PRODUCT INFORMATION

THT RESISTANCE THERMOMETER

SIMPLE HYGIENIC TEMPERATURE MEASUREMENT

Temperature sensors

SICK
Sensor Intelligence.

PRODUCT FAMILY OVERVIEW

THTS

Simple, hygienic temperature measurement

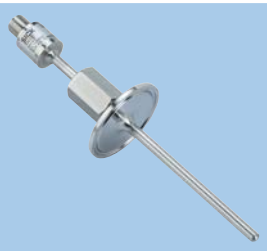
Technical data overview	
Measuring range	–50 °C ... +150 °C –50 °C ... +250 °C
Accuracy of sensor element	Class A according to IEC 60751 (measuring range –30 °C ... +150 °C)
Accuracy of the opt. measuring transducer	± 0.25 K
Signal outputs and maximum ohmic load R_A	Pt100, 4-wire, 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])
Electrical connection	M12 round connector x 1, 4-pin

At a glance

- Accuracy class A (IEC 60751) in measuring range –30 °C ... +150 °C
- Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C
- Parts in contact with media: Corrosion-resistant stainless steel 316L/1.4435, $R_a \leq 0.8$ µm
- Various hygienic process connections and installation lengths
- Pt100 (4-wire) or 4 mA ... 20 mA (2-wire)
- M12 round connector x 1

Detailed information ➜ 4

8014495/2015-12-20

		
	THTE	**THTL**
	Hygienic and flexible: Temperature sensor with protection tube	Perfect fit: Hygienic temperature measurement in pipes
	–50 °C ... +150 °C –50 °C ... +250 °C	–50 °C ... +150 °C –50 °C ... +250 °C
	Class A according to IEC 60751 (measuring range –30 °C ... +150 °C)	Class A according to IEC 60751 (measuring range –30 °C ... +150 °C)
	± 0.25 K	± 0.25 K
	Pt100, 4-wire, 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])	Pt100, 4-wire, 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])
	M12 round connector x 1, 4-pin	M12 round connector x 1, 4-pin
	• Accuracy class A (IEC 60751) in measuring range –30 °C ... +150 °C • Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C • Sensor probe spring-loaded in protective pipe • Wetted parts: corrosion-resistant stainless steel 316L/1.4435, $R_a \leq 0.8$ µm • Hygienic process connections • Pt100 (4-wire) or 4 mA ... 20 mA (2-wire) • M12 round connector x 1	• Accuracy class A (IEC 60751) in measuring range –30 °C ... +150 °C • Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C • In-line housing for orbital welding in pipe • Sensor probe spring-loaded in protective pipe • Wetted parts: corrosion-resistant stainless steel 316L/1.4435, $R_a \leq 0.8$ µm • Pt100 (4-wire) or 4 mA ... 20 mA (2-wire) • M12 round connector x 1
	→ 12	→ 18

SIMPLE, HYGIENIC TEMPERATURE MEASUREMENT

Product description

The THTS temperature sensor is a compact, hygienically-graded, cost-effective Pt100 resistance thermometer. It is designed for applications in the food and beverage industry as well as in the cosmetics and pharmaceutical segment. Due to the use of high-grade stainless steel and a crevice-free design of the wetted parts, stringent hygienic requirements are met.
The range of common hygienic process connections that are welded gap-free to the connection housing and multiple insertion lengths allow universal use. The THTS is well suited for CIP and SIP processes. This enables safe hygienic operation in conjunction with optimized system availability. Besides its direct electrical connection to the Pt100 element, the THTS is available with an integrated transmitter with 4 mA ... 20 mA output signal.

At a glance

- Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C
- Accuracy class A (IEC 60751) in measurement range –30 °C ... +150 °C
- Parts in contact with media: Corrosion-resistant stainless steel 316L/1.4435, $R_a \leq 0.8$ µm
- Various hygienic process connections and installation lengths
- Pt100 (4-wire) or 4 mA ... 20 mA (2-wire)
- M12 round connector x 1

Your benefits

- Convenient system integration – installation in narrow installation space possible through compact dimensions
- Safe, hygienic operation due to wetted parts made from high-grade stainless steel, hygienically-graded surface finish and a gap- and crevice-free design
- Rugged: Connection housing is easy to clean and splash-proof
- Quick and safe installation
- Very good long-term stability, accuracy and linearity
- Quick response time
- Optimal solutions for individual requirements due to versatile configurability

Additional information

→ www.mysick.com/en/THTS

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

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Subject to change without notice

Detailed technical data

Features

Measuring ranges	–50 °C ... +150 °C –50 °C ... +250 °C
Sensor element	Pt100, Pt1000 (for 4 mA ... 20 mA version)
Signal outputs and maximum ohmic load R_A	Pt100, 4-wire 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A\ [Ohm]$)

Performance

Accuracy of sensor element [1]	Class A according to IEC 60751
Accuracy of the opt. measuring transducer	± 0.25 K
Linearity of optional transmitter	≤ ± 0.1 % of span
Response time [2]	t_{50}: ≤ 3.3 s t_{90}: ≤ 9.7 s

[1] Class B (measuring range –50 ° C ... –30 ° C)

[2] Depending on sensor configuration, according to IEC 60751.

