

EGT 346...348, 392, 446, 447, 646, 647: Duct temperature sensor

How energy efficiency is improved

Precise measuring of duct temperature for energy-efficient control of HVAC installations and monitoring energy consumption

Features

- Passive or active measuring element
- For use in pipes and vessels by means of optional thermowells (LW 7). For use in standard HVAC applications up to 160 °C and aggressive ambient conditions up to 260 °C (EGT392F102)

Technical data

Parameters

Parameters		Recommended measurement current	Typ. < 1 mA
Time characteristic	Time constant in moving air (3 m/s)	35 s (t_{63})	
	Time constant in still air	155 s (t_{63})	
	Time constant in still water	9 s (t_{63})	
	Time constant in still water, with thermowell made of brass	17 s (t_{63})	
	Time constant in still water, with thermowell made of stainless steel	20 s (t_{63})	

Ambient conditions

Ambient conditions	Ambient temperature	EGT*4* passive: -35...90 °C EGT*4* active: -35...70 °C EGT392F102: -25...90 °C
	Storage and transport temperature	-35...70 °C
	Humidity (non-condensing)	85% rh

Construction

Construction	Housing	EGT*4*: Black/yellow
	Housing material	EGT*4*: Polyamide EGT392F102: Form J made of die-cast aluminium
	Connection terminals	EGT*4*: 45° screw terminals 0.35...1.5 mm ² For number of poles, see connection diagram
	Cable inlet	M16 for cable min. Ø 5 mm, max. Ø 8 mm
	Immersion stem	Ø 6×L (mm) made of stainless steel 1.4571, up to 16 bar, see table
	Active length	10 mm

Standards and directives

Standards and directives	Type of protection	IP65 (EN 60529)
	CE conformity according to	RoHS Directive 2011/65/EU EN 50581
	EMC Directive 2014/30/EU	EGT34*F031: EN 60730-1 (mode of operation 1, residential premises)

Resistance values / characteristics

i The tolerance listed below applies only to the corresponding measuring element. The accuracy of the sensor depends on the cable length and the measuring element used.

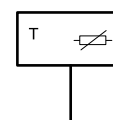
Measuring element	Standard	Nominal value at 0 °C	Tolerance at 0 °C
Ni1000	DIN 43760	1000 Ω	±0.4 K
Ni1000 TK5000		1000 Ω	±0.4 K
Ni200	DIN 43760	200 Ω	±0.4 K



EGT*4*



EGT392F102



Measuring element	Standard	Nominal value at 0 °C	Tolerance at 0 °C
Pt1000	DIN EN 60751	1000 Ω	±0.3 K
Pt100	DIN EN 60751	100 Ω	±0.3 K

Overview of types

Type	Description
EGT346F022	Duct temperature sensor; Ni200; -50...160 °C; L=100 mm
EGT346F102	Duct temperature sensor; Ni1000; -50...160 °C; L=100 mm
EGT347F022	Duct temperature sensor; Ni200; -50...160 °C; L=200 mm
EGT347F102	Duct temperature sensor; Ni1000; -50...160 °C; L=200 mm
EGT348F102	Duct temperature sensor; Ni1000; -50...160 °C; L=450 mm
EGT392F102	Duct temperature sensor; Ni1000; -50...260 °C; L = 100 mm
EGT446F012	Duct temperature sensor; Pt100; -50...160 °C; L=100 mm
EGT446F102	Duct temperature sensor; Pt1000; -50...160 °C; L=100 mm
EGT447F012	Duct temperature sensor; Pt100; -50...160 °C; L=200 mm
EGT447F102	Duct temperature sensor; Pt1000; -50...160 °C; L=200 mm
EGT646F102	Duct temperature sensor; Ni1000 TK5000; -35...160 °C; L=100 mm
EGT647F102	Duct temperature sensor; Ni1000 TK5000; -35...160 °C; L=200 mm
EGT346F031	Duct temperature transmitter; 0...10 V; L=100 mm
EGT347F031	Duct temperature transmitter; 0...10 V; L=200 mm
EGT348F031	Duct temperature transmitter; 0...10 V; L=450 mm

