

Applications

- Temperature measurement of pipeline surface
- General industrial services
- Laboratories

Features

- Single thermocouple
- Sensing element according to (PN-EN 60584-2):
 - Type K (NiCr-NiAl),
 - Type J (Fe-CuNi),
 - Type N (NiCrSi-NiSi),
 - Type E (NiCr-CuNi),
 - Type T (Cu-CuNi),
 - according to (PN-EN 60584-2)
- For sticking with self-adhesive tape

Description

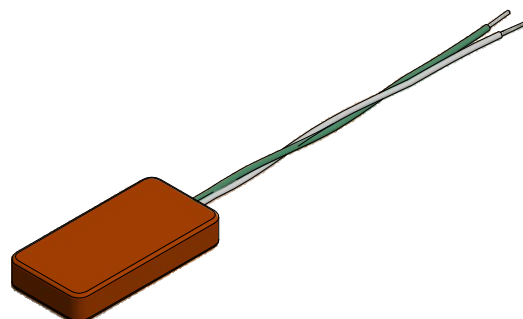
Thermocouples of this series are designed for surface temperature measurement.

The sensor consists of silicone case, self-adhesive tape and thermocouple cable.

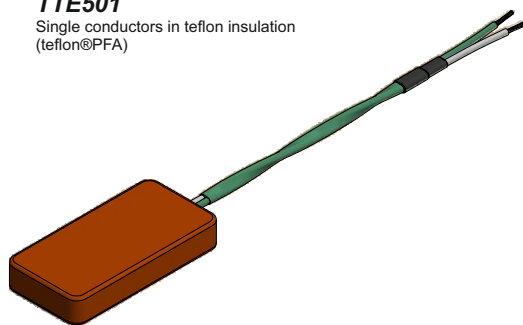
Length, accuracy, cable insulation and method of connection can be selected individually for the respective application.

Temperature transmitter (Option)

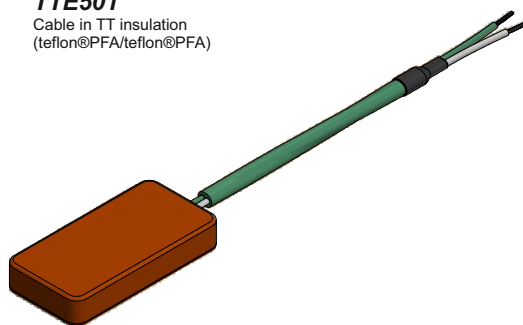
There is possibility of using standard temperature transmitter (4÷20mA, 0÷10V) or temperature transmitter with HART®, Profibus® PA, Foundation Fieldbus communication protocol, mounted inside electrical control cabinet.



TTE501
Single conductors in teflon insulation
(teflon®PFA)

