

Applications

- Temperature measurement of liquids, gases and solid bodies
- Laboratories, warehouses
- Quality control

Features

- Single thermocouple
- Sensing element according to (PN-EN 60584-1):
 - Type K (NiCr-NiAl),
 - Type J (Fe-CuNi),
 - Type N (NiCrSi-NiSi),
 - Type E (NiCr-CuNi),
 - Type T (Cu-CuNi)
- Non-standard sensor versions available upon customer's request:
 - reduced tip of thermowell
 - sheath material INCONEL®600, Pyrosil®
 - handgrip made out of stainless steel or teflon®



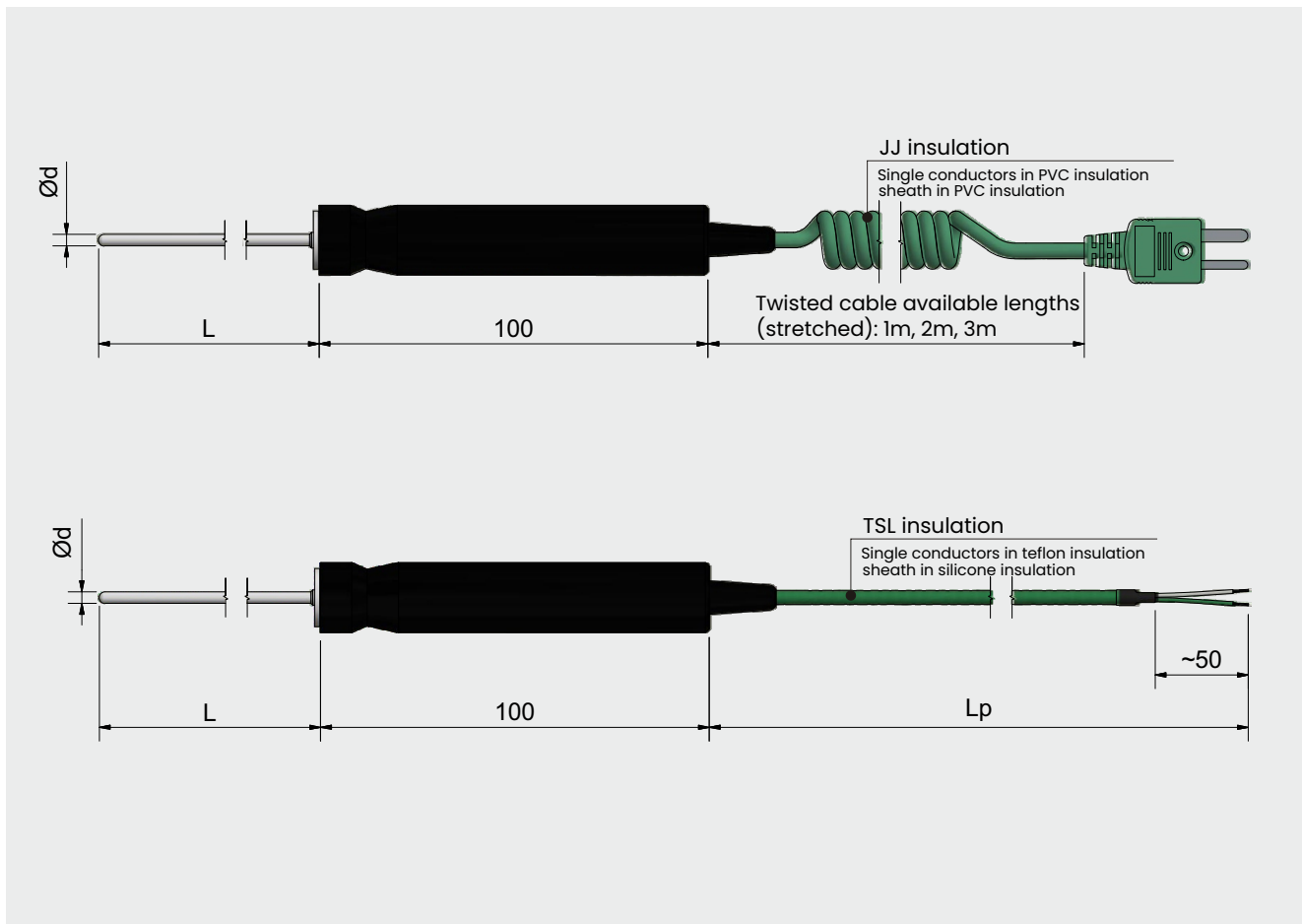
TTE424
Twisted cable version
JJ cable insulation
(PVC/PVC)

Resistance thermometers TOPE424 are designed for temporary measurement and mobility. Recommended for laboratory application to dryblock temperature calibrators.

