

A19D Series Surface Mounted Temperature Control

Application

This control features a single-pole, double-throw (SPDT) switch and is designed especially for mounting on hot water pipes.

As a high temperature operating control, the contacts open on a rise in temperature. As a low temperature operating control for use on unit heaters, the contacts open on a falling temperature.

Do not install where the case temperature exceeds 131°F (55°C) or the sensing element temperature exceeds 250°F (121°C).

IMPORTANT: The A19D Series surface mounted temperature controls are intended to control equipment under normal operating conditions. Where failure or malfunction of an A19D temperature control could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls) or systems (alarm or supervisory) intended to warn of or protect against failure or malfunction of the A19D temperature control must be incorporated into and maintained as part of the control system.

Adjustment and Operation

Adjusting screw "B," Fig. 2, permits screwdriver adjustment of the setpoint between 100°F (38°C) and 240°F (116°C).

The temperature differential is factory set, nonadjustable, and is approximately 10F° (5.5C°) depending on rate of temperature change.

Convertible adjustment models can be field converted from concealed screwdriver slot adjustment to knob adjustment or external screwdriver slot adjustment. They are supplied with a snap-in plug in the cover to provide concealed screwdriver slot adjustment. For knob adjustment remove the snap-in plug and assemble the knob to the slotted shaft. For external screwdriver slot adjustment remove the snap-in plug.

On boiler applications where the A19 is used as a high temperature operating control, follow the boiler manufacturer's recommendations for temperature settings.

Installation

Mounting

Boiler Application

IMPORTANT: Do not install this control on riser pipe containing a flow control device. The flow control device will prevent circulation of hot water unless circulator is operating.

Install the control on the vertical riser pipe from the boiler approximately 2 feet (.6 m) above the boiler opening.

Unit Heater Control

Mount the control on the horizontal return line adjacent to the unit heater. In this position it will close the contacts when hot condensate or hot water is leaving the unit heater.



Fig. 1 -- Surface Mounted Temperature Control less mounting strap.

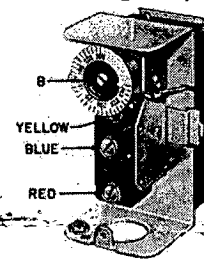


Fig. 2 -- Note color-coded switch. Mounting strap is held to control by clamp screw.

Other Applications

Control can be mounted in any position on the pipe to sense pipe temperature. The control is not position sensitive. To mount:

1. If a pipe is insulated, remove a 5 in. (127 mm) section of insulation. Scrape pipe surface clean, removing insulating material, scale, and rust.
2. Remove the cover from the control and fasten threaded flange of the strap to the control case using only 3 or 4 threads of mounting screw (See Fig. 5). Place control on pipe, wrap strap around pipe and place slot in strap over tab on right side of case. Tighten the strap screw to a snug fit. Clip off or bend back excess strap outside the cover of the control.

WARNING: Risk of Electrical Shock. Do not enclose any excess strap inside the enclosure when installing the cover. Doing so may result in the metal strap contacting the wiring terminals and cover, and may result in severe personal injury or death.

3. Replace the removed pipe insulation.

Note: Insulation attached to the rear of control minimizes the effect of ambient air temperature on the sensing element.

Wiring

WARNING: Risk of Electrical Shock. Disconnect power supply before wiring connections are made to avoid possible electrical shock.

CAUTION: Risk of Equipment Damage. Disconnect power supply before wiring connections are made to avoid possible damage to equipment.

Wire in accordance with local, national, and regional codes.

The case has a 7/8 in. (22 mm) diameter hole for 1/2 in. conduit fittings to permit installation of conduit where required.

Technical Specifications

Product	A19DAC	A19DAF				
Electrical Ratings	Motor Ratings VAC	120	240	120	208	240
	AC Full Load Amp	10.0	6.0	6	3.4	3
	AC Locked Rotor Amp	60.0	36.0	36	20.4	18
	AC Non-Inductive Amp	10.0	6.0	15	15	15
Pilot Duty	125 VA, 24 to 240 VAC			125 VA, 24 to 277 VAC		
Maximum Case-Ambient Temperature	131°F (55°C)					
Maximum Sensing Element Temperature	250°F (121°C)					

The terminals of the single-pole, double-throw switch are color coded with the red terminal common. Red to blue circuit opens on temperature rise; red to yellow circuit closes on temperature rise (Fig. 3). Use copper conductors only.

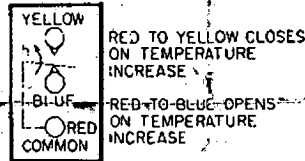


Fig. 3 – Designations and Switch Action

IMPORTANT: Use terminal screws furnished (8-32 x 1/4 in. binder head). Do not substitute screws of a different size.

Temperature Setpoint Stop

The temperature setpoint stop is an integral part of these controls and is field adjustable. To set the stop:

1. Set dial to temperature at desired stop.
2. Remove control cover.
3. Loosen the stop screw, slide the screw to the front of the control against the plastic step behind the dial and tighten the screw (Fig. 4). Sometimes an exact stop setting is not possible and the stop must be set to the closest step corresponding to the dial setting required.

Setpoint Stop Bracket with Slot and Screw

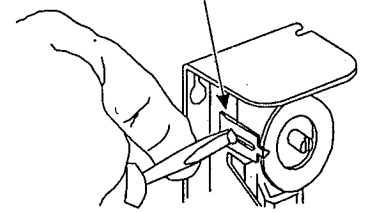


Fig. 4 – The controls have a screw type setpoint stop. Loosen and move the stop screw to the desired setting, and then tighten screw.

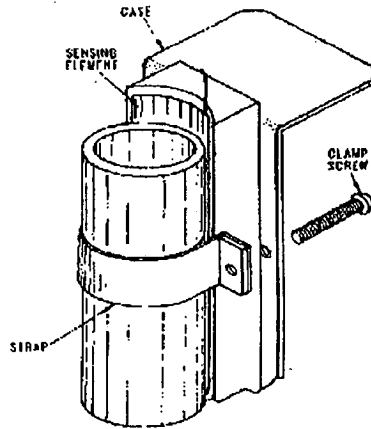


Fig. 5 – Skeleton view of control case, temperature sensing element, and mounting strap.

Checkout Procedure

Before leaving the installation, observe at least three complete operating cycles to ensure that all components function correctly.

Repairs and Replacement

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



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