enclosure.

4. Insert wires through the conduit opening and connect them to the screw terminals following wiring diagrams.
5. Ensure the enclosure O-ring is securely seated for a proper seal between the cover and case.
6. Replace the cover and tighten the screws.

Wiring Diagrams

Figure 2

Figure 2: Standard wiring for heating applications

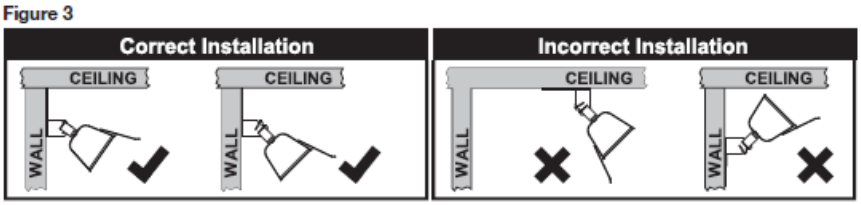

Figure 3: Standard wiring for cooling application

FAQ

1. **Q: What should I do if I encounter refrigerant leaks?**
   A: If you suspect a refrigerant leak, immediately turn off the system and contact a qualified technician for repair.
2. **Q: Can I use other terminal screws for wiring connections?**
   A: It is recommended to use the terminal screws supplied with the product to avoid damaging the switch and voiding the warranty.

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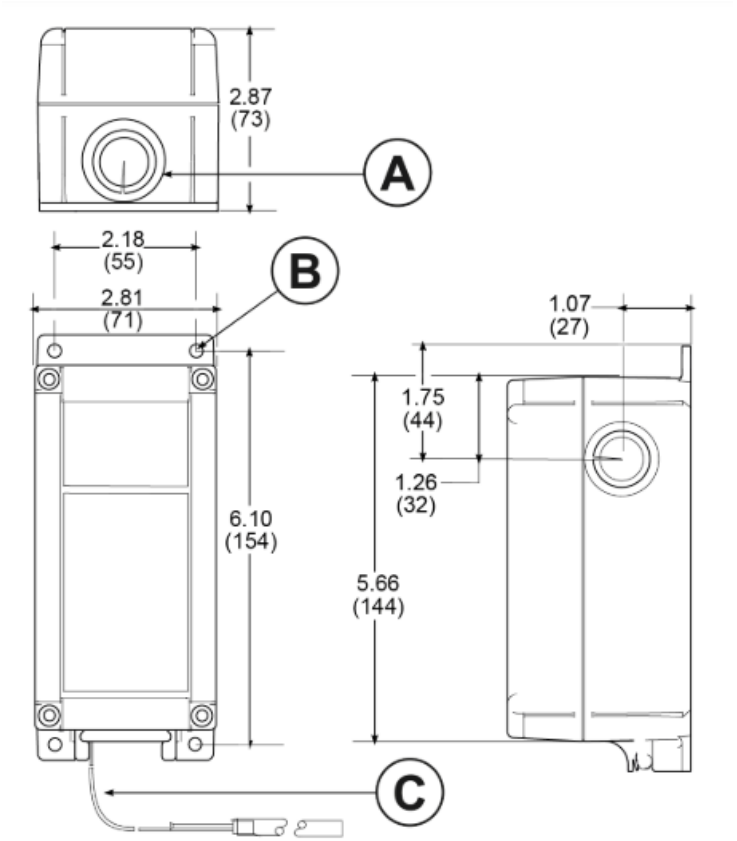
Applications

- **Important:** Use this A19QSC Series Temperature Control only as an operating control. Where failure or malfunction of the temperature 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 temperature control.
- You can use the A19QSC Series Temperature Controls for many agricultural applications. For installations that require compliance with Article 547 of the National Electrical Code (NEC), use an A19P or T19P series control.
- The A19QSC Controls use polycarbonate enclosures and are UL listed as Type 4X. For more information, see Dimensions and Technical specifications.
- The A19QSC Controls include internal setpoint adjustment dials and range scales.

Dimensions

See the following figure for the dimensions of the A19QSC controls:
Figure 1: Dimensions for A19QSC Temperature Controls with Type 4X Enclosures, in. (mm)



Callout	Description
A	3 in. x 1/2 in. conduit knockout
B	Four 0.20 in. (5 mm) mounting holes
C	0.06 in. (1.5 mm) OD, length varies by model

Mounting

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:** Do not install the A19QSC Control where the maximum temperature exceeds 140°F (60°C). If you

installing the device where temperatures exceed 140°F (60°C) you could cause damage to the A19QSC Control and you void the warranty.

