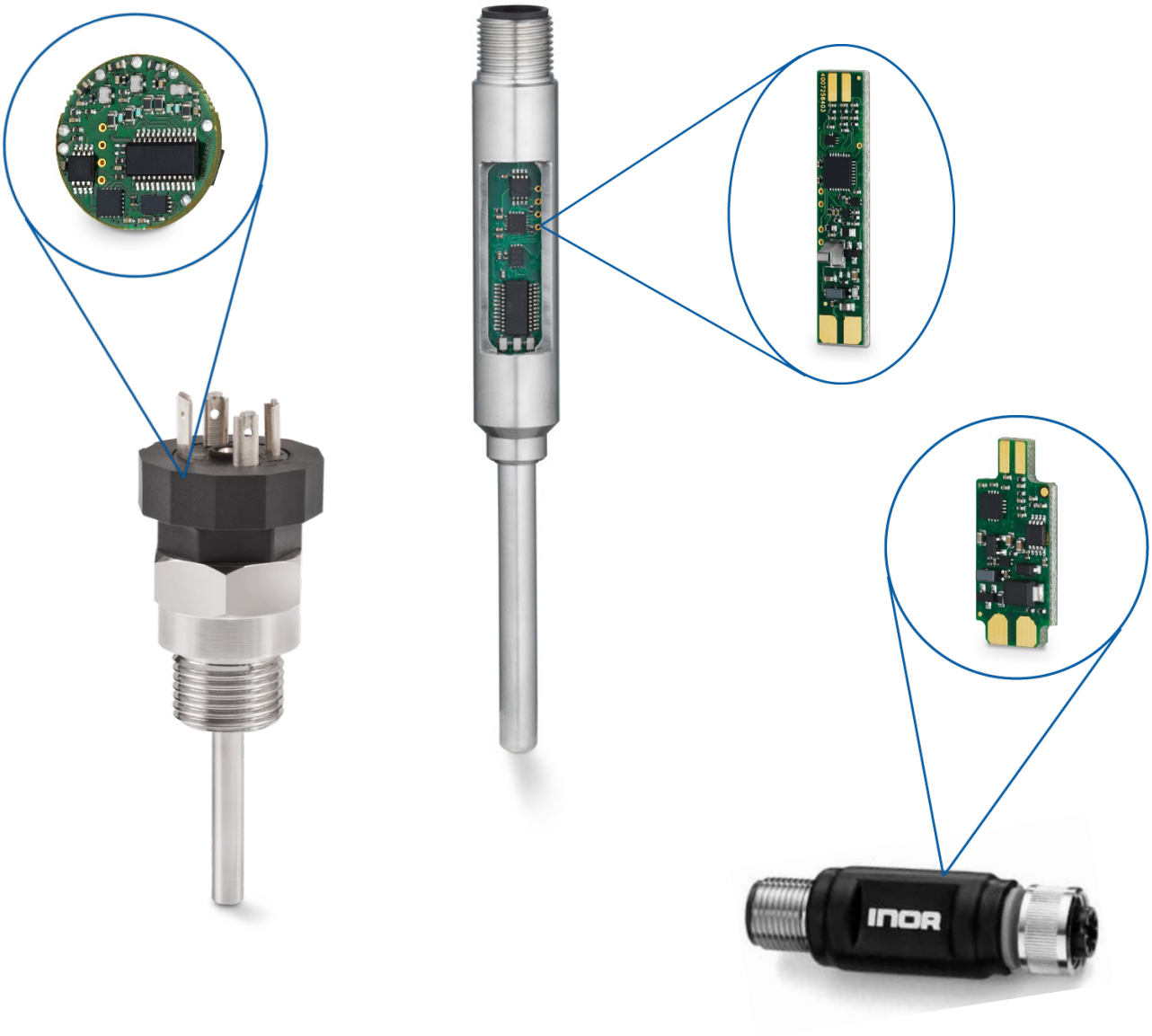
Application Guideline

How to integrate OEM202 in your own equipment



Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

General

OEM202 is a digital temperature transmitter for integration into temperature sensors, systems or machines, for converting a low signal level from Pt100, 2-, 3- & 4-wire to an amplified 4 – 20 mA signal.

