

SensyTemp TSMI (MI T) Sheathed thermocouples



Main components

- Outer sheath of heat-resistant and corrosion-resistant steels
- Inner leads embedded to be oxidation-resistant
- Insulation of compact magnesium oxide powder with high insulation resistance

Technical features

- Short, fast-response measuring tip
- Bentable around smallest diameters
- Vibration-resistant and impact-resistant
- Can be bent flexibly, mainly by hand

Applications

- General mechanical and plant engineering
- Medium temperatures in small piping
- In and on surfaces of vessels, piping, devices and machines
- In the low-pressure area at low flow velocities

The sheathed thermocouple is the basic component nearly of all thermocouples. With the appropriate terminal block, it is used as a measuring inset in thermometers with thermowells and for insertion in thermowells.

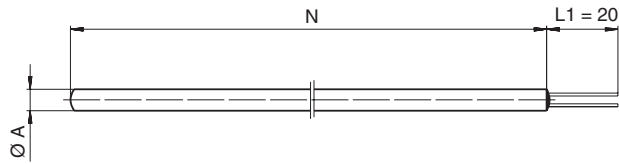
In its design with connection cable and connector, it can be placed in direct contact to the medium without additional protection. The small design and flexibility are advantageous in applications where space is limited.

The mineral insulated cable is mechanically stable, pressure-resistant and flexible so that it is optimally suited for use not only in the area of the measuring junction but also as a connection cable at high temperatures and corrosive areas.

Design

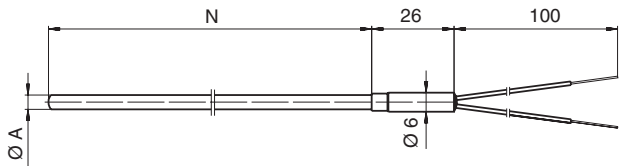
Type MI T-0

with bare thermocouple wire ends
 L1 = 20 mm



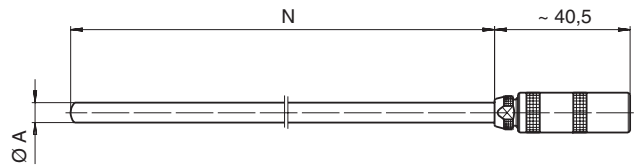
Type MI T-1

with insulated thermocouple wire ends
 100 mm long

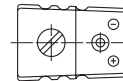


Type MI T-2

with Lemo-PCA connector
 Size 1S

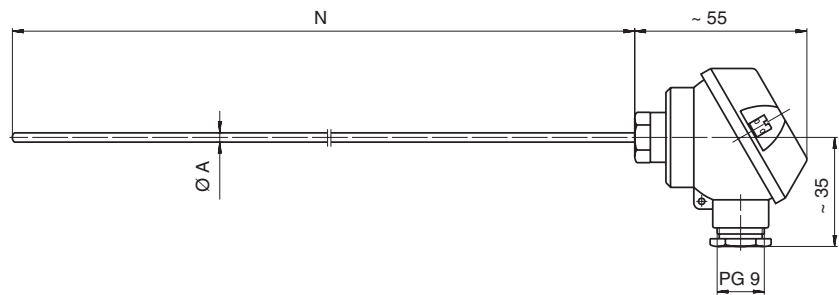


With thermocouple socket, standard



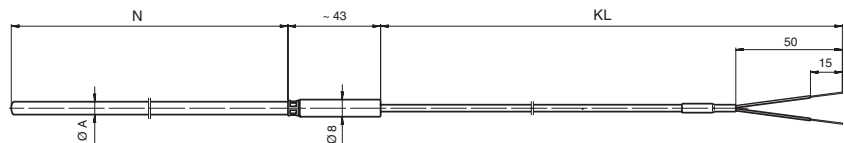
Type MI T-31

with connection head type F,
 aluminium
 Degree of protection IP 65



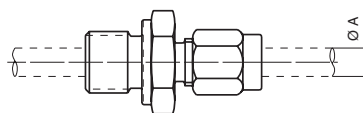
Type MI T-51

with connected compensating cable



Compression fitting

adjustable
 M8 x 1 for Ø A = 3 mm
 G 1/4" for Ø A = 6 mm



Captions:

- A = Diameter of mineral insulated cable
- N = Nominal length
- KL = Cable length

