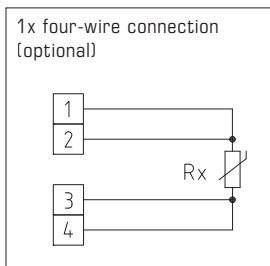
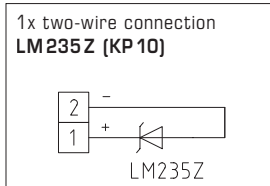
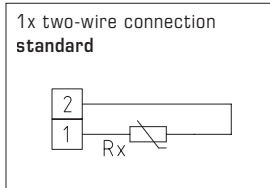


Surface contact temperature sensors / tube contact temperature sensors, including strap, with passive output

**THERMASGARD® ALTF 1** surface contact sensors are electric contact thermometers and are used for measuring surface temperatures of solids, having at least one so-called contact area that is brought into contact with the surface to be measured. The surface contact temperature sensor ALTF 1 with connection cable and passive output determines the temperature of a medium flowing inside a pipe (e.g. water temperature) via the surface temperature. ALTF 1 is a tube contact resistance thermometer with strap and axial feeler tube for measuring temperature on piping and tubes (e.g. cold-water and hot-water), or at heating sections for heating system control.

**TECHNICAL DATA**

Measuring range:	-35...+105 °C PVC -35...+180 °C silicone (T <sub>max</sub> NTC = +150 °C, T <sub>max</sub> LM235Z = +125 °C)
Sensors / output:	see table, passive (optional also with 2 sensors) <b>(Perfect Sensor Protection with IP68)</b>
Connection type:	2-wire connection (4-wire connection optional)
Testing current:	< 0.6 mA (Pt1000) < 1.0 mA (Pt100) < 0.3 mA (Ni1000, Ni1000 TK5000) < 2.0 mW (NTC xx) 400 µA...5 mA (LM235Z)
Connecting cable:	PVC; 1.5 m, LiYY, 2 x 0.25 mm <sup>2</sup> or silicone, SiHF, 2 x 0.25 mm <sup>2</sup> ends stripped, with wire end sleeves
Insulating resistance:	≥ 100 MΩ, at +20 °C (500 V DC)
Sensor protection:	pipe feeder made of stainless steel <b>V4A</b> (1.4571), Ø = 6 mm, L = 50 mm
Process connection:	with <b>endless strap</b> with metal tightener (included in the scope of delivery) Ø = 13-92 mm (¼ - 3"); length 300 mm
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	<b>IP65</b> (according to EN 60 529) <b>sleeve</b> humidity-tight (standard) <b>IP68</b> (according to EN 60 529) <b>sleeve</b> water-tight (optional)



**IP65** (standard)  
humidity-tight



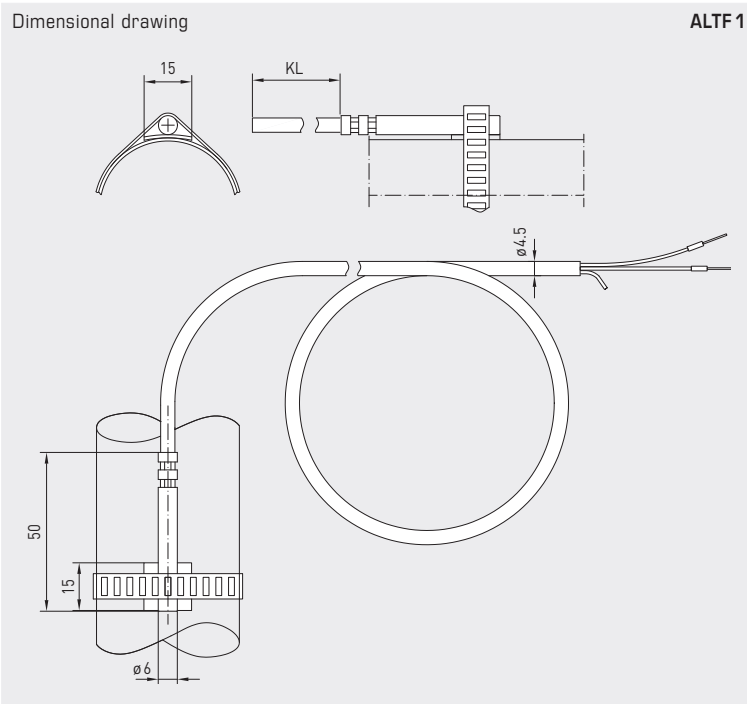
**IP68** (optional)  
water-tight  
**Perfect Sensor Protection**