Passive types

Type	Measuring element	Immersion length L (mm)	Measuring range	Weight
EGT346F022	Ni200	100 mm	-50...160 °C	85 g
EGT346F102	Ni1000	100 mm	-50...160 °C	85 g
EGT347F022	Ni200	200 mm	-50...160 °C	95 g
EGT347F102	Ni1000	200 mm	-50...160 °C	95 g
EGT348F102	Ni1000	450 mm	-50...160 °C	120 g
EGT392F102	Ni1000	100 mm	-50...260 °C	105 g
EGT446F012	Pt100	100 mm	-50...160 °C	85 g
EGT446F102	Pt1000	100 mm	-50...160 °C	85 g
EGT447F012	Pt100	200 mm	-50...160 °C	95 g
EGT447F102	Pt1000	200 mm	-50...160 °C	95 g
EGT646F102	Ni1000 TK5000	100 mm	-35...160 °C	85 g
EGT647F102	Ni1000 TK5000	200 mm	-35...160 °C	85 g

Active types

Type	Measuring accuracy at 21 °C ¹⁾²⁾	Output signal	Power supply	Power consumption	Immersion length L (mm)	Measuring range	Weight
EGT346F031	Typ. ±1% of measuring range	0...10 V, min. load 5 kΩ	15...24 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	100 mm	5 temperature ranges (-50...160 °C), adjustable on device (see connection diagram)	90 g
EGT347F031	Typ. ±1% of measuring range	0...10 V, min. load 5 kΩ	15...24 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	200 mm	5 temperature ranges (-50...160 °C), adjustable on device (see connection diagram)	100 g
EGT348F031	Typ. ±1% of measuring range	0...10 V, min. load 5 kΩ	15...24 V= (±10%) or 24 V~ (±10%)	Typ. 0.35 W / 0.82 VA	450 mm	5 temperature ranges (-50...160 °C), adjustable on device (see connection diagram)	120 g

¹⁾ With offset adjustment ±3 K

²⁾ The transducers must be operated at a constant operating voltage (±0.2 V). Current/voltage peaks when switching the supply voltage on/off must be avoided by the customer.

Accessories

Type	Description
0300360000	Compression fitting G $\frac{1}{4}$ "; stainless steel, up to 16 bar
0300360003	Mounting flange; plastic (max. 140 °C)
0300360004	Heat-conducting paste incl. gun with 2 g content

⚠ 039*****: Thermowells (LW 7 and LW 15) made of brass or stainless steel (see product data sheet)

Description of operation

The resistance of the measuring element changes according to the temperature. The temperature coefficient is positive, which means the resistance increases along with the temperature. The sensors can be exchanged within the specified tolerance ranges.

Areas of use

Duct temperature sensor for measuring the temperature of air in heating, ventilation and air conditioning systems (e.g. in supply air / return air ducts).

In combination with an immersion sleeve also suitable for measuring in liquid media (e.g. pipe systems).

Designed for connection to control and display systems.

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes



CAUTION!

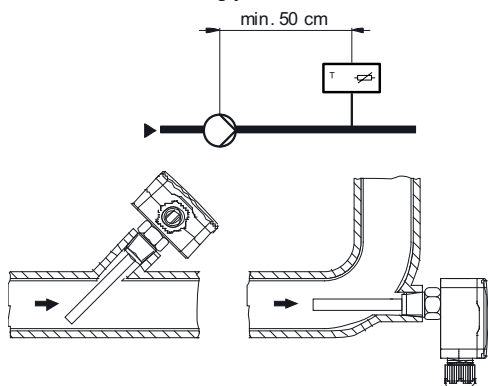
Damage to device!

► Devices with a power connection may only be connected if the power cable is disconnected from the mains.

Fitting notes

In the water circuit

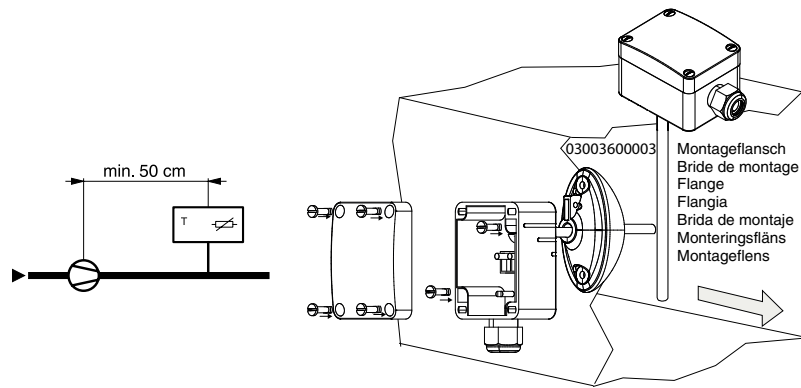
The duct temperature sensors must be installed in a thermowell (LW 7) for fitting in pipes and vessels. When they are used in pipes with lagging, the immersion length of the duct temperature sensor must be selected accordingly. The sensor must be installed facing against the direction of flow.



