



Temperature Sensors for Applications in Rubber and Plastic Industries

Product Catalogue



extend your senses



The mission of SENSIT s.r.o. is to develop, manufacture and supply sensors for non-electric quantities.

Our goal is to provide a wide range of quality products, competitive prices and high quality services, including the provision of servicing and consultancy. Our priority commitment is to ensure our offered products and services optimally meet the expectations and requirements of our customers, positively influence their satisfaction and ensure the building of long-term partnerships.

In terms of development, production and utilization of sensors throughout their entire life cycle, we also deal with the issue of minimizing negative impacts on the environment and ensuring safety in production and actual use of these sensors.

To fulfil the specified mission, we rely on the following internal values of the company:

QUALITY

the high quality of processes ensures the flawlessness of the offered products and services

COSTS

by reducing input and operating costs we achieve competitive prices

SPEED

by improving the efficiency of processes we increase the speed of delivery of our products and services

RELIABILITY

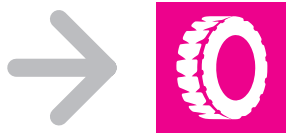
by repeatedly verifying and testing basic properties, including compliance with current legislation, we ensure the reliability of our products and services

FLEXIBILITY

by selecting qualified, motivated and loyal employees we create conditions enabling us to respond flexibly to customer requirements

Ing. Petr Brzezina

Executive Head of SENSIT s.r.o.



*The company SENSIT s.r.o. was founded in 1991
and it is a purely Czech company.*

The products of our company also comprise temperature sensors for the rubber and plastics industry. These are specifically designed for the needs of the measurement of temperature during the preparation of rubber and plastic mixtures. **Temperature sensors are highly resistant to abrasion influence of rubber and plastics mixtures and to vibrations.** Temperature sensors SENSIT are used in various difficult applications. We can adapt our temperature sensors to the requirements of individual devices from different manufacturers.

SENSIT, s.r.o., is also engaged in the manufacture of temperature sensors in various industries. The standard temperature range of the temperature sensors is from **-200 °C to 1 200 °C** and the diameter of the case is from **1.0 mm**. In recent years, company's product range has expanded with humidity sensors, CO₂ sensors, level sensors, flow sensors and special optical and inductive sensors. As a significant competitive advantage, SENSIT s.r.o. maintains the capability of small series or piece production. High flexibility in relation to the special requirements of customers enables the company to react flexibly to their needs in terms of composition of the custom range, as well as in time performance.













The high level of quality of its products is ensured, among other ways, through the performance of regular and repeat type tests of the properties of products or through the sophisticated operation of cycling 7 to 10 cycles in temperature intervals from -10 °C to 80 °C with the objective of detecting critical manufacturing defects. A standard part of production processes is initial calibration and output inspection. The final products are thus supplied in the guaranteed quality, which is reflected in the low percentage of justified complaints.

SENSIT s.r.o. meets the requirements of standards EN ISO 9001, EN ISO 14001 and EN ISO 45001 for all areas of its activities, as evidenced by valid certificates.



The Authorized Metrology Centre authorized by the Czech Office for Standards, Metrology and Testing has been a part of SENSIT s.r.o. since 2001. SENSIT s.r.o. has its own laboratory carrying out calibrations of company's own products as well as specialist products from other manufacturers.

The competitiveness of the company's products is continuously tested on the Czech market, as well as abroad, with regard to the implementation of long-term supplies to significant manufacturers of technological units and components in the following fields:

- | | |
|---|---|
|  Paired temperature sensors – qualified meters |  Sensors of temperature, humidity and flow in food processing applications |
|  Temperature sensors for railway vehicles |  Sensors of temperature, humidity and flow for air conditioning equipment |
|  Temperature sensors for heating systems control |  Temperature sensors in applications for renewable resources |
|  Temperature sensors for machines and equipment |  Temperature sensors for applications in rubber and plastic industries |
|  Temperature sensors for chemical industry |  Sensors of temperature, humidity and flow in white goods and medical applications |
|  Custom production of temperature sensors |  Temperature sensors for science and research |



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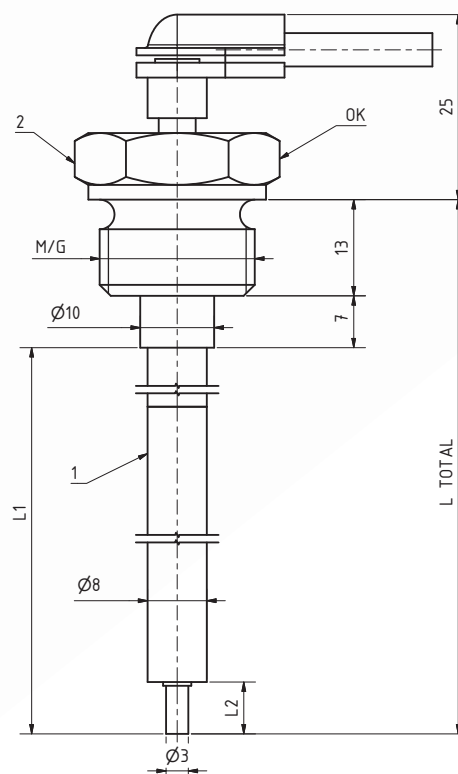
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TR 085JA

Temperature sensor



Z084.1a



DESCRIPTION AND APPLICATION ↓

The **TR 085JA** resistance temperature sensors are specially designed for temperature measurement of rubber mixes. The temperature range for use of the sensors is -50 to 220 °C and these limits must not be exceeded even for a brief period. The sensors can be used for all control systems compatible with the Pt 100/3850 or Pt 1000/3850 temperature sensor. The sensors meet the ingress protection class of IP 65 according to EN 60529, as amended, and they are designed for general use. The design of the sensor, in which the temperature sensor is connected with the end of the measuring case, ensures very fast response of the sensor on temperature changes, even when the sensor is just minimally submerged in the measured rubber mix. The sensors are designed to be operated in a chemically non-aggressive environment, the use must be chosen with regard to the temperature and chemical resistance of the case and the supply cable.

Recommended use and position of the sensors:

- the working position is given by the position of the assembly fitting and by the sensor length
- it is necessary to ensure that the entire measuring section of the case with the length of 7 mm is in contact with the medium to be measured

SPECIFICATIONS ↓

Sensor type	TR 085JA
Type of sensing element	Pt 100, Pt 1000
Accuracy class *	B according to EN 60751 $\pm (0.3 + 0.005 t)$ in °C
Measuring range	-50 to 220 °C
Ingress protection	IP 65 according to EN 60529, as amended
Time response	$\tau_{0.5} < 2$ s (in running water > 0.2 m/s)
Material / \varnothing of the measuring part	stainless steel / 3 mm
Measuring case length	7 mm
Material / \varnothing of the plastic part	DURATRON / 8 mm
Material / \varnothing of the assembling part	stainless steel / 8 mm
Overall length, including the thread	as specified by the customer
Assembly thread type / OK	as specified by the customer
Electric strength	500 VAC according to EN 60730-1
Insulation resistance	> 200 M Ω at 500 V _{DC} , 25°C \pm 3°C
Lead-in cable type	2-wire shielded teflon 2×0.14 mm ² 3- and 4-wire shielded teflon 4×0.14 mm ²
Supply wire resistance	0.274 Ω / 1 m at 25 °C
Resistance to pressure	2.5 MPa

* in the case of 2-wire connection, it is necessary to add the effect of the lead-in cable line resistance, which is 0.071 °C / 1 m at a temperature of 25 °C, to the values measured on the individual sensors.

DECLARATION, CERTIFICATION, CALIBRATION ↓

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

OPERATING CONDITIONS ↓

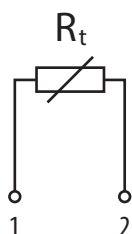
- Temperature near the lead-in cable: -50 to 220 °C
- Relative ambient humidity: 10 to 100%
- Atmospheric pressure: 70 to 106 kPa

ACCESSORIES ↓

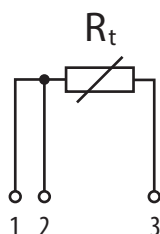
- Connectors

WIRING DIAGRAM ↓

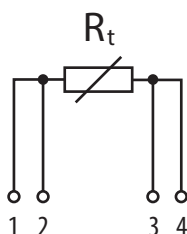
■ 2wire



■ 3wire



■ 4wire



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Z084.1a

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new



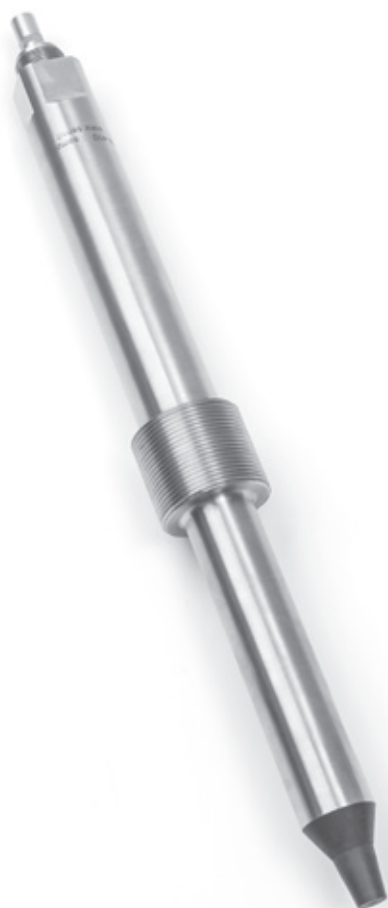
TR 078A

TR 078B

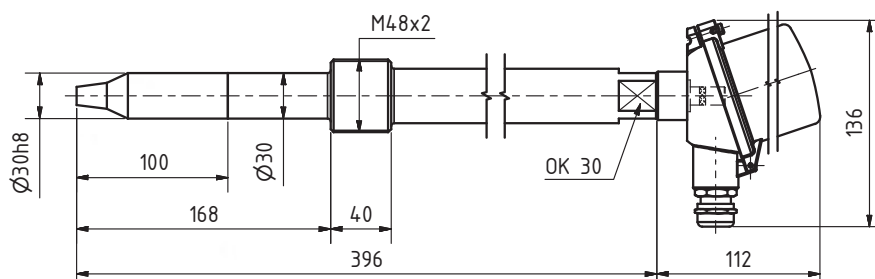
Temperature sensor

CE

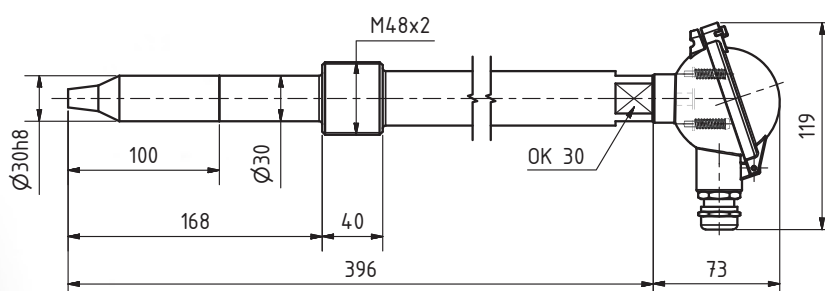
Z064.3a



TR 078A



TR 078B



DESCRIPTION AND APPLICATION

The **TR 078A** and **TR 078B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 078A	TR 078B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 23 \text{ s}$, $\tau_{0.9} < 36 \text{ s}$ Continental method*: $\tau_{0.5} < 95 \text{ s}$, $\tau_{0.9} < 175 \text{ s}$	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	3.1 kg	

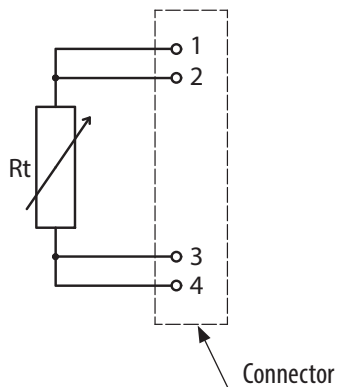
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

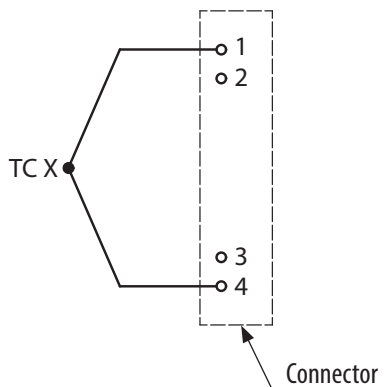
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

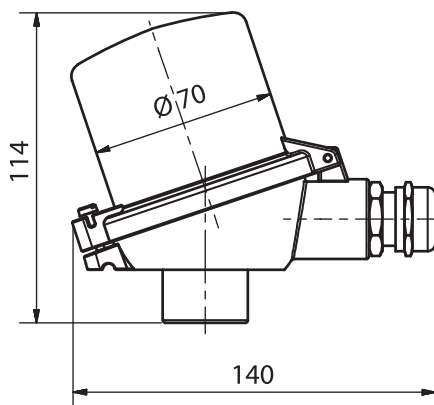


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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Z064.3a | 04/20

