

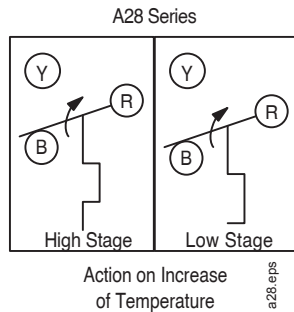


A28 Series Two-Stage Temperature Control

Description

The A28 Series are two-stage temperature controls that incorporate a liquid-filled sensing element.

Refer to the *A28 Series Two-Stage Temperature Controls with NEMA 1 Enclosure Product Bulletin Product Bulletin (LIT-125130)* for important product application information.



A28 Action Diagram



A28AA-4 Temperature Control



A28AB-29 Temperature Control

Features

- wide temperature ranges available
- constant differential throughout the entire range
- single-pole, double-throw (SPDT) snap-acting switches
- unaffected by changes in barometric pressure
- unaffected by cross ambient conditions
- compact enclosure
- variety of sensing element styles

Applications

Use for temperature sensing applications requiring two-stage control of HVAC/R equipment.

Accessories

- packing nut assembly available for direct immersion applications (Code No. **FTG13A-600R**)
- remote bulb models include 5/8 in. mounting clip

Selection Charts

Product Code Number	Switch Action	Range °F (°C)	Differential F° (C°)	Bulb and Capillary	Bulb Well No. (Order Separately)	Range Adjuster
Coiled Bulb-Fixed Differential						
A28AA-4C	Two-SPDT	30 to 110 (-1 to 43)	3-1/2 (1.9) each stage 3 (1.7) fixed between stages	1-3/8 in. x 2-1/4 in. coiled	—	Convertible
Case Compensated-Fixed Differential						
A28AA-9C	Two-SPDT	20 to 80 (-7 to 32)	3-1/2 (1.9) each stage 3 (1.7) fixed between stages	3/8 in. x 5 in. 6 ft capillary ¹	WEL14A-603R	Knob
Wide Range-Adjustable Interstage Differential						
A28AA-28C	Two-SPDT	30 to 110 (-1 to 43)	3-1/2 (1.9) each stage 2 to 7 adjustable between stages	12 ft averaging bulb 6 ft capillary	—	Screwdriver slot
A28AA-29C	Two-SPDT	-30 to 100 (-34 to 38)	5 (2.8) each stage 2 to 7 adjustable between stages	3/8 in. x 4 in. 8 ft capillary ¹	WEL14A-602R	Convertible
A28AA-36C	Two-SPDT	40 to 90 (4 to 32)	3 each stage 2 to 7 adjustable between stages	3/8 in. x 5-3/4 in. 6 ft capillary	—	Knob
A28AA-37C	Two-SPDT	60 to 140 (16 to 60)	5 each stage 2 to 7 adjustable between stages	3/8 in. x 4 in. 6 ft capillary	WEL14A-602R	Knob
A28AJ-4C	Two-SPDT	20 to 80 (-7 to 27)	2 each stage 2 to 7 adjustable between stages	3/16 in. x 22 in. 6 ft capillary	—	Knob
Changeover Control						
A28AB-1C	Two-SPDT ²	20 to 80 (-7 to 27)	3-1/2 (1.9)	3/8 in. x 5 in. 6 ft capillary	WEL14A-603R	Screwdriver slot

1. Packing nut assembly available for direct immersion applications (Code No. **FTG13A-600R**).

2. Switches within 1 F° (0.6 C°) of each other.



Multi-Stage Electromechanical Temperature Controls

A28 Series Two-Stage Temperature Control (Continued)

Replacement Parts

Product Code Number	Description
CVR28A-617R	Concealed adjustment
CVR28A-618R	Visible scale
KNB20A-602R	Knob kit

Technical Specifications

Maximum bulb temperature of A28AA-37 is 230°F (110°C). For all others, maximum bulb temperature is 140°F (60°C).

Electrical Ratings

Motor Ratings VAC	120	208	240	277
A28AA, A				
AC Full Load A	16.0	9.2	8.0	---
AC Locked Rotor A	96.0	55.2	48.0	---
Non-Inductive or Resistance Load A (Not Lamp Loads)	16.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC ¹			
A28AJ				
AC Full Load A	6.0	3.4	3.0	---
AC Locked Rotor A	36.0	20.4	18.0	---
Non-Inductive or Resistance Load A (Not Lamp Loads)	15.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC ¹			
A28AB				
AC Full Load A	16.0	9.2	8.0	---
AC Locked Rotor A	96.0	55.2	48.0	---
Non-Inductive or Resistance Load A (Not Lamp Loads)	16.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC ¹			

1. When used as two-circuit control, the total connected load must not exceed 2,000 VA.



A28 Series Two-Stage Flange Mounted Duct Thermostat

Description

The A28AK is a two-stage temperature control with special air coil sensing element and adjustable mounting flange.

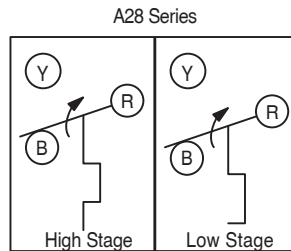
Refer to the *A28 Series Two-Stage Temperature Controls with NEMA 1 Enclosure Product Bulletin (LIT-125130)* for important product application information.

