

## A19 Series Hot Water Heating Controls Well Immersion

### Application

Johnson Controls hot water immersion controls provide various control functions for hydronic heating systems. These include high temperature cutout, operating, circulator or low temperature cutout.

**All Series A19 temperature 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

- Sealed, dusttight Pennswitch contact unit.
- Matching drawn bulb and well for rapid, efficient heat transfer.
- Manual reset, when supplied, is "Trip-Free." Reset must be pressed and released before operation will resume.
- Concealed dial stop permits control within maximum temperature selected or specified.
- Direct reading scales provide fast, easy "on-the-job" adjustment.



**Fig. 1 -- The A19 Direct Mounting Control.**

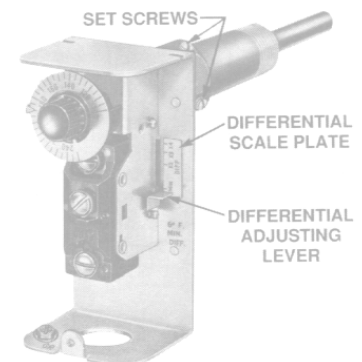
### General Description

A liquid expansion temperature element with copper bulb well gives fast control response.

The control can be easily removed from the bulb well by loosening the set screws and withdrawing the sensing bulb from the well. The control can be mounted in any position around the axis of the bulb well without changing the operating characteristics.

### Specifications

<b>Type Number</b>	<b>A19AAB</b>	Open on Rise, Fixed Differential
	<b>A19AAC</b>	SPDT, Fixed Differential
	<b>A19ABA</b>	Close on Rise, Adjustable Differential
	<b>A19ABB</b>	Open on Rise, Adjustable Differential
	<b>A19ABC</b>	SPDT, Adjustable Differential
	<b>A19ADB</b>	Open on Rise, Lockout with Manual Reset
	<b>A19ADC</b>	SPDT, Lockout with Manual Reset
<b>Temperature Range</b>	100 to 240°F (40 to 120° C)	
<b>Differential</b>	<b>Fixed</b>	6 F° (3.3 C°)
	<b>Adjustable</b>	6 F° (3.3 C°) Min.; 24 F° (13 C°) Max.
<b>Maximum Temperature</b>	<b>At Case</b>	140°F (60°C)
	<b>At Bulb</b>	290°F (143°C)
<b>Contact Action</b>	Red to Yellow Closes on Temperature Rise Red to Blue Opens on Temperature Rise	
<b>Contact Units</b>	Snap Acting, Enclosed Dusttight Pennswitch	
<b>Conduit Openings</b>	One 7/8" (22 mm) Diameter Hole for 1/2" Conduit	
<b>Enclosure</b>	NEMA Type 1 General Purpose	
<b>Finish</b>	Gray Baked Enamel	
<b>Material</b>	<b>Case</b>	.062" (1.57 mm) Cold Rolled Steel
	<b>Cover</b>	.025" (0.64 mm) Cold Rolled Steel
<b>Mounting</b>	Immersion Well Mounts Directly in Boiler Tapping. Case of Remote Bulb Models Mounts to Flat Surface	
<b>Shipping Weight</b>	<b>Individual Pack</b>	1.5 lb (0.7 kg)
	<b>Overpack of 25 Units</b>	37.5 lb (17 kg)
<b>Terminal Screws</b>	No. 8--32 x 1/4" Binder Head With Cup Washers	

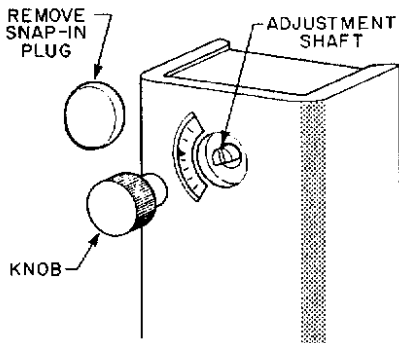


**Fig. 2 -- Illustrated is the A19 with adjustable differential. Note the complete accessibility of the well assembly set screw. After loosening these screws, the control can be quickly removed from the well.**



**Fig. 3 -- The A19 with convertible adjustment has a snap-in plug in the cover and a knob for field installation.**

The range scale, visible through the cover opening, shows the range setting. An adjustable differential or lockout with manual reset is also available.



**Fig. 4 — Drawing showing snap-in plug removed and the knob in line to assemble. Press the knob onto the slotted shaft.**

On open high and SPDT models, the range dial pointer indicates the temperature at which the normally closed contacts open on a temperature rise. On the open low models, the dial pointer indicates the temperature at which the contacts open on drop.

Knob range adjustment and visible scale are standard. Models are available with a knob assembly for field convertible adjustment. These models are supplied with a snap-in plug in the cover for concealed screwdriver slot adjustment.

