

# ACCESSORIES *air / oil heat exchangers*

## ELECTRICAL TEMPERATURE CONTROLLER WITH BULB WELL ASSEMBLY (for Air/Oil Coolers)

### SPECIFICATIONS:

A) Material: Copper

B) Power Limits:

1) For three phase motor operation, use only with a magnetic starter, 125 VA max. (VA =volts x amps)

2) For pilot duty, 125 VA max.

3) For direct connection to motor:

120v AC/8.0 amps max      230v AC/5.1 amps max

277v AC/4.2 amps max      460v AC/2.0 amps max

4) Temperature operating range: 55°F to 175°F.

Part Number	Description
310-4001	TC-511 with 5-Foot Capillary Tube & Bulb Well
310-4002	TC-511 with 20-Foot Capillary Tube & Bulb Well
310-2005	Replacement Bulb Well TC-511

### APPLICATIONS (Temperature Controller)

The TC511 temperature controllers are designed to control the temperature of air or liquids in ducts, pipes, tanks, and boilers. Typical uses include control of dampers and valves in heating, cooling, or heating-cooling systems. The TC511 has 1 spdt switch. It makes or breaks a circuit on a change in temperature at the sensing bulb. Fast response models with adjustable differential are available for duct installation. They respond approximately 4 times faster than standard models.

### INSTALLATION

When installing this product:

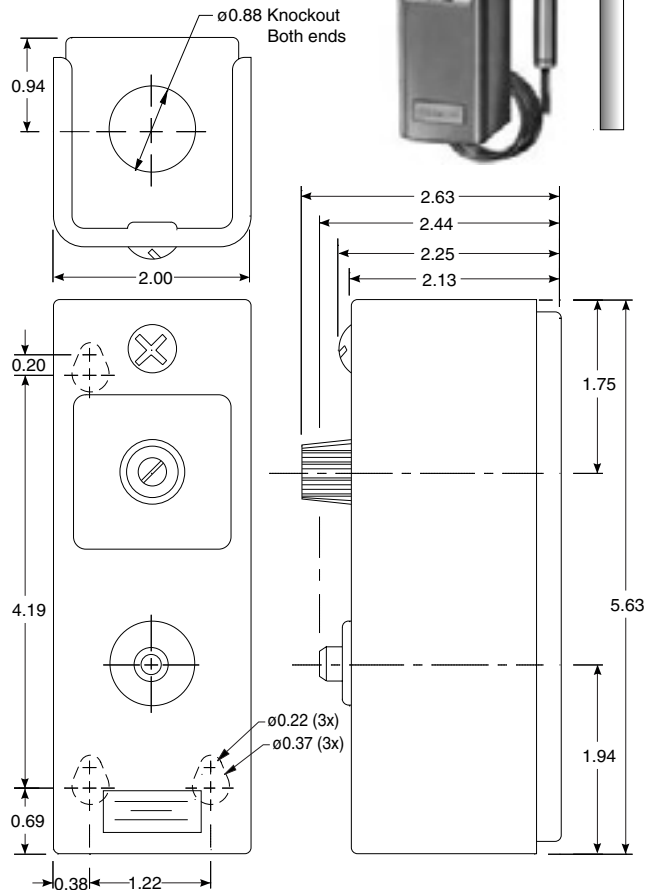
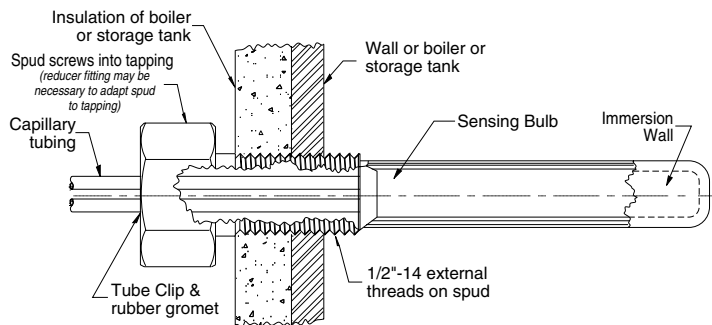
1. Read instructions carefully. Failure to follow the instructions could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in the instructions.

### ELECTRICAL RATINGS:

TC511 models with adjustable differential:

TC511 models with fixed differential -125 VA at 120/208/240/277 Vac.

MAXIMUM BULB PRESSURE: 50 psi (344.7 kPa) for direct immersions.