Features

- flat flange mounting with special coil sensing element permits positioning of sensing bulb in the appropriate portion of the air stream
- two single-pole, double-throw (SPDT) snap-acting switches
- unaffected by barometric pressure or cross ambient temperatures

Applications

These duct thermostats are used on roof top units, make-up heaters, duct heaters, and air handling systems of all types.



Action on Increase of Temperature

A28 Action Diagram



A28AK Thermostat

Repair Information

If the A28 Series Two-Stage Flange Mounted Duct Thermostat fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Number of Stages	Switch Action	Range °F (°C)	Differential F° (C°) Fixed		Maximum Allowable Temperature at Bulb °F (°C)
				Each Stage	Between Stage	
A28AK-1C	Two	Two-SPDT switches	30 to 110 (-1 to 43)	2 (1.1)	3 (1.7)	140 (60)
A28AK-2C	Two	Two-SPDT switches	60 to 130 (16 to 54)	2 (1.1)	3 (1.7)	200 (93)

Technical Specifications

Electrical Ratings

Motor Ratings VAC	120	208	240	277
AC Full Load A	6.0	3.4	3.0	-
AC Locked Rotor A	36.0	20.4	18.0	-
Non-Inductive or Resistance Load A (Not Lamp Loads)	10.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC			

Note: When used as a two-circuit control, the total connected load must not exceed 2,000 VA.



A28 Two-Stage Industrial Thermostat (Watertight and Dusttight)

Description

The A28KA is a wide range temperature control with gasketed enclosure and two single-pole, double-throw (SPDT) switches.

Refer to the A19A, A19K, A28K Series Industrial Controls Remote Bulb Product Bulletin (LIT-125105) for important product application information

Features

- rugged steel enclosure
- liquid-filled sensing element that provides uniform control

Applications

This control is for refrigeration, air conditioning, and heating applications. This model incorporates a gasketed enclosure that can be used in a wide range of industrial and general purpose applications.

Repair Information

If the A28 Two-Stage Industrial Thermostat fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Technical Specifications

Electrical Ratings

Motor Ratings AC	120	208	240
AC Full Load A	16.0	9.2	8.0
AC Locked Rotor A	96.0	55.2	48.0
Non-Inductive or Resistance Load A (Not Lamp Loads)	16.0	9.2	8.0
Pilot Duty	125 VA, 24 to 277 VAC		

Note: When used as a two-circuit control, the total connected load must not exceed 2,000 VA.



A28KA Industrial Thermostat

Selection Chart

Product Code Number	Switch Action	Range °F (°C)	Differential F° (C°)	Bulb and Capillary	Bulb Well No. (Order Separately)	Range Adjuster
A28KA-1C	Two-SPDT	0 to 150 (-15 to 65)	5 (2.8) each stage 3 (1.7) fixed between stages	0.290 x 2-1/2 in. 10 ft capillary	WEL16A-600R	Knob



A28 Two-Stage Temperature Control with Weatherproof Enclosure

Description

The A28MA Controls are wide range temperature controls with rainproof NEMA 3R enclosure and two single-pole, double-throw (SPDT) switches.

Refer to the *A28MA Type Two-Stage Tower Fan Control Two-Stage Air Cooled Condenser Fan Control Product Bulletin (LIT-125135)* for important product application information

Technical Specifications

Electrical Ratings

Motor Ratings	120	208	240
AC Full Load A	16.0	9.2	8.0
AC Locked Rotor A	96.0	55.2	48.0
Non-Inductive or Resistance Load A (Not Lamp Loads)	16.0	9.2	8.0
Pilot Duty	125 VA, 24 to 277 VAC		

Note: When used as a two-circuit control, the total connected load must not exceed 2,000 VA.

Features

- rugged steel enclosure
- liquid-filled sensing element provides uniform control

Applications

- sump water temperature control for cooling towers and evaporative condensers
- fan cycling control for air-cooled condensers

Repair Information

If the A28 Two-Stage Temperature Control with Weatherproof Enclosure fails to operate within its specifications, replace the unit. For a replacement control, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Switch Action	Range °F (°C)	Differential F° (C°)	Bulb and Capillary	Range Adjuster
A28MA-1C	Two-Stage Two-SPDT Switches	40 to 120 (4 to 49)	Factory set	3/8 in. x 4 in.; Neoprene-coated 6 ft capillary	Screwdriver slot
A28MA-2C			5 (2.8) each stage 8 (4.4) between stages		



A28MA Temperature Control



A28 Two-Stage Agricultural Thermostat with NEMA 4X Enclosure

Description

The A28PJ and A28PA are two-stage temperature controls with raintight and dusttight enclosures.

Refer to the *A28 Series Two-Stage Temperature Controls with NEMA 1 Enclosure Product Bulletin (LIT-125130)* for important product application information.

Features

- rugged thermoplastic gasketed enclosures that meet NEMA 4X specifications
- O-ring sealed setpoint adjustment knobs
- range scale with oversized white markings for easy readability in low light
- exposed portion of liquid-filled sensing elements are plated and plastic coated to resist damage in corrosive atmospheres

Applications

Designed for use in agricultural and industrial applications that require compliance with Article 547 of the National Electrical Code.

Repair Information

If the A28 Two-Stage Agricultural Thermostat with NEMA 4X Enclosure fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.



