

SensyTemp TSMI (MI R) Sheathed resistance thermometer



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- and impact-resistant
- Can be bent flexibly, mainly by hand

Applications

- General machinery 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

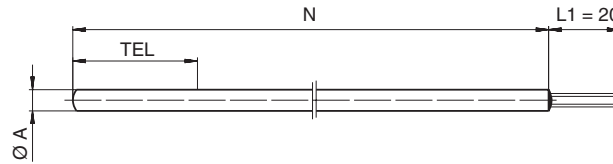
The sheathed resistance thermometer is the basic component nearly of all resistance thermometers. With the appropriate terminal block, it is used as a measuring inset in thermometers with thermowells and for insertion in thermowells.

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.

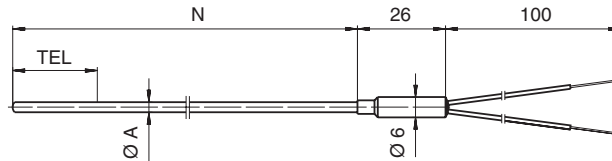
The mineral insulated cable is mechanically stable, pressure-resistant and flexible so that it is optimally suited for use not only in the area of the measuring junction but also as a connection cable at high temperature and corrosive areas.

Design

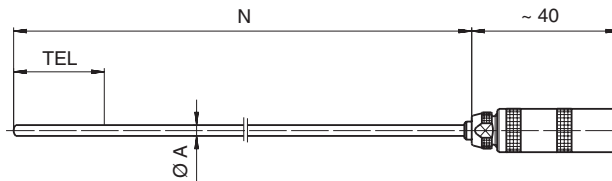
Type MI R-0
 with bare copper wire ends
 $L1 = 20$ mm



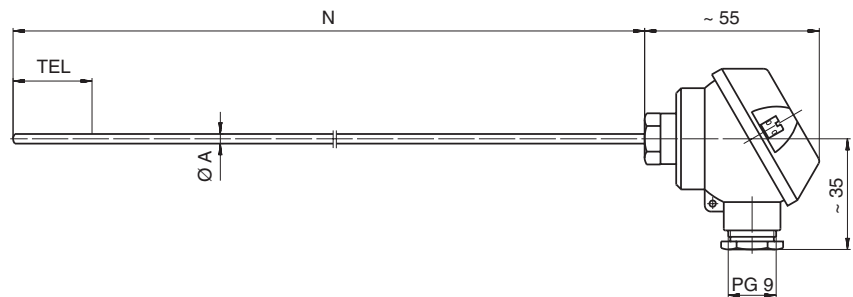
Type MI R-1
 with insulated flying leads
 100 mm long



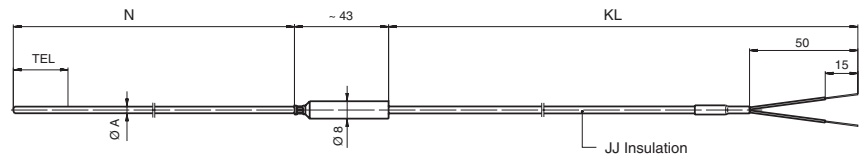
Type MI R-2
 with Lemo-PCA connector
 Size 1S



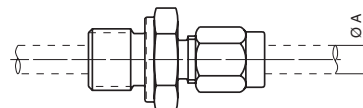
Type MI R-31
 with connection head type F,
 Aluminium
 Degree of protection IP 65



Type MI R-51
 with connected cable
 PVC-insulated



Compression fitting
 Adjustable
 M8 x 1 for Ø A = 3 mm
 G¼" for Ø A = 6 mm



Captions:

- A = Diameter of mineral insulated cable
- N = Nominal length
- KL = Cable length
- TEL = Temperature-sensitive length
 - < 35 mm for Ø A = 3
 - < 45 mm for Ø A = 6

TSMI (SensyTemp MI R)
Sheathed resistance thermometer

10/10-3.56 EN

Ordering information										
					Catalog No.			Code		
Sheathed resistance thermometer TSMI (SensyTemp MI R)										
Type										
MI R-0	with bare copper wire ends, L1 = 20 mm				V10640-					
MI R-1	with insulated flying leads, 100 mm long				V10641-					
MI R-2	with Lemo plug/socket connector				V10642-					
MI R-31	with connection head type F, aluminium				V10643-					
MI R-51	with connected cable, PVC-insulated				V10645-					
Circuit/tolerance					Sheath material					
1 x Pt 100, 2-wire	EN 60 751 Class B		1.4571 (A 316-Ti)		A	A				
1 x Pt 100, 3-wire	EN 60 751 Class B		1.4571 (A 316-Ti)		B	A				
1 x Pt 100, 4-wire	EN 60 751 Class B		1.4571 (A 316-Ti)		C	A				
1 x Pt 100, 3-wire	EN 60 751 Class A (0...250 °C)		1.4571 (A 316-Ti)		B	E				
1 x Pt 100, 4-wire	EN 60 751 Class A (0...250 °C)		1.4571 (A 316-Ti)		C	E				
2 x Pt 100, 2-wire	EN 60 751 Class B		1.4571 (A 316-Ti)		D	A				
2 x Pt 100, 3-wire	EN 60 751 Class B		1.4571 (A 316-Ti) 1)		E	A				
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	2)		1				
M 8 x 1 mm	1.4571 (A 316-Ti)	St. steel clamping ring	max. 500 °C 40 bar	2)		2				
G ¼"	1.4571 (A 316-Ti)	Teflon clamping ring	max. 200 °C 10 bar	2)		5				
G ¼"	Galv. Steel (Stahl verz.)	Teflon clamping ring	max. 200 °C 10 bar	2)		6				
G ¼"	1.4571 (A 316-Ti)	St. steel clamping ring	max. 500 °C 40 bar	2)		7				
Cable										
Without						0				
JJ	2 x 0,22 mm ²	-10...+105 °C	cl = mm	3)		A				
JJ	3 x 0,22 mm ²	-10...+105 °C	cl = mm	4)		B				
JJ	4 x 0,22 mm ²	-10...+105 °C	cl = mm	5)		C				
TGLV	6 x 0,35 mm ²	-10...+105 °C	cl = mm	6)		D				

