

Cable Temperature Sensor

Active sensor (0 to 10 V) for measuring the temperature in pipe and air applications. Incorporates a stainless steel probe and plenum rated cable.


Type Overview

Type	Output signal active temperature	Cable length	Probe length	Probe diameter
22CT-52H	DC 0...5 V, DC 0...10 V	6.5 ft. [2 m]	2" [50 mm]	0.24" [6 mm]

Technical Data

Electrical Data	Power supply DC	15...24 V, ±10%, 0.45 W			
	Power supply AC	24 V, ±10%, 0.8 VA			
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm²			
	Cable entry	Cable gland with strain relief Ø6...8 mm (1/2" NPT conduit adapter included)			
	Cable specification	1 pair shielded plenum cable, 22AWG tinned copper, green jacket, -40°F to 300°F (-40°C to 150°C), 300 V			
Functional Data	Multirange	8 fields selectable			
	Output signal active note	output DC 0...5/10 V with jumper adjustable voltage output: min. 5 kΩ load			
	Media	air water			
Measuring Data	Measuring values	temperature			
	Measuring range temperature	Active sensor: range selectable Attention: max. measuring temperature is restricted by max. medium temperature (see Safety data)			
		Setting	range [°C]	range [°F]	Factory setting
		S0	-50...50°C	-30...130°F	
		S1	-10...120°C	0...250°F	
		S2	0...50°C	40...140°F	
		S3	0...250°C	30...480°F	
		S4	-15...35°C	0...100°F	
		S5	0...100°C	40...240°F	
		S6	-20...80°C	40...90°F	
		S7	0...160°C	0...150°F	✓
	Accuracy temperature active	±0.9°F @ 70°F [±0.5°C @ 21°C]			

Materials	Cable gland	PA6, black
	Mounting plate	lexan, silvergray RAL7001
	Housing	cover: lexan, orange base: lexan, orange seal: 0467 NBR70, black UV resistant
Safety Data	Ambient humidity	max. 95% r.H. non-condensing
	Ambient temperature	-30...120°F [-35...50°C]
	Medium temperature	-60...245°F [-50...120°C]
	Housing surface temperature	max. 160°F [70°C]
	Protection class IEC/EN	III protective extra-low voltage (pelv)
	Protection class UL	UL Class 2 Supply
	EU Conformity	CE-Kennzeichnung
	Certification IEC/EN	IEC/EN 60730-1
	Certification UL	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9
	Degree of protection IEC/EN	IP65
	Degree of protection NEMA/UL	NEMA 4X
	Quality Standard	ISO 9001

Safety Notes


The installation and assembly of electrical equipment should only be performed by authorized personnel.

This device has been designed for use in stationary heating, ventilation and air conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten human, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

Remarks

General Remarks Concerning Sensors

When using lengthy connection wires (depending on the cross section used) the measuring result might be falsified due to a voltage drop at the common GND-wire (caused by the voltage current and the line resistance). In this case, 2 GND-wires must be wired to the sensor - one for supply voltage and one for the measuring current.

Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (± 0.2 V). When switching the supply voltage on/off, onsite power surges must be avoided.

Build-up of Self-Heating by Electrical Dissipative Power

Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power should be taken into account when measuring temperature. As Belimo transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0 to 10 V / 4 to 20 mA have a standard setting at an operating voltage of DC 24 V. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board.