A28PJ, A28PA Thermostat

Selection Chart

Product Code Number	Switch Action	Range °F (°C)	Differential F° (C°)	Bulb and Capillary	Range Adjuster
A28PJ-1C	Two-SPDT	30 to 110 (-1 to 43)	2 (1.1) each stage 2 to 7 (1.1 to 3.9) adjustable between stages	1-3/8 in. x 2-1/4 in. coiled	Knob
A28PA-2C	Two-SPDT	30 to 110 (-1 to 43)	2 (1.1) each stage 2 to 7 (1.1 to 3.9) adjustable between stages	1-3/8 in. x 2-1/4 in. coiled	Knob

Technical Specifications

Electrical Ratings

Motor Ratings VAC	120	208	240	277
A28PJ				
AC Full Load A	6.0	3.4	3.0	–
AC Locked Rotor A	36.0	20.4	18.0	–
Non-Inductive or Resistance Load A (Not Lamp Loads)	10.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC ¹			
A28PA				
AC Full Load A	16.0	9.2	8.0	–
AC Locked Rotor A	96.0	55.2	48.0	–
Non-Inductive or Resistance Load A (Not Lamp Loads)	16.0	9.2	8.0	7.2
Pilot Duty	125 VA, 24 to 277 VAC ¹			

1. When used as a two-circuit control, the total connected load must not exceed 2,000 VA.



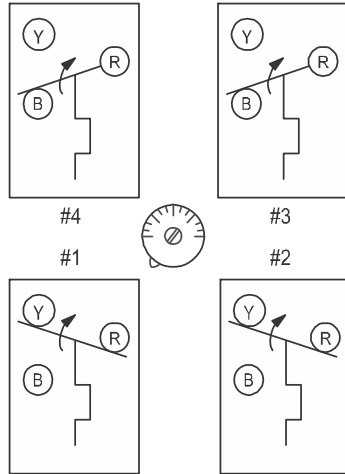
A36 Series Four-Stage Remote Bulb Thermostats

Description

The A36 series are four-stage thermostats with open construction for use in panel mounting.

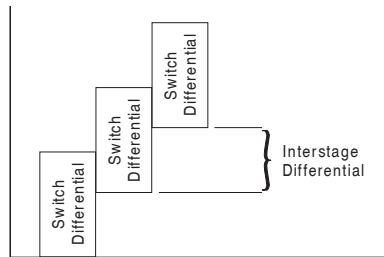
Refer to the *Type A36AHA 4-Stage Computer Environmental Temperature Control Product Bulletin (LIT-125145)* for important product application information.

A36 Series



Action on Increase on Temperature

A36 Series Action Diagram



A36 Series Differential Diagram

Features

Screwdriver slot adjustment with calibrated dial enables movement of entire staging band within the range.

Applications

Use for cycling control for multiple refrigeration compressors or unloading type compressors.

Accessories

Order Enclosure **CSE57A-600** separately, if required.



A36AHA-52 Remote Bulb Thermostat

Repair Information

If the A36 Series Four-Stage Remote Bulb Thermostat fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Switch Action	Range °F (°C)	Differential F° (C°) Fixed	Bulb and Capillary	Bulb Well No. (Order Separately)	Range Adjuster
A36AHA-50C ¹	Four Single-Pole, Double-Throw (SPDT) switches	55 to 95 (13 to 35)	Two each stage	3/8 in. x 5-1/4 in. 18 in. capillary with 12 in. nylon armor	WEL14A-603R	Screwdriver slot with calibrated dial
A36AHA-52C ¹			1 1/2 (0.8) between stages			
A36AHA-58C ²		0 to 70 (-18 to 21)	Three each stage	3/8 in. x 4-3/4 in. 15 ft braid armor capillary	WEL14A-602R	
A36AHB-33C ¹		Two each stage	2-1/2 (1.4) between stages			

1. Calibrated at mid-switching point; computer room or comfort control.
2. Calibrated at low-switching point; special close control chiller applications.

Specifications

Maximum bulb temperature is 120°F (49°C) in operation and 140°F (60°C) when shipping.

Electrical Ratings (Per Switch)

Motor Ratings VAC	120	208	240	277
A36AHA				
AC Full Load A	10.0	6.9	5.0	—
AC Locked Rotor A	60.0	41.4	30.0	—
Non-Inductive A	16.0	9.2	8.0	7.2
Pilot Duty	125 VA, 120 to 227 VAC			
A36AHB				
AC Full Load A	6.0	3.4	3.0	—
AC Locked Rotor A	36.0	20.4	18.0	—
Non-Inductive A	10.0	5.7	5.0	4.3
Pilot Duty	125 VA, 120 to 227 VAC			

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S26 Series Switching Subbase

Description

The S26 Series is a switching subbase used in conjunction with T26A, T26J, and T26S thermostats to provide system and fan switching capability.

The variety of switching configurations available with the S26 Series adds application flexibility to the T26 Series thermostats.

Applications

S26 Series subbases are available with a variety of system switch configurations for manual control of system operation and fan speed for heating, cooling, and combination heating/cooling equipment.