Z064.2a



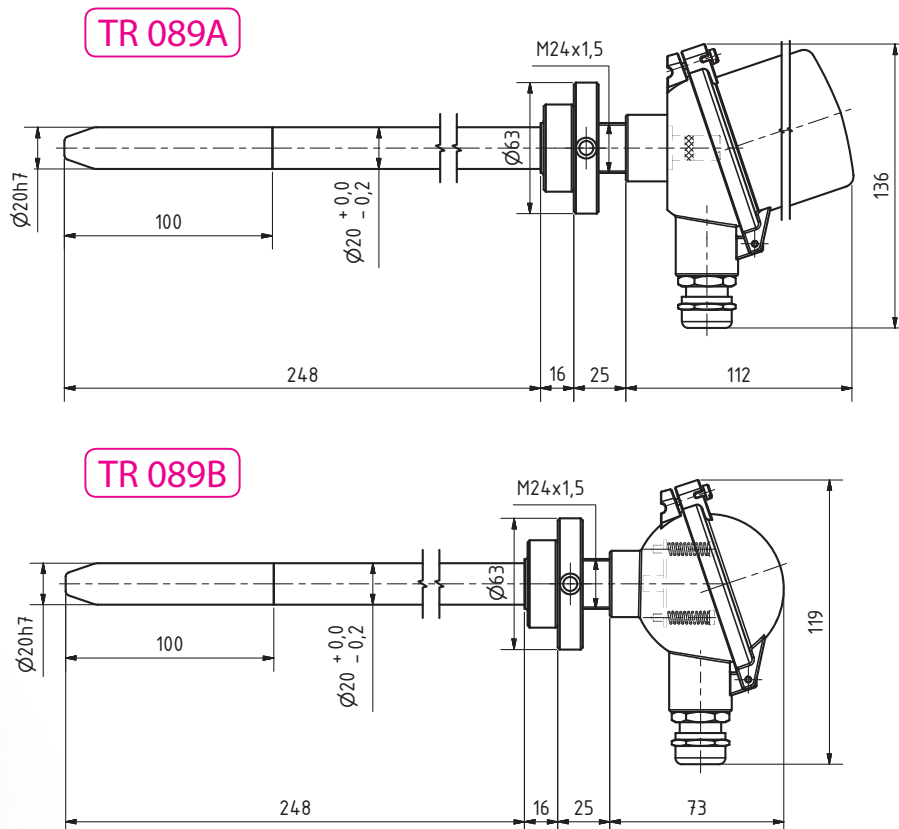
TR 089A

TR 089B

Temperature sensor

CE

Z065.3a



DESCRIPTION AND APPLICATION

The **TR 089A** and **TR 089B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 089A	TR 089B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 7$ s, $\tau_{0,9} < 15$ s Continental method*: $\tau_{0,5} < 22$ s, $\tau_{0,9} < 90$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25 °C ± 3 °C, humidity < 80%	
Weight	1.3 kg	

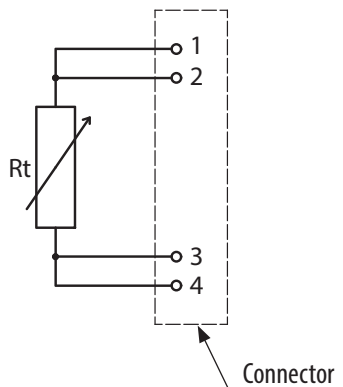
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

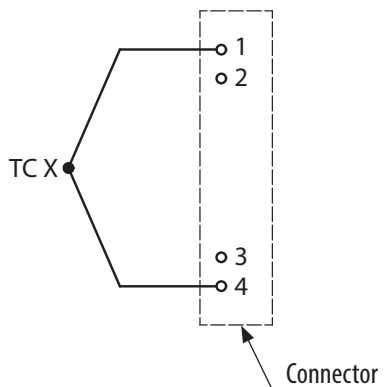
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

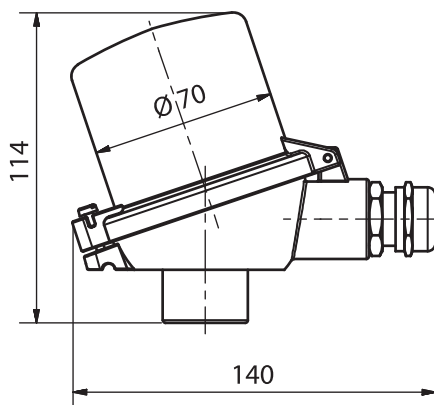


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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Z065.3a

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Z065.2a

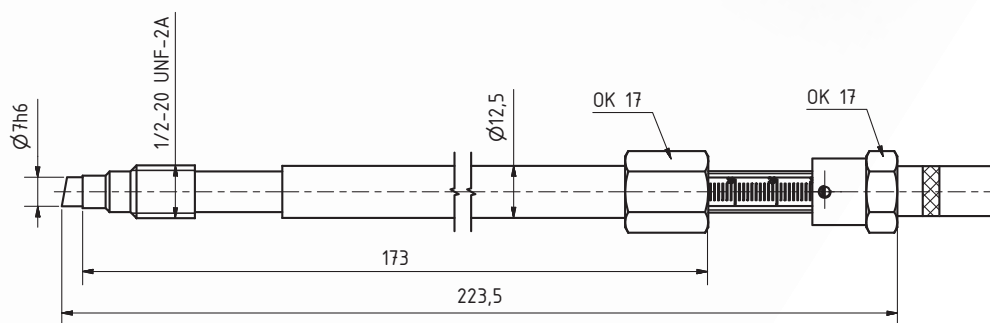


TR 090

Temperature sensor

CE

Z066.3a



DESCRIPTION AND APPLICATION

The **TR 090** temperature sensor is designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor is equipped with the LEMO connector and can be completed by a metal connection head.

The temperature sensor is highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The case of the temperature sensor is made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 090
Type of sensing element	Pt 100, TCK, TCJ, other as requested
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element
Measuring range	-30 °C to 200 °C
Connection	4wire
Case material	stainless steel, measuring tip made of hardening steel
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 3.5 \text{ s}$, $\tau_{0,9} < 8 \text{ s}$ Continental method*: $\tau_{0,5} < 10 \text{ s}$, $\tau_{0,9} < 28 \text{ s}$
Minimum immersion depth	40 mm
Connector	LEMO PCA.15.304.CLLC
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%
Weight	0.2 kg

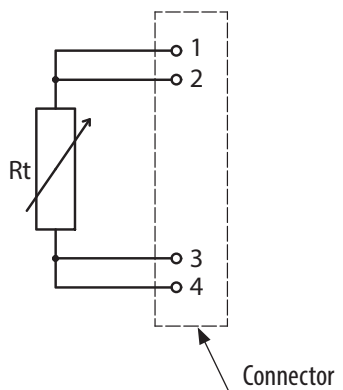
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

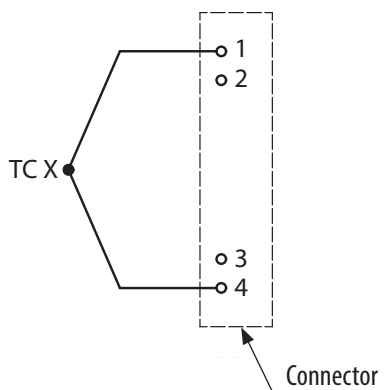
- Cable connector counterpart LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection



- Thermocouple type K or J



OPTIONAL ACCESSORIES ↓

- Connector LEMO FFA.1S.304.CLAC62 – for cable ø 5.3–6.1 mm
- Connection cable with the LEMO FFA.1S.304.CLAC62



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Z066.3a | 04/20

Z066.2a



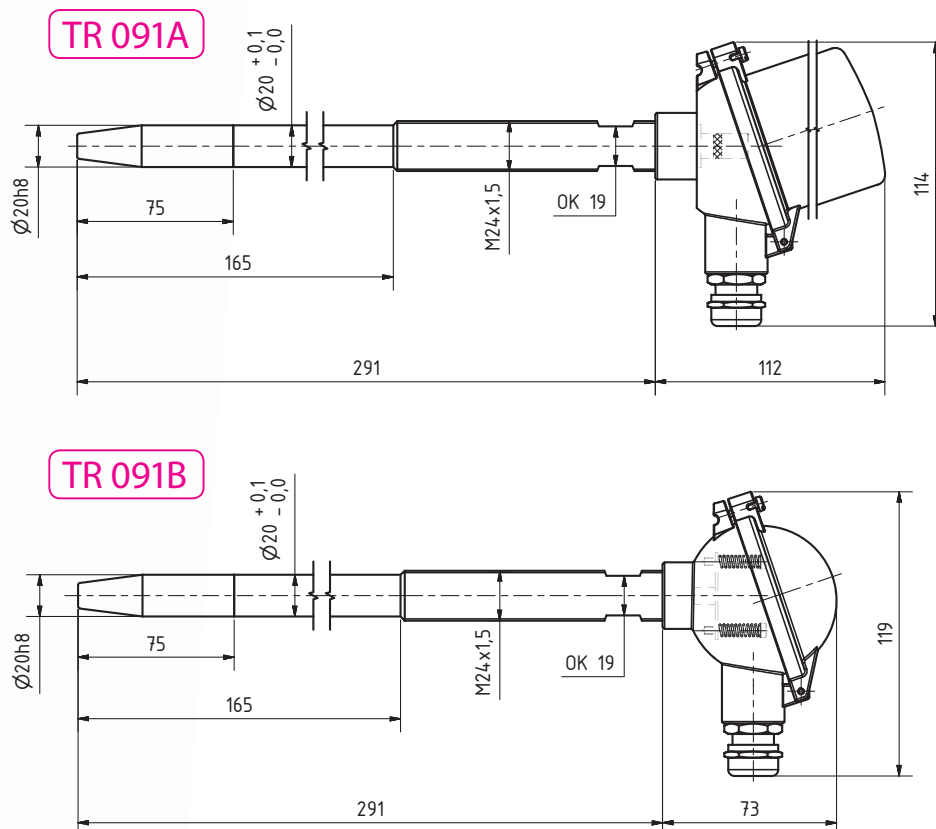
TR 091A

TR 091B

Temperature sensor

CE

Z027.4a



DESCRIPTION AND APPLICATION

The **TR 091A** and **TR 091B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 091A	TR 091B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 7$ s, $\tau_{0,9} < 15$ s Continental method*: $\tau_{0,5} < 22$ s, $\tau_{0,9} < 90$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1.1 kg	

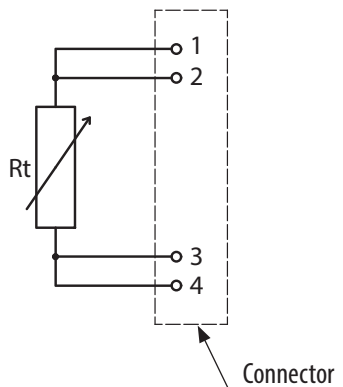
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

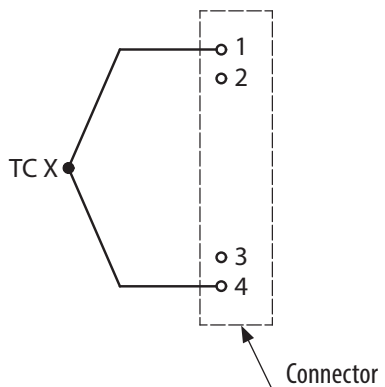
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

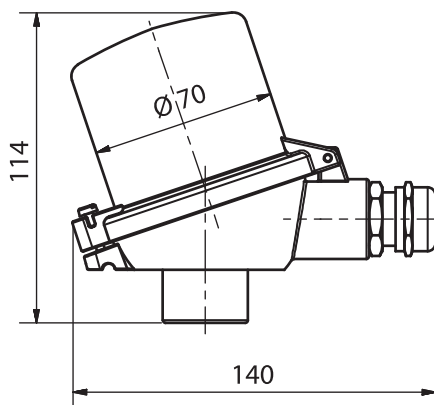


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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Z027.4a | 04/20