TTE424 consists of sheathed thermocouple cable mineral insulated inside, handgrip and twisted or straight connection cable version.

Insertion length, thermowell diameter, thermocouple type, accuracy, cable length and insulation can be selected individually for the respective application.

Designs



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

Temperature		°C	300	400	500	600	700	800	900	1000
Basic value	Type J	mV	16.33	21.85	27.39	33.10	39.13	45.49	51.88	57.95
	Type K	mV	12.21	16.40	20.64	24.91	29.13	33.28	37.33	41.28
	Type N	mV	9.34	12.97	16.75	20.61	24.53	28.45	32.37	36.26
Tolerance	Class 1	°C	±1.5	±1.6	±2.0	±2.4	±2.8	±3.2	±3.6	±4.0
	Class 2	°C	±2.5	±3.0	±3.7	±4.5	±5.2	±6.0	±6.7	±7.5

Tolerance

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

Electrical parameters

Isolation resistance > 10 GΩ (test 500 VDC)

Housing material

Stainless steel 1.4401 (AISI316)

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

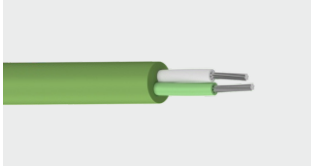
Type K (NiCr-Ni), Type N (NiCrSi-NiSi)