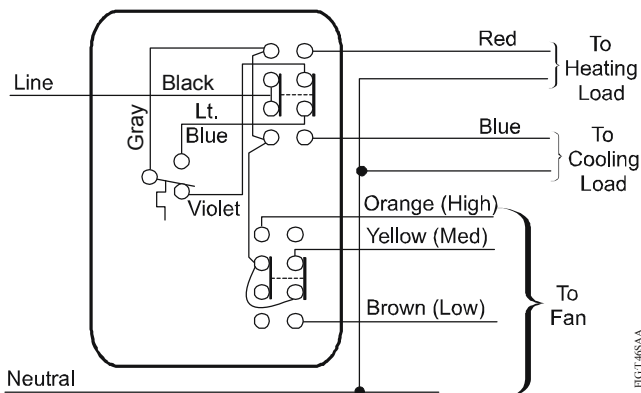
Selection Chart

Product Code Number	System Switch	Fan Switch
S26AA-1	Heat-off-cool	Low-med-high
S26AH-1	Heat-off-cool	None
S26DH-1	Off-auto	None

Technical Specifications

S26 Series System Switching Subbase		
Finish	Cover	Almond
	Faceplate	Gold metallic with dark brown border and lettering
Material	Base	0.050 in. (1 mm) cold rolled steel
	Cover	0.090 in. (2 mm) high impact PVC plastic
Mounting		Mounts to a 2-gang electrical box
Shipping Weight	Individual Pack	7 oz (0.20 kg)
	Overpack of 20 Units	10 lb, 4 oz (4.65 kg)
Wiring Connections		Color coded No. 16 AWG wires, 8 in. (203 mm) long

Electrical Ratings				
Motor Ratings	120V	208V	240V	277V
AC full load A	12.0	6.9	6.0	5.2
AC locked rotor A	72	41.4	36	31.2
AC non-inductive A	6.5	6.5	6.5	-
Pilot Duty	125 VA, 24 to 277 VAC			



T26S and S26AA (T46SAA) Heat-Off-Cool Selector Switch with Fan Speed Control (Heating and Cooling)

Refer to the *S26 Series Switching Subbase Product Bulletin (LIT-125610)* for important product application information.

Features

- mounts directly to a two-gang electrical box
- wiring connections enclosed and isolated from the user
- smooth action multi-position slide switches for dependable service
- can be added to existing T26 Series thermostats (new style with plastic cover)
- high-impact plastic enclosure

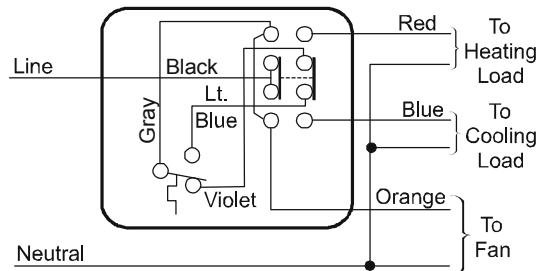
Repair Information

If the S26 Series Switching Subbase fails to operate within its specifications, replace the unit. For a replacement subbase, contact the nearest Johnson Controls® representative.



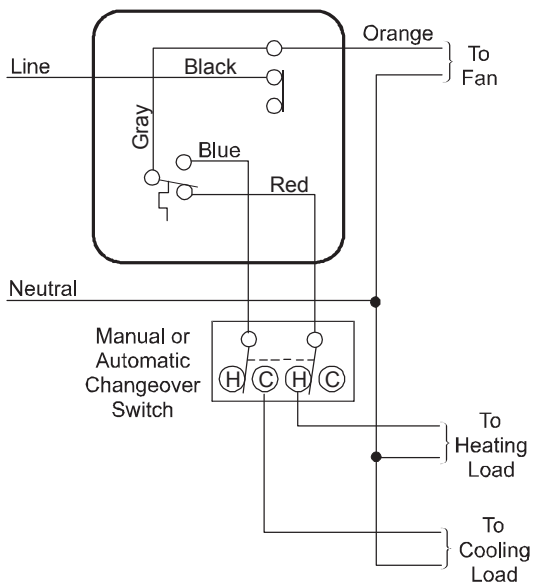
S26 Series Switching Subbase

Typical Wiring Configuration for Cooling S26



T26S and S26AH (T46SAH) Heat-Off-Cool Selector Switch with Continuous Fan (Heating and Cooling)

Typical Wiring Configurations for Combinations



T26S and S26DH (T46SDH) Off-Auto Selector Switch with Manual or Automatic Changeover Switch and Continuous Fan (Heating and Cooling)

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T22/T25/T26 Series Line Voltage Wall Thermostat (Heating, Cooling, or Heating and Cooling)

Description

For line voltage control of residential, commercial, or industrial heating or year-round air conditioning. Heat or cold anticipators are not required. The liquid-charged temperature sensing element and highly efficient diaphragm and leverage provide close temperature control.

Refer to the following documents for important product application information:

- *T22 Series Line Voltage Thermostats with Selector Switch Product Bulletin (LIT-125630)*
- *T25 Two-Stage Room Thermostat Product Bulletin (LIT-125640)*
- *T26 Series Line Voltage Thermostats Product Bulletin (LIT-125645)*



T22 Series Line Voltage Wall Thermostat



T25 Series Line Voltage Wall Thermostat



T26 Series Line Voltage Wall Thermostat

Features

- attractive beige colored, high-impact plastic enclosure (T26 Series)
- close differential without the need for anticipators
- bi-metal thermometer supplied as standard except where indicated
- equipped with adjustable dial stops (T26 Series)

Specifications

Temperature range is 40 to 90°F (5 to 30°C), except energy conservation models.