Mechanics/electronics

Process connection	Clamp (DIN 32676) DN 10, DN 15, DN 20 Clamp (DIN 32676) DN 25, DN 32, DN 40 Clamp (DIN 32676) DN 50 Clamp (ISO 2852) DN 12, DN 12.7, DN 17.2, DN 21.3 Clamp (ISO 2852) DN 25, DN 33.7, DN 38 Clamp (ISO 2852) DN 40, DN 51 Tri-clamp ½", ¾" Tri-clamp 1'', 1 ½'' Tri-Clamp 2" Varivent connector type B, DN 10, DN 15 Varivent connection type F, DN 25 Varivent connection type N, DN 40 Conical coupling (DIN 11851) DN 20 with union nut Conical coupling (DIN 11851) DN 25 with union nut Conical coupling (DIN 11851) DN 32 with union nut Conical coupling (DIN 11851) DN 40 with union nut Conical coupling (DIN 11851) DN 50 with union nut
Insertion lengths/diameter of probe	25 mm / 6 mm 50 mm / 6 mm 75 mm / 6 mm 100 mm / 6 mm 150 mm / 6 mm 200 mm / 6 mm
Wetted parts	Stainless steel 1.4435 / 316L, $R_a \leq 0.8\ \mu m$
Pressure resistance [1]	16 bar with clamp connections according to DIN 32676, ISO 2852 and tri-clamp 40 bar with conical coupling (DIN 11851) DN 20, DN 25, DN 32 and DN 40 with union nut 25 bar with conical coupling (DIN 11851) DN 50 with union nut 25 bar with Varivent connector type B, DN 10, DN 15 25 bar with Varivent connector type F, 16 bar with Varivent connector type N
Housing material	Stainless steel (CrNi)
Enclosure rating [2]	IP 67/IP 69
Electrical connection	M12 round connector x 1, 4-pin
Measuring current	0.1 mA ... 1 mA, for variant with output signal Pt100
Supply voltage	10 V DC ... 30 V DC for variant with transmitter 4 mA ... 20 mA

[1] Pressure resistance at room temperature.

[2] IP enclosure rating as per IEC 60529. The enclosure rating classes specified only apply while the device is connected with male cable connectors of the corresponding enclosure rating.

Maximum current consumption	≤ 30 mA for variant with transmitter 4 mA ... 20 mA
Electrical safety	Protection class: III Dielectric strength: 500 V AC Reverse polarity protection of variant with transmitter 4 mA ... 20 mA: L^+ towards M
CE-conformity	2004/108/EC, EN 61326-2-3
RoHS certificate	✔
Initialization time	Max. 4 s

[1] Pressure resistance at room temperature.

[2] IP enclosure rating as per IEC 60529. The enclosure rating classes specified only apply while the device is connected with male cable connectors of the corresponding enclosure rating.

Ambient data

Ambient temperature	–40 °C ... +85 °C
Storage and transport temperature	–40 °C ... +85 °C
Shock resistance	50 g, 6ms (according to IEC 60068-2-27)
Relative humidity	100 %, condensation allowed

Type code

Output signal

P	Output signal Pt100, 4-wire
A	Transmitter 4 ... 20 mA, 2-wire

Temperature range

A	–50 °C... +150 °C
B	–50 °C... +250 °C

Process connection

D2	Clamp, DIN 32676, DN 10, DN 15, DN 20
D4	Clamp, DIN 32676, DN 25, DN 32, DN 40
D5	Clamp, DIN 32676, DN 50
C2	Clamp, ISO 2852, DN 12, DN 12.7, DN 17.2, DN 21.3
C3	Clamp, ISO 2852, DN 25, DN 33.7, DN 38
C5	Clamp, ISO 2852, DN 40, DN 51
T5	Tri-clamp ½'', ¾
T1	Tri-clamp 1'', 1 ½''
T2	Tri-clamp 2''
VB	Varivent connector type B, DN 10, DN 15
VF	Varivent connector type F, DN 25
VN	Varivent connector type N, DN 40
51	Conical coupling, DIN 11851, DN 20, with union nut
52	Conical coupling, DIN 11851, DN 25, with union nut
53	Conical coupling, DIN 11851, DN 32, with union nut
54	Conical coupling, DIN 11851, DN 40, with union nut
55	Conical coupling, DIN 11851, DN 50 with union nut

Insertion length / diameter

0256	25 mm / 6 mm
0506	50 mm / 6 mm
0705	75 mm / 6 mm
1006	100 mm / 6 mm
1506	150 mm / 6 mm
2006	200 mm / 6 mm

THTS -	1					M	Z

Ordering information

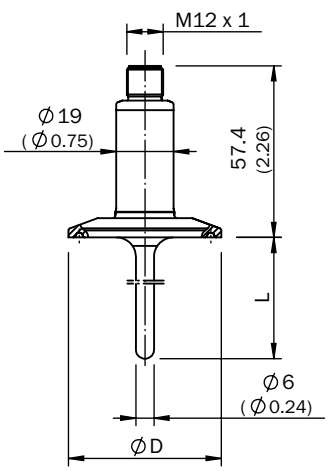
- **Measuring range:** –50 °C ... +150 °C
- **Electrical connection/enclosure rating:** round connector M12 x 1, 4-pin, IP 67 and IP 69

Output signal	Process connection	Insertion length/diameter of probe	Insertion length/diameter of probe	Type	Part no.
Pt100, 4-wire	Tri-clamp 1'', 1 ½''	25 mm / 6 mm	25 mm	THTS-1PAT10256MZ	6047587
		50 mm / 6 mm	50 mm	THTS-1PAT10506MZ	6047588
		75 mm / 6 mm	75 mm	THTS-1PAT10756MZ	6047562
		100 mm / 6 mm	100 mm	THTS-1PAT11006MZ	6047589
		150 mm / 6 mm	150 mm	THTS-1PAT11506MZ	6047591
		200 mm / 6 mm	200 mm	THTS-1PAT12006MZ	6047592
	Conical coupling (DIN 11851) DN 40 with union nut	25 mm / 6 mm	25 mm	THTS-1PA540256MZ	6047594
		50 mm / 6 mm	50 mm	THTS-1PA540506MZ	6047596
		75 mm / 6 mm	75 mm	THTS-1PA540756MZ	6047597
		100 mm / 6 mm	100 mm	THTS-1PA541006MZ	6047599
		150 mm / 6 mm	150 mm	THTS-1PA541506MZ	6047600
		200 mm / 6 mm	200 mm	THTS-1PA542006MZ	6047602
4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])	Tri-clamp 1'', 1 ½''	25 mm / 6 mm	25 mm	THTS-1AAT10256MZ	6047603
		50 mm / 6 mm	50 mm	THTS-1AAT10506MZ	6047604
		75 mm / 6 mm	75 mm	THTS-1AAT10756MZ	6047605
		100 mm / 6 mm	100 mm	THTS-1AAT11006MZ	6047606
		150 mm / 6 mm	150 mm	THTS-1AAT11506MZ	6047607
		200 mm / 6 mm	200 mm	THTS-1AAT12006MZ	6047608
	Conical coupling (DIN 11851) DN 40 with union nut	25 mm / 6 mm	25 mm	THTS-1AA540256MZ	6047609
		50 mm / 6 mm	50 mm	THTS-1AA540506MZ	6047610
		75 mm / 6 mm	75 mm	THTS-1AA540756MZ	6047611
		100 mm / 6 mm	100 mm	THTS-1AA541006MZ	6047612
		150 mm / 6 mm	150 mm	THTS-1AA541506MZ	6047613
		200 mm / 6 mm	200 mm	THTS-1AA542006MZ	6047614