Scope of delivery

Scope of delivery

Description

Type

(328447) Description text sensor accessory1

A-22D-A09

Dowel

Screws

1/2" NPT conduit adapter

Accessories

Optional accessories air

Description

Type

(328448) Description text sensor accessory2

A-22D-A03

(328448) Description text sensor accessory2

A-22D-A05

Recommended accessories water

Description

Type

(328446) Description text

A-22P-A05

(328446) Description text

A-22P-A17

(328446) Description text

A-22P-A36

(328446) Description text

A-22P-A07

(328446) Description text

A-22P-A19

(328446) Description text

A-22P-A37

(328446) Description text

A-22P-A09

(328446) Description text

A-22P-A21

(328446) Description text

A-22P-A38

(328446) Description text

A-22P-A11

(328446) Description text

A-22P-A23

(328446) Description text

A-22P-A39

(328446) Description text

A-22P-A13

(328446) Description text

A-22P-A25

(328446) Description text

A-22P-A15

(328446) Description text

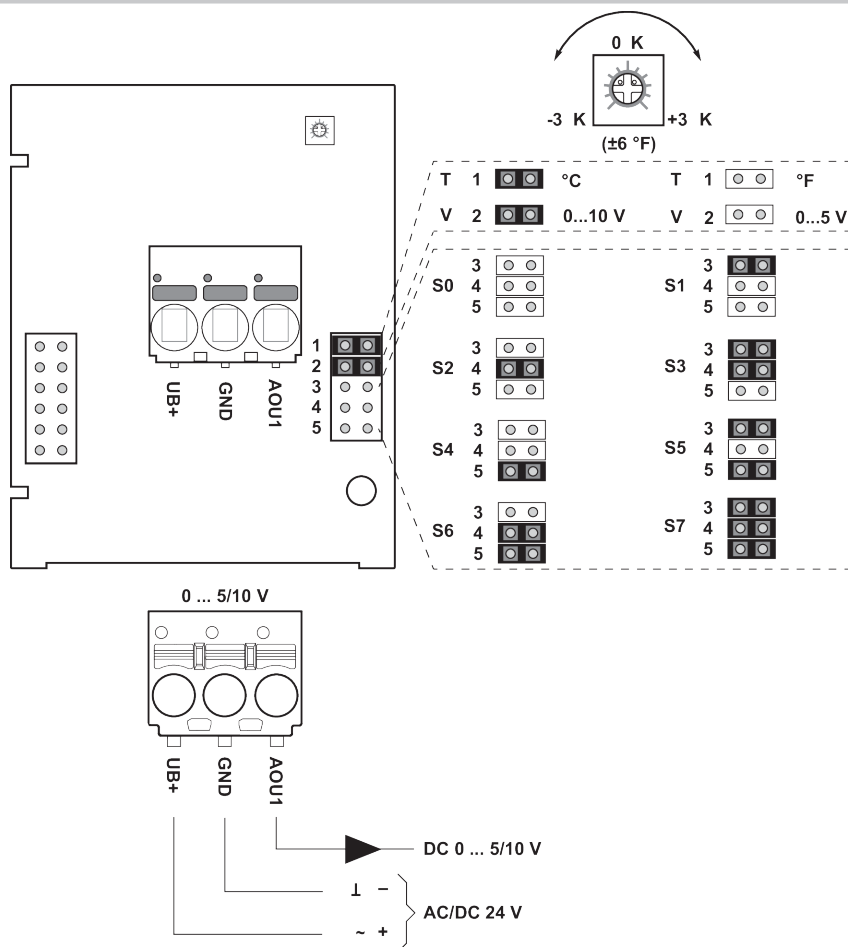
A-22P-A27

(328447) Description text sensor accessory1

A-22P-A44

(328447) Description text sensor accessory1

A-22P-A45

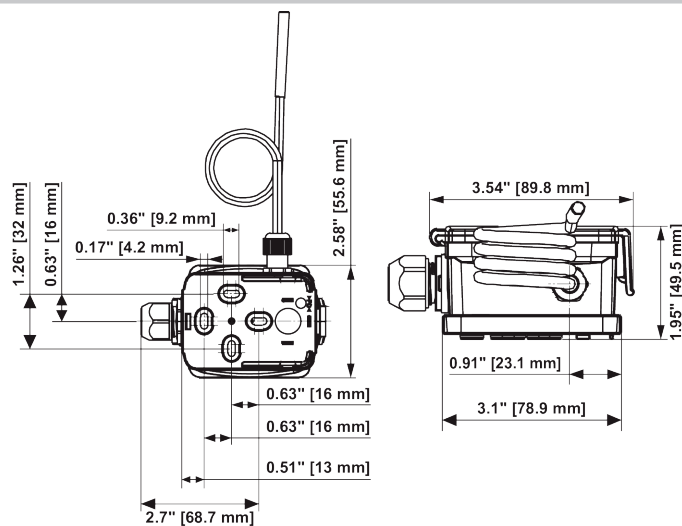
Wiring Diagram


the adjustment of the measuring ranges is made by changing the bonding jumpers
the output value in the new measuring range is available after 2 seconds

Setting	range [°C]	range [°F]	Factory setting
S0	-50...50°C	-30...130°F	
S1	-10...120°C	0...250°F	
S2	0...50°C	40...140°F	
S3	0...250°C	30...480°F	
S4	-15...35°C	0...100°F	
S5	0...100°C	40...240°F	
S6	-20...80°C	40...90°F	
S7	0...160°C	0...150°F	✓

Dimensions

Dimensions



Type	Probe length	Weight
22CT-52H	2" [50 mm]	0.44 lb [0.20 kg]