Accessories

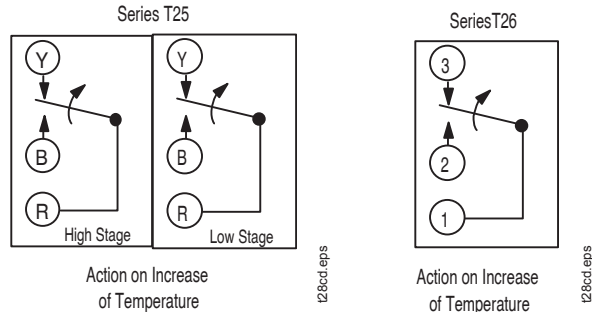
- replacement knobs and faceplates
- for double trim plate for mounting two T22s or T26s

Repair Information

If the T22/T25/T26 Series Line Voltage Wall Thermostat (Heating, Cooling, or Heating and Cooling) fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Applications

Use for line voltage control of heating and cooling equipment.



T25, T26 Series Action Diagrams



Multi-Stage Electromechanical Temperature Controls

T22/T25/T26 Series Line Voltage Wall Thermostat (Heating, Cooling, or Heating and Cooling) (Continued)

Selection Chart

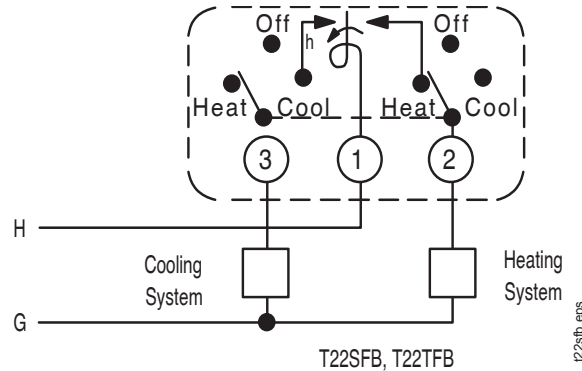
Product Code Number ¹	Type of Adjustment	Application	Selector Switch	Differential Approximately C° (F°)		Shipping Wt. (lb)
				Heating	Cooling	
Heating						
T22AAA-1C	Knob	Single-Pole, Single-Throw (SPST)	Off-Auto	1-3/4 (1)	-	1.3
T22ABC-1C			Auto-Off-Fan			
T22ABC-3C	Concealed	SPST, medium duty		3 (1.7)		
T22BBC-1C	Knob					
T22CBC-1C	Concealed					
T22CBC-3C	Concealed	SPST, heavy duty				
T26A-14C (No Thermometer)	Knob	SPST, Energy Conservation Heating model, max. setting 75°F (24°C)	None	2 (1.1)		1.0
T26A-15C (No Thermometer)		SPST, Energy Conservation Heating model, max. setting 65°F (18°C)				
Cooling						
T22JAA-1C	Knob	SPST	Off-Auto	-	2-1/4 (1.3)	1.3
T22JCC-1C			Auto-Off-Fan			
T26J-7C (No Thermometer)	Knob	SPST, Energy Conservation Cooling model, min. setting 75°F (24°C)	None			
T26J-9C (No Thermometer)		SPST, Energy Conservation Cooling model, min. setting 78°F (26°C)				
Heating and Cooling						
T22SDA-1C	Knob	Single-Pole, Double-Throw (SPDT), permits system shutdown at the thermostat	Off-Auto	1-3/4 (1)	2-1/4 (1.3)	1.3
T22SEB-1C		SPDT, used when the same device controls heating and cooling	Heat-Off-Cool			
T22SFB-1C ²		SPDT, used to control separate loads on heating and cooling				
T22TFB-1C ²		SPDT, heavy duty, used to control separate loads on heating and cooling		3 (1.7)	3 to 4 (1.7 to 2.2)	
T26S-18C ³		SPDT	None	1-3/4 (1)	2-1/4 (1.3)	1.0
T26T-3C ²		SPDT, heavy duty		3 (1.7)	3 to 4 (1.7 to 2.2)	
Two-Stage						
T25A-1C	Knob	Two SPDT switches	None	1-3/4 (1)	2-1/4 (1.3)	1.5
T25A-16C	Concealed	Two-stage heating, cooling or one-stage heating and one-stage cooling		3 (1.7) between stages		

- For the thermostat guard, refer to *G Series Thermostat and Humidistat Guards (LIT-1922145)*.
- Can also be used where one unit provides both heating and cooling by adding a jumper between terminals 2 and 3. Refer to *Typical Wiring Diagram and Electrical Ratings for Line Voltage Thermostats (LIT-1922600)*.
- Includes a faceplate for horizontal mounting. The plate is for on-the-job installation over a vertical plate.
Can field-convert to other configurations.
The T26S-18 is a universal replacement for Honeywell T451A, -B, T651A; White-Rodgers 179-1, 180-1, 181-1, 182-101, -102; Robertshaw® TA500, TH71, -72, -79, -500, TX550.
T26T-3 replaces: Honeywell T4051A, -B, T6051A; White-Rodgers 151-6, 152-9, 159-3, -5.



Typical Wiring Diagram and Electrical Ratings for Line Voltage Thermostats

Technical Specifications



Typical Wiring Diagram for Line Voltage Thermostat

Electrical Ratings T22A, T22J, T22S, T25A, T26A, T26J, T26S

Motor Ratings VAC	120	208	240	277
AC Full Load A	6.0	3.4	3.0	-
AC Locked Rotor A	36.0	21	18.0	-
AC Non-Inductive A	(1)	(1)	(1)	(1)
Pilot Duty	125 VA, 24 to 277 VAC			

Note: T25A Non-Inductive Ratings are 10.0, 9.2, 8.0 and 7.2 A.
 T26A, T26S Non-Inductive Rating is 10.0 A,
 120 to 277 VAC.

