



A99B Series Temperature Sensor

Description

The A99B Series Temperature Sensors are passive PTC (Positive Temperature Coefficient) sensors. The A99B sensors are splashproof and are designed to measure temperature in a variety of refrigeration applications. Several accessories allow easy tailoring of the temperature sensor to various mounting configurations.

Applications include temperature sensing for freezers and coolers, as well as in defrost termination sensing, space and return air temperature sensing, and condenser fan cycling.

Refer to the *A99B Series Temperature Sensors Product Bulletin (LIT-125186)* for important product application information.

Features

- variety of lead lengths available to encompass most application requirements and simplify wiring sensors
- an assortment of mounting hardware provides configurations for many applications
- exceptional accuracy of sensing element provides excellent performance in a wide variety of control applications
- stainless steel sensing bulb allows use in more applications than other types of bulbs without corrosion
- lead length may be extended up to 800 ft (244 m)



A99B Temperature Sensors

Repair Information

If the A99B Series Temperature Sensor fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number	Description
A99BA-200C	PTC Silicon Sensor with Shielded Cable; Cable length 6-1/2 ft (2 m); Range: -40 to 212°F (-40 to 100°C)
A99BB-25C	PTC Silicon Sensor with PVC Cable; Cable length 9-3/4 in. (0.25 m); Range: -40 to 212°F (-40 to 100°C)
A99BB-200C	PTC Silicon Sensor with PVC Cable; Cable length 6-1/2 ft (2 m); Range: -40 to 212°F (-40 to 100°C)
A99BB-300C	PTC Silicon Sensor with PVC Cable; Cable length 9-3/4 ft (3 m); Range: -40 to 212°F (-40 to 100°C)
A99BB-500C	PTC Silicon Sensor with PVC Cable; Cable length 16-3/8 ft (5 m); Range: -40 to 212°F (-40 to 100°C)
A99BB-600C	PTC Silicon Sensor with PVC Cable; Cable length 19-1/2 ft (6 m); Range: -40 to 212°F (-40 to 100°C)
A99BC-25C	PTC Silicon Sensor with High Temperature Silicon Cable; Cable length 9-3/4 in. (0.25 m); Range: -40 to 248°F (-40 to 120°C)
A99BC-300C	PTC Silicon Sensor with High Temperature Silicon Cable; Cable length 9-3/4 ft (3 m); Range: -40 to 248°F (-40 to 120°C)
A99BC-500C	PTC Silicon Sensor with High Temperature Silicon Cable; Cable length 16-3/8 ft (5 m); Range: -40 to 248°F (-40 to 120°C)
A99BC-1500C	PTC Silicon Sensor with High Temperature Silicon Cable; Cable length 49 ft (15 m); Range: -40 to 248°F (-40 to 120°C)

Accessories

Product Code Number	Description
A99-CLP-1	Surface Mounting Clip for the A99B Temperature Sensor
ADP11A-600R	1/2 in. diameter EMT Conduit Adaptor (box of 10) for use with BOX10A-600R
BOX10A-600R	PVC Enclosure
SHL10A-600R	Sun Shield for Single Sensor
SHL10A-603R	Sun Shield for Two Sensors
WEL11A-601R	Immersion Well

Applications

The A99B temperature sensor line offers an economical solution for a wide variety of temperature sensing needs in refrigeration and HVAC applications.

Typical temperature sensing applications and environments include:

- freezers
- display cases
- walk-in coolers
- reach-in coolers
- defrost termination temperature sensing
- condenser fan cycling
- space and return air temperature sensing
- outdoor air sensing
- process cooling and heating