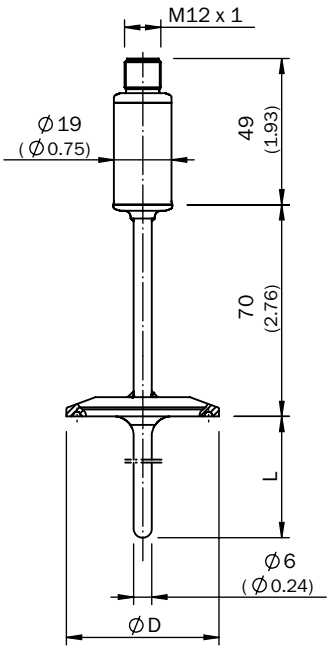
Dimensional drawings (Dimensions in mm (inch))

Clamp connection

Pt100, 4 mA...20 mA,
up to 150 °C



Pt100, 4 mA...20 mA,
up to 250 °C

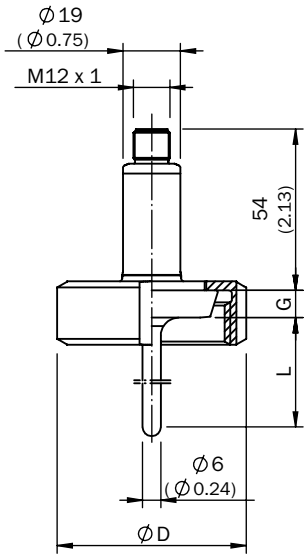


All dimensions in mm (inch)

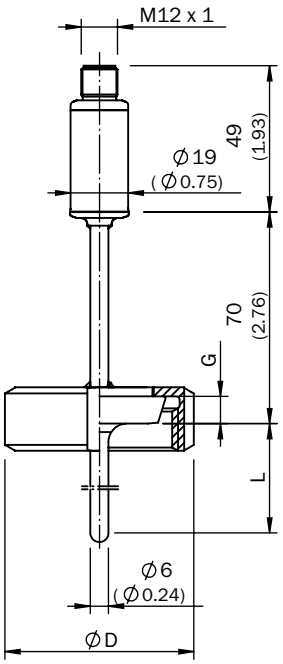
Design		Ø D
DIN 32676	DN 10 ... DN 20	34.0 (1.34)
	DN 25 ... DN 40	50.5 (1.99)
	DN 50	64.0 (2.52)
ISO 2852	DN 12 ... DN 21.3	34.0 (1.34)
	DN 25 ... DN 38	50.5 (1.99)
	DN 40, DN 51	64.0 (2.52)
Tri-Clamp	1", 1 ½"	50.5 (1.99)
	2"	64.0 (2.52)

Conical coupling (DIN 11851) with union nut

4 mA...20 mA,
up to 150 °C



4 mA...20 mA,
up to 250 °C

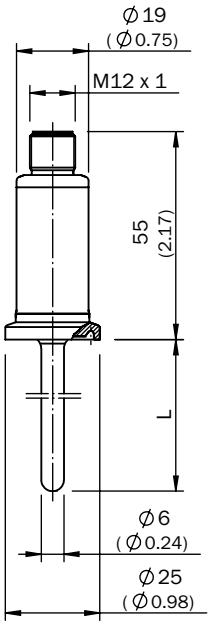


All dimensions in mm (inch)

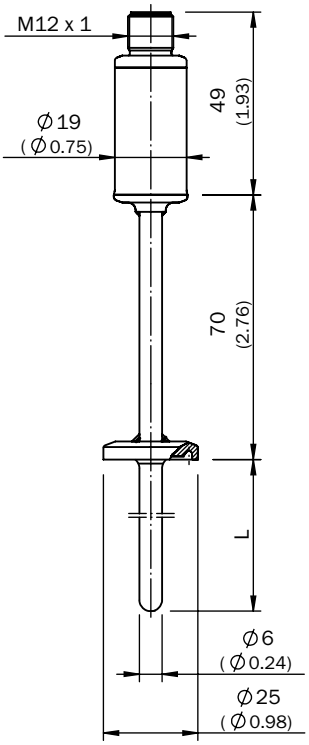
Design		**Ø D**	**G**
DIN 11851	DN 20	54.0 (2.13)	8 (0.31)
	DN 25	63.0 (2.48)	10 (0.39)
	DN 32	70.0 (2.76)	10 (0.39)
	DN 40	78.0 (3.07)	10 (0.39)
	DN 50	92.0 (3.62)	11 (0.43)

Tri-clamp connection ½”, ¾”

Pt100, 4 mA ... 20 mA,
up to 150 °C



Pt100, 4 mA ... 20 mA,
up to 250 °C



All dimensions in mm (inch)

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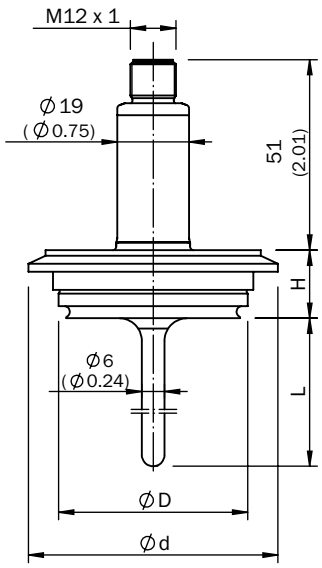
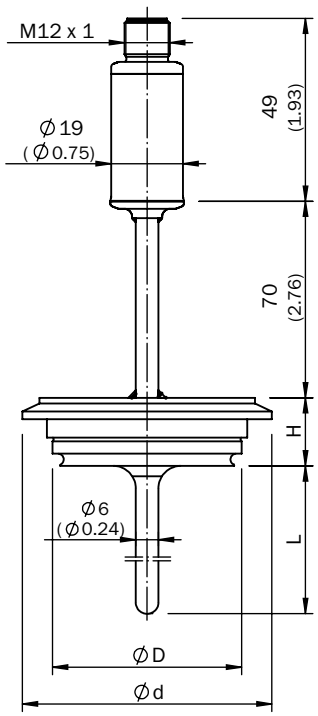
Varivent connector