Electrical Ratings T22BBC

Motor Ratings VAC	120	208	240
AC Full Load A	10.0	6.9	6.0
AC Locked Rotor A	60.0	41.4	36.0
Pilot Duty	125 VA, 24 to 277 VAC		

Electrical Ratings T22CBC¹, T26T²

Motor Ratings VAC	120		208		240	
	Heat	Cool	Heat	Cool	Heat	Cool
AC Full Load A	16.0	8.0	9.2	8.0	8.0	8.0
AC Locked Rotor A	96.0	48.0	55.2	48.0	48.0	48.0
Non-Inductive Rating	120		240		227	
AC Non-Inductive A	22.0		22.0		22.0	
Pilot Duty	125 VA, 120 to 240 VAC					

1. Heating rating only applies. Non-inductive ratings do not apply to Type T2CBC.
2. Non-inductive rating does not apply to the cooling side of T26T.

Electrical Ratings T22TFB

Motor Ratings VAC	120		208		240	
	Heat	Cool	Heat	Cool	Heat	Cool
AC Full Load A	16.0	8.0	9.2	8.0	8.0	8.0
AC Locked Rotor A	96.0	48.0	55.2	48.0	48.0	48.0
Pilot Duty	125 VA, 120 to 240 VAC					



T23 Series Fan Coil Thermostat (with Fan and System Selectors)

Description

This line voltage thermostat controls heating, cooling, or combination heating and cooling systems. It operates fan motors, relays, or valves on fan-coil units. All thermostats have a three-speed fan selector switch.

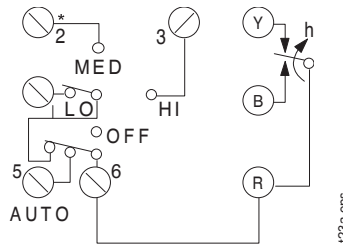
Refer to the *T23 Series Line Voltage Fan Coil Thermostat Product Bulletin (LIT-125635)* for important product application information.

Features

- dual voltage switching provided (120/240 VAC) without the need for anticipators to achieve close temperature control
- field-adjustable high and low dial stops
- mounts on a standard double outlet box
- attractive one-piece beige cover with inlaid two-tone panel

Applications

- line voltage control of fan motors, relays, or valves on fan-coil units

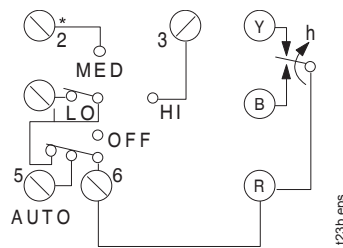


T23A Thermostat

123a.eps



T23A-1 Thermostat



T23B Thermostat

123b.eps

Repair Information

If the T23 Series Fan Coil Thermostat (with Fan and System Selectors) fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Switches		Range °F (°C)	Differential F° (C°)		Shipping Weight (lb)
	Fan	System		Heating	Cooling	
T23A-1C	Low-Med-High	Heat-Off-Cool	50 to 90	1-3/4 (1)	2-1/4 (1.3)	1.5
T23B-1C	Low-Med-High	Auto-Off	(10 to 32)			

Technical Specifications

Mounts on a standard double outlet box.

Electrical Ratings

Motor Ratings VAC	120	240
AC Full Load Amperes	5.8	2.9
AC Locked Rotor Amperes	34.8	17.4
Pilot Duty	125 VA, 120 to 240 VAC	



T28 Series Fan Coil Thermostat (with or without Fan Selector Switches)

Description

This thermostat controls light duty line voltage fan coil or baseboard valves on heating, cooling, and heating-cooling systems. The thermostat can control one or two valves directly. These thermostats are rated for 120, 208, or 240 VAC at 50 to 60 Hz.

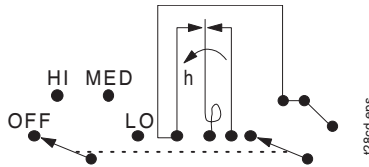
Refer to the *T28 Series Fan Coil Thermostats Product Bulletin (LIT-125650)* for important product application information.

Features

- precision, snap-acting contacts
- heating and cooling anticipation
- cooling and heating-cooling models have an interlocked fan off position

Applications

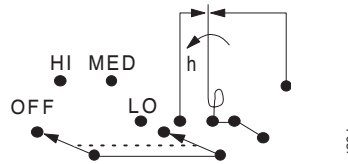
Use for line voltage control of heating and cooling equipment.



T28CD
Heating-Cooling Thermostat
with Off-Hi-Med-Lo Fan Switch



T28CD Thermostat



T28DG
Sequenced Heating-Cooling Thermostat
with Off-Hi-Med-Lo Fan Switch

Repair Information

If the T28 Series Fan Coil Thermostat (with or without Fan Selector Switches) fails to operate within its specifications, replace the unit. For a replacement thermostat, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Fan Switch	Shipping Weight, lb (kg)
Cooling		
T28BD-1C	Off-Hi-Med-Lo	1.3 (0.59)
Heating-Cooling (Remote changeover, Single valve for heating and cooling)¹		
T28CD-1C	Off-Hi-Med-Lo	1.3 (0.59)
Heating-Cooling, Sequenced (Automatic changeover, Separate valves for heating and cooling)²		
T28DA-1C	None	1.0 (0.45)
T28DB-1C ¹	Off-On	1.3 (0.59)
T28DD-1C ¹	Off-Hi-Med-Lo	1.3 (0.59)
T28DG-1C ³	Off-Hi-Med-Lo	1.3 (0.59)

1. Off position of fan switch interlocks to turn off cooling.
2. For automatic changeover where one valve functions for heating or cooling, use A19CAC-2 Strap-On Changeover Control.
3. Off position of fan switch interlocks to turn off both heating and cooling.

