


● Characteristics

1510 - RESISTANCE THERMOMETER - RTD - PT100 -

	Input:	RTD Pt 100, Pt 1000
	Measuring range:	-50...+150 °C maximum
	Accuracy transmitter:	0,3% of range
	Accuracy RTD Pt100:	Class A, Class AA, Class B
	Output:	4...20 mA HART / RTD
	Resolution:	16 bit
	Configuration:	Via software (HART communication)
	Connection:	Several plugs, cable
	Internal protection:	Inside completely potted
	Material:	Stainless steel 1.4571, PBT GF30
Protection:	At least IP65	

● Technical data

Input

Sensor:	1x Pt100 / 1x Pt1000 / 2x Pt100 / 2x Pt1000
Connection:	2-wire / 3-wire / 4-wire
Accuracy:	Class A / Class B / Class AA
Maximum range:	-50...+150 °C
Minimum range:	50 °C

Output

Transmitter HART:	Current:	4...20 mA with superimposed communication signal
	Connection:	2-wire current loop
	Current range:	3,8...20,5 mA
	Signal on error:	3,6 mA (sensor short circuit, underflow) 21 mA (sensor break, sensor open circuit, overflow)
Resistance thermometer:	Connection lead through onto plug, cable lead through	

Measuring amplifier

Transmitter HART:	Combined error:	0,3% of range
	Resolution:	16 Bit
	Filter:	0...99 s
	Transmission behaviour:	Linear with temperature
	Rise-delay time:	<5 s
	Measuring rate:	10 measurements/s
	Configuration:	Via software (HART-Communication)
	Response time:	20 ms

● Applications

The sensor MKTS-SP is suitable for the measuring of bearing and surface temperature. The spring-loaded sensor tip ensures a good contact with the measuring point and with the compact design this sensor is very robust. The programmable transmitter makes possible a customization to the measurement conditions.



● Technical data (continued)

Supply

Transmitter HART:	Current loop:	12...40 VDC
	Load:	$R = (U_B - 12 \text{ V}) / 21 \text{ mA}$
	Reverse battery protection:	Available (no function, no damage)

Ambient conditions

Operating temperature:	With transmitter:	-20...+80 °C
	Without transmitter:	-30...+100 °C
Storage temperature:		-40...+85 °C
Medium temperature:		-50...+150 °C
System pressure:		Impossible, because the process connection has no sealing effect
Condensation:		Uncritical

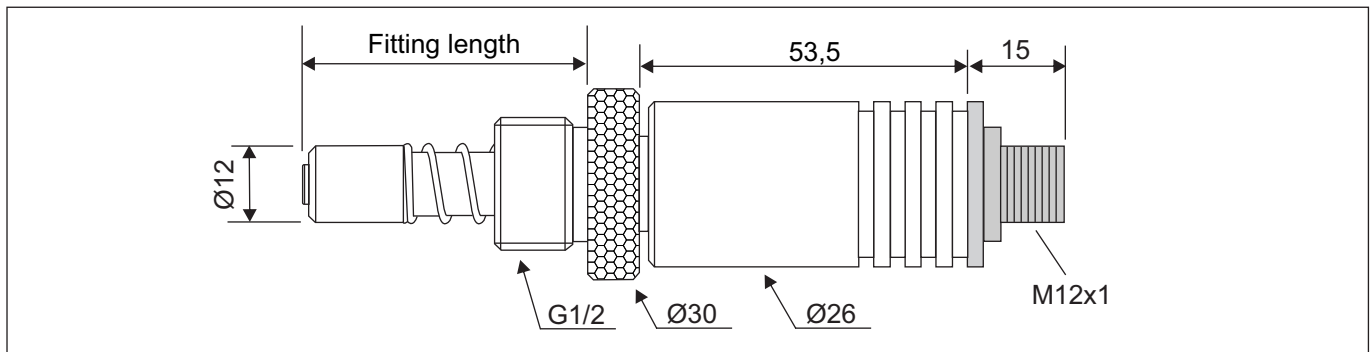
Mechanics

Dimensions:	See below	
Fitting length:	45 mm / 65 mm / customized	
Range of spring:	14 mm, ±1 mm	
Process connection:	3/8" / 1/2" / 3/4"	
Electrical connection:	see page 3	
Sensor tube:	Ø6 mm	
Material:	Sensor tube:	Stainless steel 1.4571
	Process connection:	Knurled screw stainless steel 1.4541
	Body:	Stainless steel 1.4571
	Compression spring:	Spring steel 1.4310
	Insulator:	PTFE white
	Inset electr. connection:	PBT GF30
		Option: Stainless steel 1.4571
Weight:	Ca.200 g (1/2", 45 mm, M12)	
Fitting position:	Any	
Protection of device:	Ingress protection:	At least IP65 (electronics) IP68 (sensor)
	Enclosure:	Inside completely potted

