


● Characteristics

1510 - RESISTANCE THERMOMETER - HAND LANCE

	Input:	Pt100 3-wire / type K / type K with display
	Measuring range:	-50...+400 °C maximum
	Accuracy transmitter:	0,3% of range
	Accuracy RTD Pt100:	Class A, Class AA, Class B
	Output:	with transmitter HART / without transmitter
	Resolution:	16 bit
	Configuration:	via software (HART communication)
	Connection:	Several plugs, cable
	Length:	Several options available
	Material:	Stainless steel 1.4571, PBT GF30
Protection class:	At least IP65	

● Technical Data

Input

Sensor:	1x Pt100 / thermocouple type K / thermocouple type K with display
Connection:	3-wire
Accuracy:	Class A / Class B / Class AA
Maximum range:	-50...+400 °C
Minimum range:	50 °C

Output

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

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)

Display

Accuracy:	±1% or 1 °C (larger value is valid)
Indicator:	7 segment LCD
Resolution:	0,1 °C

● Applications

An insertion hand lance for mobile applications like temperature measurement of hay, compost or hot asphalt. The insertion thermometer MKTS-EL is very robust, due to the materials used. It has a stainless-steel handle for comfortable handling.



● 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)
Display:	Battery:	CR 2032

Environmental Conditions

Operating temperature:	With transmitter:	-20...+80 °C
	Without transmitter:	-30...+100 °C
Storage temperature:		-40...+85 °C
Medium temperature:		-50...+400 °C
System pressure:		25 bar maximum
Condensation:		<95% rH

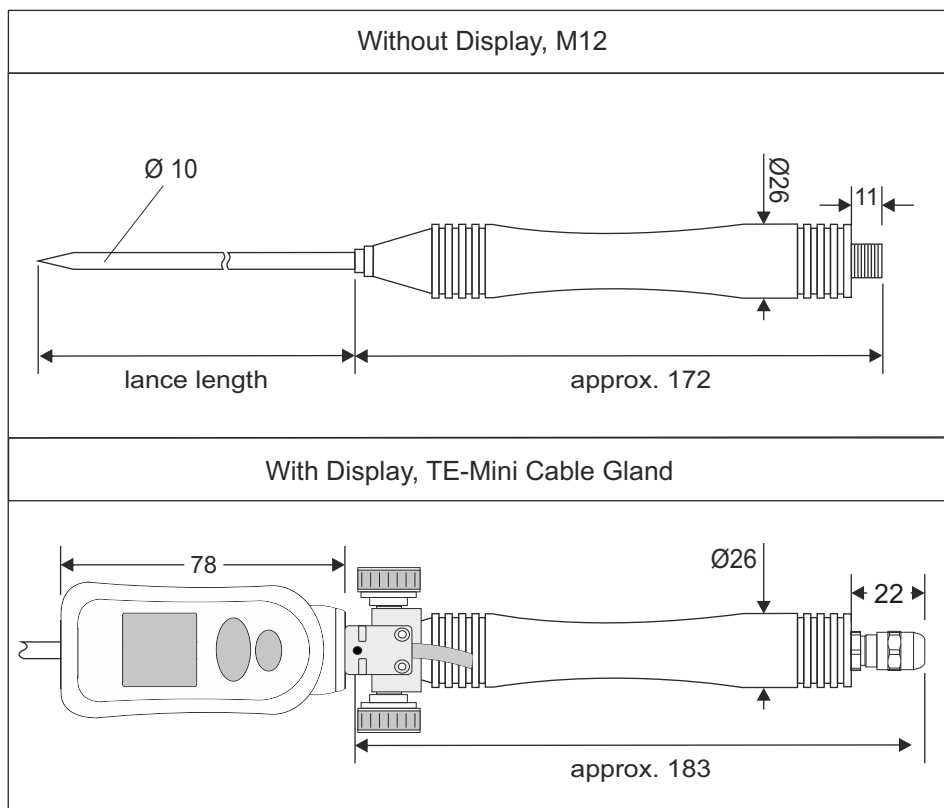
Mechanics

Dimensions:	see below	
Process connection:	Hand lance (thermowell)	
Electrical connection:	see page 3	
Hand lance:	Ø10 mm	
Lance tip:	Pointed tip / Flat tip / Option: Please specify	
Material:	Hand lance:	Stainless steel 1.4571
	Process connection:	Stainless steel 1.4571
	Body:	Stainless steel 1.4571
	Display:	Plastics ABS
	Inset electr. connection:	PBT GF30
		Option: Stainless steel 1.4571
Weight:	ca. 845 g (with 1000 mm hand lance and display)	
Fitting position:	Any	
Protection of device:	Ingress protection:	At least IP65 (electronics) IP68 (sensor)
	Enclosure:	Inside completely potted









Configurable Parameters 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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
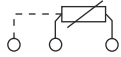
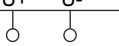
● Dimension (in mm)



● **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 metal inset							
4-pole					4-pole	6-pole	n-pole

1) According to EN 175301-803, type A

Pin assignment			
	Type K 	3-wire 	Transmitter current output U+ U- 
Connection for 1 sensor			
M12, 4-pole	3 2	4 3 2	1 3
M12, 5-pole	3 2	4 3 2	1 3
M12, 8-pole	3 2	4 3 2	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	1 3
Bayonet, 4-pole	3 2	4 3 2	1 3
Valve, 4-pole	3 \perp 2	3 2	1 2
MIL, 6-pole	B C	A B C	A C
Cable, n-pole	bn gn	ye bn gn	ye wh
Cable, n-pole (DIN 60751)	rd wh	rd rd wh	wh wh

● **Order Code**

W L X X X X - X - X X X X X X

Transmitter:	Without 4...20 mA HART	F G																		
Sensor:	Pt100 (3-wire) Thermocouple type K Thermocouple type K with display		1 5 6																	
Accuracy:	Class A Class B Class AA Class C (on request)		1 2 3 4																	
Length hand lance:	500 mm 1000 mm 1500 mm 2000 mm Please specify		0 1 2 3 4																	
Diameter lance:	10 mm																			6
Lance tip:	Pointed tip Flat tip Please specify																			0 1 2
Inset electr. connection:	Plastics Metal (stainless steel)																			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 DIN EN 175301-803, 4-pole Cable, 2 m MIL-plug, 6-pole TE-Mini plug, 2-pole ¹																			1 2 3 4 5 6 7 8 9 A M
Configuration:	Without Factory setting ² Customized (please specify) ³																			0 1 2
Special model:	No Yes (please specify)																			0 1

1): only for sensor-option thermocouple type K with display
 2): Factory setting: Nominal measurement range: -50...200 °C (LRL...URL) / Measurement range: 0...100 °C (LRV...URV) / Damping: 0 s
 3): Please select settings as per technical data. For values not given, factory settings will be used.