Technical Specifications

The T28 mounts on a standard, double outlet box.

Nominal operating differential at 0.6°F (0.3 C°) heating, 1 F° (0.6 C°) cooling on standard 120 VAC fan coil valves. Sequenced models have 6 F° (3.3 C°) differential from heat on to cool on.

Electrical Ratings – Ampere

VAC	Thermostat				Fan Switch	
	Cooling		Heating		Full Load Amperes	Locked Rotor Amperes
	Normal	Inrush	Normal	Inrush		
120	0.32	1.0	0.12	0.36	5.8	34.8
208	0.18	0.57	0.07	0.21	3.3	19.8
240	0.16	0.50	0.06	0.18	2.9	17.4



T46 Series Fan Coil Thermostat

Description

The T46 Series Thermostat is used to control line voltage, fan coil, and heating zone valves on heating, cooling, and combination heating and cooling systems. Models are available with single-pole, single-throw (SPST) or single-pole, double-throw (SPDT) contact action for standard duty (nominal 1/4 hp, 6 A non-inductive) applications. Thermostats are available with or without fan speed control or built-in thermometers. Various system switch combinations are available, including fan speed selection.

Field-installable faceplate combinations of knob or concealed adjustment are possible. Also, the T46 is available with or without thermometer indication. These thermostats have plastic locking covers with an Allen-head screw to discourage unauthorized tampering. Standard models are supplied with the thermostat faceplate installed with knob adjustment and thermometer.

Refer to the *T46 Series Fan Coil Thermostats Product Bulletin (LIT-125655)* for important product application information.

Features

- knob or concealed setpoint adjustment
- low and high temperature dial stops that are concealed and adjustable throughout setpoint range
- can be set for a locked dial
- narrow differential without the need for anticipator
- standard internal dual Celsius and Fahrenheit scales
- switch mechanism and wiring connections go into the switch box to isolate electrical circuits from the sensing element
- mounts on a standard double outlet box
- separable mounting plate allows easy mounting and wiring without removing thermostat cover
- locking cover reduces unauthorized tampering
- high-impact plastic enclosure
- smooth action multi-position slide switches for dependable service



T46 Thermostat

Applications

These thermostats control fan coil and zone heating valves on a wide variety of heating and cooling combinations for conditioned space.

Selection Charts

T46 Series Fan Coil Thermostat

Product Code Number	System Switch	Fan Switch
Heating		
T46ABH-1C	Auto-off-fan	None
T46ADH-1C	Off-auto	None
Cooling		
T46JBH-1C	Auto-off-fan	None
T46JDH-1C	Off-auto	None
T46JEA-1C	On-off	Low-med-high
Heating and Cooling		
T46SAA-1C	Heat-off-cool	Low-med-high
T46SAH-1C	Heat-off-cool	None
T46SDA-1C	Off-auto	Low-med-high
T46SDH-1C	Off-auto	None

Replacement Parts

Product Code Number	Description
CVR88A-600R	Thermostat Cover Assembly for knob adjustment models with thermometer, °F scale, faceplate supplied unassembled
KNB26A-600R	Plastic push on knob for thermostat
BKT48A-600R	Mounting plate for T46

Accessories

Product Code Number	Faceplate Selection ¹			
	Mounting Position	Type of Adjustment	Thermometer Cutout	Temperature Scale
PLT333-1R ²	Vertical	Knob	Yes	Fahrenheit
PLT333-3R	Vertical	Concealed	Yes	Fahrenheit
PLT333-5R	Vertical	Knob	Yes	Celsius
PLT333-12R	Vertical	Concealed	No	—

1. Faceplates must be ordered in multiples of ten.
2. Supplied with standard wholesaler models.

Technical Specifications

T46 Series Fan Coil Thermostats		
Range	Thermostat	40 to 90°F (5 to 30°C)
	Thermometer	50 to 90°F (10 to 30°C)
Differential	Mechanical	Approximately 0.7°F (0.4°C)
	Operating	See next page
Finish	Cover	Almond
	Faceplate	Gold metallic with dark brown border and lettering
Mounting		Double gang box, separable mounting plate
Material	Base	0.050 in. (1 mm) cold rolled steel
	Cover	0.090 in. (2 mm) high-impact plastic
Sensing Element		Liquid-filled for positive trouble-free operation
Shipping Weight	Individual Pack	1 lb (0.45 kg)
	Overpack of 20 Units	20 lb (9.07 kg)
Thermometer		Bimetal type for accuracy and clarity, can be field-calibrated
Wiring Connections		Color coded No. 16 AWG wires, 8 in. (203 mm) long

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 2015 Johnson Controls, Inc. www.johnsoncontrols.com