Technical Specifications

A99B Series Temperature Sensor		
Sensing Range	A99BA	-40 to 212°F (-40 to 100°C)
	A99BB	-40 to 212°F (-40 to 100°C)
	A99BC	-40 to 248°F (-40 to 120°C)
Reference Resistance	1,035 ohms at 77°F (25°C)	
Accuracy	0.9°F (0.5°C) between 5 and 167°F (-15 and 75°C)	
Sensor Construction	Stainless steel probe	
Sensor Lead Wire Insulation	A99BA	Shielded PVC cable
	A99BB	PVC cable
	A99BC	High temperature silicon cable
Lead Wire Gauge	22 AWG	
Maximum Allowable Bulb Temperature	257°F (125°C)	
Ambient Operating Conditions	A99BA	-40 to 212°F (-40 to 100°C); 0 to 100% RH, condensing
	A99BB	-40 to 212°F (-40 to 100°C); 0 to 100% RH, condensing
Ambient Storage Conditions	A99BA	-40 to 248°F (-40 to 120°C); 0 to 100% RH, condensing
	A99BB	-40 to 248°F (-40 to 120°C); 0 to 100% RH, condensing
Ambient Storage Conditions	A99BA	40 to 221°F (-40 to 105°C); 0 to 100% RH, condensing
	A99BB	40 to 221°F (-40 to 105°C); 0 to 100% RH, condensing
Ambient Storage Conditions	A99BA	-40 to 266°F (-40 to 130°C); 0 to 100% RH, condensing
	A99BB	-40 to 266°F (-40 to 130°C); 0 to 100% RH, condensing

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



Bulb Wells

Description

Bulb Wells are used in conjunction with Remote Bulb Temperature Controls where bulb insertion into a vessel or container to sense temperature is required. These wells are used with TE-6000 and TE-6300 Series Sensors.

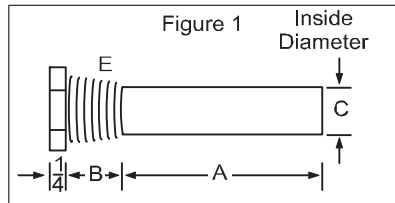
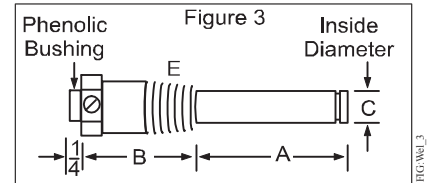
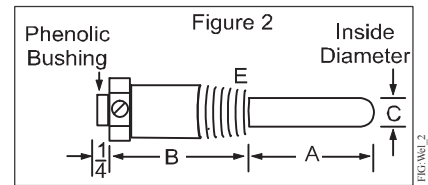
A variety of shapes, sizes, and materials are available for a wide range of applications. Refer to the appropriate temperature control for the exact bulb well required.

Accessories

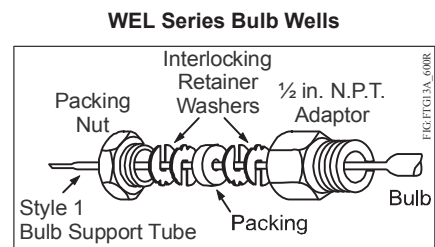
The Code No. FTG13A-600R Packing Nut Assembly is used in applications where the temperature does not fall below -35°F (-37°C). The maximum liquid pressure limit is 150 psig (1,034 kPa). Use with Style 1, 3/8 in. diameter bulb for direct immersion application. A19s require models with support tube; A70s and A72s do not need support tubes.

Repair Information

If the Bulb Wells fail to operate within their specifications, replace the unit. For a replacement Bulb Well, contact the nearest Johnson Controls® representative.