TSMI (SensyTemp MI T) Sheathed thermocouples

10/10-3.57 EN

Ordering information						Catalog No.				Code					
Sheathed thermocouple TSMI (SensyTemp MI T)															
Type															
MI T-0	with bare thermocouple wire ends, L1 = 20 mm				V10540-										
MI T-1	with insulated flying thermocouple leads, 100 mm long				V10541-										
MI T-2	with plug/socket connector				V10542-										
MI T-31	with connection head type F, aluminium				V10543-										
MI T-51	with connected compensating cable				V10545-										
Thermocouple		(hot junct. ins. from sheath)		Sheath material											
1 x Type K (NiCr-Ni)	EN 60584 Class 2			2.4816 (INCONEL 600)		H	G								
2 x Type K (NiCr-Ni)	EN 60584 Class 2			2.4816 (INCONEL 600)		J	G								
1 x Type K (NiCr-Ni)	EN 60584 Class 1			2.4816 (INCONEL 600)		H	H								
2 x Type K (NiCr-Ni)	EN 60584 Class 1			2.4816 (INCONEL 600)		J	H								
Sheath diameter/nominal length (X = extra length, see below)															
Ø A = 3 mm	N = 290 mm + X					A									
Ø A = 3 mm	N = 500 mm + X					B									
Ø A = 3 mm	N = 1000 mm + X					C									
Ø A = 3 mm	N = 2000 mm + X					D									
Ø A = 6 mm	N = 290 mm + X					J									
Ø A = 6 mm	N = 500 mm + X					K									
Ø A = 6 mm	N = 1000 mm + X					L									
Ø A = 6 mm	N = 2000 mm + X					M									
Adjustable compression fitting															
Without fitting							0								
M 8 x 1 mm	1.4571 (A 316-Ti)	Teflon clamping ring	max. 200 °C 10 bar		1)	1									
M 8 x 1 mm	1.4571 (A 316-Ti)	St. steel clamping ring	max. 500 °C 40 bar		1)	2									
G ¼"	1.4571 (A 316-Ti)	Teflon clamping ring	max. 200 °C 10 bar		1)	5									
G ¼"	Galv. Steel (Stahl verz.)	Teflon clamping ring	max. 200 °C 10 bar		1)	6									
G ¼"	1.4571 (A 316-Ti)	St. steel clamping ring	max. 500 °C 40 bar		1)	7									
Cable															
Without							0								
JJ	2 x 0,22 mm ²	- 10...+105 °C	cl = mm		2)	A									
SLSLGL	2 x 0,22 mm ²	- 60...+200 °C	cl = mm		2)	B									
TGLV	2 x 0,22 mm ²	-200...+200 °C	cl = mm		2)	C									
JJ	4 x 0,22 mm ²	- 10...+105 °C	cl = mm		3)	F									
SLSLGL	4 x 0,22 mm ²	- 60...+200 °C	cl = mm		3)	G									
TGLV	4 x 0,22 mm ²	-200...+200 °C	cl = mm		3)	H									

Continued on next page

- 1) not for MI T-0, M8 x 1 only for Ø A = 3 mm, G ¼" only for Ø A = 6 mm
- 2) only for MI T-51, single thermocouple
- 3) only for MI T-51, double thermocouple

Other options:

- other sheath diameter, Ø A ≥ 0.5 mm
- other fixing / other nominal lengths
- other thermocouples/ hot junction welded in sheath
- other plugs/ other compensating cables
- Tests (see Data Sheet 10/10-3.81 EN)

Cable designs:

- JJ - individually and common PVC-insulated
- SLSLGL - individually and common silicone-sheathed, external glass-filament braiding
- TGLV - individually teflon and common sheathed with glass filament, external braiding of stainless steel wires

Extra lengths X:

- | | | |
|-------------------|------------------|-----------|
| MI T-0 | Ø A = 3 and 6 mm | X = 28 mm |
| MI T-1 | Ø A = 3 mm | X = 17 mm |
| MI T-1 | Ø A = 6 mm | X = 28 mm |
| MI T-2 (Le.) | Ø A = 3 and 6 mm | X = 15 mm |
| MI T-2 (Th.-cpl.) | Ø A = 3 and 6 mm | X = 28 mm |
| MI T-31 | Ø A = 3 and 6 mm | X = 0 mm |
| MI T-51 | Ø A = 3 and 6 mm | X = 15 mm |

For other technical information on Mineral Insulated and compensating cables, see Data Sheets 10/10-7.10 EN and 10/10-7.20 EN.

