Operating Instructions

for

Temperature Sensor

Model: MMA

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2 Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC machinery directive.

3 Safety

Before installation, commissioning and operation, ensure that the appropriate sensor is used.
Non-observance can result in serious injury and/or damage to equipment.

3.1 Personnel qualification

Improper handling can result in considerable injury and damage to equipment.
The instructions included in this manual may only be carried out by qualified personnel.

4 Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:

- Device model: MMA

5 Regulation Use

The temperature sensors of the MMA Series are suitable for all applications where processes involving fluids, solid bodies or materials, or gases, require temperature recording and measurement. Our temperature sensors are suitable for use in the following industrial areas: chemicals, petrochemicals, water, feed, food, sanitary, etc.

Any use of the Temperature Sensor, model: MMA, which exceeds the manufacturer's specification may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

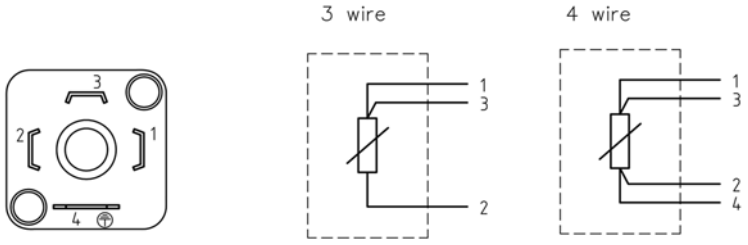
6 Operating Principle

Resistance thermometers work by using the continuous change of resistance of metals subject to temperature rising and decreasing. The most common resistance material used is platinum, as it is very stable and has very good repeatability. The temperature coefficient of platinum is positive, so its resistance increases as the temperature rises. This property is defined in the IEC751 standard, which defines measurements deviations categories A and B.

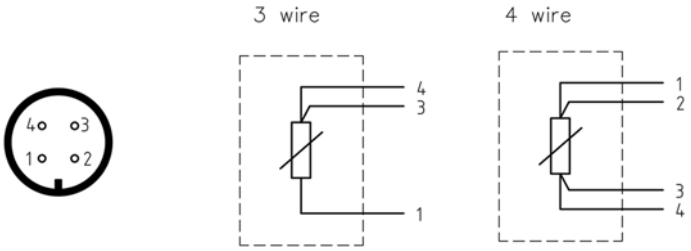
7 Electrical connection

7.1 Sensor wiring diagram

7.1.1 Connector type EN 175301-803 (DIN 43650)

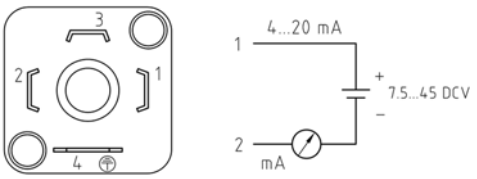


7.1.2 Connector type M12

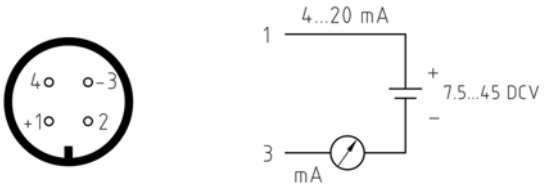


7.2 Transmitter wiring diagram

7.2.1 Connector type EN 175301-803 (DIN 43650)



7.2.1.1 Connector type M12



8 Maintenance and repairs

The instrument does not require maintenance or servicing.
Repairs must be only carried out by Kobold (manufacturer)

9 Storage

Measuring instruments should be protected against humidity and dust.
Storage temperature: -25 ºC…+80 ºC for sensors without transmitter.

10 Technical Details

10.1 Sensor wiring

- 2 wires Error due to the lead resistance of the sensor
- 3 wires With connecting wires up to 25 m, lead resistance is negligible.
- 4 wires The lead resistance of the connecting wires is negligible

10.2 Sensor according to IEC 60751

-Class B
-Class A
-Class 1/3
-Class 1/10

The nominal value of Pt100 sensors is 100Ω at 0 ºC.

10.3 Tolerance class

-Class B	±0.3 + 0.005 * t
-Class A	±0.15 + 0.002 * t
-Class 1/3	±0.10 + 0.005 * t
-Class 1/10	±0.03 + 0.0017 * t

t= measuring temperature in ºC without sign

10.4 General details

Ambient temperature:

With connector EN 175301-803 without transmitter:	-40…+90 ºC
With connector EN 175301-803 with transmitter:	-40…+85 ºC
With display AUF:	-20…+80ºC
With connector M12 with or without transmitter:	-25…+80 ºC

10.5 Transmitter 4...20 mA

Power supply:	8 to 35 V
Accuracy:	≤±0.1% of span (absolute) ≤ ±0.01% of span /°C (Temp coefficient)
Response time:	0.33...60 s
Current Output:	4...20 mA.
Load:	≤ (Vsupply - 8) / 0.023 [Ω]
Signal on alarm:	NAMUR NE43 Upscale 23 mA NAMUR NE43 Downscale 3,5 mA
Range Configurable:	The transmitter range is configurable

