Technical data sheet 22CT-14H

Cable Temperature Sensor

Active sensor (4...20 mA) 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-14H	4...20 mA	2 m	50 mm	6 mm

Technical Data

Electrical data	Power Supply DC	15...24 V, ±10%, 0.5 W
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm²
	Cable entry	Cable gland PG11 Ø6...10 mm, with strain relief Ø6...8 mm
Functional data	Multirange	8 measuring ranges selectable
	Output signal active note	Current output: max. 500 Ω load
	Media	Air Water
Measuring data	Measured 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	±0.5 °C @ 21 °C
Materials	Cable gland	PA6, black
	Mounting plate	Lexan, silvergray RAL7001
	Housing	Cover: Lexan, Belimo orange NCS S0580-Y6OR Bottom: Lexan, Belimo orange NCS S0580-Y6OR Seal: 0467 NBR70, black

Safety data

Ambient humidity	85% r.H., non-condensing
Ambient temperature	-35...50 °C [-30...120 °F]
Medium temperature	-50...180 °C [-60...355 °F]
Housing surface temperature	Max. 70 °C [160 °F]
Protection class IEC/EN	III Protective extra-low voltage (PELV)
Protection class UL	UL Class 2 Supply
EU Conformity	CE Marking
Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-9
Certification UL	pending
Degree of protection IEC/EN	IP65
Degree of protection NEMA/UL	NEMA 4X
Quality Standard	ISO 9001
Weight	0.16 kg

Safety notes

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

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, 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

Due to self-heating with 2 wire passive sensors, the supply wire current affects the measurement accuracy, so it should not exceed 1 mA.

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.

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. In case of a fixed operating voltage (±0.2 V) this is normally done by adding or reducing a constant offset value. 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...10 V / 4...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.

Accessories

Scope of delivery

Mounting plate
Dowel
Screws

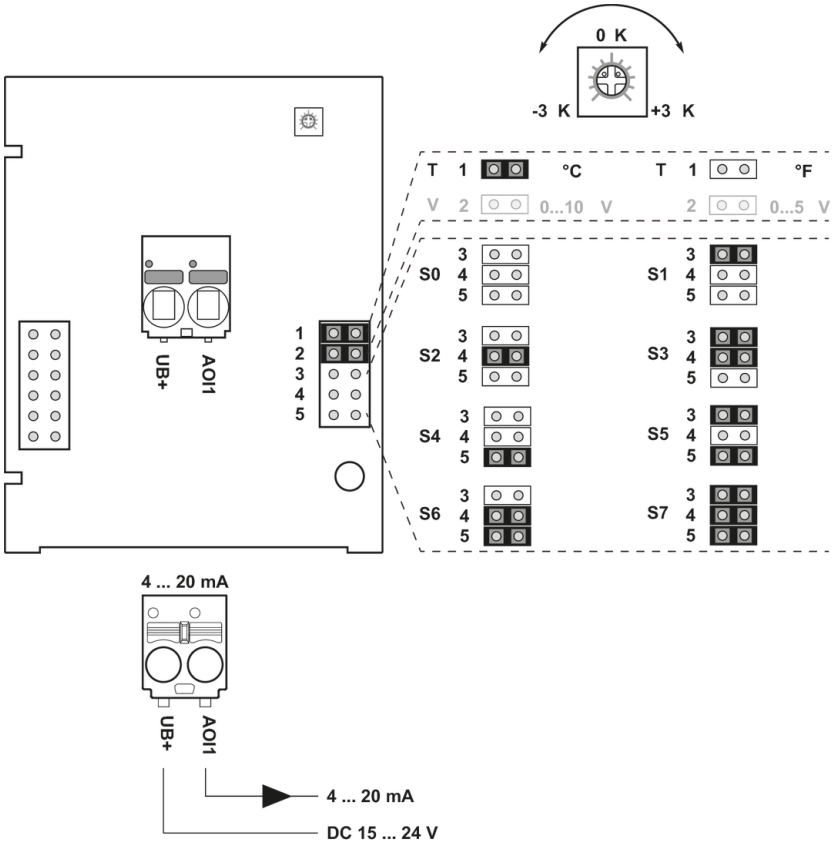
Optional accessories air

Description	Type
Mounting flange 6 mm, Plastic (adjustable), up to max. 120 °C	A-22D-A03
Mounting flange 6 mm, Brass, up to max. 260 °C	A-22D-A05