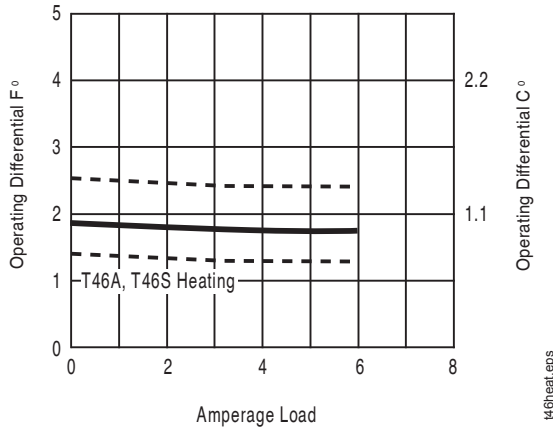
T46 Series Fan Coil Thermostat (Continued)

Technical Specifications (Continued)

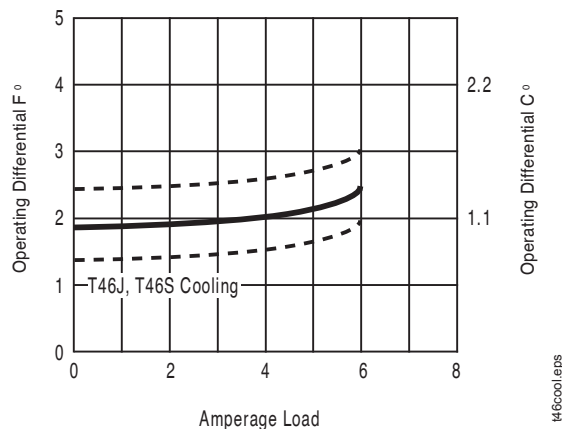
Electrical Ratings

Motor Ratings	120 V	208 V	240 V	277 V
T46 System and Fan Switches				
AC Full Load A	12.0	6.9	6.0	5.2
AC Locked Rotor A	34.8	19.1	17.4	14.4
AC Non-Inductive A	6.5	6.5	6.5	—
Pilot Duty	125 VA, 24 to 277 VAC			
T46 Thermostat Only				
AC Full Load A	6.0	3.5	3.0	—
AC Locked Rotor A	34.8	19.1	17.4	—
AC Non-Inductive A	6.5	6.5	6.5	—
Pilot Duty	125 VA, 24 to 277 VAC			

Operating Differentials



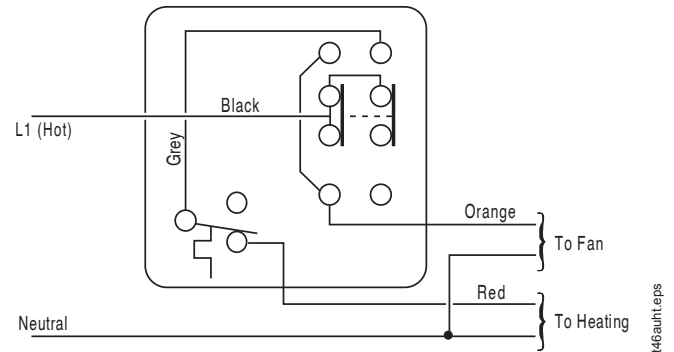
Operating Differential for T46A and Heating Side of T46S



Operating Differential for T46J and Cooling Side of T46S

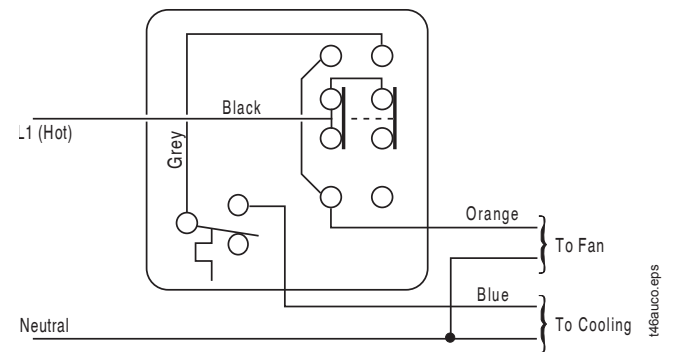
Note: The heavy line in each of the above figures is the nominal operating temperature differential. Production thermostats may vary from the norm, as indicated by the dotted line.

Typical Wiring Application for Heating



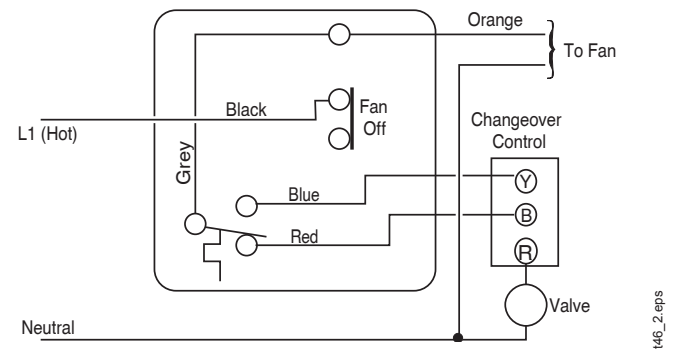
T46ABH Auto-Off-Fan Selector Switch with Continuous Fan (Heating Only)

Typical Wiring Application for Cooling



T46JBH Auto-Off-Fan Selector Switch with Continuous Fan (Cooling Only)

Typical Wiring Application for Combination



T46SDH Off-Auto Selector Switch. Used on Fan-Coil Unit with Cycling Valve and Continuous Fan. Terminal Markings Shown for A19CAC Changeover Control (Heating and Cooling)