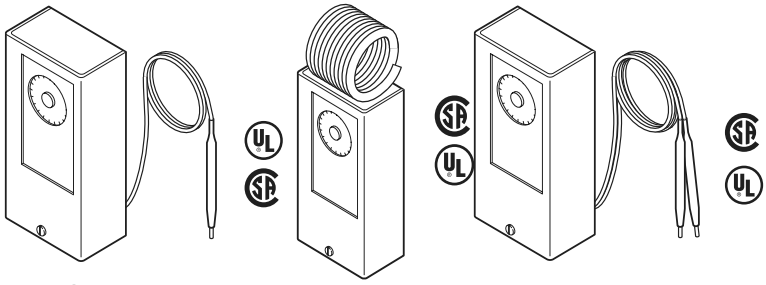
Two-Position, Single & Dual Bulb Thermostats

For on-off control of media temperature in ducts, tanks, liquid lines, etc.

Features:

- Heating or cooling applications.
- Adjustable differential on all except TC-4166.
- 1/2 in. conduit connections.
- Agency approval.
- Duct/immersion/outside mounting kits available.
- Concealed adjustment plate.



Typical Single Bulb

Typical Return Air Bulb

Typical Dual Bulb

Model Chart

Model No.	Type	Dual[a] Bulb Ratio	Dimensions		
			Capillary Copper ft. (m)	Bulb Copper in. (mm)	
TC-4111	Single stage, single bulb	—	8 (2.4)	3/8 x 4 (9.5 x 102)	
TC-4111-020			20 (6)		
TC-4112			8 (2.4)		
TC-4115[b]					
TC-4121			10 (3) Armored		
TC-4122					
TC-4123					
TC-4151	Single stage, dual bulb	1:1-1/2[c]	30 (9) Each bulb	Indoor	Outdoor
				3/8 x 4 (9.5 x 102)	3/8 x 5-1/2 (9.5 x 140)
TC-4152		1:1			3/8 x 4 (9.5 x 102)
TC-4166	Single stage, return air bulb	—	None	Coiled 2-1/2 x 2 (64 x 51)	
TC-4211	Two stage, single bulb	—	8 (2.4)	3/8 x 4 (9.5 x 102)	
TC-4221			10 (3) Armored		
TC-4222					
TC-4223					
TC-4251	Two stage, dual bulb	1:1-1/2[c]	30 (9) Each bulb	Indoor	Outdoor
				3/8 x 4 (9.5 x 102)	3/8 x 5-1/2 (9.5 x 140)
TC-4252		1:1			3/8 x 4 (9.5 x 140)
TC-4266	Two stage, return air bulb	—	None	Coiled 2-1/2 x 2 (64 x 51)	

[a] First number of reset ratio typically indicates outdoor air temperature change required to increase the setpoint by the second number.

[b] Refer to Electrical Ratings Table.

[c] For 1-1/2:1 ratio, reverse bulbs and use extra dial supplied with unit.

Differential, Setpoint Adjustment, and Safe Bulb Temperature Ranges.

Model No.	Differential F° (C°)	Setpoint Adjustment Range °F (°C)	Safe Bulb Temperature Range °F (°C)
TC-4111	Factory set 3 (2), adj. 3 to 16 (2 to 9)	-40 to 120 (-40 to 49)	-40 to 170 (-40 to 77)
TC-4111-020			
TC-4112		100 to 260 (38 to 127)	-40 to 310 (-40 to 154)
TC-4115		-40 to 120 (-40 to 49)	-40 to 170 (-40 to 77)
TC-4121			
TC-4122		100 to 260 (38 to 127)	-40 to 310 (-40 to 154)
TC-4123		190 to 350 (88 to 176)	-40 to 400 (-40 to 204)
TC-4151	Factory set 3 (2), adj. 1-1/2 to 10 (1 to 5)	70 to 120 (21 to 49)	Total of indoor and outdoor temperatures must not exceed 280 (138)
TC-4152	Factory set 3 (2), adj. 3 to 16 (2 to 9)		
TC-4166	Fixed 2 (1)	50 to 90 (10 to 32)	-40 to 145 (-40 to 63)
TC-4211	Per stage fixed 3 (2), between stages set 3 (2), adj. 2 to 10 (1 to 5)	-40 to 120 (-40 to 49)	-40 to 170 (-40 to 77)
TC-4221			
TC-4222		100 to 260 (38 to 127)	-40 to 310 (-40 to 154)
TC-4223		190 to 350 (88 to 176)	-40 to 400 (-40 to 204)
TC-4251	Per stage fixed 3 (2), between stages set 3 (2), adj. 1.5 to 6.5 (1 to 4)	70 to 120 (21 to 149)	Total of indoor and outdoor temperatures must not exceed 280 (138)
TC-4252	Per stage fixed 3 (2), between stages set 3 (2), adj. 2 to 10 (1 to 5)		
TC-4266	Each stage fixed 2 (1), between stages set 3 (2), adj. 1 to 5 (0.5 to 3)	50 to 90 (10 to 32)	-40 to 145 (-40 to 63)