Recommended accessories water

Description	Type
Thermowell pocket Stainless steel, 50 mm, G1/2", SW27	A-22P-A06
Thermowell pocket Stainless steel, 100 mm, G1/2", SW27	A-22P-A08
Thermowell pocket Stainless steel, 150 mm, G1/2", SW27	A-22P-A10
Thermowell pocket Stainless steel, 200 mm, G1/2", SW27	A-22P-A12
Thermowell pocket Stainless steel, 300 mm, G1/2", SW27	A-22P-A14
Thermowell pocket Stainless steel, 450 mm, G1/2", SW27	A-22P-A16
Thermowell pocket Brass, 50 mm, G1/2", SW22	A-22P-A18
Thermowell pocket Brass, 100 mm, G1/2", SW22	A-22P-A20
Thermowell pocket Brass, 150 mm, G1/2", SW22	A-22P-A22
Thermowell pocket Brass, 200 mm, G1/2", SW22	A-22P-A24
Thermowell pocket Brass, 300 mm, G1/2", SW22	A-22P-A26
Thermowell pocket Brass, 450 mm, G1/2", SW22	A-22P-A28
Syringe thermal contact fluid	A-22P-A44
Compression fitting with cutting ring, Stainless steel, G 1/4" (external thread) for 6 mm	A-22P-A45

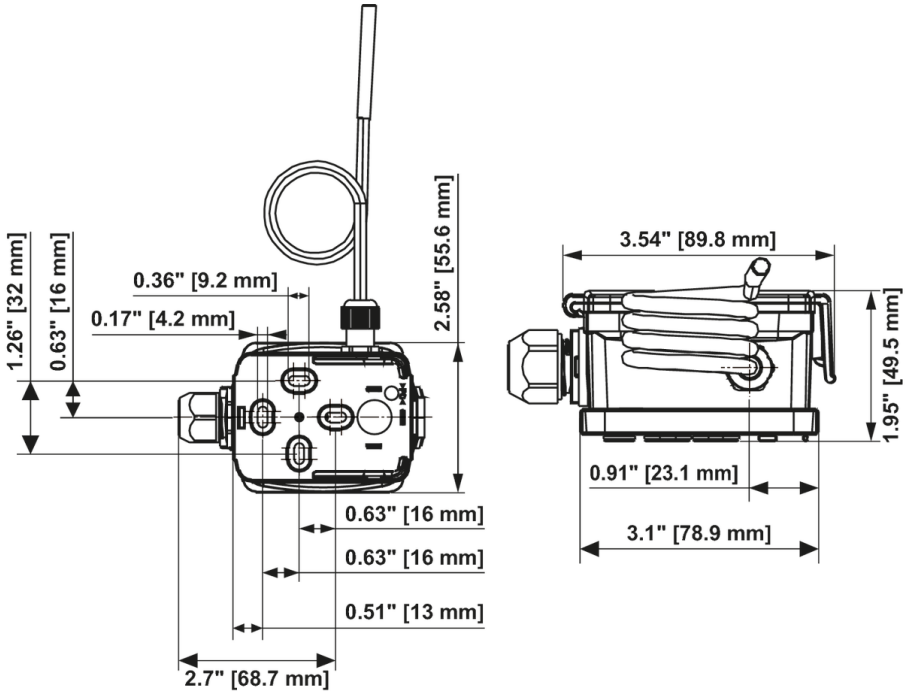
Wiring diagram



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


1.26" [32 mm]
0.63" [16 mm]
0.36" [9.2 mm]
0.17" [4.2 mm]
2.58" [55.6 mm]
0.63" [16 mm]
0.63" [16 mm]
0.51" [13 mm]
2.7" [68.7 mm]
3.54" [89.8 mm]
1.95" [49.5 mm]
0.91" [23.1 mm]
3.1" [78.9 mm]