Other versions on request

TSMI (SensyTemp MI T) Sheathed thermocouples

10/10-3.57 EN

Ordering information (continued)						
				Catalog No.	Code	
Sheathed thermocouple TSMI (SensyTemp MI T)				V1054 -		
Plug/socket connector						
Without					0	
Lemo-FFA plug	Size 1S		1)		1	
Lemo-PCA socket	Size 1S		1)		2	
Thermocouple plug	Size Standard		1) 2)		3	
Thermocouple socket	Size Standard		1) 2)		4	
Mineral Insulated Cable seal						
Up to 120 °C					A	
Up to 200 °C				3)	B	
Option						
TAG-No. on stainless steel label					490	

1) only for type MI T-2 (Standard: socket)
or optional for type MI T-51
(Standard: plugs)

2) only possible for single thermocouple

3) not for type MI T-2 and MI T-31

Cable designs:

JJ - individually and common PVC-insulated
SLSLG - individually and common silicone-sheathed,
external glass-filament braiding
TGLV - individually teflon and common sheathed
with glass filament, external braiding
of stainless steel wires

For other technical information on Mineral Insulated
and compensating cables, see Data Sheets
10/10-7.10 EN and 10/10-7.20 EN.

Other versions on request

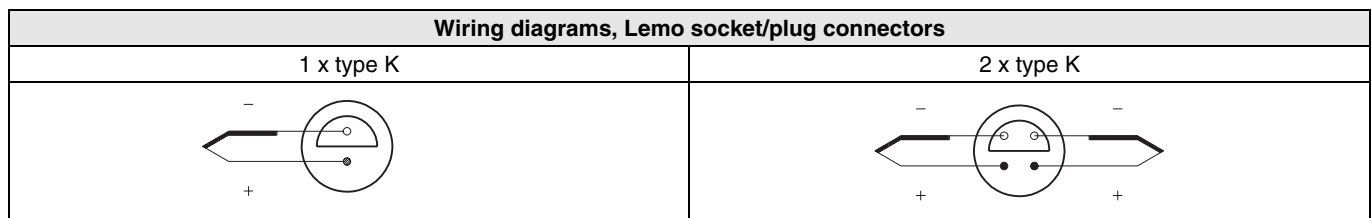
Other options:

- other sheath diameter, $\varnothing A \geq 0.5$ mm
- other fixing / other nominal lengths
- other thermocouples / hot junction welded in sheath
- other plugs / other compensating cables
- Tests (see Data Sheet 10/10-3.81 EN)

Extra lengths X:

MI T-0	$\varnothing A = 3$ and 6 mm	X = 28 mm
MI T-1	$\varnothing A = 3$ mm	X = 17 mm
MI T-1	$\varnothing A = 6$ mm	X = 28 mm
MI T-2 (Le.)	$\varnothing A = 3$ and 6 mm	X = 15 mm
MI T-2 (Th.-cpl.)	$\varnothing A = 3$ and 6 mm	X = 28 mm
MI T-31	$\varnothing A = 3$ and 6 mm	X = 0 mm
MI T-51	$\varnothing A = 3$ and 6 mm	X = 15 mm

Basic values, deviations of thermocouples in accordance with EN 60584 (IEC 60584)							
Temperature		200 °C	350 °C	500 °C	700 °C	900 °C	1100 °C
Thermoelectric voltage (mV)	Type K	8.14	14.9	20.64	29.13	37.33	45.12
Tolerance (K)	Class 2	2.5	2.6	3.8	5.3	6.8	8.3
	Class 1	1.5	1.5	2.0	2.8	3.6	-



Accessories, components

Many components of the models listed in the catalog may be ordered as separate components or as modules. In this respect you should refer to Data Sheet 10-3.91 EN (Components for temperature sensors with exchangeable measuring insets and sheathed thermometers).

Other models

This Data Sheet contains only a small selection of our range of sheathed resistance thermometers. See Data Sheet 10-3.03 EN for technical data. Other models can be supplied on request.

Delivery time 2 weeks. Other designs on request.

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