WEL Series Bulb Well



FTG13A-600R

Selection Charts

WEL Series Bulb Wells

Product Code Number	See Figure	Dimension, in.			Pipe Thread, in.		Material		Maximum Temp °F	Maximum Pressure psig	Type of Solder Joint	Plating
		A	B	C	Inside D	Outside E	Connector	Tube				
WEL11A-601R ¹	2	2-3/8	2-5/16	.299	-	1/2	Brass	Copper	250	300	Soft	-
WZ-1000-2 ²	1	5-1/4	1-1/4	.500	1/2	1/2	Stainless steel	Stainless steel	300	400	-	-
WZ-1000-4	1	5-1/4	1-1/4	.500	1/2	1/2	Stainless steel	Stainless steel	600	400	-	-
WZ-1000-5 ²	2	2-3/8	2-5/16	.299	-	1/2	Malleable	Brass	250	300	-	-
WEL14A-601R ³	3	7-9/16	1-13/16	.430	-	1/2	Brass	Copper	250	300	Silver	Brite-Dip
WEL14A-602R ³	3	4-15/16	1-13/16	.430	-	1/2	Brass	Copper	250	300	Silver	Brite-Dip
WEL14A-603R ³	3	5-13/16	1 13/16	.430	-	1/2	Brass	Copper	250	300	Silver	Brite-Dip
WEL16A-600R ¹	2	2-3/8	1-5/16	.299	-	1/2	Brass	Copper	250	300	Soft	-
WEL16A-601R	2	2-13/16	1-13/16	.375	-	1/2	Brass	Copper	250	300	Soft	-
WEL17A-600R ³	1	10-7/16	3/4	.763	1/2	3/4	Malleable	Copper	250	250	Silver	Tin
WEL17A-601R ³	1	8-11/16	3/4	.763	1/2	3/4	Malleable	Copper	250	250	Silver	Tin
WEL17A-602R ³	1	10-7/16	3/4	.753	1/2	3/4	Malleable	Steel	250	540	Silver	Tin
WEL17A-604R ³	1	14-13/32	3/4	.763	1/2	3/4	Malleable	Copper	250	250	Silver	Tin
WEL18A-600R ³	1	3-1/2	3/4	.773	1/2	3/4	Malleable	Steel	250	150	Silver	Tin
WEL18A-602R ³	1	3-1/2	3/4	.773	1/2	3/4	Malleable	Brass	250	150	Silver	Tin

1. With phenolic bushing 0.093 in. slot
2. Includes thermal compound
3. For 11/16 in. diameter style 4 bulbs. Style 1 can be used, but is not fastened into well

T-800 Wells

Product Code Number	Description
T-800-1605	Brass well, 6-1/2 inch
T-800-1606	Stainless steel well, 5-1/4 inch
T-800-1618	Brass well, 9-1/2 inch
T-800-1620	Brass well, 9-1/2 inch



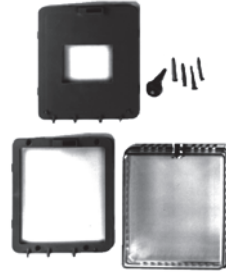
G Series Thermostat and Humidistat Guards



GRD10-1R
Wire Guard



GRD10A-601
Cast Aluminum Guard



GRD10A-608
Large Clear Plastic Guard



GRD10A-609
Rectangular Clear Plastic Guard

Description

The G Series Guards protect thermostats and humidistats from damage, vandalism, tampering, and unauthorized adjustment. They are available in plastic, cast aluminum, or wire construction.

Features

- clear plastic guards have tumbler-type key locks
- GRD10A-608 and -609 include a mounting ring for mounting to a wall or flat surface
- plastic baseplate and plastic mounting ring available
- the baseplate mounts to a flat surface or to a single or double outlet box
- the mounting ring permits mounting over a thermostat or humidistat already installed

Applications

Ideal for locations where locked protection is required, such as schools, warehouses, churches, hospitals, or offices.