Pt100, 4 mA ... 20 mA,
up to 150 °C



Pt100, 4 mA ... 20 mA,
up to 250 °C



All dimensions in mm (inch)

Design		Ø D	Ø d	H
VARIVENT	Form B	31.0 (1.22)	52.7 (2.07)	20.0 (0.79)
	Form F	50.0 (1.97)	66.0 (2.60)	18.0 (0.71)
	Form N	64.0 (2.52)	84.0 (3.31)	18.0 (0.71)

HYGIENIC AND FLEXIBLE: TEMPERATURE SENSOR WITH PROTECTION TUBE

Product description

The THTE temperature sensor is a hygienically-graded Pt100 resistance thermometer for applications in the food and beverage, pharmaceutical, cosmetics, and biotechnology industries. With the help of a thermowell that protrudes into the process, the sensor can be exchanged “dry“. That means that the vessel remains closed and potential hygienic risks are minimized. The thermowell is available in multiple insertion lengths and is installed at the vessel by common hygienically-graded process connections. High-grade stainless steel and a gap- and crevice-free design enable safe and clean processing. The THTE is well suited for CIP and SIP processes. This enables safe hygienic operation in conjunction with optimized equipment availability.
Besides its direct electrical connection to the Pt100 element, the THTE is available with an integrated transmitter with 4 mA ... 20 mA output signal.

At a glance

- Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C
- Accuracy class A (IEC 60751) in measurement range –30 °C ... +150 °C
- Sensor probe spring-loaded in protective pipe
- Wetted parts: corrosion-resistant stainless steel 316L/1.4435, R_a ≤ 0.8 µm
- Hygienic process connections
- Pt100 (4-wire) or 4 mA ... 20 mA (2-wire)
- M12 round connector x 1

Your benefits

- The sensor can be exchanged without opening the process, providing high equipment availability and minimizing hygienic risks
- Safe hygienic operation: Wetted parts are made from high-grade stainless steel, hygienically-graded surface finish, and a gap- and crevice-free design
- Rugged: Connection housing is easy to clean and splash water proof
- Quick and safe installation
- Very good long-term stability, accuracy and linearity
- Quick response time
- Optimal solutions for individual requirements due to versatile configurability

Additional information

→ www.mysick.com/en/THTE

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

8014495/2015-12-20
Subject to change without notice

Detailed technical data

Features

Measuring ranges	–50 °C ... +150 °C –50 °C ... +250 °C
Sensor element	Pt100, Pt1000 (for 4 mA ... 20 mA version)
Signal outputs and maximum ohmic load R_A	Pt100, 4-wire 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A\ [Ohm]$)

Performance

Accuracy of sensor element [1]	Class A according to IEC 60751
Accuracy of the opt. measuring transducer	± 0.25 K
Linearity of optional transmitter	≤ ± 0.1 % of span
Response time [2]	t_{50}: ≤ 4.7 s t_{90}: ≤ 12.2 s

[1] Class B (measuring range –50 ° C ... –30 ° C)

[2] Depending on sensor configuration, according to IEC 60751.

Mechanics/electronics

Process connection	Clamp (DIN 32676) DN 10, DN 15, DN 20 Clamp (DIN 32676) DN 25, DN 32, DN 40 Clamp (DIN 32676) DN 50 Clamp (ISO 2852) DN 12, DN 12.7, DN 17.2, DN 21.3 Clamp (ISO 2852) DN 25, DN 33.7, DN 38 Clamp (ISO 2852) DN 40, DN 51 Tri-clamp ½", ¾", Tri-clamp 1'', 1 ½'' Tri-Clamp 2" Varivent connector type B, DN 10, DN 15 Varivent connection type F, DN 25 Varivent connection type N, DN 40 Conical coupling (DIN 11851) DN 20 with union nut Conical coupling (DIN 11851) DN 25 with union nut Conical coupling (DIN 11851) DN 32 with union nut Conical coupling (DIN 11851) DN 40 with union nut Conical coupling (DIN 11851) DN 50 with union nut
Insertion lengths/diameter of probe	25 mm / 6 mm 50 mm / 6 mm 75 mm / 6 mm 100 mm / 6 mm 150 mm / 6 mm 200 mm / 6 mm
Wetted parts	Stainless steel 1.4435 / 316L, $R_a \leq 0.8$ µm
Pressure resistance [1]	16 bar with clamp connections according to DIN 32676, ISO 2852 and tri-clamp 40 bar with conical coupling (DIN 11851) DN 20, DN 25, DN 32 and DN 40 with union nut 25 bar with conical coupling (DIN 11851) DN 50 with union nut 25 bar with Varivent connector type B, DN 10, DN 15, 25 bar with Varivent connector type F 16 bar with Varivent connector type N
Housing material	Stainless steel (CrNi)
Enclosure rating [2]	IP 67/IP 69
Electrical connection	M12 round connector x 1, 4-pin
Measuring current	0.1 mA ... 1 mA, for variant with output signal Pt100
Supply voltage	10 V DC ... 30 V DC for variant with transmitter 4 mA ... 20 mA

[1] Pressure resistance at room temperature.

[2] IP enclosure rating as per IEC 60529. The enclosure rating classes specified only apply while the device is connected with male cable connectors of the corresponding enclosure rating.