Z027.3a



TR 098A

TR 098B

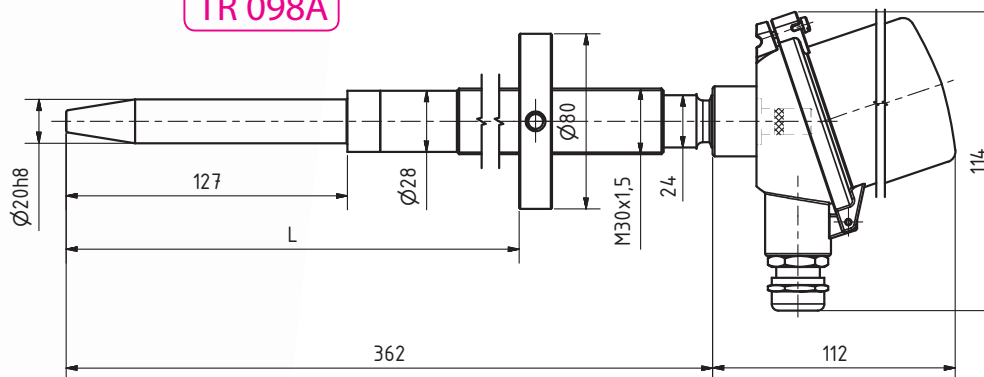
Temperature sensor

CE

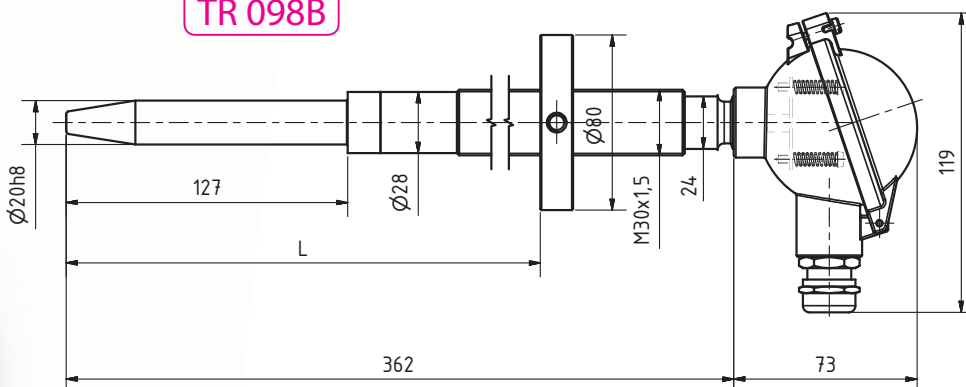
Z001.5a



TR 098A



TR 098B



DESCRIPTION AND APPLICATION

The **TR 098A** and **TR 098B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 098A	TR 098B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 6$ s, $\tau_{0,9} < 13$ s Continental method*: $\tau_{0,5} < 16$ s, $\tau_{0,9} < 80$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS- CaL as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1.9 kg	

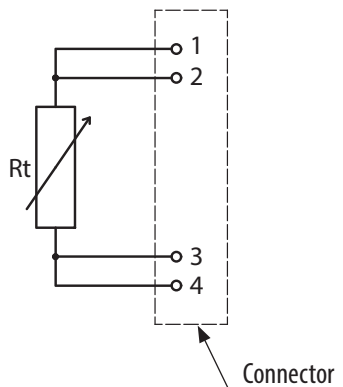
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

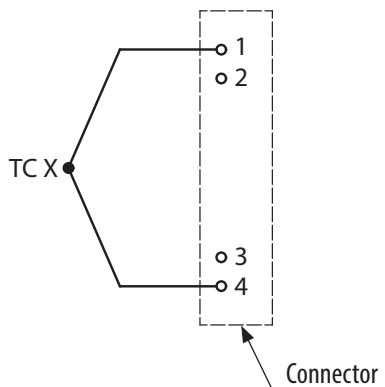
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

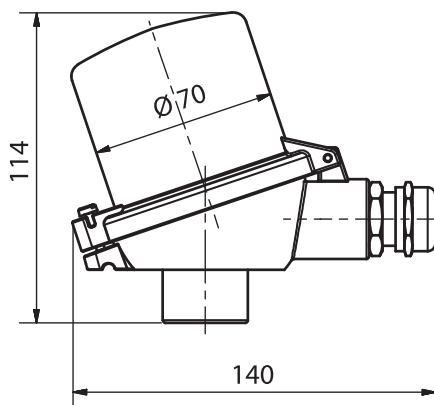


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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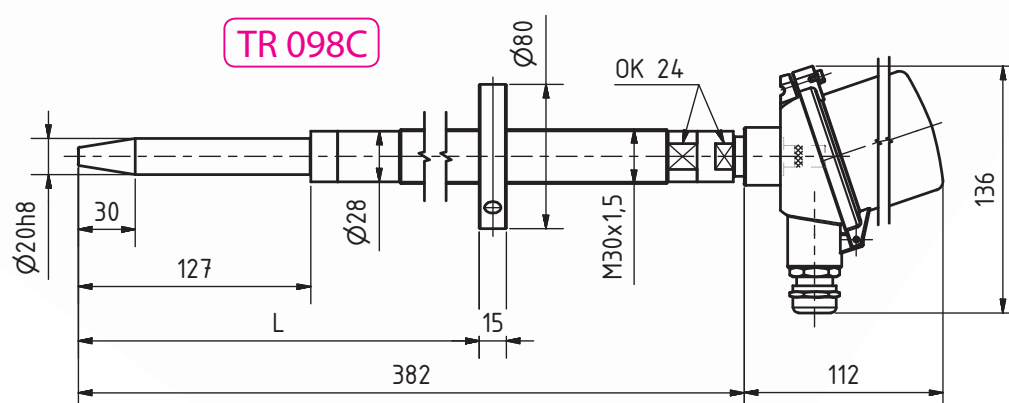
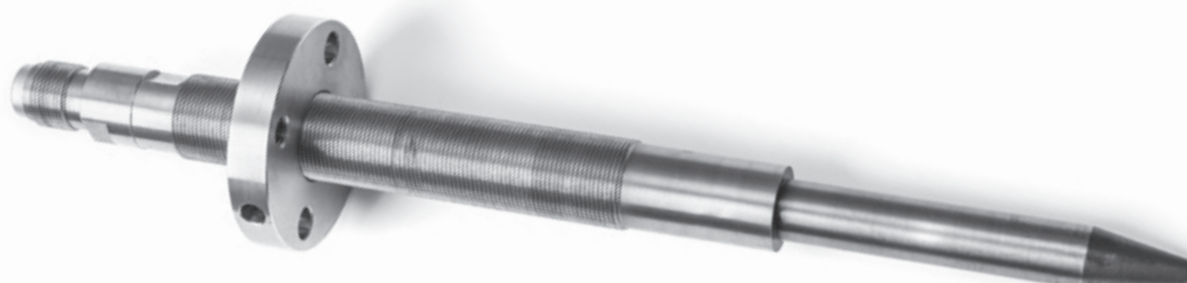


TR 098C

Temperature sensor

CE

Z068.3a



DESCRIPTION AND APPLICATION

The **TR 098C** temperature sensor is designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor is equipped with the LEMO connector and can be completed by a metal connection head.

The temperature sensor is highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensor can be also used to measure temperature of plastic and bulk materials. The case of the temperature sensor is made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 098C
Type of sensing element	Pt 100, TCK, TCJ, other as requested
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element
Measuring range	-30 °C to 200 °C
Connection	4wire
Case material	stainless steel, measuring tip made of hardening steel
Time response	according to the EN 60751 standard: τ _{0.5} < 6 s, τ _{0.9} < 13 s
Immersion depth 100 mm	Continental method*: τ _{0.5} < 16 s, τ _{0.9} < 80 s
Minimum immersion depth	40 mm
Connector	LEMO PCA.2E.304.CLLC
Connection head	DANW4-M2A-4x-NS-CaL as accessory
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25 °C ± 3 °C, humidity < 80%
Weight	1.9 kg

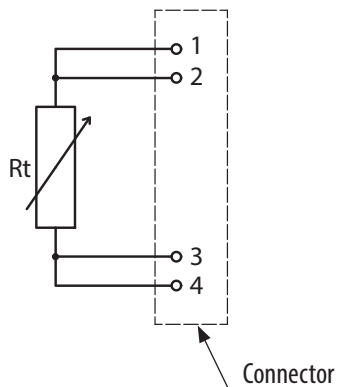
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

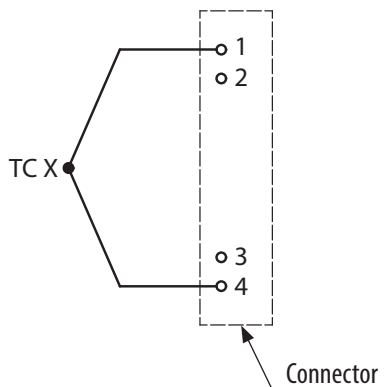
- DANW4-M2A-4x-NS-CaL connection head
- Cable connector counterpart - LEMO FFA.2E.304.CLAC65
- Connection cable with the LEMO FFA.2E.304.CLAC65 connector

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

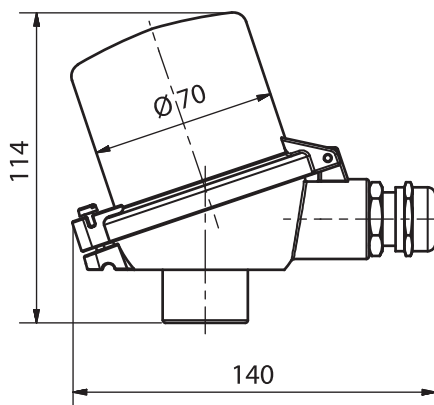


- Thermocouple type K or J



OPTIONAL ACCESSORIES ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.2E.304.CLAC65 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.2E.304.CLAC65



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Z068.2a



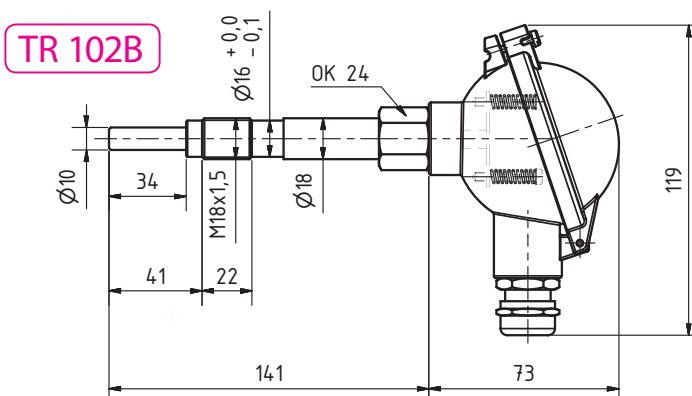
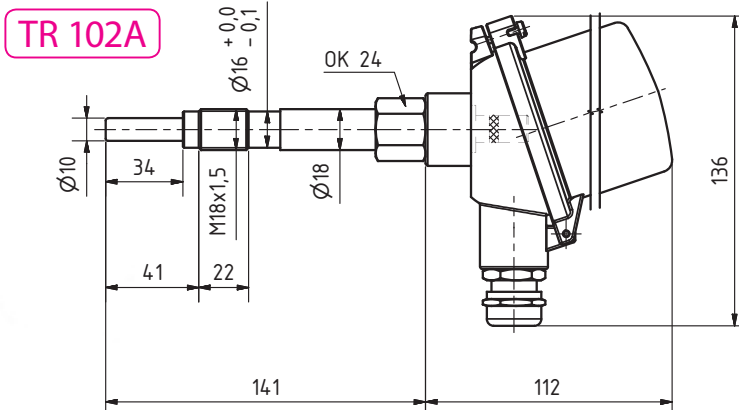
TR 102A

TR 102B

Temperature sensor

CE

Z002.5a



DESCRIPTION AND APPLICATION

The **TR 102A** and **TR 102B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 102A	TR 102B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 4 \text{ s}$, $\tau_{0,9} < 9 \text{ s}$ Continental method*: $\tau_{0,5} < 13 \text{ s}$, $\tau_{0,9} < 45 \text{ s}$	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS- CaL as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25 °C ± 3 °C, humidity < 80%	
Weight	0.55 kg	

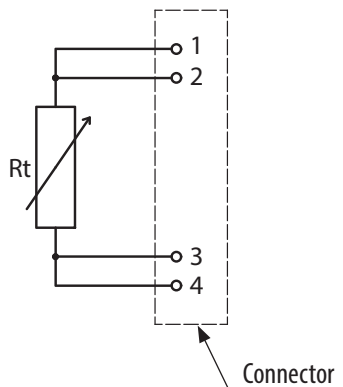
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

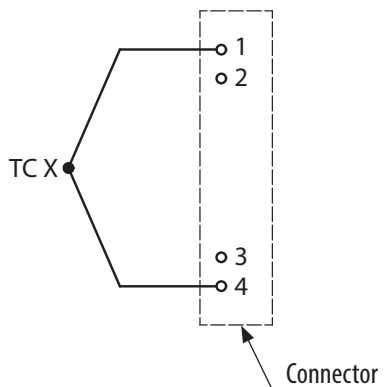
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