- To mount the temperature control to a flat surface, insert screws through the mounting ears on the back of the case. For more information, see Figure 1.

Wiring

Before you begin

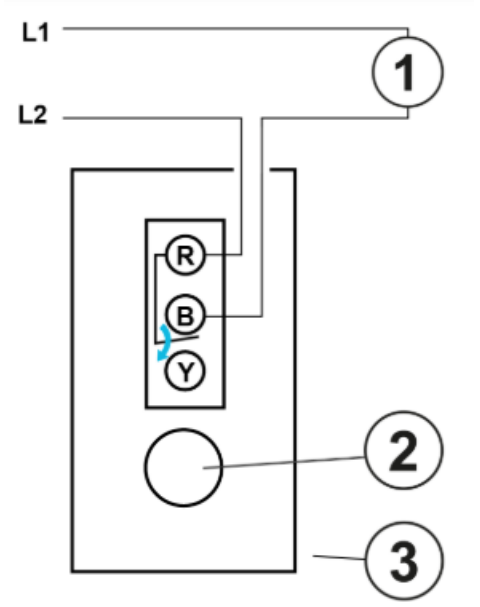
WARNING

- **Risk of Electric Shock.**
  Disconnect the power supply before making electrical connections. 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 A19QSC Control's electrical ratings. Important: Use the terminal screws supplied in the contact block. If you use other terminal screws, you could damage the switch and you void the warranty.

The Type 4x enclosure includes three 1/2 in. (1.27 cm) trade-size conduit knockouts. To make wiring connections, perform the following procedure:

1. Loosen the four cover screws and remove the cover. Do not damage the O-ring seal.
2. Select the knockout that you want to remove.
3. Place a screwdriver blade on the knockout near the edge.
4. Apply a sharp blow to the screwdriver handle to loosen the knockout.
5. Connect an approved watertight conduit fitting to the conduit.
6. Connect the fitting to the A19QSC control enclosure.
   Note: For flexible conduits, you can reverse Step 5 and Step 6.
7. Insert the wire through the conduit opening.
8. Connect the wires to the screw terminals. For more information, see Figure 2, Figure 3, and Figure 4.
9. Ensure that the enclosure O-ring is securely seated in the groove so that it forms a correct seal between the cover and case.
10. Replace the cover and tighten the screws.

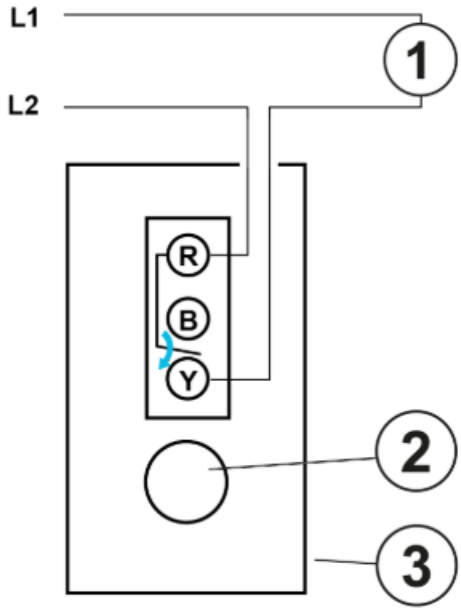
Wiring diagrams
Figure 2: Standard wiring for heating applications



Callout	Description
1	Heating load
2	Dial
3	A19 temperature control

Note: In Figure 2, R to B opens on temperature rise.

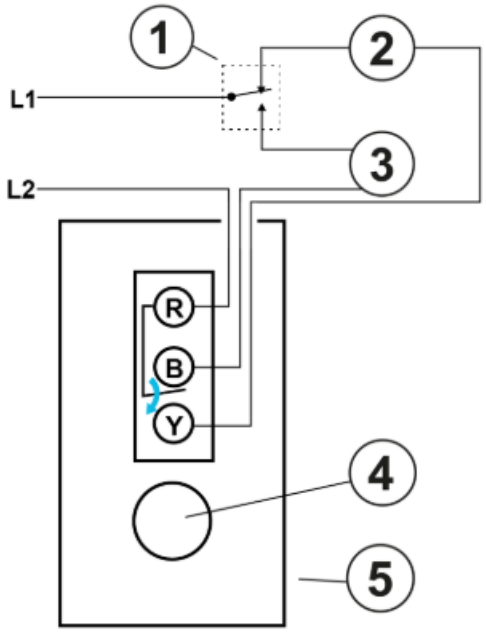
Figure 3: Standard wiring for cooling applications



Callout	Description
1	Cooling load
2	Dial
3	A19 temperature control

Note: In Figure 3, R to Y closes on temperature rise.