Selection Chart

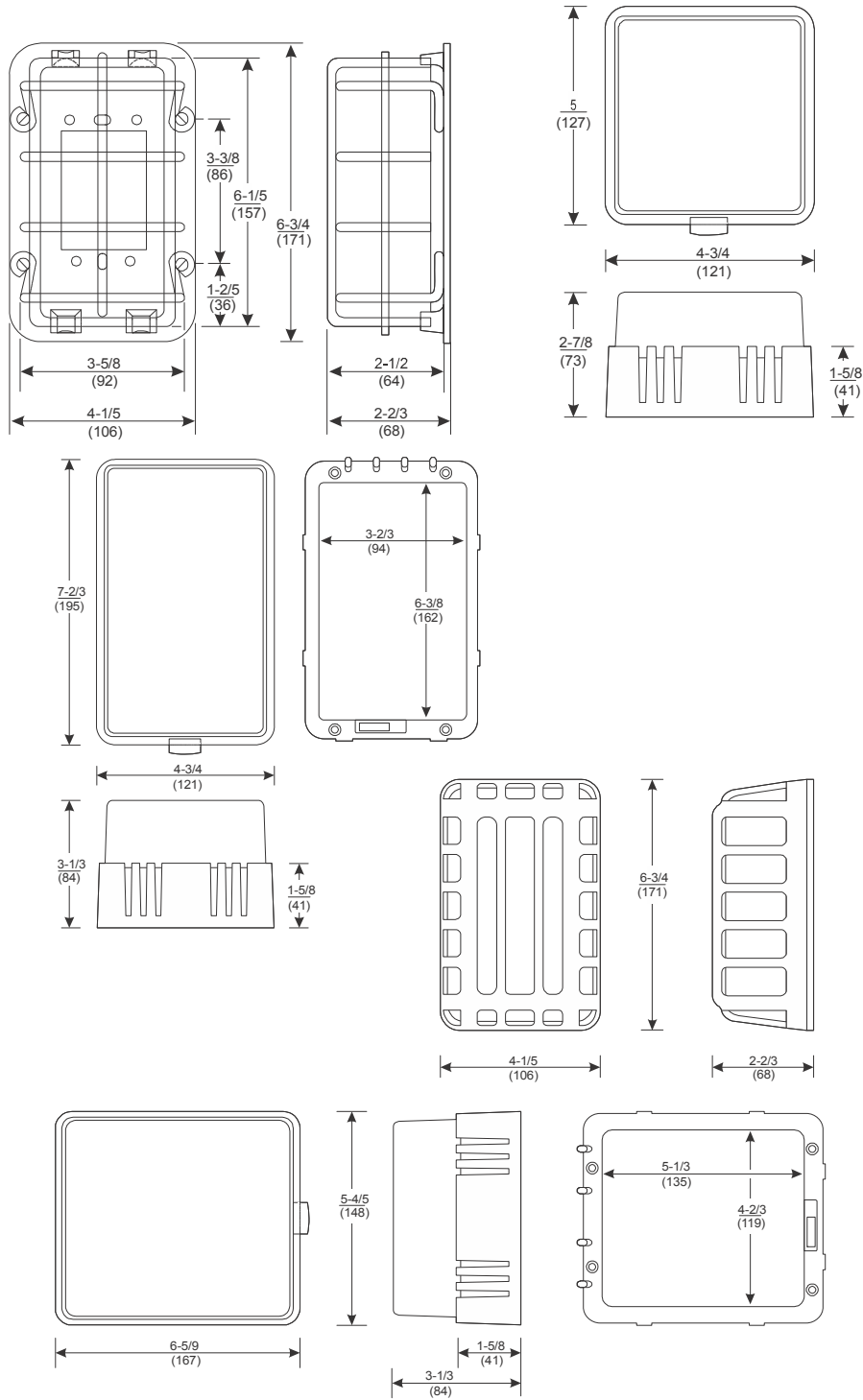
Product Code Number	Description	Thermostat or Humidistat Series Number				
		T22	T25	T26	T28 No Switches	T91
GRD10-1R	Wire guard only	✓	—	✓	—	✓
GRD10A-600	Wire guard and baseplate	✓	—	✓	—	✓
GRD10A-601	Aluminum guard and baseplate	✓	—	✓	✓	✓
GRD10A-606	Plastic guard with baseplate	✓	✓	—	✓	✓
GRD10A-608	Plastic guard with baseplate, mounting ring	✓	✓	✓	✓	✓
GRD10A-609	Plastic guard with baseplate, mounting ring	✓	✓	✓	✓	✓

Repair Parts

Replacement key **KEY12A-600** (set of two) is available.