11 Trouble Shooting

Faults	Possible Causes	Corrective actions
No signal/line breakage	Mechanical load too high or over temperature. Line breakage.	Check power supply
Wrong measured values	Sensor drift caused by over temperature	Replace probe
	Sensor drift caused by chemical attack	Use a sensor with thermowell
Wrong measured values (too low)	Entry of moisture into cable	Replace probe. Check configuration of output/range
Wrong measured values and response times too long	Wrong mounting geometry, for example mounting depth too deep or heat dissipation too high	The temperature-sensitive area of the sensor must be inside the medium, and surfaces must be isolated.
	Deposits on the sensor or thermowell	Remove deposits
Oscillation of measured value	Cable break in connecting cable or loose contact caused by mechanical overload	Replace probe with a suitable design, for example equipped with a strain relief or a thicker conductor cross-section. Check wiring
Corrosion	Composition of the medium not as expected or modified or wrong thermowell material selected	Analyze medium and then select a more-suitable material or replace thermowell regularly
Signal interference	Stray currents caused by electric fields or ground loops	Use of screened connecting cables, increase the distance to motors and power lines
	Ground loop	Elimination of potentials, use of galvanic isolated transmitter supply isolators or transmitters

12 Dismounting, return and disposal

12.1 Dismounting

Residual media in dismounted instruments can result in a risk to persons, the environment and equipment. Take sufficient precautionary measures.

All instruments delivered to KOBOLD must be free from any kind of hazardous substances (acids, bleaches, solutions, etc.).

12.2 Disposal

Incorrect disposal may endanger the environment.

13 Order codes

For order codes information, please see the technical datasheet.

14 EU-Declaration of Conformity

DECLARACIÓN DE CONFORMIDAD EU

EU DECLARATION OF CONFORMITY
EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ
DICHIARAZIONE DI CONFORMITÀ EU

KOBOLD MESURA S.L.U.
Avda. Conflent 68 nave 15, 08915 Badalona (España)

Declara, bajo la propia responsabilidad, que el producto
Declares under our sole responsibility, that the product
Erklärt in alleiniger Verantwortung, daß das Produkt
Déclare sous sa seule responsabilité, que le produit
Dichiara sotto la propia responsabilità, che il prodotto

MMA.....

A los cuales se refiere esta declaración, son conformes a las siguiente Directivas Europeas:
To which this declaration relates is in conformity with the following European Directives:
Mit folgenden Richtilinien konform ist:
À auxquels se réfère cette déclaration, ils sont conformes aux Directives Européennes suivant :
A ai quali si riferisce questa dichiarazione, sono conformi alle direttive europee seguente:

EMC2014/30/EU LVD2014/35/EU RoHS2011/65/EU

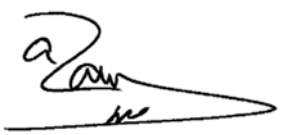
Normas armonizadas y documentos de la normativa aplicados:
Applied harmonised standards and normative documents:
Angewandte harmonisierte Normen oder normativer Dokumente:
Normes harmonisées et documents normatifs appliqués
Norme armonizzate e documenti normativi applicati:

EN 61010-1 :2011, EN 61000-6-2 :2019, IEC 60529:2018, IEC 61010-1:2016,
IEC 61326-1:2021, IEC60751:2022

Fabricado en: **KOBOLD MESURA SLU Avda. Conflent 68, nave 15 08915 BADALONA (Spain**)
Made in:
Hergesteltlt in:
Fabriqué dans:
Fabbricato in:

Badalona Sept. 2022
DT0686 26/06/2022

Gerente



Azzam Chamand

15 UK-Declaration of Conformity

DT0684

DECLARACIÓN DE CONFORMIDAD UK

UK DECLARATION OF CONFORMITY
UK-KONFOMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ UK
DICHIARAZIONE DI CONFORMITÀ UK

KOBOLD MESURA SLU
Avda. Conflent, 68 nave 15 08915 Badalona (España)

We Kobold Mesura S.L.U. declare under our sole responsibility that the product:

Temperature sensor
MMA…

To which this declaration relates is in conformity with the standards noted below:

BS EN 61010-1:2010
Safety requirements for electrical equipment for measurement,controL, and laboratory use. General requirements

BS EN 61000-6-2:2019
Electromagnetic compatibility (EMC) -- Part 6-2: Generic standards - Immunity for industrial environments

BS EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements

BS EN IEC 60751:2019
Industrial platinum resistance thermometers and platinum temperature sensors

Also, the following UK guidelines are fulfilled:

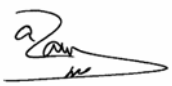
S.I. 2016/1091 Electromagnetic Compatibility Regulations 2016.

S.I. 2016/1101 Electrical Equipment (Safety) Regulations 2016.

S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012.

Badalona Sept. 2022

Gerente



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Technical data
Subject to change without prior notice