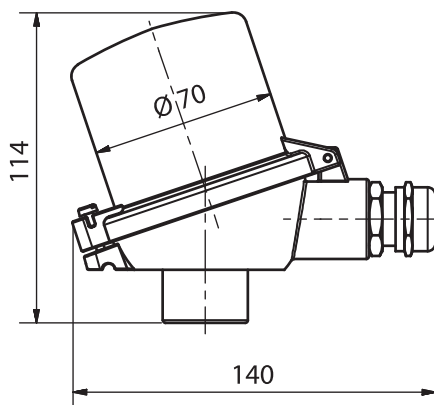


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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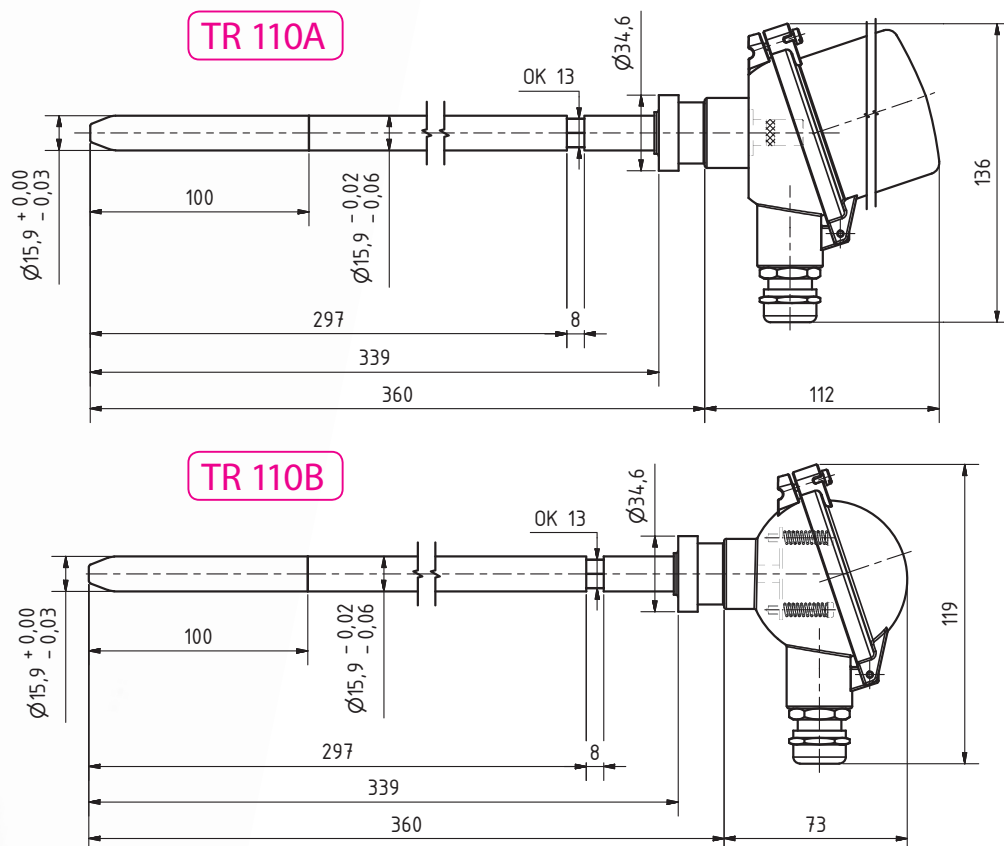
TR 110A

TR 110B

Temperature sensor

CE

Z003.5a



DESCRIPTION AND APPLICATION

The **TR 110A** and **TR 110B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 110A	TR 110B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 5 \text{ s}$, $\tau_{0,9} < 10 \text{ s}$ Continental method*: $\tau_{0,5} < 20 \text{ s}$, $\tau_{0,9} < 70 \text{ s}$	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	0.55 kg	

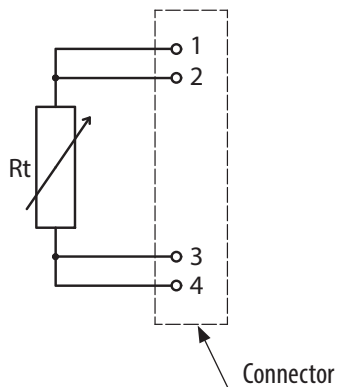
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

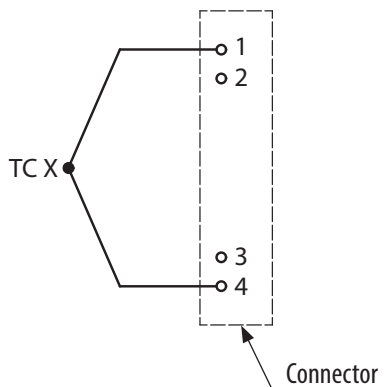
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

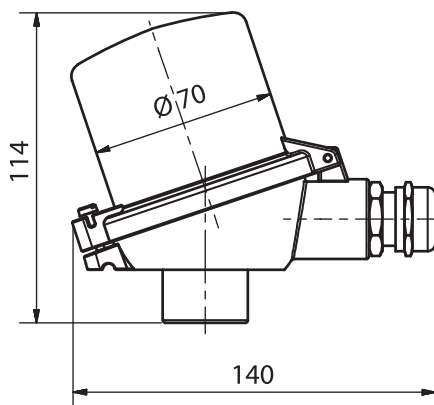


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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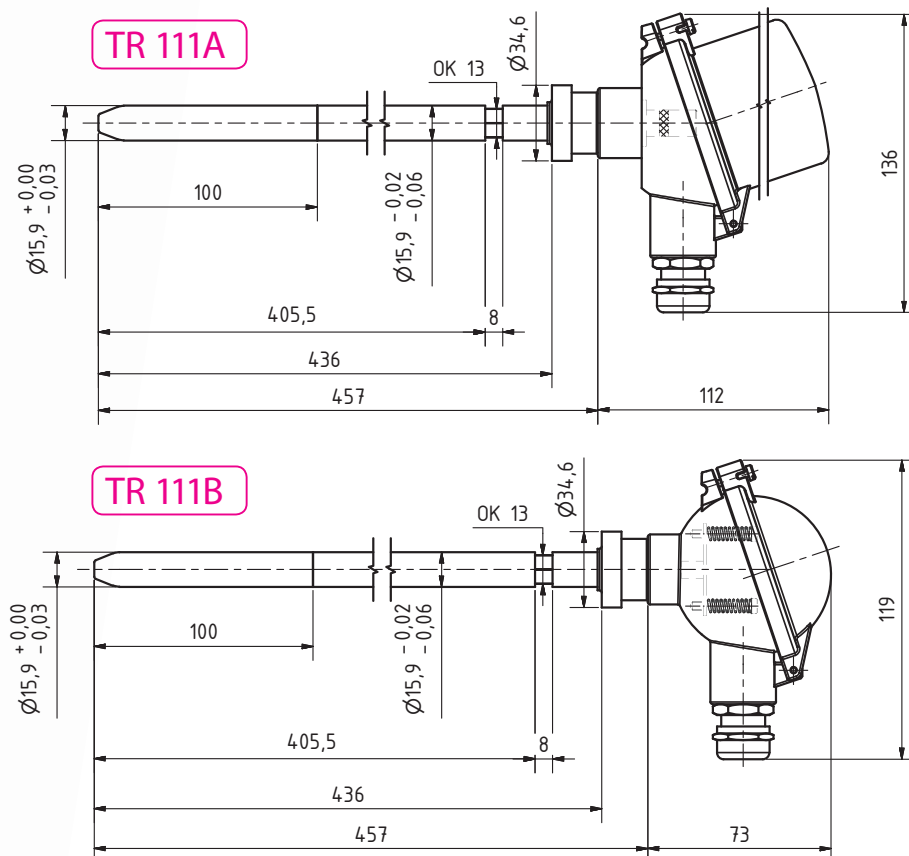
TR 111A

TR 111B

Temperature sensor

CE

Z004.5a



DESCRIPTION AND APPLICATION

The **TR 111A** and **TR 111B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

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SPECIFICATIONS

Sensor type	TR 111A	TR 111B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 5$ s, $\tau_{0,9} < 10$ s Continental method*: $\tau_{0,5} < 20$ s, $\tau_{0,9} < 70$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS- CaL as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	0.7 kg	

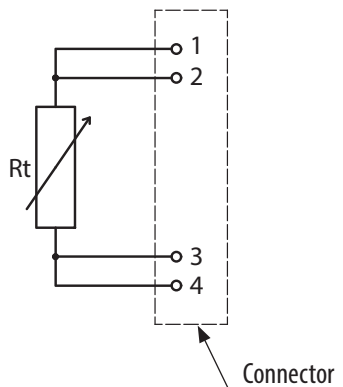
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

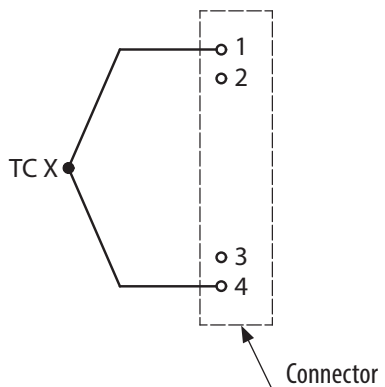
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

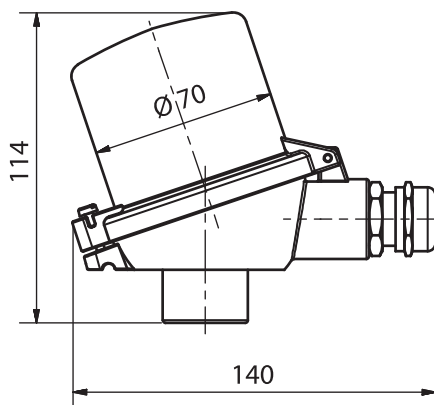


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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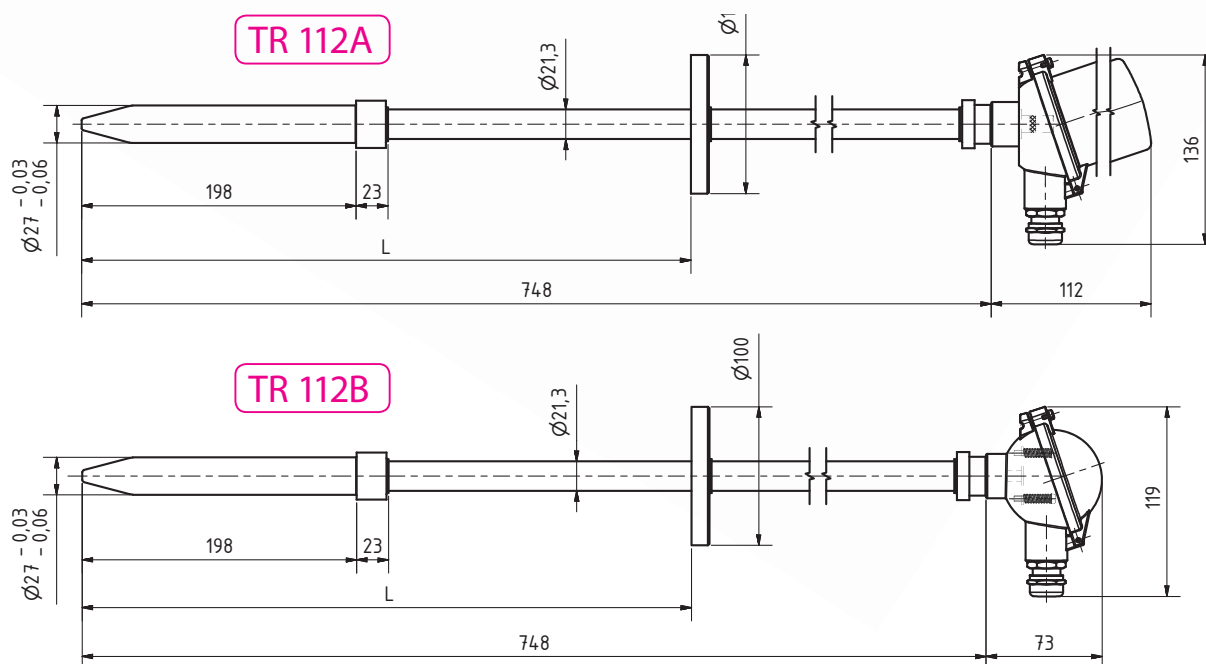
TR 112A

TR 112B

Temperature sensor

CE

Z005.5a



DESCRIPTION AND APPLICATION

The **TR 112A** and **TR 112B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

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■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 112A	TR 112B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 5$ s, $\tau_{0.9} < 11$ s Continental method*: $\tau_{0.5} < 20$ s, $\tau_{0.9} < 90$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	2.4 kg	

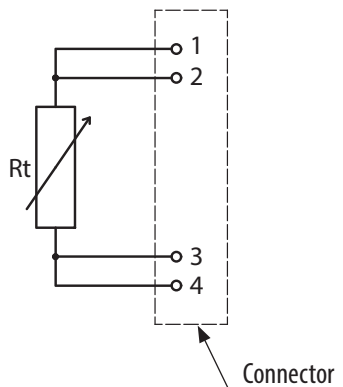
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

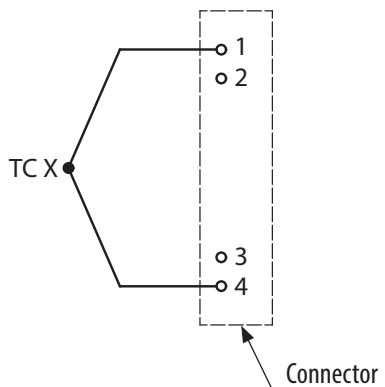
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