G Series Thermostat and Humidistat Guards (Continued)



gcr10a_dm.eps

gcr10a_dm2.eps

G Series Dimensions, in. (mm)

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



T22, T25, T26, T28, T46, and T91 Accessories

Description

Replacement Knob and Cover Kits

Replacement Knob Kit numbers KNB17A-600R, KNB20A-600R, and KNB26A-600R are designed as direct replacements for original equipment knobs.

Faceplates

Faceplates are available with metal or plastic covers.

Thermostat Trim Plates

Trim plate PLT231-1R is for mounting two wall thermostats such as T22, T25, T26, T58, T91 or one thermostat and one humidistat on a three-gang electrical box. The PLT61A-600 is a similar three-gang plate but with one cutout and a 3/8 in. hole for mounting accessory switches.

These plates are finished in tawny silver to complement the design of the thermostat and humidistat.



PLT61A-600 Faceplate

Selection Charts

Replacement Knob and Cover Kits

Product Code Number	Description	Replacement Knob For
KNB17A-600R	Includes two plastic knobs	T91, T22, T25, and T26 with metal knob and metal cover
KNB20A-600R	Includes one plastic knob	T26 and W43 with plastic knob and metal cover
KNB26A-600R	Includes one plastic knob with trim disc	T26, T46, and W43 with plastic cover

Faceplates

Product Code Number	Mounting Position	Type of Adjustment	Cutout for Thermometer	Use With	Temperature Scale
Faceplates for T22, T25, T26, T80, T91, and W43 with Metal Cover					
PLT213-6R	Vertical	Concealed	No	T26, T91BA, W43 with metal cover	None
Faceplates for T26, W43 AND W45 with Plastic Cover					
PLT333-1R	Vertical	Knob	Yes	T26, T46	Fahrenheit
PLT333-2R	Horizontal	Knob	Yes	T26	Fahrenheit
PLT333-3R	Vertical	Concealed	Yes	T26, T46	Fahrenheit
PLT333-4R	Horizontal	Concealed	Yes	T26	Fahrenheit
PLT333-5R	Vertical	Knob	Yes	T26, T46	Celsius
PLT333-12R	Vertical	Concealed	No	T26, T46, and W43	None

Trim Plates

Product Code Number	Description	Replacement Trim Plate For
PLT231-1R	Tawny silver trim plate	T22, T25, T26, T28, T58, T91, W42, W43



T91 Series Room Temperature Sensor

Description

The T91 Series Temperature Sensor is a solid state thermistor sensor detects temperature changes in a room or similar space.

Series T91 Sensors may be used directly with Series M100Q Motor Actuators.

Refer to the *T91 Thermistor Room Temperature Sensor Product Bulletin (LIT-125675)* for important product application information.

Applications

Use for room or space temperature sensing to position sequencers or actuators for heating and/or cooling systems.

Features

- highly sensitive thermistor sensing element
- fast response
- integral Fan and System switch options
- vertical or horizontal mounting
- three types of adjusters: external knob, concealed knob, or provisions for remote setpoint
- easy to install and wire
- separable mounting plate with screws saves installation time



T91 Series Room Temperature Sensor

Repair Information

If the T91 Series Room Temperature Sensor fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

Selection Chart

Product Code Number ¹	Range °F (°C)	Thermometer	Setpoint Adjustment	Switches	
				Fan	System
T91BAA-1C	40/90 (5/32)	No	Remote	—	—
T91BBA-1C	40/90 (5/32)	No	Concealed	—	—
T91BCA-1C	40/90 (5/32)	Yes	Knob	—	—

1. Supplied with vertical faceplate installed.

Technical Specifications

T91 Series Room Temperature Sensor	
Ambient Temperature	-40 to 140°F (-40 to 60°C)
Baseplate	0.050 in. (1 mm) cold rolled steel with dichromate dip finish
Cover	0.025 in. (1 mm) cold rolled steel. Baked on tawny silver finish. Faceplate is aluminum with dark brown and light brown finish. Letters and markings are bright aluminum surface.
Electrical Rating for Switches	5 A at 24 VAC
Wiring Connections	6 in. No. 18 color coded wire leads