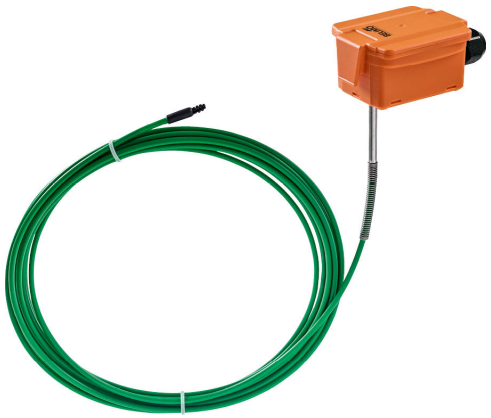
BELIMO

Average temperature sensor

Active sensor (4...20 mA) for measuring the averaging temperature in duct applications. IP65 / NEMA 4X rated enclosure. Supplied with one continuous sensing element across the whole length of the probe to ensure optimum accuracy and eliminate air stratification problems.

Technical data sheet 22MT-14..



5 YEAR WARRANTY

Type Overview

Type	Output signal active temperature	Probe length
22MT-144	4...20 mA	3 m
22MT-145	4...20 mA	6 m

Technical Data

Electrical data

Nominal voltage	DC 24 V
Nominal voltage range	DC 15...35 V
Power consumption DC	0.5 W
Electrical connection	Pluggable spring loaded terminal block max. 2.5 mm²
Cable entry	Cable gland with strain relief Ø6...8 mm

Functional data

Sensor Technology	Based on Pt1000 1/3 DIN
Application	Air
Multirange	8 measuring ranges selectable
Current output	1x 4...20 mA, max. load 500 Ω

Measuring data

Measured values	Temperature
Measuring range temperature	Active sensor: range selectable Attention: max. measuring temperature is restricted by max. fluid temperature (see Safety data)

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

Accuracy temperature active	±0.5°C @ 21°C [±0.9°F @ 70°F]
Long-term stability	±0.06°C p.a. @ 21°C [±0.11°F p.a. @ 70°F]
Time constant τ (63%) in air duct	Typical 100 s @ 0 m/s

Materials

Cable gland	PA6, black
Housing	Cover: PC, orange Bottom: PC, orange Seal: NBR70, black UV resistant

Safety data

Ambient humidity	Max. 95% RH, non-condensing

Safety data

Ambient temperature	-35...50°C [-30...120°F]
Fluid temperature	-35...50°C [-30...120°F]
Housing surface temperature	Max. 70°C [160°F]
Protection class IEC/EN	III, Protective Extra-Low Voltage (PELV)
Power source UL	Class 2 Supply
EU Conformity	CE Marking
Certification IEC/EN	IEC/EN 60730-1
Degree of protection IEC/EN	IP65
Degree of protection NEMA/UL	NEMA 4X
Enclosure	UL Enclosure Type 4X
Quality Standard	ISO 9001
Mode of operation	Type 1
Pollution degree	3
Rated impulse voltage supply	0.8 kV
Construction	Independently mounted control

Safety notes

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 humans, animals or assets.

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

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

General remarks concerning sensors

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 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. The 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 readjustment directly at the active sensor should be necessary during later operation, this can be done with the following adjustment methods.

- For sensors with NFC or dongle by the corresponding Belimo app
- For sensors with a trimming potentiometer on the sensor board
- For bus sensors via bus interface with a corresponding software variable

Scope of delivery

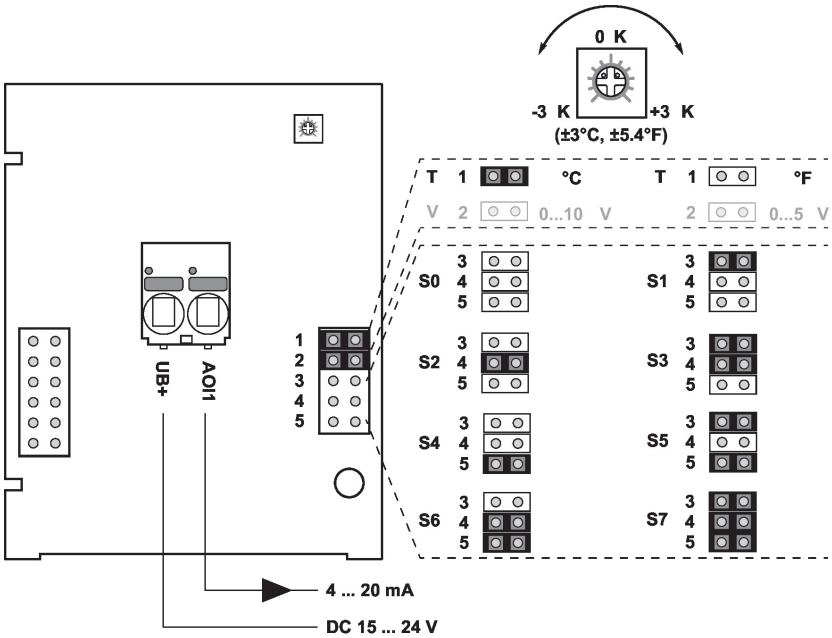
Scope of delivery

Description	Type
Mounting kit, with 6 mounting brackets	A-22D-A08
Mounting plate S housing	A-22D-A09

Accessories

Optional accessories	Description	Type
	Connection adapter, M20x1.5, for cable 1x6 mm, Multipack 10 pcs.	A-22G-A01.1

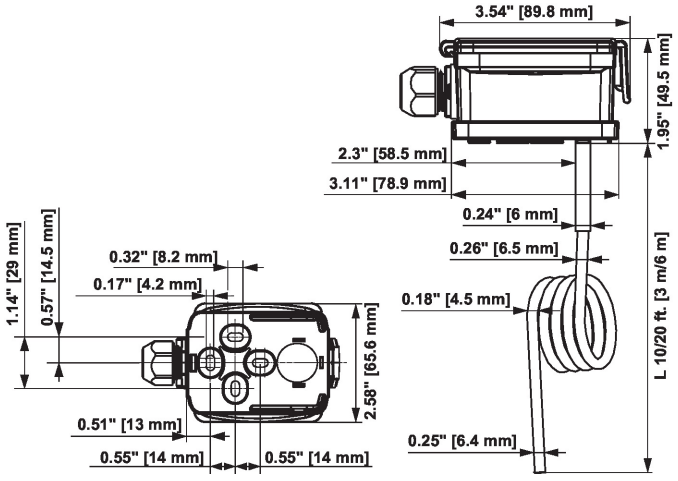
Wiring diagram



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	-30...130	
S1	-10...120	0...250	
S2	0...50	40...140	
S3	0...250	30...480	
S4	-15...35	0...100	
S5	0...100	40...240	
S6	-20...80	40...90	✓
S7	0...160	0...150	

Dimensions



L = Probe length

Type	Probe length	Weight
22MT-144	3 m	0.22 kg
22MT-145	6 m	0.28 kg