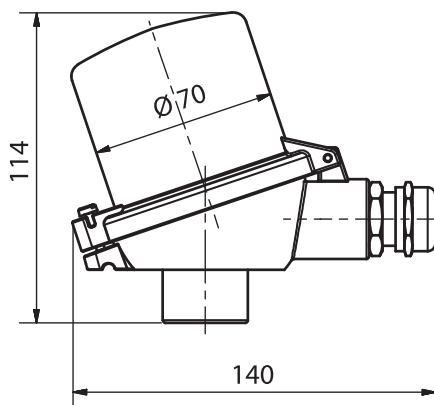


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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TR 113A

TR 113B

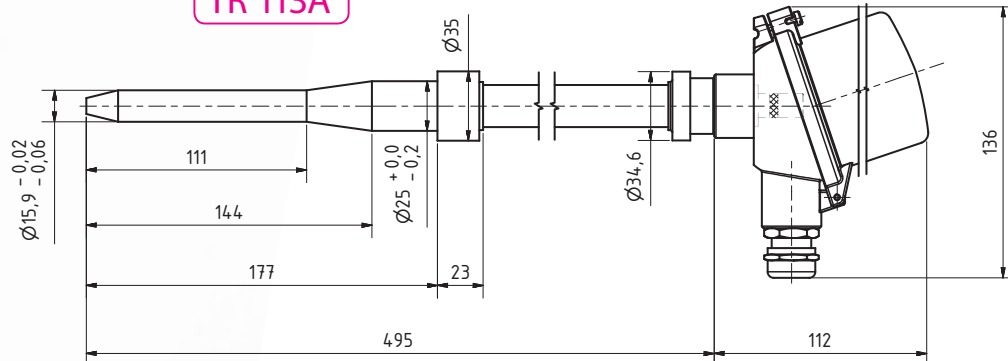
Temperature sensor

CE

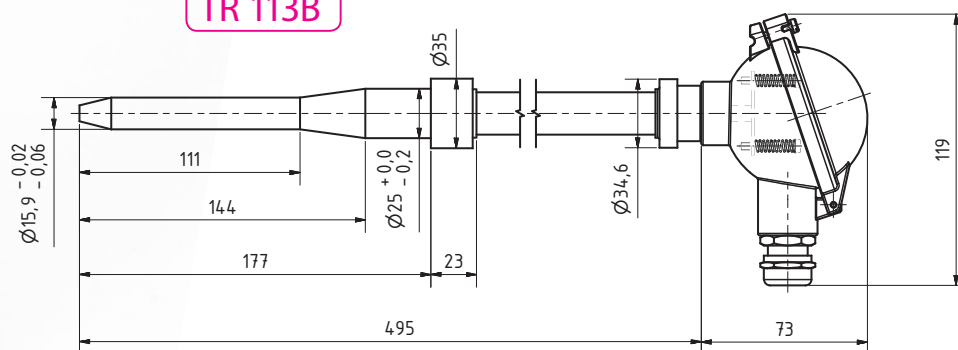
Z006.5a



TR 113A



TR 113B



DESCRIPTION AND APPLICATION

The **TR 113A** and **TR 113B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 113A	TR 113B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 5$ s, $\tau_{0.9} < 10$ s Continental method*: $\tau_{0.5} < 20$ s, $\tau_{0.9} < 70$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS- CaL as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1 kg	

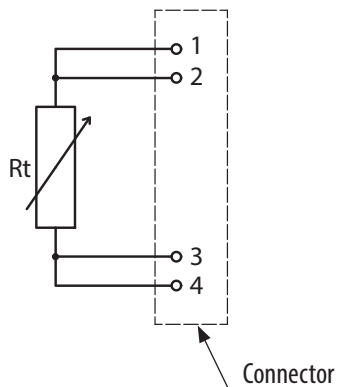
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

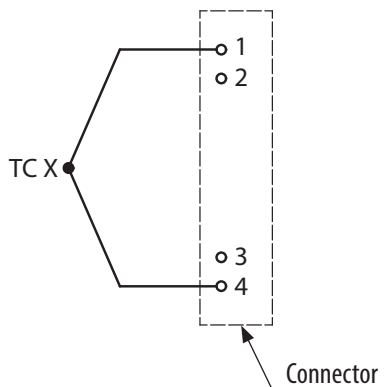
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

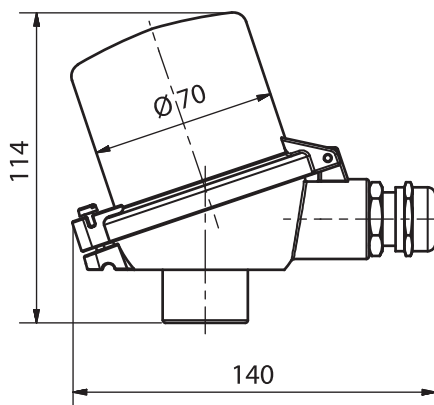


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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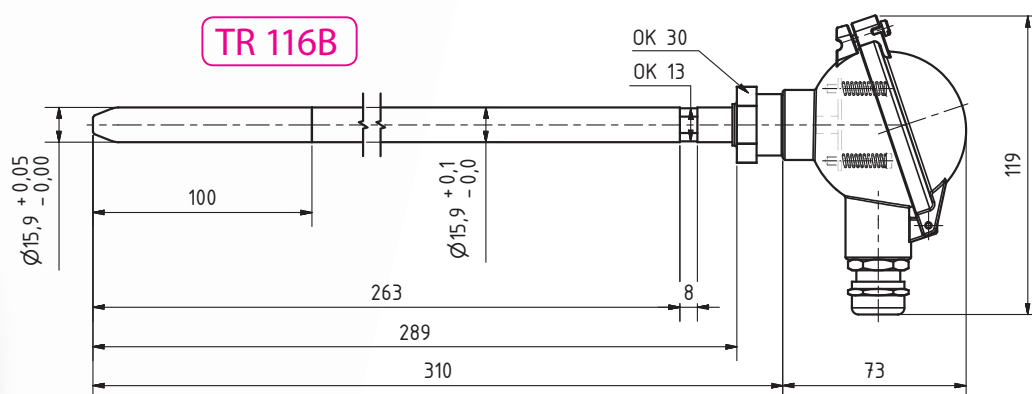
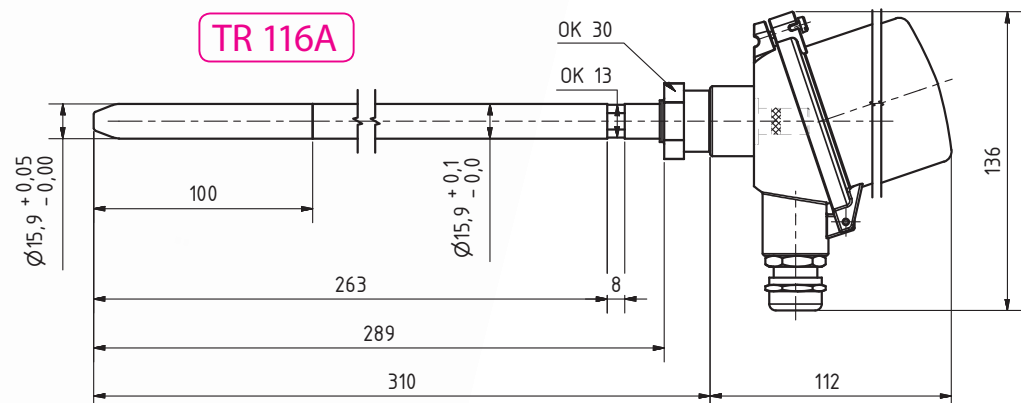
TR 116A

TR 116B

Temperature sensor

CE

Z007.5a



DESCRIPTION AND APPLICATION

The **TR 116A** and **TR 116B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 116A	TR 116B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 8$ s, $\tau_{0,9} < 16$ s Continental method*: $\tau_{0,5} < 25$ s, $\tau_{0,9} < 95$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	0.9 kg	

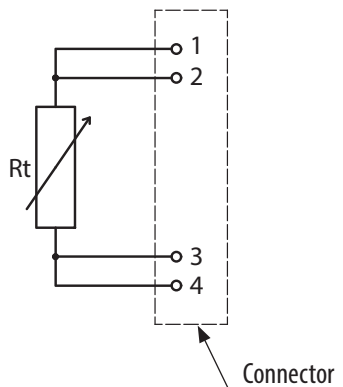
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

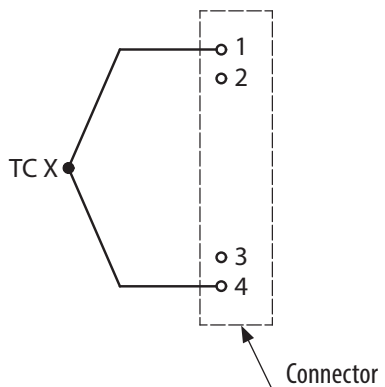
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

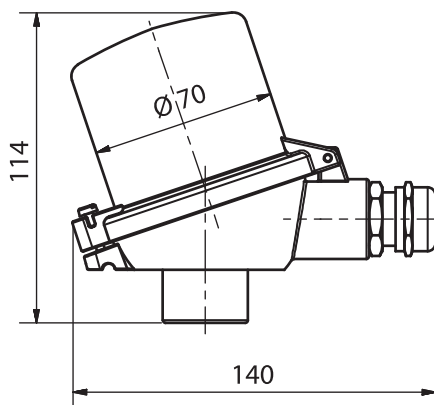


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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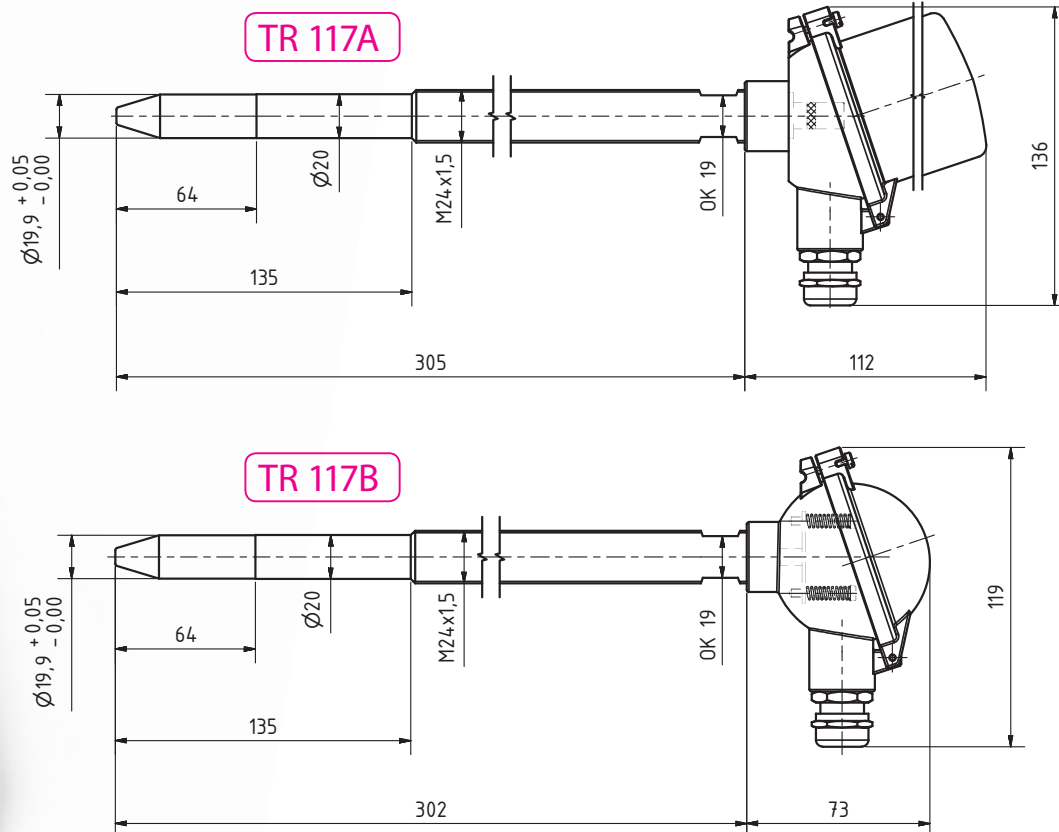
TR 117A

TR 117B

Temperature sensor

CE

Z008.5a



DESCRIPTION AND APPLICATION

The **TR 117A** and **TR 117B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 117A	TR 117B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 7$ s, $\tau_{0,9} < 15$ s Continental method*: $\tau_{0,5} < 22$ s, $\tau_{0,9} < 90$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1.1 kg	

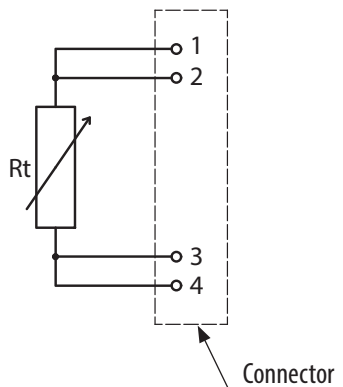
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