Maximum current consumption	≤ 30 mA for variant with transmitter 4 mA ... 20 mA
Electrical safety	Protection class: III Dielectric strength: 500 V AC Reverse polarity protection of variant with transmitter 4 mA ... 20 mA: L^+ towards M
CE-conformity	2004/108/EC, EN 61326-2-3
RoHS certificate	✔
Initialization time	Max. 4 s

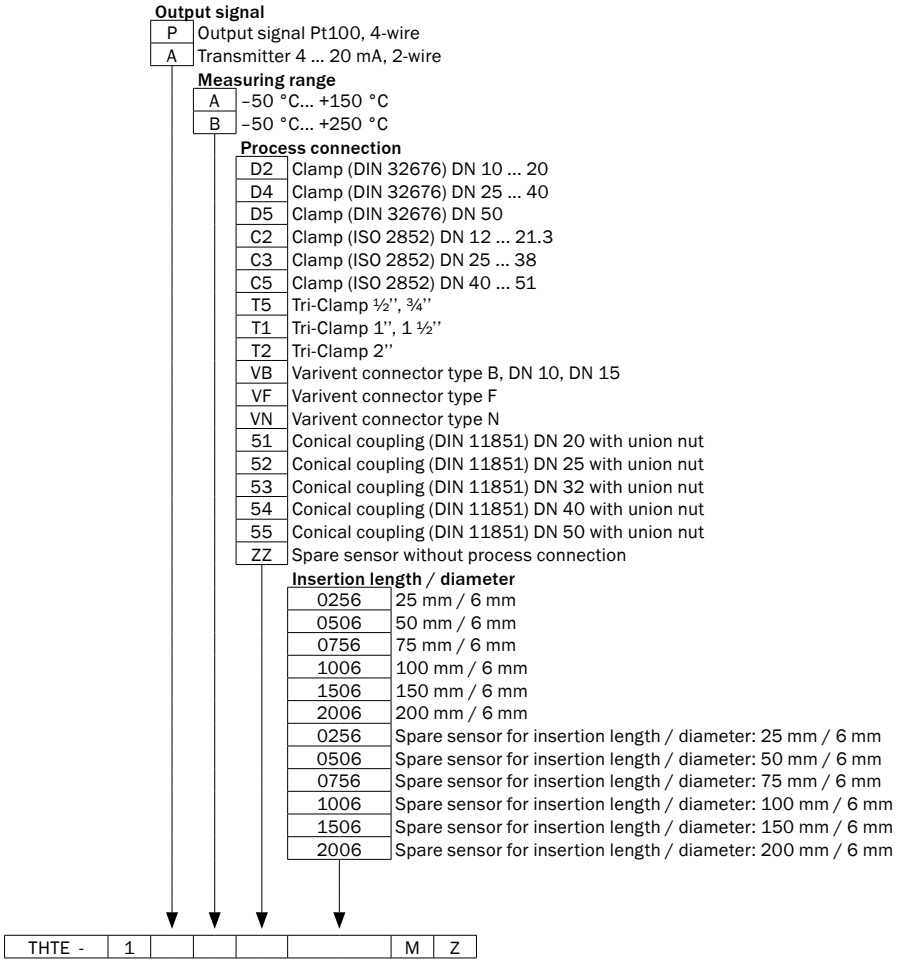
[1] Pressure resistance at room temperature.

[2] IP enclosure rating as per IEC 60529. The enclosure rating classes specified only apply while the device is connected with male cable connectors of the corresponding enclosure rating.

Ambient data

Ambient temperature	–40 °C ... +85 °C
Storage and transport temperature	–40 °C ... +85 °C
Shock resistance	50 g, 6ms (according to IEC 60068-2-27)
Relative humidity [1]	100 %, condensation allowed

Type code



Not all variations of the type code can be combined!

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Subject to change without notice

Ordering information

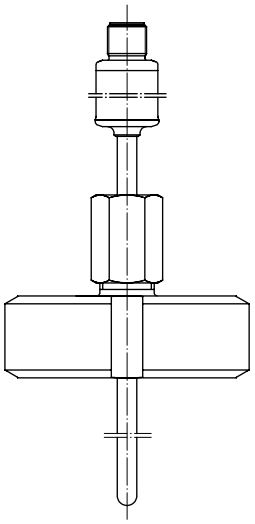
- **Measuring range:** –50 °C ... +150 °C
- **Electrical connection/enclosure rating:** round connector M12 x 1, 4-pin, IP 67 and IP 69

Output signal	Process connection	Insertion length/diameter of probe	Insertion length/diameter of probe	Type	Part no.
Pt100, 4-wire	Conical coupling (DIN 11851) DN 40 with union nut	25 mm / 6 mm	25 mm	THTE-1PA540256MZ	6047622
		50 mm / 6 mm	50 mm	THTE-1PA540506MZ	6047623
		75 mm / 6 mm	75 mm	THTE-1PA540756MZ	6047625
		100 mm / 6 mm	100 mm	THTE-1PA541006MZ	6047626
		150 mm / 6 mm	150 mm	THTE-1PA541506MZ	6047627
		200 mm / 6 mm	200 mm	THTE-1PA542006MZ	6047628
	Tri-clamp 1'', 1 ½''	25 mm / 6 mm	25 mm	THTE-1PAT10256MZ	6047615
		50 mm / 6 mm	50 mm	THTE-1PAT10506MZ	6047616
		75 mm / 6 mm	75 mm	THTE-1PAT10756MZ	6047618
		100 mm / 6 mm	100 mm	THTE-1PAT11006MZ	6047563
		150 mm / 6 mm	150 mm	THTE-1PAT11506MZ	6047620
		200 mm / 6 mm	200 mm	THTE-1PAT12006MZ	6047621
4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])	Tri-clamp 1'', 1 ½''	25 mm / 6 mm	25 mm	THTE-1AAT10256MZ	6047629
		50 mm / 6 mm	50 mm	THTE-1AAT10506MZ	6047630
		75 mm / 6 mm	75 mm	THTE-1AAT10756MZ	6047631
		100 mm / 6 mm	100 mm	THTE-1AAT11006MZ	6047632
		150 mm / 6 mm	150 mm	THTE-1AAT11506MZ	6047633
		200 mm / 6 mm	200 mm	THTE-1AAT12006MZ	6047634
	Conical coupling (DIN 11851) DN 40 with union nut	25 mm / 6 mm	25 mm	THTE-1AA540256MZ	6047635
		50 mm / 6 mm	50 mm	THTE-1AA540506MZ	6047636
		75 mm / 6 mm	75 mm	THTE-1AA540756MZ	6047637
		100 mm / 6 mm	100 mm	THTE-1AA541006MZ	6047639
		150 mm / 6 mm	150 mm	THTE-1AA541506MZ	6047640
		200 mm / 6 mm	200 mm	THTE-1AA542006MZ	6047641

