

Duct/Immersion Temperature Sensor

Active sensor (4...20 mA) for measuring temperature in duct applications. In connection with a stainless steel or brass thermowell also applicable for pipe applications. NEMA 4X / IP65 rated enclosure.



Type Overview

| Type | Output signal active temperature | Probe length | Probe diameter |
|----------|----------------------------------|--------------|----------------|
| 22DT-14H | 4...20 mA | 50 mm | 6 mm |
| 22DT-14L | 4...20 mA | 100 mm | 6 mm |
| 22DT-14N | 4...20 mA | 150 mm | 6 mm |
| 22DT-14P | 4...20 mA | 200 mm | 6 mm |
| 22DT-14R | 4...20 mA | 300 mm | 6 mm |
| 22DT-14T | 4...20 mA | 450 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 mm ² | | | |
| | Cable entry | cable gland PG11 Ø6...10 mm, with strain relief Ø6...8 mm | | | |
| Functional data | Multirange | YES | | | |
| | Output signal active note | Current outout: max. 500 Ω load | | | |
| | Media | Air Water | | | |
| Measuring data | Measured values | Temperature | | | |
| | Measuring range temperature | range selectable | | | |
| | | 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 | ✓ | | |
| Materials | Accuracy temperature | ±1% of measuring range @ 21 °C | | | |
| | Cable gland | PA6, black | | | |
| | 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...122 °F] |
| | Medium temperature | -50...160 °C [-60...320 °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 |

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 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.

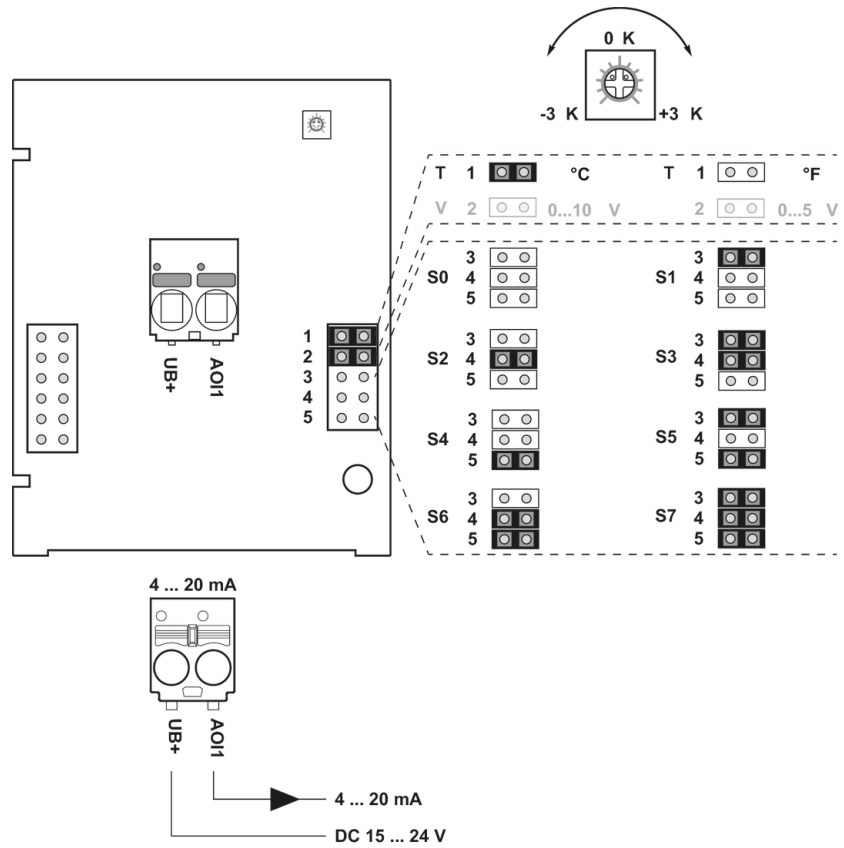
Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (± 0.2 V). When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

| Optional accessories | 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 |
| Mandatory accessories | 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", SW27 | 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 |
| | For Immersion Application a Thermowell pocket A-22P-A.. is recommended. | |
| Scope of delivery | Mounting Clip | |
| | Screws | |
| | Adhesive foil | |

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 | |
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| 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 | |
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Dimensions