Continued on next page

- 1) only for Ø A = 6 mm, not for MI R-31
- 2) not for MI R-0, M8 x 1 only for Ø A = 3 mm, G¼" only for Ø A = 6 mm
- 3) only for type MI R-51, 1 x Pt 100, 2-wire
- 4) only for type MI R-51, 1 x Pt 100, 3-wire
- 5) only for type MI R-51, 1 x Pt 100, 4-wire or 2 x Pt 100, 2-wire
- 6) only for type MI R-51, 2 x Pt 100, 3-wire

Other options:

- other sheath diameter Ø A ≥ 2 mm
- other fixing / other nominal lengths
- other circuit / tolerance
- other plug / socket connectors
- other cables
- Tests (see Data Sheet 10/10-3.81 EN)

Cable design:

JJ - individually and common PVC-insulated

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

Extra lengths X:

MI R-0	Ø A = 3 and 6 mm	X = 28 mm
MI R-1	Ø A = 3 mm	X = 17 mm
MI R-1	Ø A = 6 mm	X = 28 mm
MI R-2, MI R-51	Ø A = 3 and 6 mm	X = 15 mm
MI R-31	Ø A = 3 and 6 mm	X = 0 mm

Other versions on request

TSMI (SensyTemp MI R) Sheathed resistance thermometer

10/10-3.56 EN

Ordering information (continued)							
				Catalog No.		Code	
Sheathed resistance thermometer TSMI (SensyTemp MI R)				V1064 -			
Plug/socket connector							
Without						0	
Lemo-FFA plug Size 1S				1)		1	
Lemo-PCA socket Size 1S				1)		2	
Mineral Insulated Cable seal							
Up to 120 °C						A	
Option							
TAG-No. on stainless steel label						2)	
						490	

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

2) not for type MI R-0

Cable design:

JJ - individually and common PVC-insulated

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

Extra lengths X:

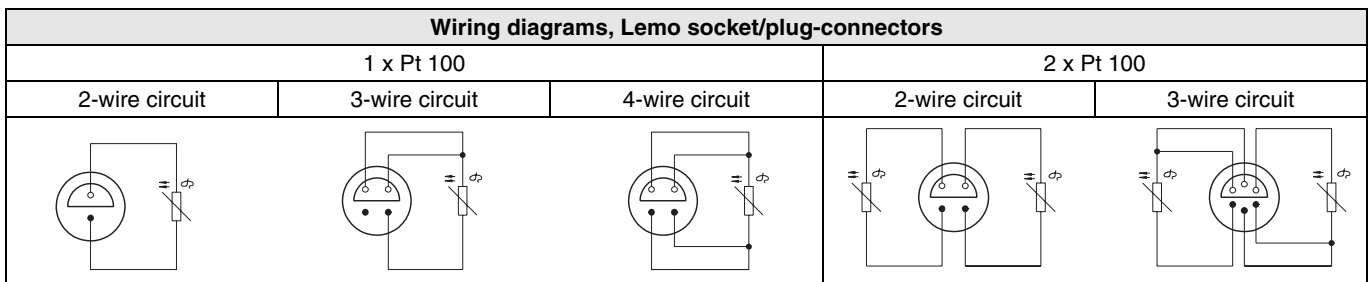
MI R-0	Ø A = 3 and 6 mm	X = 28 mm
MI R-1	Ø A = 3 mm	X = 17 mm
MI R-1	Ø A = 6 mm	X = 28 mm
MI R-2, MI R-51	Ø A = 3 and 6 mm	X = 15 mm
MI R-31	Ø A = 3 and 6 mm	X = 0 mm

Other versions on request

Other options:

- other sheath diameter $\varnothing A \geq 2$ mm
- other fixing / other nominal lengths
- other circuit / tolerance
- other plug / socket connectors
- other cables
- Tests (see Data Sheet 10/10-3.81 EN)

Basic values, deviations of platinum resistance elements in accordance with EN 60751 (IEC 60751)								
Temperature		0 °C	100 °C	200 °C	300 °C	400 °C	500 °C	600 °C
Basic value (Ω)		100.00	138.51	175.86	212.05	247.09	280.98	313.71
Tolerance (K)	Class B	0.30	0.80	1.30	1.80	2.30	2.80	3.30
	Class A	0.15	0.35	0.55	0.75	0.95	1.15	–



Accessories, components

Many of the components of the models listed in the catalog may be ordered as separate components or as modules. See 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.

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