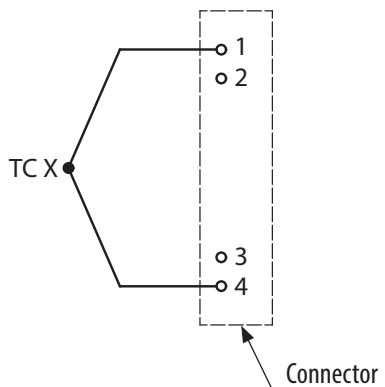
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

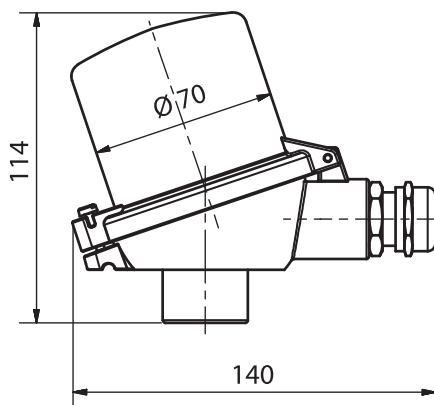


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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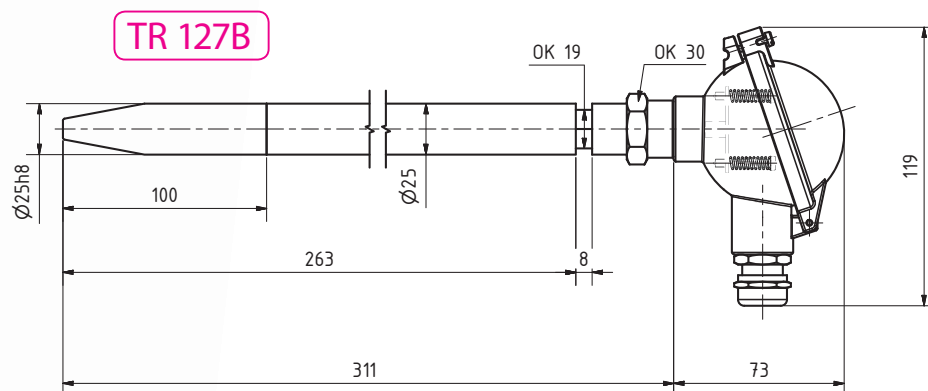
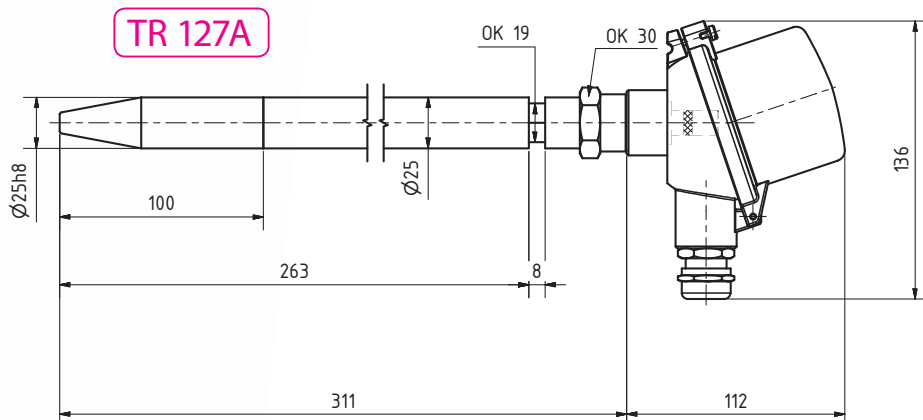
TR 127A

TR 127B

Temperature sensor

CE

Z009.5a



DESCRIPTION AND APPLICATION

The **TR 127A** and **TR 127B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 127A	TR 127B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 6$ s, $\tau_{0,9} < 14$ s Continental method*: $\tau_{0,5} < 17$ s, $\tau_{0,9} < 80$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1.3 kg	

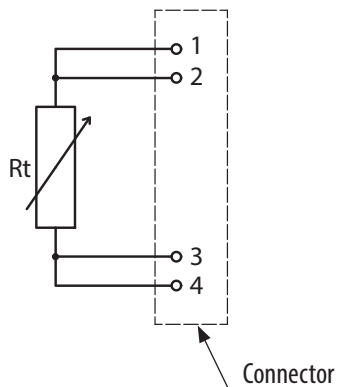
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

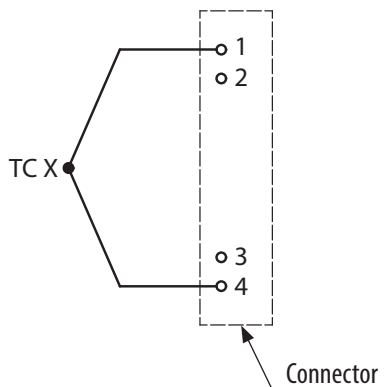
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

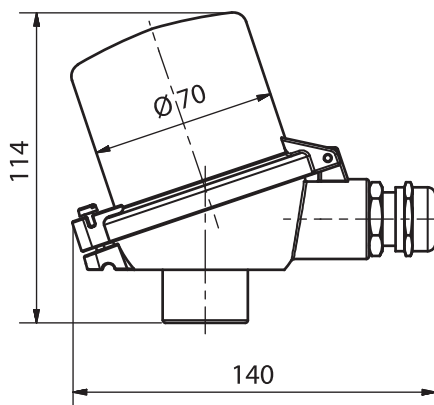


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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TR 153A

TR 153B

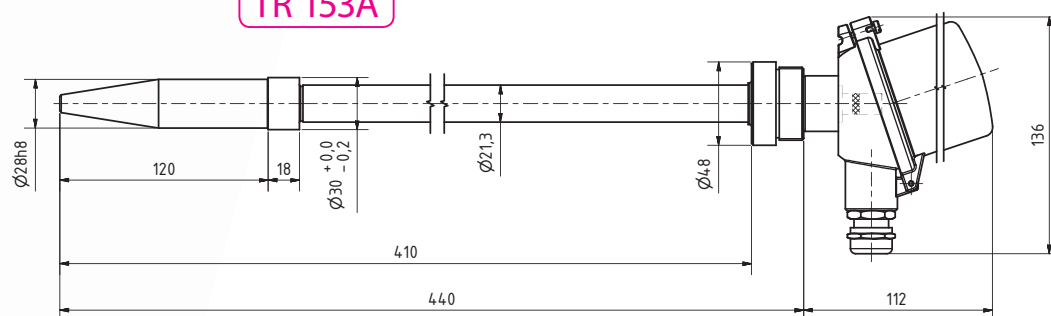
Temperature sensor

CE

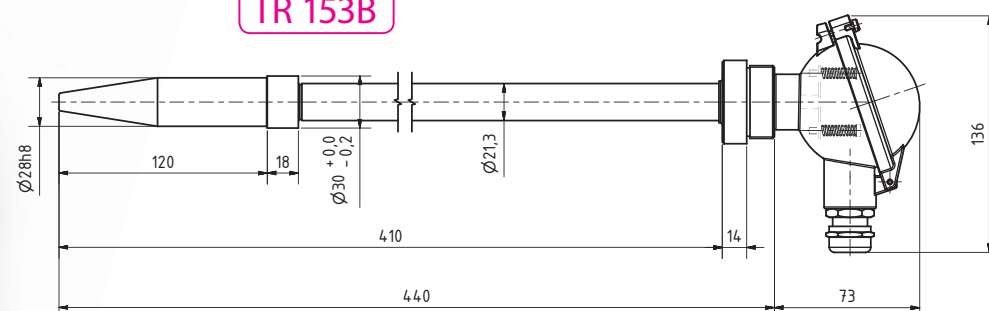
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TR 153A



TR 153B



DESCRIPTION AND APPLICATION

The **TR 153A** and **TR 153B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 153A	TR 153B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 6$ s, $\tau_{0.9} < 14$ s Continental method*: $\tau_{0.5} < 14$ s, $\tau_{0.9} < 80$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS- CaL as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25 °C ± 3 °C, humidity < 80%	
Weight	1.3 kg	

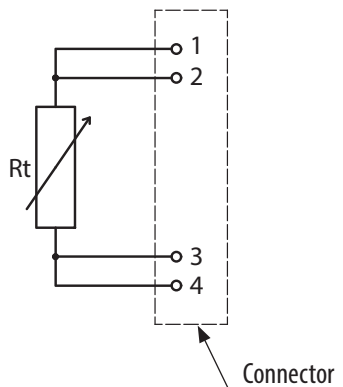
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

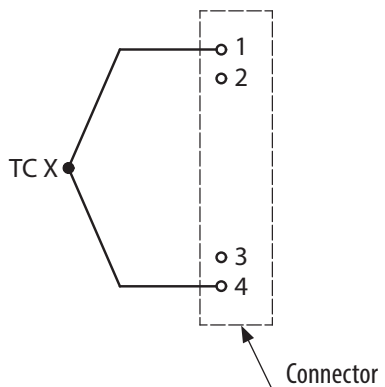
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

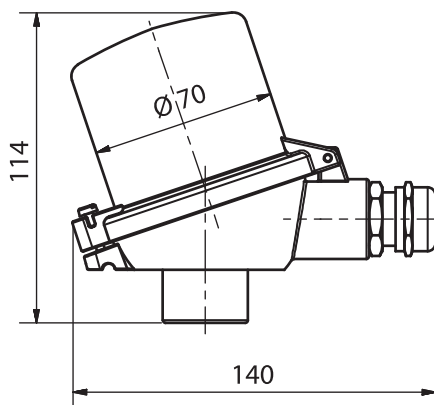


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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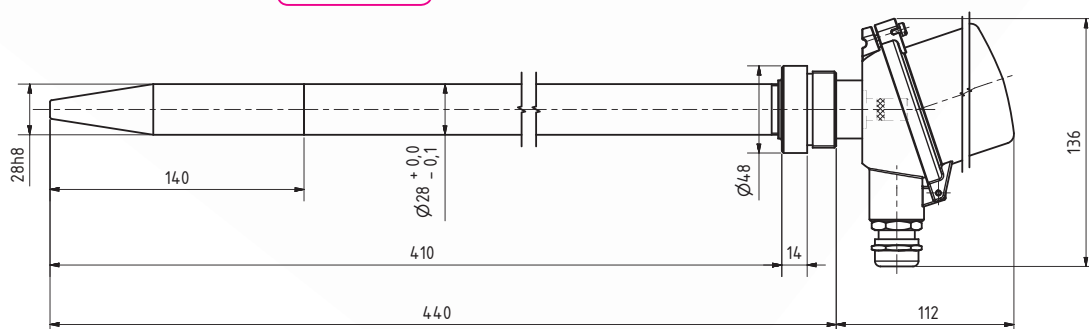


TR 153C

Temperature sensor

CE

Z034.4a


TR 153C


DESCRIPTION AND APPLICATION

The **TR 153C** temperature sensor is designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor is equipped with the LEMO connector and can be completed by a metal connection head.

The temperature sensor is highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensor can be also used to measure temperature of plastic and bulk materials. The case of the temperature sensor is made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 153C
Type of sensing element	Pt 100, TCK, TCJ, other as requested
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element
Measuring range	-30 °C to 200 °C
Connection	4wire
Case material	stainless steel, measuring tip made of hardening steel
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0,5} < 6 \text{ s}$, $\tau_{0,9} < 14 \text{ s}$ Continental method*: $\tau_{0,5} < 17 \text{ s}$, $\tau_{0,9} < 80 \text{ s}$
Minimum immersion depth	40 mm
Connector	LEMO PCA.15.304.CLLC
Connection head	DANW4-M2A-4x-NS-Cal as accessory, NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%
Weight	1.8 kg

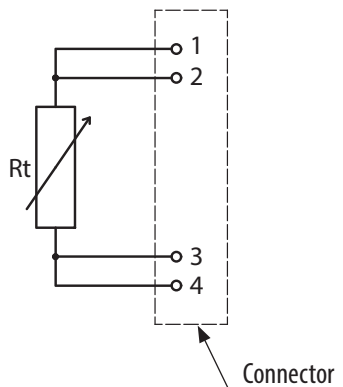
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

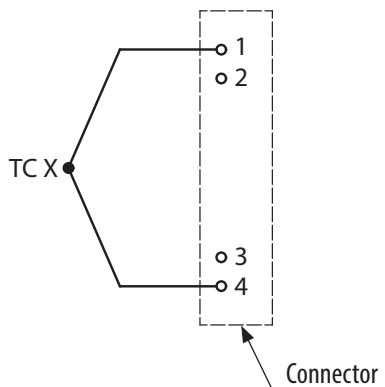
- DANW4-M2A-4x-NS-CaL connection head
- Cable connector counterpart - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

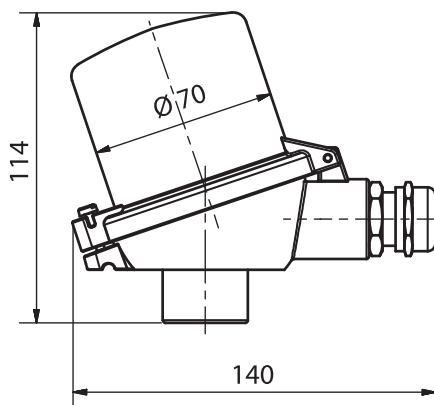


- Thermocouple type K or J



OPTIONAL ACCESSORIES ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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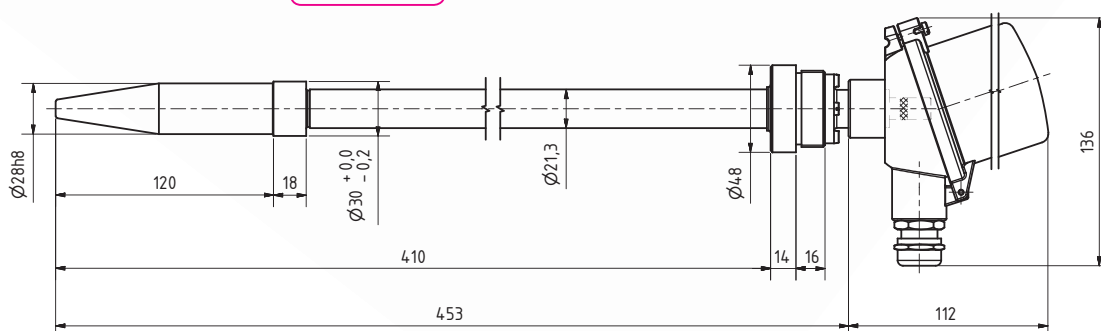


TR 153D

Temperature sensor



Z069.3a


TR 153D


DESCRIPTION AND APPLICATION ↓

The **TR 153D** temperature sensor is designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor is equipped with the LEMO connector and can be completed by a metal connection head.