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

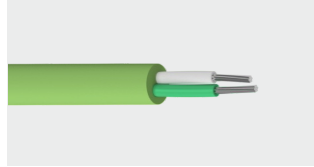
JJ insulation

Conductor: PVC
Sheath: PVC



TSL insulation

Conductor: Teflon® FEP
Sheath: Silicone



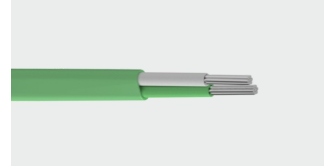
TCuT insulation

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



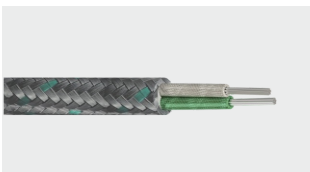
TT insulation

Conductor: Teflon® PFA
Sheath: Teflon® PFA



GLP insulation

Conductor: Fiberglass
Sheath: Stainless steel braid

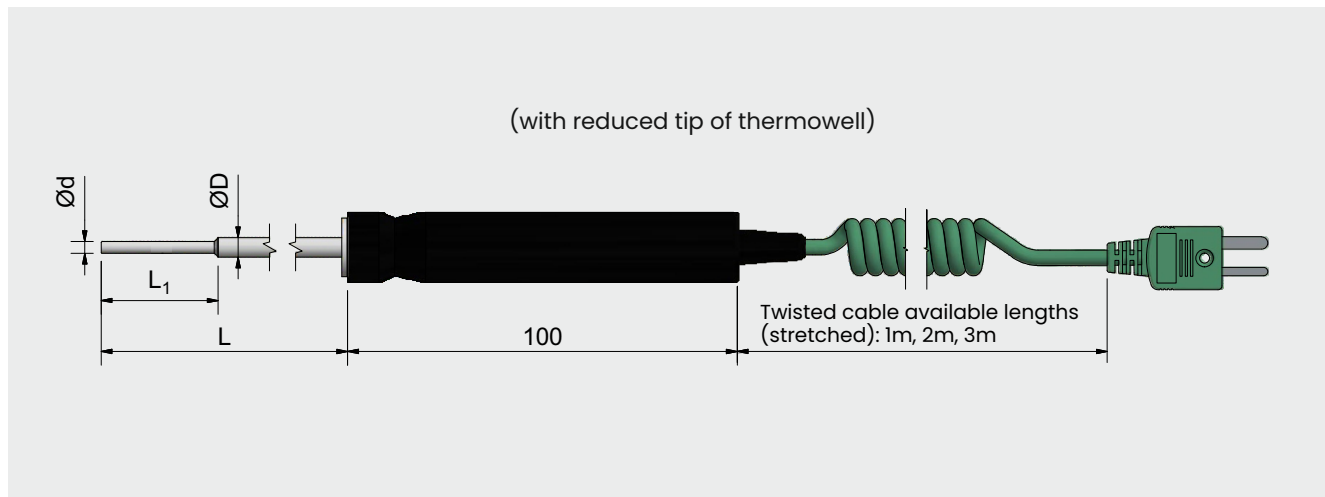


GLGLP insulation

Conductor: Fiberglass
Sheath: Fiberglass
Braid: Stainless steel braid



Non-standard sensor versions



Accessories

305P



307P



Portable meters 305P, 307P

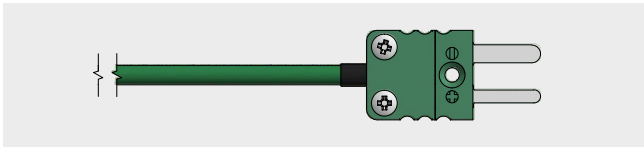
Digital portable temperature meters designed for thermocouples type K. In addition to modern design, portable meters 305P and 307P are also characterized by relatively high accuracy, a wide range of measured temperature, durability and reliability. Portable meter can be switched between the Celsius and Fahrenheit scales. Adjustable offset placed on front panel allows for deviations compensation in case of different indications between thermocouples.

Connectors (optional)

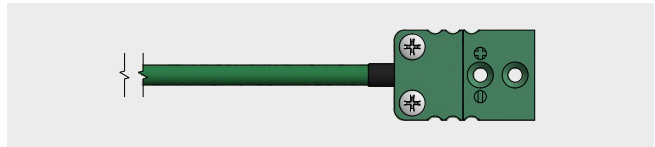
Sensors with connection cable can be equipped with connector.

Available options:

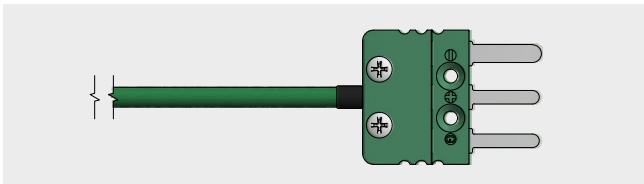
Connector S-010-(thermocouple type)-W
Miniature plug, 2-pin.



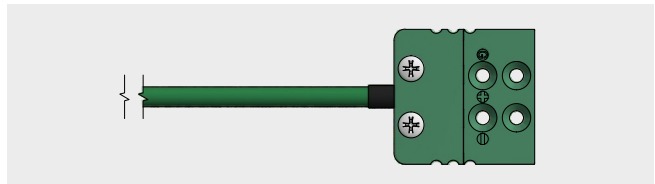
Connector S-010-(thermocouple type)-G
Miniature socket, 2-pin.



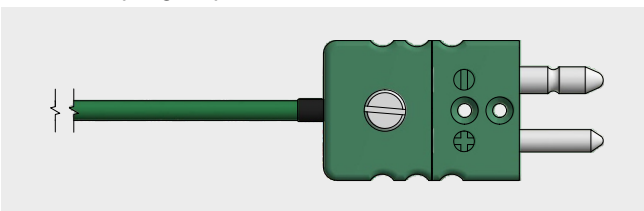
Connector S-013-(thermocouple type)-W
Miniature plug, 3-pin.