Specifications

Setpoint dial range	Dial plate is marked as °F on one side and °C on the other. Refer to Differential, Setpoint Adjustment, and Safe Bulb Temperature Ranges Model Chart for specific ranges.
Sensing element	Liquid filled copper.
Differential	Refer to Differential, Setpoint Adjustment, and Safe Bulb Temperature Ranges Model Chart.
Dual bulb units	One bulb senses the controlled media; the second bulb senses the outside air temperature. The temperature of the controlled media increases as outside air temperature decreases.
Ambient temperature limits	
Case	Shipping: -40 to 160°F (-40 to 71°C). Operating: -40 to 150°F (-40 to 65°C) except return air bulb unit, -40 to 140°F (-40 to 60°C).
Bulb	Refer to Differential, Setpoint Adjustment, and Safe Bulb Temperature Ranges Model Chart.
Electrical switch	Snap action SPDT, one per stage.
Ratings	Refer to Electrical Ratings Table.
Connections	Coded screw terminals.
Cover	All metal with 1/2 to 3/4 in. conduit openings.
Case Locations	NEMA Type 1.
Mounting	Case can be mounted in any position. Refer to Accessories for bulb mounting kits, order separately.
Dimensions	
Case	4-5/8 H x 2-1/4 W x 2 D in. (117 x 57 x 51 mm).
Element and Capillary	Refer to Description Model Chart.
Agency Listing	UL, CUL.
General Instructions	Refer to F-18895.

Electrical Ratings (Except TC-4115[a]).

Switch Rating (50/60 Hz)	24 V	120 V	240 V
Full Load Amps	16	16	8.0
Locked Rotor Amps	96	96	48.0
Pilot Duty VA	60	360	360
Non-Inductive Amps (Resistive)			
Single Stage	22	22	22
Two Stage	16	16	8.0

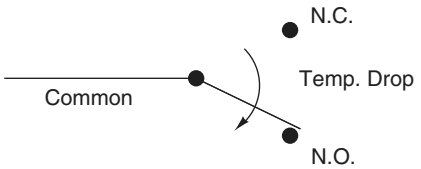
[a] TC-4115 for System 8000 and applications requiring less than one (1) amp. Electrical Rating: 1.0 amp at 24 Vac; 0.25 amp at 24 Vdc.

Accessories

Model No.	Description
AT-201	Copper bulb well requires AT-209.
AT-203	Stainless steel bulb well requires AT-209.
AT-206	Copper bulb well.
AT-208	Duct mounting kit
AT-209	Bulb mounting kit.
AT-210	Concealed adjustment plate.
AT-211	Outdoor bulb shield.

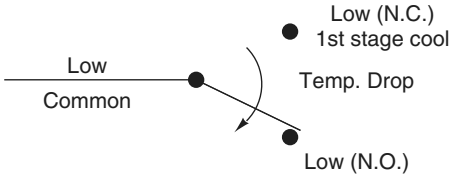
Typical Applications

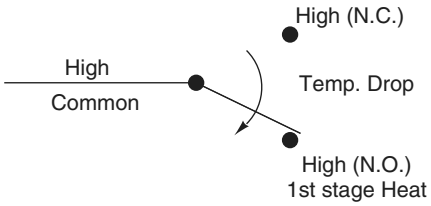
Typical Single Stage



N.O. makes ON temperature drop

Typical Two Stage





N.O. makes ON temperature drop

Figure 1 Switch Action and Terminal Identification.