OEM202 is a temperature transmitter delivered as a circuit board that needs to be built in by the customer. As such, it must be handled with precautionary measures such as ESD protection and suitable tools.

Technical Specifications

Output	4…20 mA, temperature linear
Sensor element	Pt100, Pt1000
Connection	2-, 3- and 4-wire
Max. sensor wire resistance	3- and 4-wire connection – 20 ohm/wire 2-wire connection – max 40 ohm in total
Measuring range	-200… +850°C / -328…+1562°F
Min. span	20°C / 36°F
Sensor break detection	Upscale / Downscale alarm
Sensor short detection	Upscale / Downscale alarm
Basic accuracy (PCBA)	Max. of ±0.1°C or ±0.1% of span*
Temperature drift (PCBA)	Max of ±0.01°C/°C or ±0.01%/°C of span
Long-term stability	Max of ±0.25°C or ±0.25% of span / 5 year
Ambient temperature	Operating: –40…+85°C / -40…+185°F Storage: –50…+100°C / -58…+212°F
Humidity	0 … 98% RH (non- condensing)
Power supply	5 to 32 VDC
Vibration	Acc. to IEC60068-2-6, test Fc, 10-2000Hz, 10g
Uncertainty	2.1 uA
EMC	Acc. to IEC61326-1

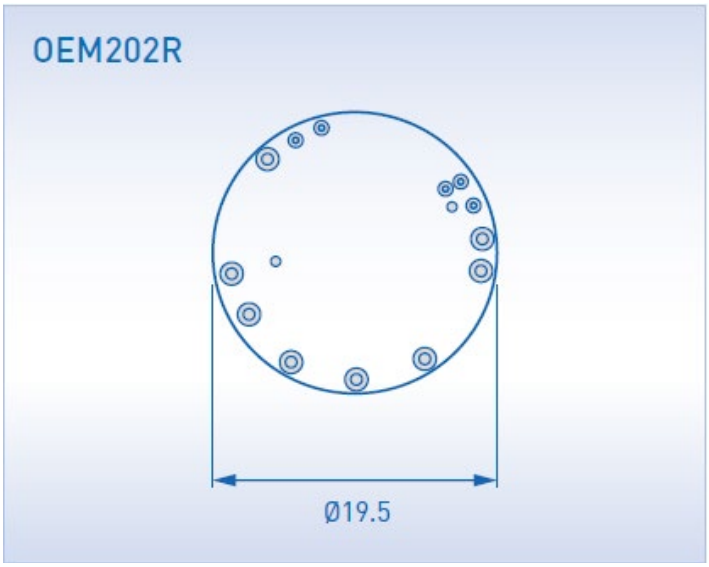
* Offset adjustment: Max 50% of selected max value

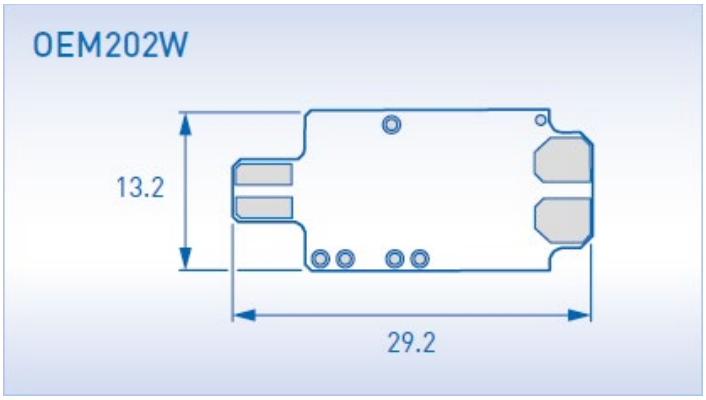
Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

Dimensions

OEM202 is available in three standard designs shown below. When mounting into your equipment, it is important to leave as much space as needed to keep the electronics in its absolute max and min ambient temperature. This is required to assure the functionality of the transmitter.





