



# Temperature sensors – TTM series



## Miniature transmitters

The TTM miniature sensors detect temperature with a 4-wire Pt1000 probe. Available are compact devices with integrated probe. The TTM's are transmitters with analog output 4...20 mA (2-wire) and have the electronics incorporated in

the M12 x 1 connector. Depending on the combination of sensor and probe, temperatures are measured in a range between -50... +500 °C. The temperature range can be customized on request.



## Cost-efficient transmitter solution

Miniature transmitters of the TTM series are applied in places where transducers are not required and customers need highest flexibility regarding the choice of probe and thermowell:

- Analog output 4...20 mA in the M12 x 1 connector hood
- Versions with integrated rod-type or screw-in probe
- Highest flexibility in choice of probe
- Depending on the type of probe used, mounting aids are not required
- Temperature range -50...+500 °C
- Protection class IP67

# Type code

**TTM** - **100C** - **203A** - **CF** - **LI6** - **H1 1 4 0** - **L100**

<b>TTM</b>	Functional principle	-	<b>100C</b>	Measuring range	-	<b>203A</b>	Housing	-
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**Type**

**TTM** Temperature transmitter miniature

**Measuring range (other ranges on request)**

**50C** 0...50 °C  
**100C** 0...100 °C  
**150C** 0...150 °C

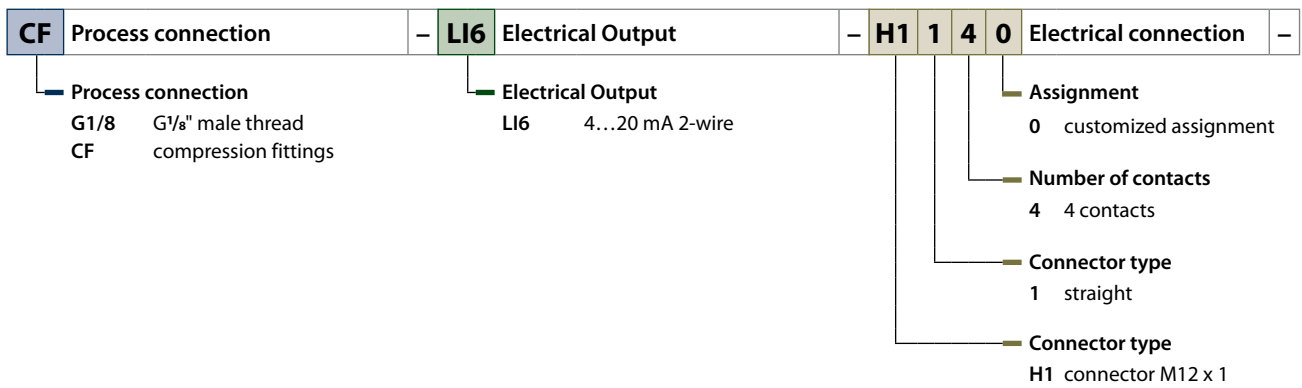
**Housing**

**103A** processor unit with probe Ø 3 mm, process connection via standard thread, accuracy class A  
**203A** for ferrule/thermowell, probe Ø 3 mm, accuracy class A  
**206A** for ferrule/thermowell, probe , probe Ø 6 mm

<b>L100</b>	Insertion depth
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**Probe length in mm**

**L100** 100 mm  
**L150** 150 mm  
 special lengths on request!



## TTM series – Miniature transmitters

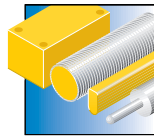


The miniature transmitters of the TTM series are available with integrated probe. Miniature sensors of the TTM series fit in the most confined spaces and measure temperatures precisely via the integrated processor and the Pt1000 class A measuring element. The over-moulded sensor electronics is only 25 mm longer and 1.5 mm wider than a standard M12 x 1 male connector and provides an output signal of 4...20 mA in 2-wire technology.

### Features

- Operating range depending on the transmitter -50...+500 °C
- Customized default settings on request
- Analog current output 4...20 mA (2-wire)
- For factory setting see type code

### Properties



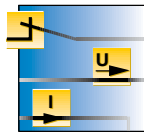
#### Designs

Compact miniature design,  
Ø 15 mm



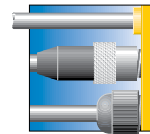
#### Measuring ranges

-50...+500 °C



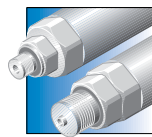
#### Electrical versions

Analog current output  
4...20 mA (2-wire)