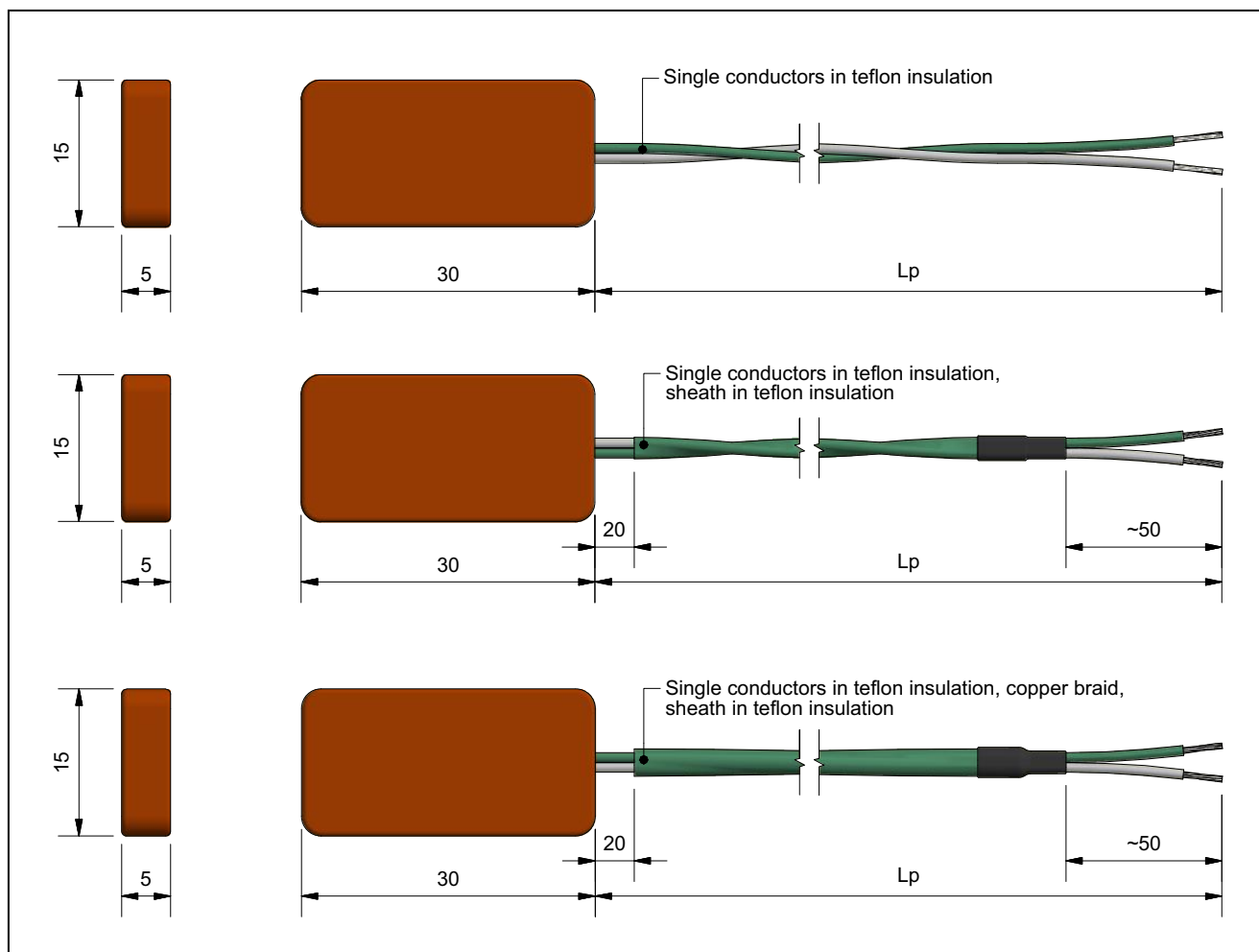


TTE501
Cable in TT insulation
(teflon®PFA/teflon®PFA)



TTE501
Cable in TCuT insulation
(teflon®FEP/Cu braid/teflon®FEP)

Designs



Basic values of Thermocouples type J, K, N according to PN-EN 60584 / IEC 584

Temperature		°C	100	200
Basic value	Typ J	mV	5.27	10.78
	Typ K	mV	4.10	8.14
	Typ N	mV	2.77	5.91
Tolerance	Class 1	°C	±1.5	±1.5
	Class 2	°C	±2.5	±2.5

Tolerances

The PN-EN 60584 standard defines the formulas for calculating acceptable measure tolerance. More information available in the general thermocouple thermometer sheet.

Electrical parameters

Isolation resistance > 10 GΩ (test 500 VDC)

Housing material

Silicone

Type J (Fe-CuNi)

Class	Temperature range	Tolerance
1	-40 °C .. +375 °C	± 1.5 °C
	+375 °C .. +750 °C	± 0.0040 x t
2	-40 °C .. +333 °C	± 2.5 °C
	+333 °C .. +750 °C	± 0.0075 x t

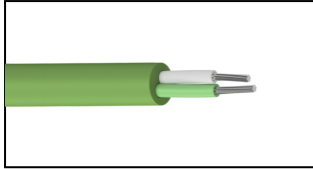
Type K (NiCr-Ni), Type N (NiCrSi-NiSi)

Class	Temperature range	Tolerance
1	-40 °C .. +375 °C	± 1.5 °C
	+375 °C .. +1000 °C	± 0.0040 x t
2	-40 °C .. +333 °C	± 2.5 °C
	+333 °C .. +1200 °C	± 0.0075 x t