Protection

Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

For safety reason OEM202 must to be protected from Electro Static Discharge (ESD) during handling and mounting.

OEM202 must be protected against mechanical damage during handling and mounting which includes avoiding to drop OEM202 and treated with to high temperature during mounting.

Soldering is only allowed on the solder pads for RTD element and connector. Precaution has to be taken not to overheat any other components.

Assembly instruction

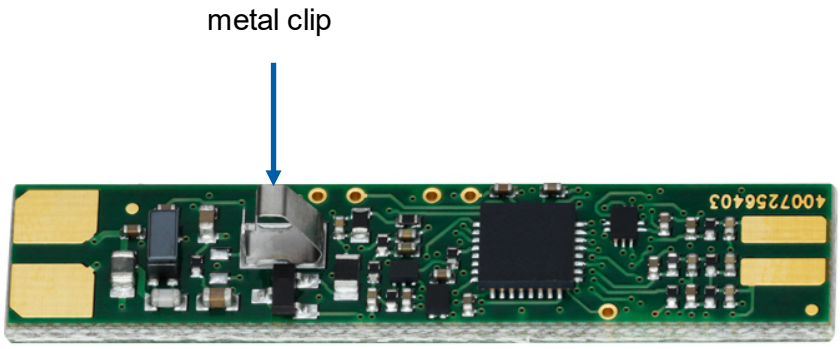
Any use of moulding or encapsulation shall be verified as not to change the specifications of OEM202.

If using silicone, use a neutral curing silicone suitable for electronics. Acid curing silicone is highly unsuitable for electronics and may damage the transmitter.

Mounting method of OEM202 shall ensure that no mechanical stress is imposed on the OEM202 including movements due to environmental influence, e.g. temperature variations.

When using the OEM202 PCBA in high temperature applications it is important to design the sensor such as the ambient temperature on the PCBA is not exceeding its specification.

For best EMC performance on P-variant the metal clip shall be connected to ground.



Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

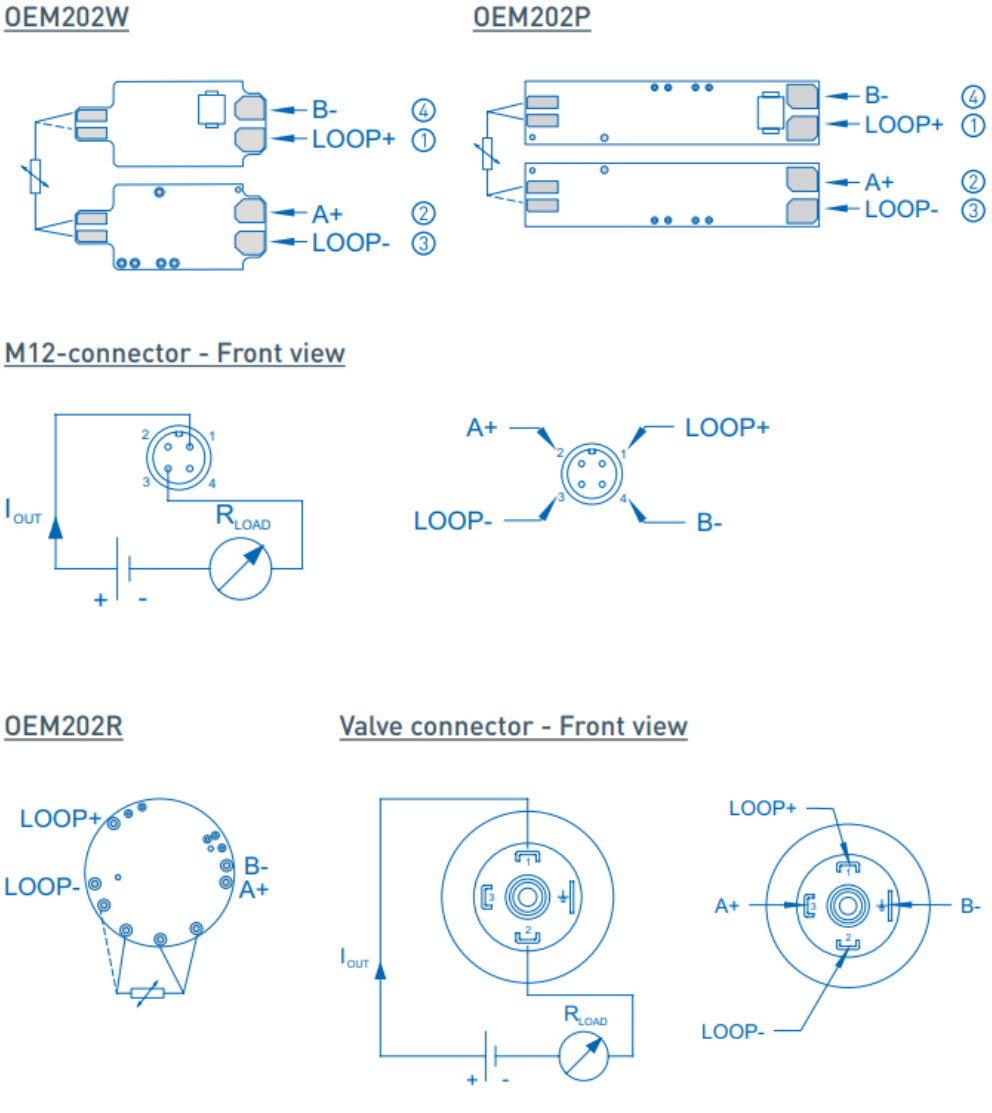
Electrical wiring

The transmitter is connected to the instrument loop and sensor with solder pads. In the figures depicted below the location of the solder pads are indicated as grey squares for the standard models.

When assembled, precaution as described above needs to be taken. To fully apply to the RoHS directive, unleaded solder shall be used.

The PCBA as is, fulfil all EMC requirement but the custom assembly recommends to be verified in its complete assembly to ensure the EMC behaviour.

Electrical wiring diagram:



Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

Configuration to your need

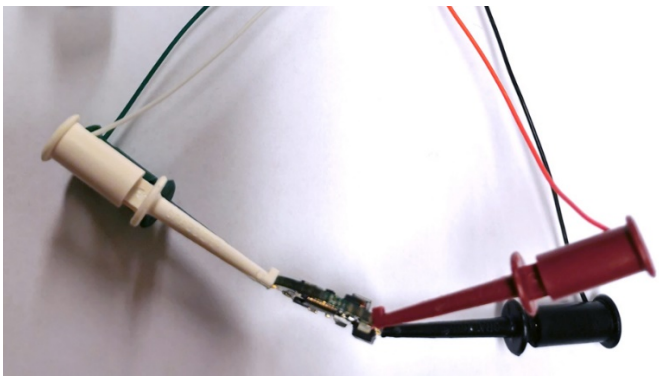
If configuration is not included in delivery from factory, then ConSoft together with ICON-X needs to be connected to the transmitter.

When configuring using ICON-X different adaptors needs to be used: Beside the standard USB-ICON-X interface the following adapters can be used dependent model of OEM202.

When using the M12 connector cable assembly 4004430401 shall be used.

When configuring an open PCBA of OEM202P or OEM202W, adapter 70ADA00100, picture below, shall be used together with the 4004430401 cable.

When configuring the open PCBA of OEM202R adapter the 70ADA00101, picture below, together with the 4004430401 cable shall be used.



If OEM202R is assembled with or in a valve connector of type GSP 311, the configuration will be possible using adapter 4004854101 together with cable 4004430401.

GSP 311

4004854101

Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

Customizable to your needs

Even if OEM202 comes in three different form factors, customization is possible for other dimensions. Already in the standard configuration, OEM202P offers high performance and many functions. Beyond this, it is possible to make adjustments both physically and technically to meet your specific needs. Examples of such adjustments are adjusting the form factor to fit your particular application or enabling measurement with both PTC, NTC and PtX elements. Other example is encapsulation which can be adapted for your need. For customization you need to contact the sales department for discussing set-up cost and volumes.