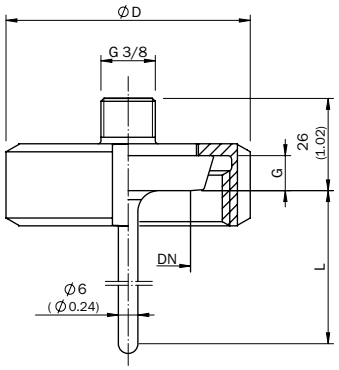
Dimensional drawings (Dimensions in mm (inch))

Conical coupling (DIN 11851) with union nut

Complete assembly



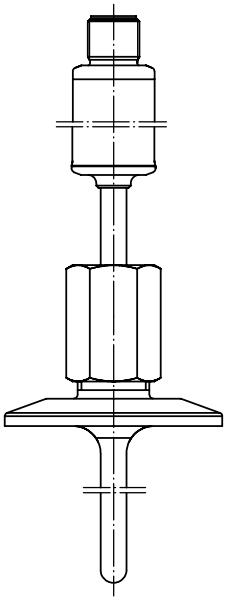
Protection tube with process connection



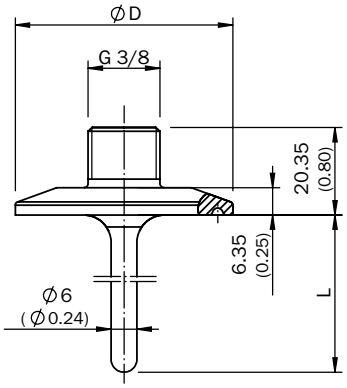
Design		Ø D	G
DIN 11851	DN 20	54.0 (2.13)	8.0 (0.31)
	DN 25	63.0 (2.48)	10.0 (0.39)
	DN 32	70.0 (2.76)	10.0 (0.39)
	DN 40	78.0 (3.07)	10.0 (0.39)
	DN 50	92.0 (3.62)	11.0 (0.43)

Clamp connection

Complete assembly



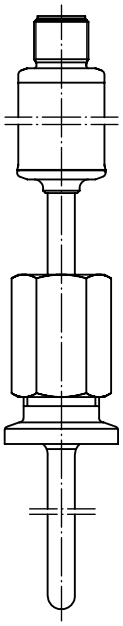
Protection tube with process connection



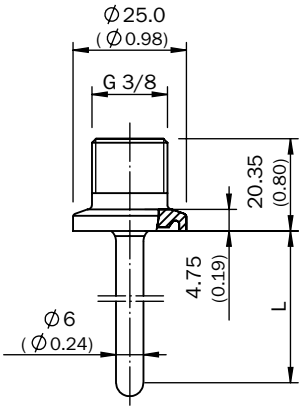
Design		Ø D
DIN 32676	DN 10 ... DN 20	34.0 (1.34)
	DN 25 ... DN 40	50.5 (1.99)
	DN 50	64.0 (2.52)
ISO 2852	DN 12 ... DN 21.3	34.0 (1.34)
	DN 25 ... DN 38	50.5 (1.99)
	DN 40, DN 51	64.0 (2.52)
Tri-Clamp	1", 1 ½"	50.5 (1.99)
	2"	64.0 (2.52)

Tri-clamp connection ½”, ¾”

Complete assembly

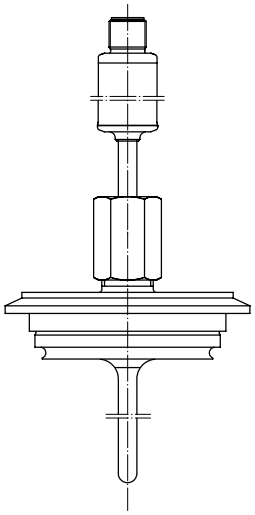


Protection tube with process connection

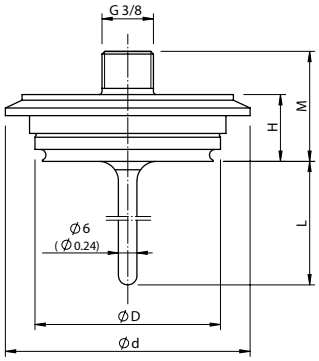


Varivent connector

Complete assembly



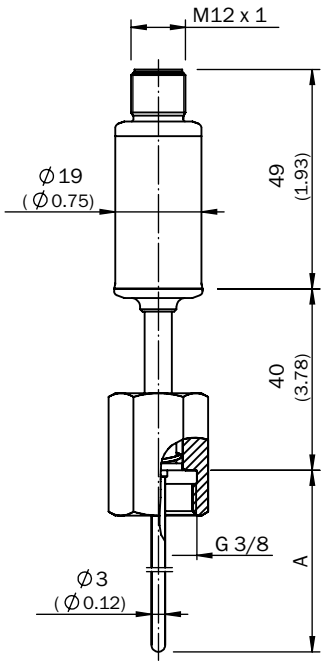
Protection tube with process connection



Design		Ø D	Ø d	M	H
VARIVENT	Form B	31.0 (1.22)	52.7 (2.07)	34.0 (1.34)	20.0 (0.79)
	Form F	50.0 (1.97)	66.0 (2.60)	32.0 (1.26)	18.0 (0.71)
	Form N	64.0 (2.52)	84.0 (3.31)	32.0 (1.26)	18.0 (0.71)

Measuring probe without protection tube

Pt100, 4 mA ... 20 mA



All dimensions in mm (inch)

PERFECT FIT: HYGIENIC TEMPERATURE MEASUREMENT IN PIPES

Product description

Designed as an in-line thermometer, the THTL temperature sensor is the preferred solution for hygienic temperature measurement in pipes. Typical applications are in the food and beverage, pharmaceutical, cosmetics and biotechnology industries. The THTL has an in-line housing that is fitted into the pipe. The Pt100 sensor is located inside a thermowell that is placed in the medium flow. It can easily and quickly be replaced for maintenance or calibration. This ensures safe hygienic operation.