With compression fitting 0300360000, the duct temperature sensor can be directly screwed into pipes up to 16 bar.

In the air duct

For installation in air ducts, the duct temperature sensor is fitted on the wall of the air duct. A variable immersion length is possible with flange 0300360003.



If there is a possibility of condensation in the sensor tube or the thermowell, make sure to install the sensor so that any condensation can run off.

Electric connection

The devices are designed for operation with safety extra low voltage (SELV/PELV). The technical data for the devices applies when connecting them to the power supply.

The cable resistance of the power cable must be considered. If necessary, this must be corrected in the downstream electronic devices. Due to self-heating, the measurement current affects the accuracy of the measuring. Therefore this should not be greater than 1 mA.

Sensors with transducers should usually be operated in the middle of the measuring range, because higher deviations can occur at the end points of the measuring range. The ambient temperature of the transducer electronics should be kept constant.

When long power cables are used (depending on the cross-section used), the voltage drop on the shared GND cable (caused by the supply current and the cable resistance) can falsify the measuring result. In this case, two GND cables must be connected to the sensor, one for the supply current and one for the measurement current.

Disposal

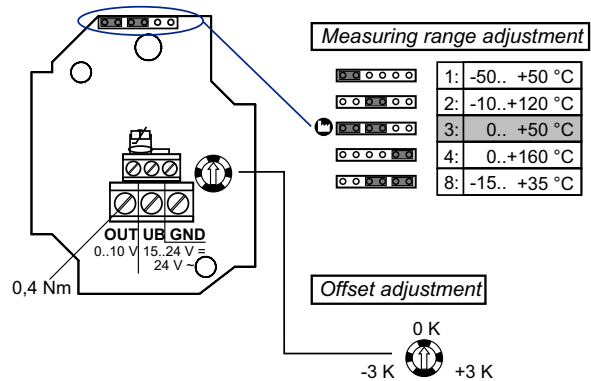
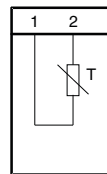
When disposing of the product, observe the currently applicable local laws.

More information on materials can be found in the Declaration on materials and the environment for this product.

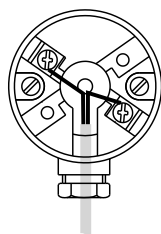
Connection diagram

EGT346...348, EGT 446, 447

EGT346F031, EGT347F031, EGT348F031



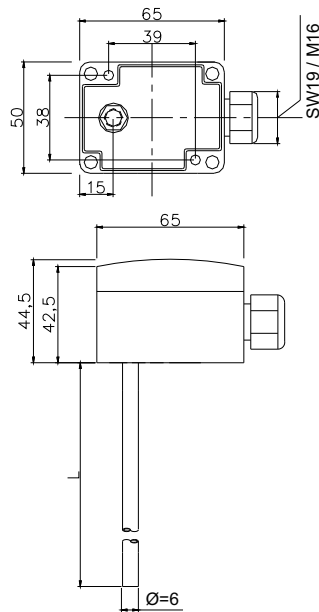
EGT392F102



Dimension drawing

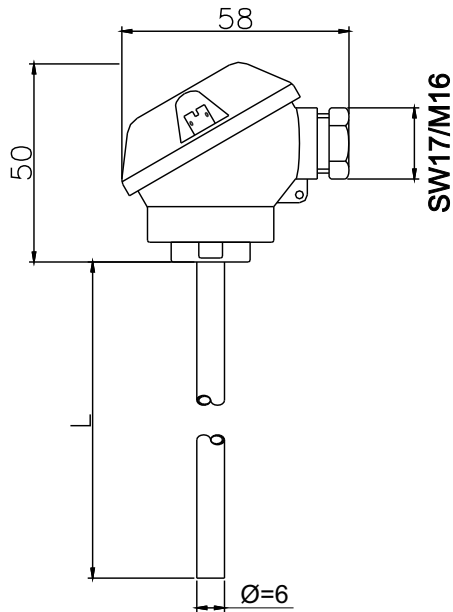
EGT*4*F***

[mm]



EGT392F102

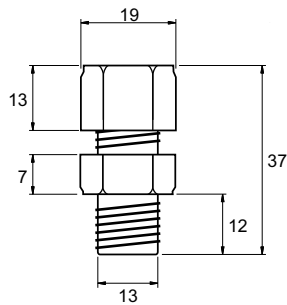
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Accessories

0300360000

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0300360003

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