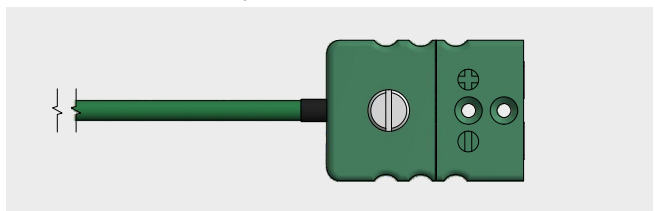
Connector S-013-(thermocouple type)-G
Miniature socket, 3-pin.



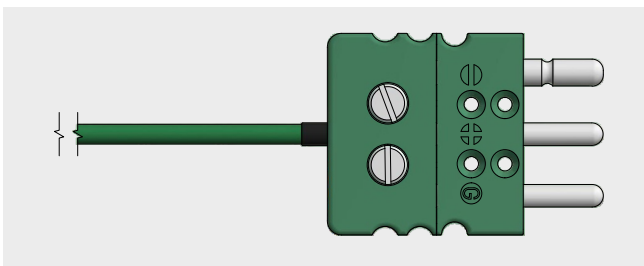
Connector S-020-(thermocouple type)-W
Standard plug, 2-pin.



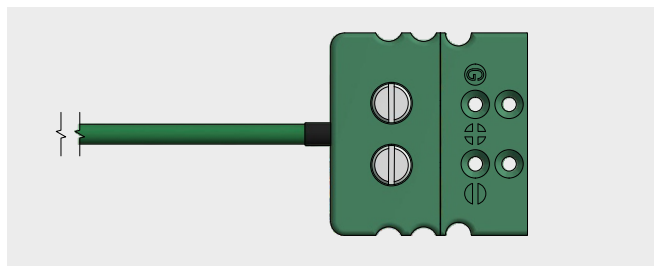
Connector S-020-(thermocouple type)-G
Standard socket, 2-pin.



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



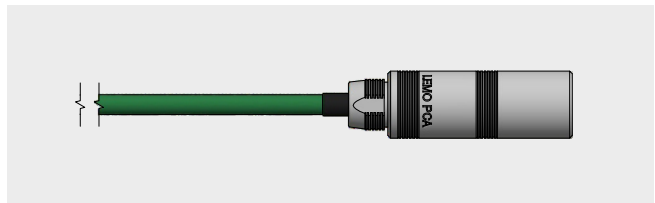
Connector S-023-(thermocouple type)-G
Standard socket, 3-pin.



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

TTE424 - - - - - - -

1	<input type="text"/>	Thermocouple type	
		J	Type J (Fe-CuNi)
		K	Type K (NiCr-Ni)
		xxx	other, please specify
2	<input type="text"/>	Sheath diameter $\varnothing d$	
		3	$\varnothing 3$ mm
		4.5	$\varnothing 4.5$ mm
		6	$\varnothing 6$ mm
xxx	other, please specify		
3	<input type="text"/>	Sheath length L	
		150	150 mm
		300	300 mm
		500	500 mm
xxx	other, please specify		
4	<input type="text"/>	Connecting cable length L_p	
		1000	1000 mm
		2000	2000 mm
xxx	other, please specify		
5	<input type="text"/>	Tolerance class	
		1	Class 1 according to PN-EN 60584-1
2	Class 2 according to PN-EN 60584-1		
6	<input type="text"/>	Connecting cable type	
		JJ	PVC / PVC
		TSL	Teflon® FEP / Silicone
		TCuT	Teflon® FEP / Cu braid / Teflon® FEP
		TT	Teflon® PFA / Teflon® PFA
GLGLP	Fiberglass / Fiberglass / Stainless steel		
7	<input type="text"/>	Connector (optional)	
			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

TTE424-K-6-150-1000-1-JJ-(S-010-K-W)

TC sensor type K, sheath diameter $\varnothing 6$ mm, sheath length $L=150$ mm, connection cable length $L_p=2000$ mm, tolerance class 1, single conductors in PVC insulation, sheath in PVC insulation, connection cable equipped with 2-pin miniature plug.

TTE424-J-4.5-300-2500-2-TSL

TC sensor type J, sheath diameter $\varnothing 4.5$ mm, sheath length $L=300$ mm, connection cable length $L_p=2500$ mm, tolerance class 2, single conductors in teflon insulation, sheath in silicone insulation.