The design of the wetted parts made from corrosion-resistant stainless steel complies with hygienic standards and enables quick response times.
The THTL is well suited for CIP and SIP processes. This enables safe hygienic operation in conjunction with optimized equipment availability.
Besides its direct electrical connection to the Pt100 element, the THTL is available with an integrated transmitter with 4 mA ... 20 mA output signal.

At a glance

- Measurement ranges –50 °C ... +150 °C and –50 °C ... +250 °C
- Accuracy class A (IEC 60751) in measurement range –30 °C ... +150 °C
- In-line housing for orbital welding in pipe
- Sensor probe spring-loaded in protective pipe
- Wetted parts: corrosion-resistant stainless steel 316L/1.4435, R_a ≤ 0.8 µm
- Pt100 (4-wire) or 4 mA ... 20 mA (2-wire)
- M12 round connector x 1

Your benefits

- Engineered for installation in a pipe, the integrated design provides the optimal solution to this type of measurement
- The sensor can be exchanged without opening the process, providing high equipment availability and minimizing hygienic risks
- Safe hygienic operation: Wetted parts are made from high-grade stainless steel, hygienically-graded surface finish, and a design with minimum of dead space
- Rugged: Connection housing is easy to clean and splash water proof
- Very good long-term stability, accuracy and linearity
- Quick response time
- Optimal solutions for individual requirements due to versatile configurability

Additional information

→ www.mysick.com/en/THTL

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

8014495/2015-12-20
Subject to change without notice

Detailed technical data

Features

Measuring ranges	–50 °C ... +150 °C –50 °C ... +250 °C
Sensor element	Pt100, Pt1000 (for 4 mA ... 20 mA version)
Signal outputs and maximum ohmic load R_A	Pt100, 4-wire 4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A\ [Ohm]$)

Performance

Accuracy of sensor element [1]	Class A according to IEC 60751
Accuracy of the opt. measuring transducer	± 0.25 K
Linearity of optional transmitter	≤ ± 0.1 % of span
Response time [2]	t_{50}: ≤ 3.2 s t_{90}: ≤ 7.3 s

[1] Class B (measuring range –50 ° C ... –30 ° C)

[2] Depending on sensor configuration, according to IEC 60751.

Mechanics/electronics

Process connection	Straight pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding, angled pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding
Nominal widths	NW 17.2 NW 21.3 NW 26.9 NW 42.4
Wetted parts	Stainless steel 1.4435 / 316L, $R_a \leq 0.8$ µm
Pressure resistance [1]	25 bar
Housing material	Stainless steel (CrNi)
Enclosure rating [2]	IP 67/IP 69
Electrical connection	M12 round connector x 1, 4-pin
Measuring current	0.1 mA ... 1 mA, for variant with output signal Pt100
Supply voltage	10 V DC ... 30 V DC for variant with transmitter 4 mA ... 20 mA
Maximum current consumption	≤ 30 mA for variant with transmitter 4 mA ... 20 mA
Electrical safety	Protection class: III Dielectric strength: 500 V AC Reverse polarity protection of variant with transmitter 4 mA ... 20 mA: L^+ towards M
CE-conformity	2004/108/EC, EN 61326-2-3
RoHS certificate	✔
Initialization time	Max. 4 s

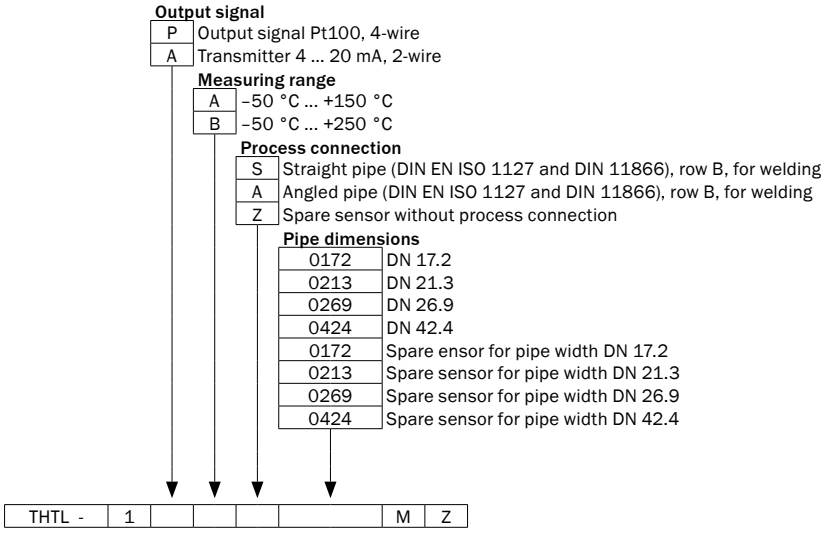
[1] Pressure resistance at room temperature.

[2] IP enclosure rating as per IEC 60529. The enclosure rating classes specified only apply while the device is connected with male cable connectors of the corresponding enclosure rating.

Ambient data

Ambient temperature	–40 °C ... +85 °C
Storage and transport temperature	–40 °C ... +85 °C
Shock resistance	50 g, 6ms (according to IEC 60068-2-27)
Relative humidity [1]	100 %, condensation allowed

Type code



Not all variations of the type code can be combined!