Application examples

Using OEM202P

Using OEM202R

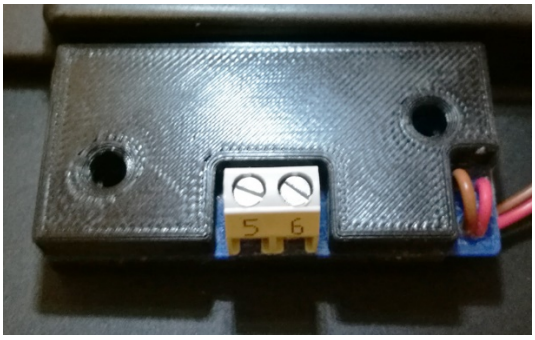
Using OEM202W

Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

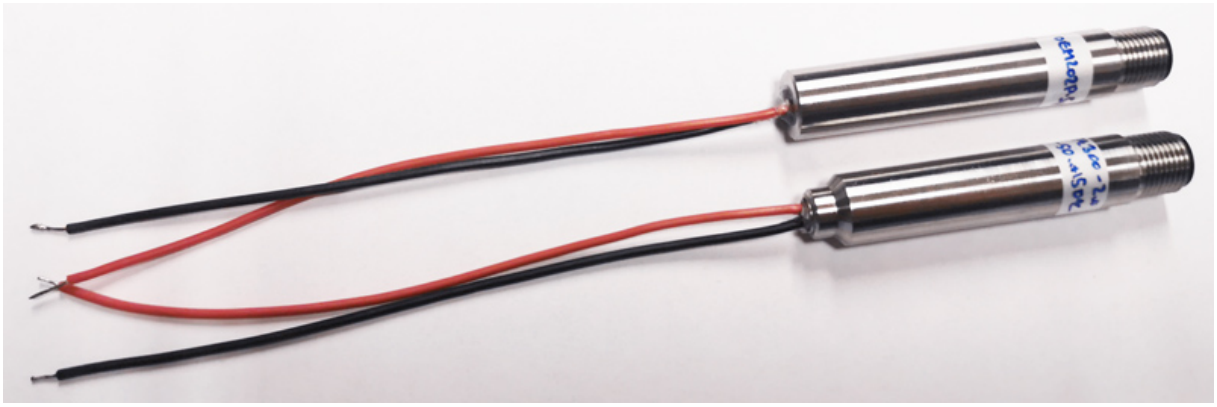
Doc-ID: 4008675201 – 2021-02-23 – Rev 002

Example:

Special customization unit for use in other equipment with wire RTD sensor supervising overheating.



Customized metallic shielded compact transmitter with 2-wire open sensor entry and M12 instrument connection.



Other example will be:

- As a piggyback to other equipment
- Integration into cable glandes
- Adaption for any machine builders

Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002

Reservations

This document is aiming to provide an overview of different possibilities to handle and integrate an OEM202 transmitter. Included are examples of applications, however not all different types of possible application are shown.

For all type of integration into customers equipment, the integrator is responsible for following applicable laws and rules as well as to the guidelines within this document.

Disclaimer

Please read this disclaimer carefully before using the information. The content displayed in this document is the intellectual property of KROHNE INOR. You may not reuse, republish, or reprint such content without our written consent. All information written is merely for educational and informational purposes. It is not intended as a substitute for professional knowledge or advice. Should you decide to act upon any information in this document, you do so at your own risk. While the information in the document has been verified to the best of our abilities, we cannot guarantee that there are no mistakes or errors. We reserve the right to change this content at any given time, of which updates is your own responsibility. If you want to make sure that you are up to date with the latest changes, we advise you to frequently visit our website for updated information.

Inor Process AB | Address: P.O. Box 9125, 200 39 Malmö, Sweden | Phone: +46 40 312 560 | Fax: +46 40 312 570 | www.inor.com

Doc-ID: 4008675201 – 2021-02-23 – Rev 002