The temperature sensor is highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensor can be also used to measure temperature of plastic and bulk materials. The case of the temperature sensor is made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION ↓

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS ↓

Sensor type	TR 153D
Type of sensing element	Pt 100, TCK, TCJ, other as requested
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element
Measuring range	-30 °C to 200 °C
Connection	4wire
Case material	stainless steel, measuring tip made of hardening steel
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 6$ s, $\tau_{0.9} < 14$ s Continental method*: $\tau_{0.5} < 17$ s, $\tau_{0.9} < 80$ s
Minimum immersion depth	40 mm
Connector	LEMO PCA.2E.304.CLLC
Connection head	DANW4-M2A-4x-NS-Cal as accessory, NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%
Weight	1.4 kg

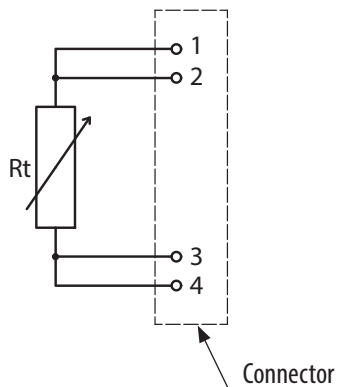
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

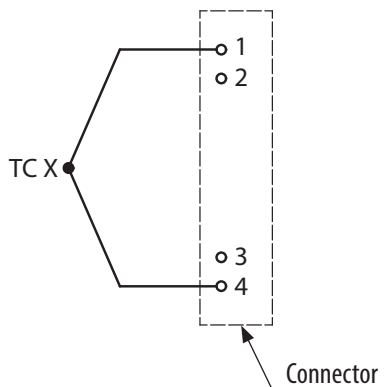
- DANW4-M2A-4x-NS-CaL connection head
- Cable connector counterpart - LEMO FFA.2E.304.CLAC65
- Connection cable with the LEMO FFA.2E.304.CLAC65 connector

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

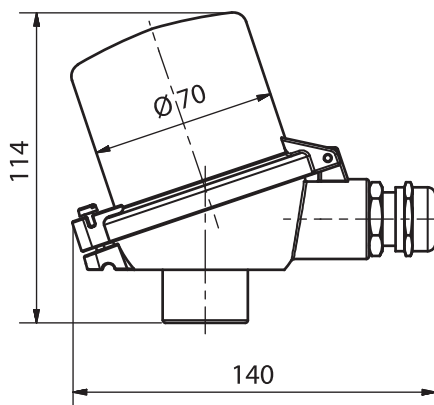


- Thermocouple type K or J



OPTIONAL ACCESSORIES ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.2E.304.CLAC65 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.2E.304.CLAC65



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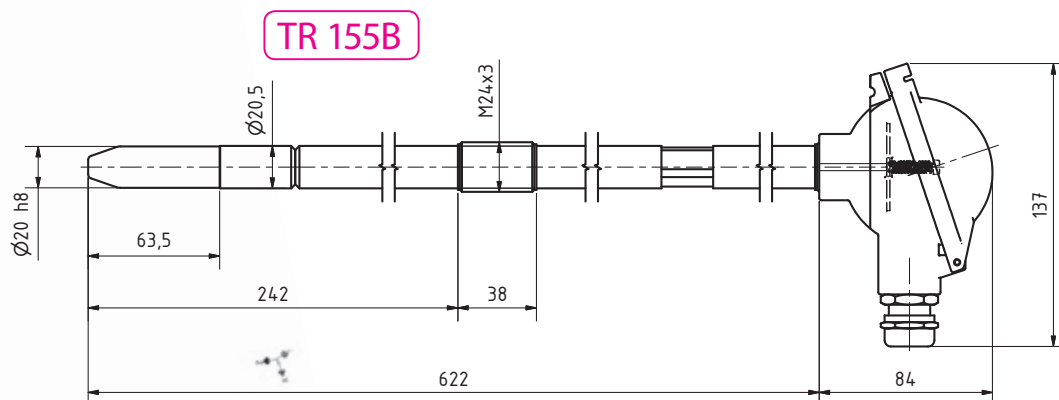
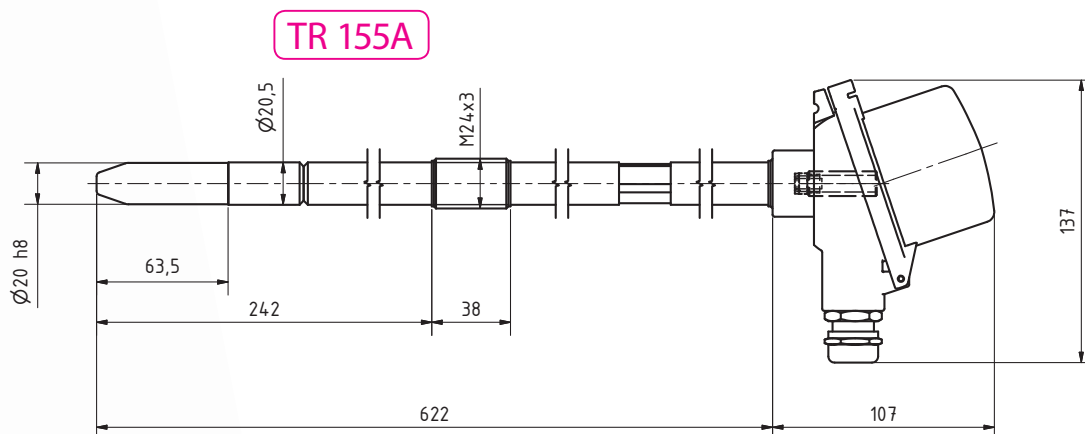
TR 155A

TR 155B

Temperature sensor

CE

Z074.2a



DESCRIPTION AND APPLICATION

The **TR 155A** and **TR 155B** temperature sensors are designed taking into account specific needs of temperature measurement of the rubber mixtures processing in the rubber industry. The temperature sensor of variant A is equipped with the LEMO connector and can be completed by a metal connection head. The temperature sensor of variant B is equipped with a ceramic terminal block placed in a connection head.

The temperature sensors are highly resistant to abrasion influence of rubber mixtures and to vibrations. The sensors can be also used to measure temperature of plastic and bulk materials. The cases of the temperature sensors are made of stainless steel. And with its design, faster time response is achieved compared to sensors installed into a thermowell.

DECLARATION, CERTIFICATION, CALIBRATION

■ Manufacturer provides **EU Declaration of Conformity**.

■ **Calibration** – The final metrological inspection – comparison with standards or working instruments – is carried out for all the products. Continuity of the standards and working measuring instruments is ensured within the meaning of the Section 5 of Act no.505/1990 on metrology. The manufacturer offers a possibility to supply the sensors calibrated in SENSIT s.r.o.'s laboratory (according to requirements of the EN ISO/IEC 17025 standard, as amended) or in an Accredited laboratory.

SPECIFICATIONS

Sensor type	TR 155A	TR 155B
Type of sensing element	Pt 100, TCK, TCJ, other as requested	
Recommended measuring current	≤ 3 mA for Pt 100/3850 measuring element	
Measuring range	-30 °C to 200 °C	
Connection	4wire	
Case material	stainless steel, measuring tip made of hardening steel	
Time response Immersion depth 100 mm	according to the EN 60751 standard: $\tau_{0.5} < 6$ s, $\tau_{0.9} < 14$ s Continental method*: $\tau_{0.5} < 17$ s, $\tau_{0.9} < 80$ s	
Minimum immersion depth	40 mm	
Connector	LEMO PCA.15.304.CLLC	—
Terminal block	—	YES
Connection head	DANW4-M2A-4x-NS-Cal as accessory	NAA2-M2X-6x-NS-Cal - fixed component of the sensor
Insulation resistance	> 200 MΩ at 500 V _{DC} , 25°C ± 3°C, humidity < 80%	
Weight	1.3 kg	

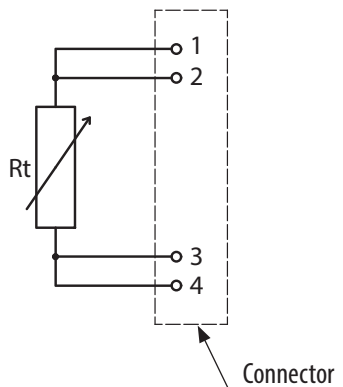
* from 0 °C (crushed ice) to 180 °C (flowing silicon oil 0.4 ms⁻¹)

ACCESSORIES ↓

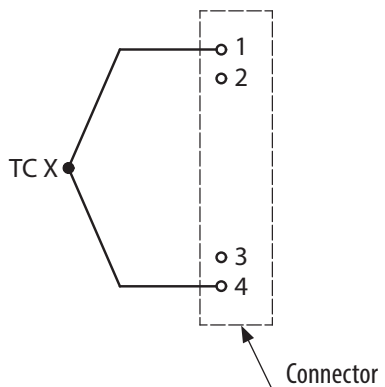
- DANW4-M2A-4x-NS-CaL connection head for the variant A
- Cable connector counterpart for the variant A - LEMO FFA.1S.304.CLAC62
- Connection cable with the LEMO FFA.1S.304.CLAC62 connector for the variant A

WIRING DIAGRAM ↓

- Pt 100 – 4wire connection

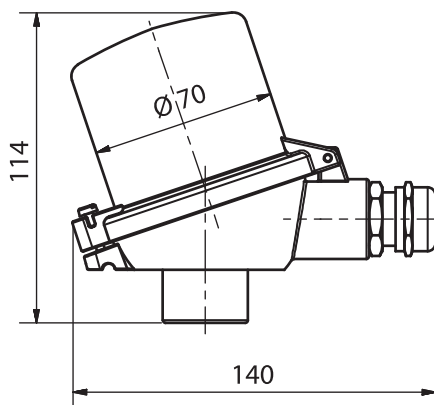


- Thermocouple type K or J



OPTIONAL ACCESSORIES FOR VERSION A ↓

- Connection head DANW4-M2A-4x-NS-CaL



- Connector LEMO FFA.1S.304.CLAC62 – for cable Ø 5.3–6.1 mm



- Connection cable with the LEMO FFA.1S.304.CLAC62



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Z074.2a | 04/20

replace Z074.1a



OVERVIEW OF STANDARD PRODUCTION

IoT
application
ready

HEAD TEMPERATURE SENSORS

- Type of sensing element:
Resistance – Pt 100/3850, Pt 500/3850, Pt 1000/3850, Ni 1000/5000, Ni 1000/6180, Ni 10000/5000, Ni 10000/6180, Ni 2226 = T1, Ni 891, NTC, PTC
Thermocouple – TCK, TCJ, TCT; Others – KTY, SMT 160, DALLAS, TSic etc.
- Maximum measuring range: -200 °C to 600 °C
(custom manufactured sensors above the stated parameters)
- Ingress protection: up to IP 68 (according the sensor type)
- Output signal: resistance, current, voltage and digital
- Stem length: standardly 70 to 240 mm, custom manufactured from 40 mm to ..."according to customer's requirement"
- Stem material: stainless steel DIN 1.4301, DIN 1.4571, DIN 1.4404 and others "according to customer's requirement"
- Accessories: thermowells, welded-on pieces, reductions, brackets, flanges, clamps, connectors

↓ **CONTACT** (series S 140, S 150, S 190)



↓ **INTERIOR USE** (series S 100)

DIGI
output



↓ **OUTDOOR USE** (series S 110, K 110)



↓ **IMMERSION**  (series S 120, K 120, S 160, K 160, S 180, S MINI)



↓ **HIGH TEMPERATURES**  (up to 600 °C)



↓ **WITH CONNECTOR** (TR 021, TR 021A, TR 021F, TR 02)



↓ **WITH DISPLAY** (series NSD)



TEMPERATURE PROBES

IP
68

- Design: contact, stick in, ambient temperature probe ■ up to 6 measuring points
- Maximum measuring range: -50 °C to 300 °C ■ Type of sensing element: Resistance: Pt 100/3850, Pt 500/3850, Pt 1000/3850, Ni 1000/5000, Ni 1000/6180, Ni 10000/5000, Ni 10000/6180, Ni 2226 = T1, NTC, Ni 891; Thermocouple: TCK, TCJ, TCT ■ Ingress protection: up to IP 68 (according to probe type)
- Case material: stainless steel DIN 1.4301 ■ Case diameter: from 1.5 mm... "according to customer's requirement"
- Handle material: silicone, teflon, polypropylene, LCP, PEEK ■ Cables: silicone, teflon, PVC



CABLE TEMPERATURE SENSORS

■ Type of sensing element:

Resistance - Pt 100/3850, Pt 500/3850, Pt 1000/3850, Ni 1000/5000, Ni 1000/6180, Ni 10000/5000, Ni 10000/6180, Ni 2226 = T1, Ni 891, NTC, PTC
Thermocouple - TCK, TCJ, TCT; Others - KTY, SMT 160, DALLAS, TSic etc.