Insulation types of connection cable

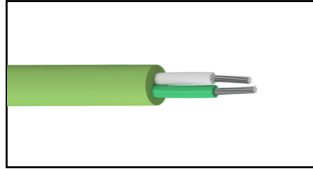
■ JJ insulation

Conductor: PVC
Sheath: PVC



■ TSL insulation

Conductor: Teflon® FEP
Sheath: Silicone



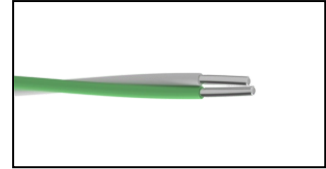
■ TCuT insulation

Conductor: Teflon® FEP
Screen: Copper braid
Sheath: Teflon® FEP



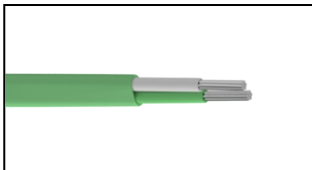
■ TW insulation

Conductor: Teflon® PFA



■ TT insulation

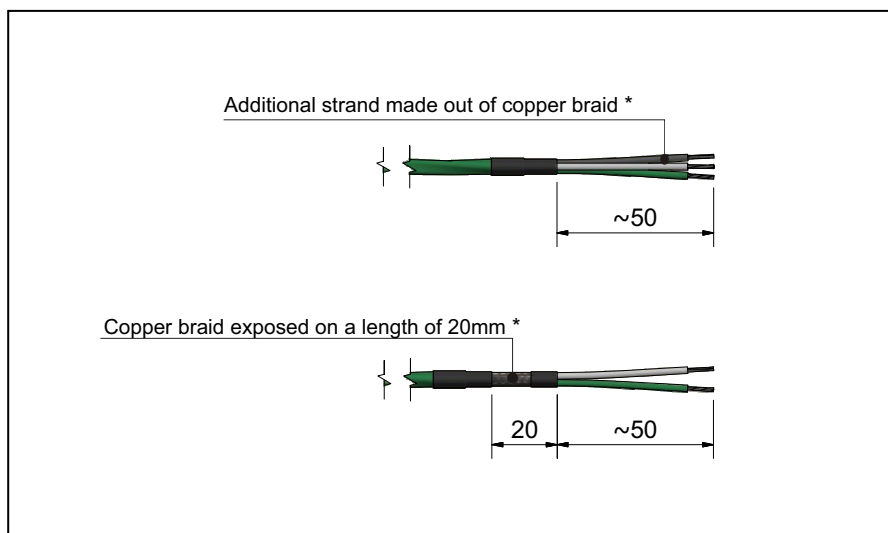
Conductor: Teflon® PFA
Sheath: Teflon® PFA



Available measuring range

Measuring range	Insulation type	
-10 .. +105°C	JJ	PVC
-50 .. +180°C	TSL	silicone
-50 .. +180°C	TCuT	teflon® FEP
-50 .. +180°C	TW, TT	teflon® PFA

Non-standard sensor versions



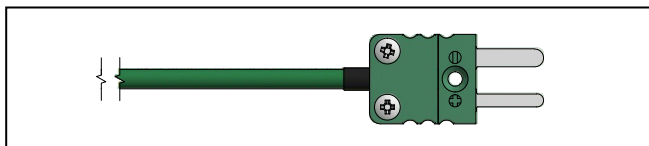
* Available only for TCuT cable insulation

Connectors (optional)

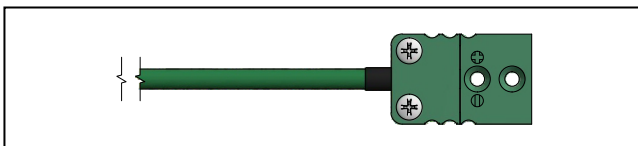
Sensors with connection cable can be equipped with connector.

Available options:

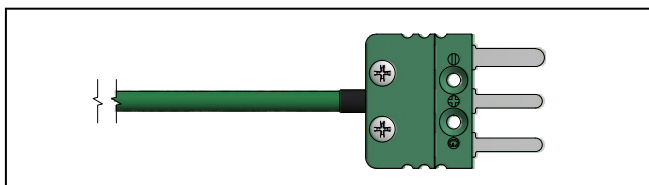
- **Connector S-010-(thermocouple type)-W**
Miniature plug, 2-pin.



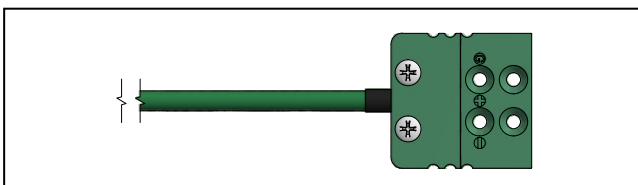
- **Connector S-010-(thermocouple type)-G**
Miniature socket, 2-pin.



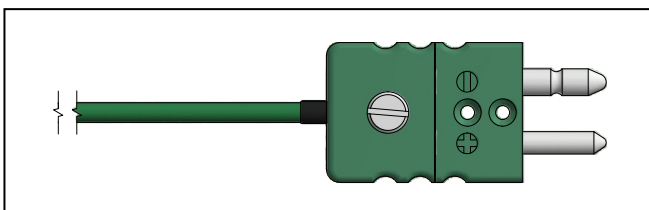
- **Connector S-013-(thermocouple type)-W**
Miniature plug, 3-pin.