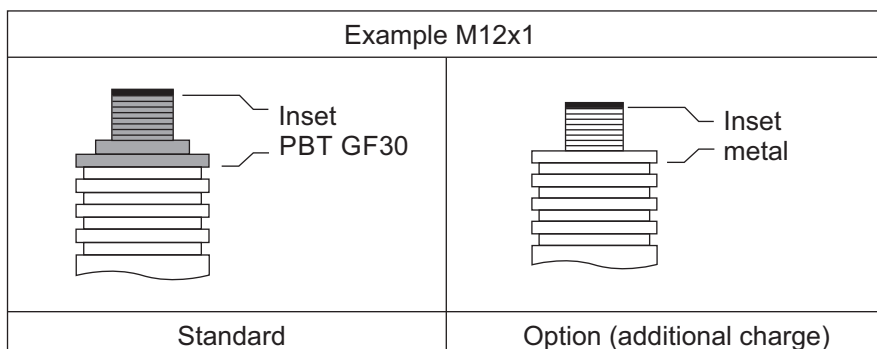
Configurable parameter HART

Measuring amplifier:	Nominal measuring range start (LRL) / Nominal measuring range end (URL) / Measuring range start (LRV) / Measuring range end (URV) / Filter function / Adjustment output current / Simulation output current / HART address / Linear output signal / 2-point calibration
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● Dimension, connection (M12x1)




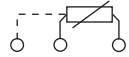
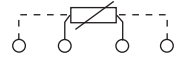
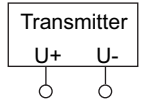
● Inset of electrical connection



● **Electrical connection**

M12x1	Super Seal	Deutsch	Deutsch	Bayonet	Valve ¹⁾	MIL	Cable
							
4-pole 5-pole 8-pole	3-pole	3-pole	4-pole	4-pole	4-pole	6-pole	n-pole
Connection with insert metal							
4-pole					4-pole	6-pole	n-pole

1) According EN 175301-803, type A

Pin assignment											
	2-wire		3-wire			4-wire				Transmitter	
											
Connection for 1 sensor											
M12, 4-pole	3	2	4	3	2	4	3	2	1	1	3
M12, 5-pole	3	2	4	3	2	4	3	2	1	1	3
M12, 8-pole	3	2	4	3	2	4	3	2	1	1	3
Super Seal, 3-pole	3	2	1	3	2					1	3
Deutsch DT04, 3-pole	C	B	A	C	B					A	B
Deutsch DT04, 4-pole	3	2	4	3	2	4	3	2	1	1	3
Bayonet, 4-pole	3	2	4	3	2	4	3	2	1	1	3
Valve, 4-pole	3	2		3	2		3	2	1	1	2
MIL, 6-pole	B	C	A	B	C	A	B	C	D	A	C
Cable, n-pole	bn	gn	ye	bn	gn	ge	bn	gn	wh	ye	wh
Cable, n-pole (DIN 60751)	rd	wh	rd	rd	wh	rd	rd	wh	wh		
Connection for 2 sensors											
M12, 4-pole											
M12, 5-pole											
M12, 8-pole											
Deutsch DT04, 4-pole											
Bayonet, 4-pole											
Valve, 4-pole											
MIL, 6-pole											
Cable, n-pole (DIN 60751)											

Sensor 2*: alternatively to bk (black) is also gr (grey) possible.

● Order code

M K X X X X - X - X X X X X X

Transmitter:	Without 4...20 mA HART	I K																	
Sensor:	RTD Pt100 RTD Pt1000 RTD 2x Pt100 RTD 2x Pt1000	1 2 3 4																	
Sensor connection:	2-wire 3-wire 4-wire	1 2 3																	
Accuracy:	Class A Class B Class AA	1 2 3																	
Fitting length:¹⁾	45 mm 65 mm Other length (please indicate)																		45 65 X
Diameter sensor tube:	6 mm (standard)																		6
Process connection:	3/8" 1/2" 3/4"																		2 3 4
Inset electr. connection:²⁾	Plastics (standard) Metal																		1 2
Electrical connection:	M12x1, 4-pole M12x1, 5-pole M12x1, 8-pole Deutsch DT04, 3-pole Deutsch DT04, 4-pole Super Seal, 3-pole Bayonet DIN, 4-pole Valve plug DIN EN 175301-803, 4-pole Cable, 2 m MIL-plug, 6-pole																		1 2 3 4 5 6 7 8 9 A
Configuration:	Without Factory setting ³⁾ Customized (to specify) ⁴⁾																		0 1 2
Special model:	No Yes (to specify)																		0 1

1): Other coding in steps of 5 mm possible
 2): See bottom of page 2
 3): Factory setting: Nominal measuring range: -50...150 °C (LRL...URL) / Measuring range: 0...100 °C (LRV...URV) / Damping: 0 s
 4): Details within technical data