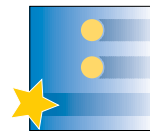
#### Electrical connections

Male M12 x 1, 4-pin



#### Connectivity

Probes available with stand-  
ard thread, compression fit-  
ting or thermowell



#### Special features

Customized temperature  
ranges



#### Internet link

Scan the QR code to access  
our products on the internet

## Transmitter with compact probe Ø 3 mm – Current output (2-wire)



<b>General data</b>			
<b>Output 1</b>	analog output	<b>Operating range</b>	4...20 mA (2-wire)
<b>Protection class</b>	IP67	<b>Connection</b>	male, M12 x 1
<b>Sensor quality</b>	AISI 316L	<b>Mechanical connection</b>	G 1/8" male thread
<b>Pressure resistance</b>	100 bar	<b>Operating voltage</b>	10...24 VDC
<b>Housing material</b>	V4A (1.4404)	<b>Outer diameter</b>	3 mm
<b>Response time</b>	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	<b>Accuracy</b>	Class A
<b>Accuracy (Lin. + Hys. + Rep.)</b>	0.2 K		

### Types and data – selection table

Type	Temperature operating range	Immersion depth (L)	w	d
TTM100C-103A-G1/8-LI6-H1140-L013	0...100 °C	13 mm	w171	d648
TTM050C-103A-G1/8-LI6-H1140-L013 -50...50°C	-50...50 °C	13 mm	w171	d648
TTM100C-103A-G1/8-LI6-H1140-L024	0...100 °C	24 mm	w171	d649
TTM050C-103A-G1/8-LI6-H1140-L024 -50...50°C	-50...50 °C	24 mm	w171	d649

## Transmitter with rod-shaped probe Ø 3 or 6 mm – Current output (2-wire)





<b>General data</b>			
<b>Output 1</b>	analog output	<b>Operating range</b>	4...20 mA (2-wire)
<b>Protection class</b>	IP67	<b>Connection</b>	male, M12 x 1
<b>Sensor quality</b>	AISI 316L	<b>Mechanical connection</b>	for compression ferrule fittings, protective tubing or direct mounting
<b>Pressure resistance</b>	100 bar	<b>Operating voltage</b>	10...24 VDC
<b>Housing material</b>	V4A (1.4404)	<b>Accuracy</b>	Class A
<b>Accuracy (Lin. + Hys. + Rep.)</b>	0.2 K		

### Types and data – selection table

Type	Temperature operating range	Outer diameter	Immersion depth (L)	Response time	w	d
TTM100C-203A-CF-LI6-H1140-L100	0...100 °C	3 mm	100 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d650
TTM100C-203A-CF-LI6-H1140-L150	0...100 °C	3 mm	150 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d651
TTM150C-203A-CF-LI6-H1140-L100	0...150 °C	3 mm	100 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d650
TTM150C-203A-CF-LI6-H1140-L150	0...150 °C	3 mm	150 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d651
TTM150C-203A-CF-LI6-H1140-L100-50...150°C	-50...150 °C	3 mm	100 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d650
TTM150C-203A-CF-LI6-H1140-L150-50...150°C	-50...150 °C	3 mm	150 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d651
TTM050C-203A-CF-LI6-H1140-L100-50...50°C	-50...50 °C	3 mm	100 mm	t0.5 = 1.5 s / t0.9 = 6.0 s in water at 0.2 m/s	w171	d650

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Type	Temperature operating range	Outer diameter	Immersion depth (L)	Response time		
TTM050C-203A-CF-LI6-H1140-L150-50...50°C	-50...50 °C	3 mm	150 mm	t0.5 = 1.5 s/ t0.9 = 6.0 s in water at 0.2 m/s	w171	d651
TTM100C-206A-CF-LI6-H1140-L100	0...100 °C	6 mm	100 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM100C-206A-CF-LI6-H1140-L150	0...100 °C	6 mm	150 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM150C-206A-CF-LI6-H1140-L100	0...150 °C	6 mm	100 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM150C-206A-CF-LI6-H1140-L150	0...150 °C	6 mm	150 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM150C-206A-CF-LI6-H1140-L100-50...150°C	-50...150 °C	6 mm	100 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM150C-206A-CF-LI6-H1140-L150-50...150°C	-50...150 °C	6 mm	150 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM050C-206A-CF-LI6-H1140-L100-50...50°C	-50...50 °C	6 mm	100 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
TTM050C-206A-CF-LI6-H1140-L150-50...50°C	-50...50 °C	6 mm	150 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652
–	–	6 mm	100 mm	t0.5 = 6 s/ t0.9 = 15 s in water at 0.2 m/s	w171	d652