■ Maximum measuring range: -200 °C to 450 °C (custom manufactured sensors above the stated parameters) ■ Connection: 2wire, 3wire, 4wire

■ Ingress protection: up to IP 68 (according the sensor type) ■ Case diameter: from 1,5 mm ..."according to customer's requirement"

■ Threads: standardly G 1/2", G 1/4", M 10 x 1, M 10 x 1,5 and others based on application ■ Cables: PVC, silicone, Teflon, fibreglass insulation and others

■ Case material: stainless steel DIN 1.4301, DIN 1.4571, DIN 1.4404, brass, dural and etc. ..."according to customer's requirement"

↓ SMOOTH CASE



↓ THREAD



↓ CONTACT



↓ BAYONETS



↓ PLASTIC CASE



↓ CRYOGENIC TEMPERATURE



↓ RIGHT-ANGLE



↓ ELECTROMOTOR WINDING



MINERAL INSULATED RESISTANCE TEMPERATURE SENSORS – MGO

■ Temperature range up to 600 °C ■ Case diameter from 1 mm ■ Type of sensing element: Pt 100, Pt 500 or Pt 1000 ■ Shapeable

↓ MINERAL INSULATED



↓ WITH CONNECTOR



↓ WITH CONNECTION HEAD



THERMOCOUPLE TEMPERATURE SENSORS

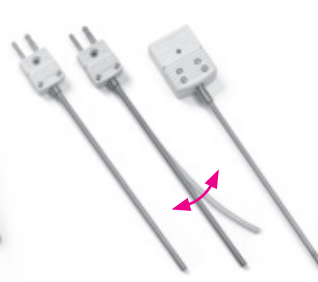
- Temperature range up to 1 200 °C
- Case diameter from 1 mm
- Types: TCK, TCJ, TCT, TCS etc.
- Shapeable

↓ MINERAL INSULATED

↓ WITH BAYONET

↓ WITH CONNECTOR

↓ WITH CONNECTION HEAD



PAIRED TEMPERATURE SENSORS

- Type of sensing element: Pt 100/3850, Pt 500/3850, Pt 1000/3850
- Compliance with standards: EN 60751, EN 1434; MID Certification
- Maximum temperature range: 0 °C to 180 °C
- Compatibility with measuring instruments of the following companies: SIEMENS, LADIS+GYR, KAMPSTRUP, ITRON, COMAC CAL, CODEA, SENSUS METERING and others
- Design variability: mounting into thermowell, direct immersion into the piping



BIMETALLIC TEMPERATURE SENSORS AND SWITCHES

Sensors

- Max. measuring range: -30 °C to 200 °C
- Measuring system: bimetallic
- Design: into thermowell, contact

Switches

- Switch off temperature from 70 to 180 °C
- Design: with a smooth stem, with a thread
- Contact design: normally open / normally closed



TEMPERATURE SWITCHES

- Design: on a DIN bar, on a console, for interiors and exteriors, for ducts, with an external probe, with or without a display, with an adjustable temperature/with a fixed temperature
- Input: Pt 100/3850, Pt 1000/3850, Ni 1000/6180, TCK
- Output: relay, RS 485
- Maximum measuring range: -50 °C to 600 °C
- Hysteresis: adjustable
- Power supply: 12/24 V or 230 V/50 Hz (according to the sensor type)



CUSTOM MADE

Complete service includes

- Thorough analysis of the application
- Production and delivery of samples
- Technical support and consulting design of sensor which you need, personal approach
- Price quotation is calculated on the base of required quantity
- Production of sensors including control of every sensor, for every piece
- Delivery date between 7 to 21 days
- Express production and delivery within possibilities of technological process



CONVERTERS

Temperature – Current / Temp. – Voltage / Temp. – RS 485 / Temp. – CAN protocol

- Output: 4 to 20 mA, 0 to 10 V, RS 485, CAN protocol ■ Power supply: 11 to 30 V_{DC} (according type)
- Standard measuring range: -30 °C to 60 °C, 0 °C to 35 °C, 0 °C to 100 °C, 0 °C to 150 °C, 0 °C to 200 °C, 0 °C to 400 °C; possibility of custom setting of the measuring range
- Design: on a DIN bar, wall-mounted version



DISPLAY UNITS

- Design: portable and panel units ■ Possibility of saving measured values
- Outputs: contact (2 x or 4 x relay), analogue (0 to 20 mA, 4 to 20 mA, 0 to 10 V)



TEMPERATURE AND RELATIVE HUMIDITY SENSORS

- Design: for interiors and exteriors, air-conditioning ducts, with an external probe
- Output: two galvanic separated signals 4 to 20 mA, 0 to 10 V, RS 485, CAN protocol
- Measuring range of relative humidity: 0 to 100 % RH ■ Maximum measuring temperature range: -30 °C to 125 °C according to the sensor type ■ "S" head design is in compliance with the temperature sensor, designed without mobile parts, high sensitivity ■ Option with display



TEMPERATURE, RELATIVE HUMIDITY AND CO₂ SENSORS

- Outputs: 4 to 20 mA, 0 to 10 V, RS 485, CAN protocol ■ Option with display
- LED identification ■ Design: for interiors and exteriors, air-conditioning ducts, with an external probe



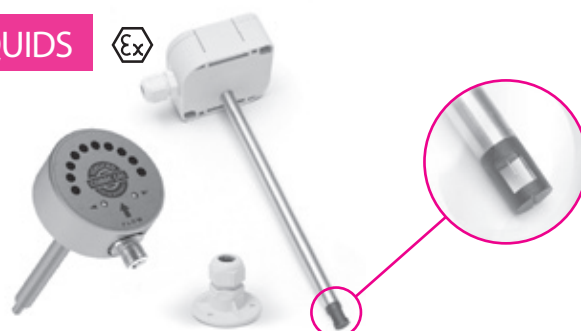
COMBINED INTERIOR SENSORS

- Possible to choose a sensor version with various combinations of measured quantities (combination of two to five measured quantities) by selecting specific sensors ■ Outputs: RS 485, CAN protocol



FLOW SENSORS AND FLOW SWITCHES OF AIR AND LIQUIDS

- Design: for air-conditioning ducts ■ Liquid output: 4 to 20 mA, normally open contact
- Air output: voltage 0 to 10 V for sensors, 230 V / 8A relay for switches
- Recommended measuring range: 2 to 5 m/s, 2 to 10 m/s, 2 to 20 m/s
- "S" head design is in compliance with the temperature sensor, designed without mobile parts, high sensitivity



FLOOD DETECTORS

- Design: wall-mounted version or for horizontal surface, with external probe
- Output: the relay output or the output terminal of an open collector type ■ „S” head design



INDUCTIVE SWITCHES AND OPTICAL SENSORS

↓ INDUCTIVE PROXIMITY SWITCHES

Application:

- Rotation control ■ Press work presence
- Revolutions ■ Chain sag ■ Linear motion
- Products on a conveyor ■ Aperture
- Switch position ■ Material thickness
- Pressure ■ Door position ■ Rotary motion
- Object presence ■ Turbine revolutions
- Liquid level etc.



↓ OPTICAL LEVEL SENSORS

Suitable for:

- Food Processing Industry (dairies, production of alcoholic and non-alcoholic beverages, breweries)
- Chemical and Petrochemical industry
- Medical and Pharmaceutical industry



ACCESSORIES

- Thermowells, welded-on pieces, reducers, movable fittings, holders, connectors, bayonet adapters, thermal conductive paste...



temperature

humidity

CO₂

level

flow

position

measured physical quantities

dimensional draft

www.sensit.cz

Sensors for Railway Vehicles

www.railwayvehicles.com



CUSTOM PRODUCTION OF TEMPERATURE SENSORS



Custom production of temperature sensors is a natural part of company SENSIT s.r.o. This means, design and production of unit quantities of special temperature sensors for specific customer's applications, including all relevant standards for rubber and plastic industries.

WE CAN OFFER ↓

1. Cooperation, our experience and support for the development of suitable sensors for your application. The personal negotiation with our technician in your company.
2. Ensure the required certification, norm declarations in english, german, russian and other languages.
3. Design and production of temperature sensors in "customs case"
 - production of sensors according to samples or drawings
 - modification of the standard cases
 - production of sensors with difficult and unusual case design
 - production of sensors with small case diameter from 1.5 mm
 - proposing of assembly according to the application
4. Encapsulation of special sensing element
 - KTY ■ NTC ■ TSic
 - SMT 160
 - two and more sensing elements to the case
5. Sensors compliant with special requirement for
 - resistance to vibration
 - high resistance to abrasive action
 - use at cryogenic temperatures
 - frequent repeatability and stability
 - required high accuracy
 - execution and compliance standards (tests) el. strenght and puncture
 - very fast response to temperature change
6. Standardly used materials are replaced according to your requirements, as for example in areas such as housing material
 - tin bronze CuSn9 ■ plastics - makromelt ■ aluminium (alloy)
 - stainless steel DIN 1.4571 ■ brass

For cable, shrinking tubes

 - PFA ■ Viton ■ Kynar ■ flame retardant cable – FM 4910
 - cables for application under soil, and so on

COMPLEX SERVICE INCLUDES ↓

- technical support and consulting to design the sensor which you need, personal approach
- production and delivery of samples
- our quotation is calculated on the base of your required quantity
- production of sensors including control of every sensor, for every piece
- delivery date between 7 to 21 days
- express production and delivery within possibilities of technological process





↓ NOTES





temperature



humidity



CO₂



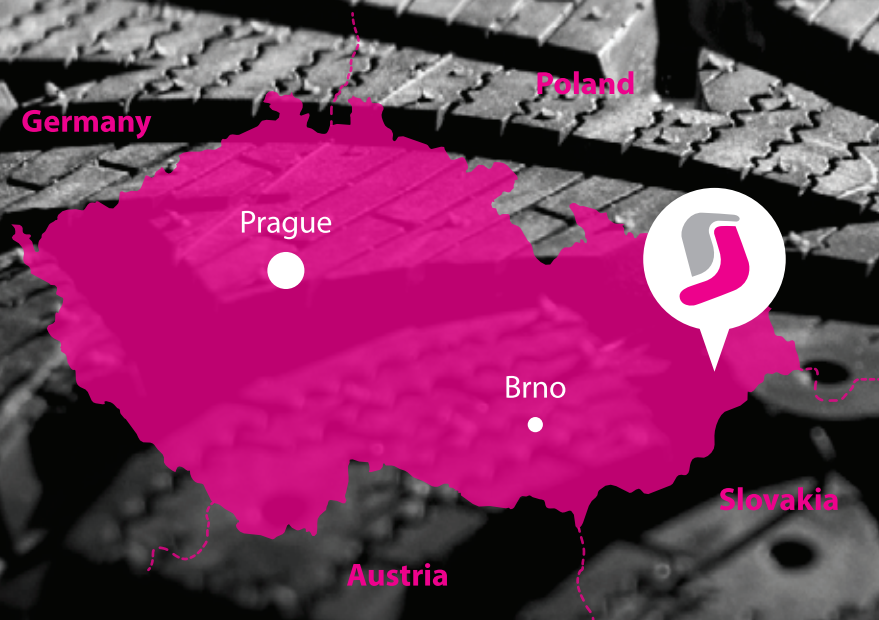
level



flow



position



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