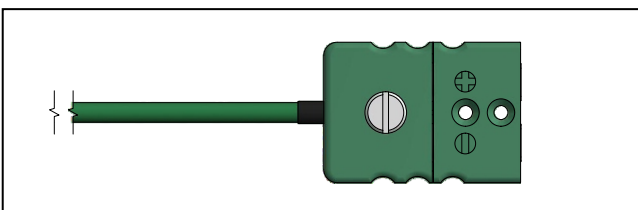
- **Connector S-013-(thermocouple type)-G**
Miniature socket, 3-pin.



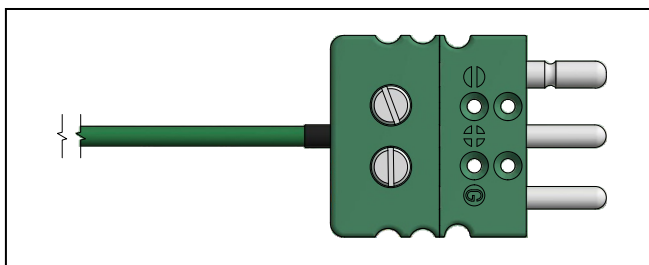
- **Connector S-020-(thermocouple type)-W**
Standard plug, 2-pin.



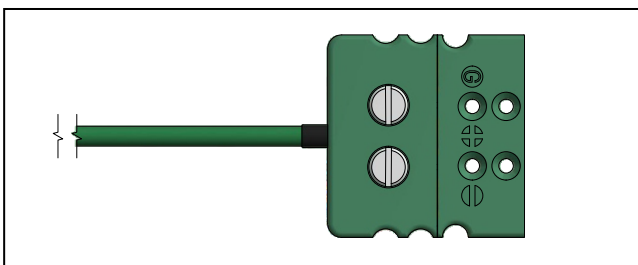
- **Connector S-020-(thermocouple type)-G**
Standard socket, 2-pin.



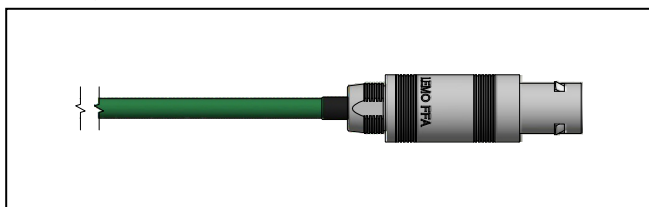
- **Connector S-023-(thermocouple type)-W**
Standard plug, 3-pin.



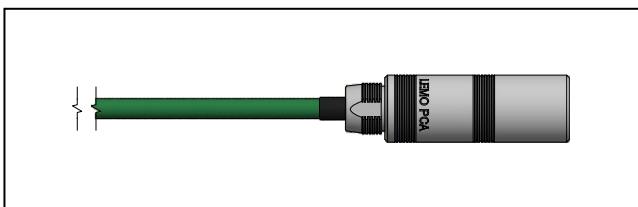
- **Connector S-023-(thermocouple type)-G**
Standard plug, 3-pin.



- **Connector LEMO® FFA**
Plug size from 0S to 3S. 2-, 3-, 4-, 6-pin.



- **Connector LEMO® PCA**
Plug size from 0S to 3S. 2-, 3-, 4-, 6-pin.



Ordering code

	1	2	3	4	5
TTE501 -		-	-	-	-

		Thermocouple type		
1		J	Type J (Fe-CuNi)	
		K	Type K (NiCr-Ni)	
		xxx	other, please specify	
		Connecting cable length Lp		
2		1000	1000 mm	
		2500	2500 mm	
		xxx	other, please specify	
		Tolerance class		
3		1	Class 1 acc. to PN-EN 60584-2	
		2	Class 2 acc. to PN-EN 60584-2	
		Connecting cable type		
4		JJ	PVC / PVC	Temperature range of sensor
		TSL	Teflon® FEP / Silicone	-10 .. +105°C
		TCuT	Teflon® FEP / Cu braid / Teflon® FEP	-50 .. +180°C
		TW	Teflon® PFA	-50 .. +180°C
		TT	Teflon® PFA / Teflon® PFA	-50 .. +180°C
		Connector (optional)		
5			without connector, free end conductors of connection cable	
		S-010-K-W	Miniature plug, 2-pin, type K	
		FFA.1S	Connector LEMO® FFA size 1S	
		xxx	other, please specify	

Example

TTE501-K-5000-1-TCuT

Thermocouple 1xK, cable length Lp=5000 mm, tolerance class 1, cable in TCuT insulation type.

TTE501-1xK-1000-SO-TT-LEMO® FFA.1S

Thermocouple 1xK, cable length Lp=1000 mm, tolerance class 1, cable in TT insulation type, equipped with LEMO® FFA plug size 1S.