### LOCATION AND MOUNTING.

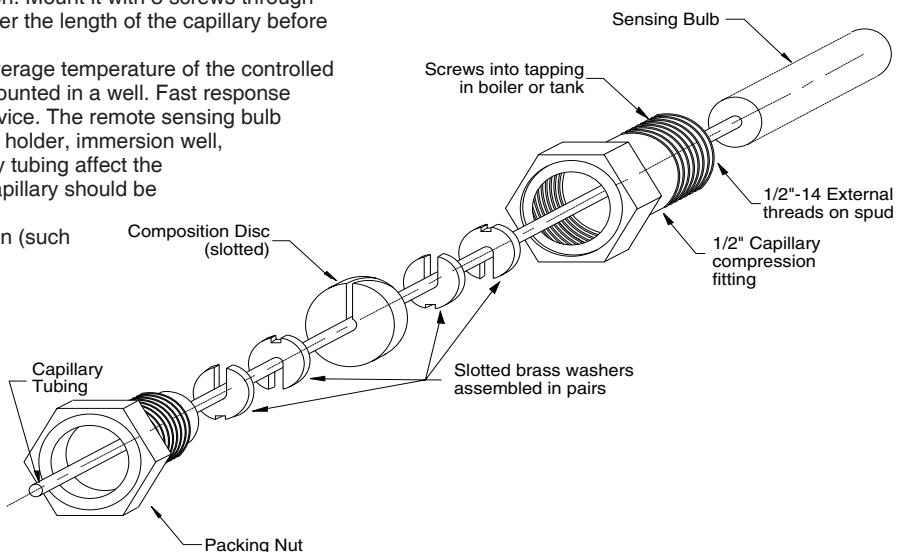
The controller may be installed in any convenient position. Mount it with 3 screws through the slotted holes in the back of the case. Be sure to consider the length of the capillary before mounting the controller.

Install the sensing element where it is exposed to the average temperature of the controlled medium. The sensing bulb may be directly immersed or mounted in a well. Fast response models must use the capillary holder furnished with the device. The remote sensing bulb of standard models should be held in place with a capillary holder, immersion well, or compression fitting. Sharp bends or kinks in the capillary tubing affect the efficiency of the controller and must be avoided. Excess capillary should be carefully coiled and left directly beneath the controller.

NOTE: When pressure fittings are used in areas of vibration (such as pipe lines) the bulb must be adequately supported.

### OPERATION

As the temperature of the controlled medium falls below the set point less differential, the TC511 switch makes terminal R to B and energizes a normally close solenoid valve to provide heat. In cooling applications, the TC511 makes terminal R to W as the temperature rises above the set point, energizing cooling equipment.



note: AIHTI reserves the right to make reasonable design changes without notice.

## “3-Way” Thermostatic Valve

Thermostatic valves utilize the principle of expanding wax, which in the semi-liquid state undergoes large expansion rates within a relatively narrow temperature range. The self contained power element activates a stainless steel sliding valve which provides positive three-way actions. All thermostatic valves are factory set at predetermined temperatures; no further adjustments are necessary. A wide range of temperatures are available for water and oil temperature control applications.

On starting, the total fluid flow is in a by-pass mode. As fluid temperature rises to the control range some fluid is diverted to the cooling system. As fluid temperature continues to increase, more flow is diverted, and when in a fully stroke condition all fluid flow is positively directed to the cooling system. Thermostatic valves may be used for either mixing or diverting applications. In normal operation fluid temperatures are controlled to within a few degrees.

Standard thermostatic valve housings are made from high quality grey iron castings.



Part Number	Description		Part Number	Description	
	Temp. Setting	Size NPT		Temp. Setting	Size NPT
310-7029	100 °F	1/2"	310-7014	100 °F	1-1/2"
310-7023	110 °F		310-7034	110 °F	
310-7030	120 °F		310-7035	120 °F	
310-7043	140 °F		310-7012	140 °F	
310-7006	160 °F		310-7001	160 °F	
310-7031	100 °F	3/4"	310-7002	100 °F	2"
310-7032	110 °F		310-7024	110 °F	
310-7022	120 °F		310-7036	120 °F	
310-7042	140 °F		310-7020	140 °F	
310-7007	160 °F		310-7010	160 °F	
310-7033	100 °F	1"	310-7037	100 °F	3"
310-7026	110 °F		310-7038	110 °F	
310-7028	120 °F		310-7039	120 °F	
310-7021	140 °F		310-7041	140 °F	
310-7008	160 °F		310-7040	160 °F	

## Adjustable Electrical Temperature Switch (see page 224)

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