**THERMASGARD® ALTF 1** Surface contact temperature sensors / tube contact temperature sensors (PVC)

Type / WG03	Sensor / Output	Item No.	Price
<b>ALTF 1 xx PVC</b>		<b>IP65, PVC</b>	
ALTF1 Pt100 PVC 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6020-1211-110	<b>22,34 €</b>
ALTF1 Pt1000 PVC 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6020-5211-110	<b>22,34 €</b>
ALTF1 Ni1000 PVC 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6020-9211-110	<b>23,18 €</b>
ALTF1 NiTK PVC 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-6021-0211-110	<b>24,03 €</b>
ALTF1 LM235Z PVC 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6022-1211-110	<b>23,60 €</b>
ALTF1 NTC1,8K PVC 1,5M	NTC 1.8K	1101-6021-2211-110	<b>22,91 €</b>
ALTF1 NTC10K PVC 1,5M	NTC 10K	1101-6021-5211-110	<b>22,91 €</b>
ALTF1 NTC20K PVC 1,5M	NTC 20K	1101-6021-6211-110	<b>22,91 €</b>
Note:	including strap, connecting cable <b>PVC</b> (KL = 1.5 m)		
Extra charge:	Protection type <b>IP68</b> (Sensor sleeve watertight compound-filled) 2-wire connecting leads, per running meter ( <b>PVC</b> ) Other sensors optional	on request on request	<b>3,75 €</b>

**ACCESSORIES**

<b>WLP-1</b>	Heat-conductive paste, silicone-free	7100-0060-1000-000	<b>5,13 €</b>
--------------	--------------------------------------	--------------------	---------------



High-performance encapsulation against vibration, mechanical stress and humidity

**PS-PROTECTION**  
PERFECT SENSOR PROTECTION

THERMASGARD® ALTF 1 Surface contact temperature sensors / tube contact temperature sensors (silicone)			
Type / WG03	Sensor / Output	Item No.	Price
<b>ALTF 1 xx SILIKON</b>		<b>IP 65, silicone</b>	
ALTF1 Pt100 Silikon 1,5M	Pt100 (according to DIN EN 60 751, class B)	1101-6020-1211-120	<b>23,18 €</b>
ALTF1 Pt1000 Silikon 1,5M	Pt1000 (according to DIN EN 60 751, class B)	1101-6020-5211-120	<b>23,18 €</b>
ALTF1 Ni1000 Silikon 1,5M	Ni1000 (according to DIN EN 43 760, class B, TCR = 6180 ppm / K)	1101-6020-9211-120	<b>24,73 €</b>
ALTF1 NiTK Silikon 1,5M	Ni1000 TK5000 (TCR = 5000 ppm / K), LG-Ni1000	1101-6021-0211-120	<b>26,00 €</b>
ALTF1 LM235Z Silikon 1,5M	LM235Z (TCR = 10 mV / K; 2.73 V at 0 °C), KP10	1101-6022-1211-120	<b>24,03 €</b>
ALTF1 NTC1,8K Silikon 1,5M	NTC 1.8K	1101-6021-2211-120	<b>23,89 €</b>
ALTF1 NTC10K Silikon 1,5M	NTC 10K	1101-6021-5211-120	<b>23,89 €</b>
ALTF1 NTC20K Silikon 1,5M	NTC 20K	1101-6021-6211-120	<b>23,89 €</b>
Note:	including strap, connecting cable <b>silicone</b> (KL = 1.5 m)		
Extra charge:	Protection type <b>IP 68</b> (Sensor sleeve watertight compound-filled) 2-wire connecting leads, per running meter ( <b>silicone</b> ) Other sensors optional	on request on request	<b>3,75 €</b>

ACCESSORIES			
<b>WLP-1</b>	Heat-conductive paste, silicone-free	7100-0060-1000-000	<b>5,13 €</b>