Ordering information

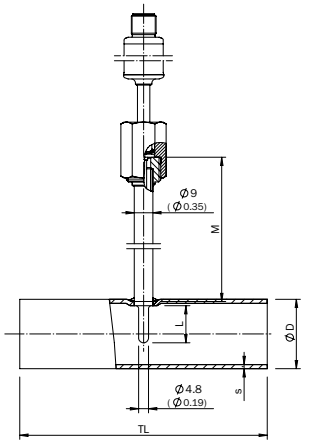
- **Measuring range:** –50 °C ... +150 °C
- **Electrical connection/enclosure rating:** round connector M12 x 1, 4-pin, IP 67 and IP 69

Output signal	Process connection	Nominal width	Type	Part no.
Pt100, 4-wire	Straight pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding	NW 21.3	THTL-1PASB0213MZ	6047642
		NW 42.4	THTL-1PASB0424MZ	6047643
	Angled pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding	NW 21.3	THTL-1PAAB0213MZ	6047644
		NW 42.4	THTL-1PAAB0424MZ	6047645
4 mA ... 20 mA, 2-wire ($R_A \leq (L^+ - 10\ V) / 0.023\ A$ [Ohm])	Straight pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding	NW 21.3	THTL-1AASB0213MZ	6047646
		NW 42.4	THTL-1AASB0424MZ	6047647
	Angled pipe (DIN EN ISO 1127 and DIN 11866), row B, for welding	NW 21.3	THTL-1AAAB0213MZ	6047648
		NW 42.4	THTL-1AAAB0424MZ	6047649

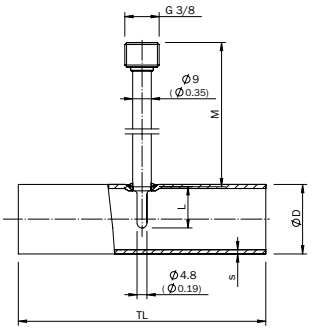
Dimensional drawings (Dimensions in mm (inch))

Process connection: Straight pipe

Complete assembly



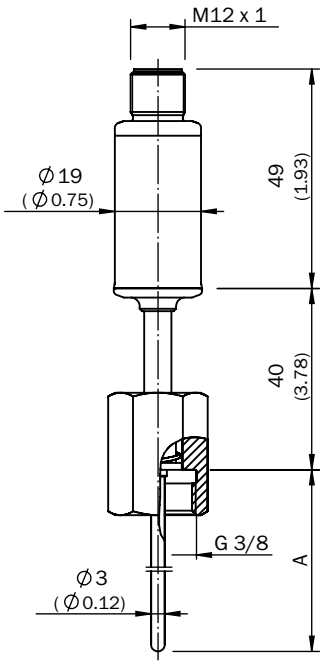
Protection tube with process connenection



Design		Ø D	s	TL	L	M
Straight pipe	NW 17.2	17.2 (0.68)	1.6 (0.06)	68.0 (2.68)	9.0 (0.35)	48.0 (1.89)
	NW 21.3	21.3 (0.84)	1.6 (0.06)	72.0 (2.83)	11.0 (0.43)	46.0 (1.81)
	NW 26.9	26.9 (1.06)	1.6 (0.06)	110.0 (4.33)	11.0 (0.43)	46.0 (1.81)
	NW 42.4	42.4 (1.67)	2.0 (0.08)	130.0 (5.12)	18.0 (0.71)	39.0 (1.54)

Measuring probe without protection tube

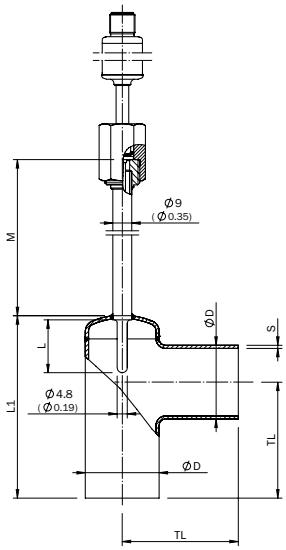
Pt100, 4 mA ... 20 mA



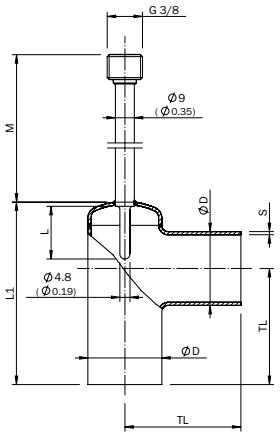
All dimensions in mm (inch)

Process connection: Angled pipe

Complete assembly



Protection tube with process connenection



Design		Ø D	s	TL	L1	L	M
Angled pipe	NW 17.2	17.2 (0.68)	1.6 (0.63)	34.0 (13.39)	55.0 (21.65)	16.0 (6.30)	41.0 (16.14)
	NW 21.3	21.3 (0.84)	1.6 (0.63)	36.0 (14.17)	58.0 (22.83)	18.0 (7.09)	39.0 (15.35)
	NW 26.9	26.9 (1.06)	1.6 (0.63)	55.0 (21.65)	81.0 (31.89)	30.0 (11.81)	27.0 (10.63)
	NW 42.4	42.4 (1.17)	2.0 (0.79)	65.0 (25.59)	102.0 (40.16)	30.0 (11.81)	27.0 (10.63)

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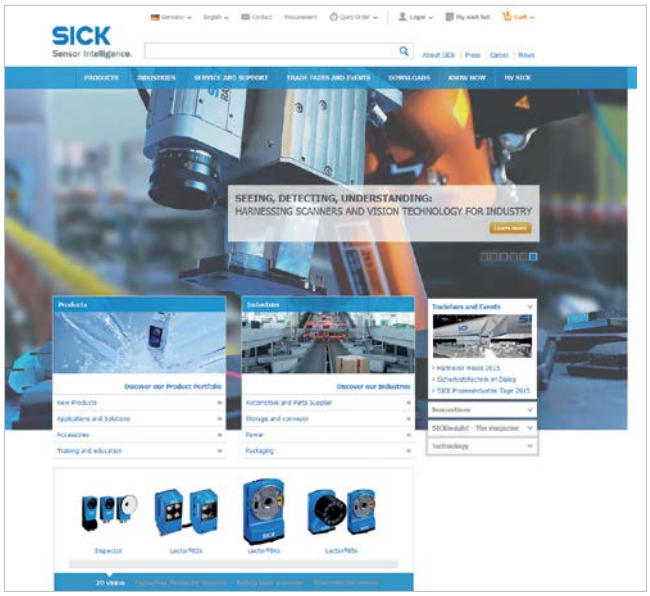

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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With almost 7,000 employees and over 50 subsidiaries and equity investments as well as numerous representative offices worldwide, we are always close to our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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