Figure 4: Standard wiring for combination heating and cooling applications



Callout	Description
1	User-supplied SPDT switch or switching thermostat
2	Cooling load
3	Heating load
4	Dial
5	A19 temperature control

Note: In Figure 4, R to B opens and R to Y closes on temperature rise.

Setup and adjustments

- Turn the knob under the temperature control cover to adjust the setpoint.
- Before you finish the installation, observe at least three complete operating cycles of the controlled equipment to ensure that all components function correctly. To check for correct A19QSC temperature control operation, see
- Operation for more information.

Heating applications

- The following procedure describes how to adjust the temperature for heating applications.
- Turn the dial clockwise to a setpoint greater than the sensed temperature. The heating system cycles on.
- Turn the dial counterclockwise to a setpoint less than the sensed temperature. The heating system cycles off.
- If the temperature does not operate in this manner, check the wiring and the tightness of the wiring connections.

Cooling or ventilating applications

The following procedure describes how to adjust the temperature for heating applications.

- Turn the dial clockwise to a setpoint greater than the sensed temperature. The ventilating or cooling system cycles off.
- Turn the dial counterclockwise to a setpoint less than the sensed temperature. The ventilating or cooling system cycles on.
- If the temperature does not operate in this manner, check the wiring and the tightness of the wiring connections.

Operation

- When the temperature at the sensing element rises to the setpoint or the dial setting, the switch between R and Y closes and the switch between R and B opens on single-pole, double-throw (SPDT) models. The opposite happens when the temperature at the sensing element falls below the following value: the setpoint or dial setting minus the differential.
- For more information, see Figure 2, Figure 3, and Figure 4.
- **Repair information**
  If the A19QSC type electromechanical temperature control fails to operate within its specifications, replace the unit. For a replacement A19QSC control, contact the nearest PENN by Johnson Controls® representative.

Technical specifications

Table 1: A19QSC Series Temperature Controls with Type 4X Raintight Enclosures

Specifications	**Applied VAC**	**24 VAC**	**120 VAC**	**208 VAC**	**240 VAC**	**277 VAC**	**600 VAC**
Switch contact ratings	Motor, full load amperes	–	16 A	9.2 A	8 A	–	–
	Motor, locked rotor amperes	–	96 A	55.2 A	48 A	–	–
	Non-inductive, single- pole, single-throw (SPST) amperes	–	22 A	22 A	22 A	22 A	–
	Non-inductive, SPDT amperes	–	16 A	16 A	16 A	16 A	–
	Pilot duty volt-amperes	125 A	125 A	125 A	125 A	125 A	125 A
Ambient operating conditions	-26°F to 140°F (-32°C to 60°C)						
Ambient storage conditions	-40°F to 140°F (-40°C to 60°C)						
Shipping weight	1.2 lb (0.54 kg)						
Compliance	UL Listed; File E6688, CCN XAPX (US) and XAPX7 (Canada) UL Listed as Type 4X						

The performance specifications are nominal and conform to acceptable industry standards. For application at

conditions beyond these specifications, consult Johnson Controls Application Engineering at (800) 275-5676. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

APAC	EU	UK	NA/SA
• JOHNSON CONTROLS • C/O CONTROLS PRODUCT MANAGEMENT • NO. 32 CHANGJIANG RD N EW DISTRICT • WUXI JIANGSU PROVINCE 214028 • CHINA	• JOHNSON CONTR OLS • VOLTAWEG 20 • 6101 XK ECHT • THE NETHERLAND S	• JOHNSON CONTROLS • TYCO PARK GRIMS HAW LANE MANCH ESTER M40 2WL • UNITED KINGDOM	• JOHNSON CONTROLS • 5757 N GREEN BAY AVE. • GLENDALE, WI 53209 • USA

Contact information

- **Contact your local branch office**: www.johnsoncontrols.com/locations
- **Contact Johnson Controls**: www.johnsoncontrols.com/contact-us

A19QSC Series Temperature Controls with Type 4X Enclosures Installation Guide

www.penncontrols.com

Documents / Resources

	Johnson Controls A19QSC Series Temperature Controls [pdf] Installation Guide A19QSC-4C, A19QSC Series Temperature Controls, A19QSC Series, Temperature Controls, C ontrols

References

- johnsoncontrols.com/
- johnsoncontrols.com/buildingswarranty
- johnsoncontrols.com/contact-us
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- PENN
- User Manual