### Electrical Ratings

Motor Ratings	120 V	240 V
AC Full Load Amps.	10.0	6.0
AC Locked Rotor Amps.	60.0	36.0
AC Non-Inductive Amps.	10.0	6.0
Pilot Duty — 125 VA, 24 to 600 VAC		

### Optional Constructions

#### Immersion Style

Direct mounting or remote mounting with a 6 foot capillary and bulb well are standard. Capillary lengths of 10 or 20 ft are available at extra cost. Consult Customer Service.

#### Well Thread Size

1/2 in. NPT standard; 3/4 in. NPT available on request.

#### Range Adjuster

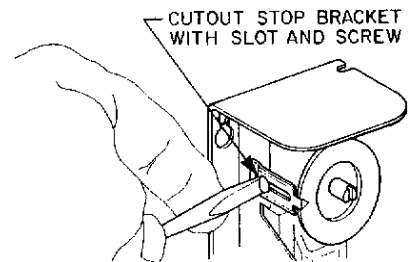
A screwdriver slot with visible scale or a screwdriver slot with internal scale and solid cover are optional at no extra cost (quantity orders only). Models are available with a knob for field convertible adjustment. This provides conversion to knob, concealed screwdriver slot or external screwdriver slot adjustment.

### Repairs and Replacement

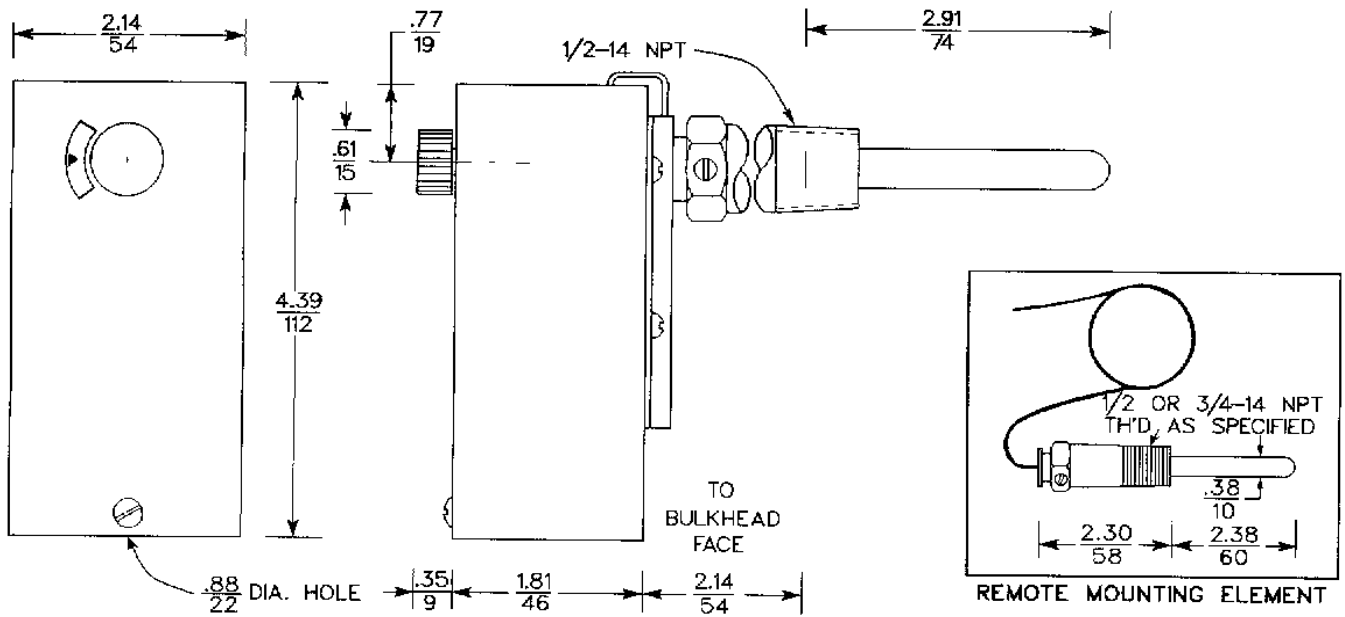
Field repairs must not be made. For a replacement control contact the nearest Johnson Controls wholesaler.

### Ordering Information

1. Specify complete Product Number, if established.
2. If Product Number is not available, specify Type Number and the following:
  - a. Well thread size -- 1/2 in. or 3/4 in. NPT.
  - b. Remote well mounting, if required.
  - c. If remote mounting is required, specify length of capillary if other than 6 ft. Available on quantity orders only.
  - d. Stop settings, if required. Available on quantity orders only.



**Fig. 5 — The controls have a screw type cutout stop. The stop screw must be loosened and moved to the stop setting desired. Tighten screw after setting is made.**



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

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# Notes



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