

Product overview

EPHY MESS

Gesellschaft für Elektro-Physikalische Meßgeräte mbH



Tailor-made sensors. Worldwide.

10. ASSEMBLED SENSORS AND CABLE THERMOMETERS WKF

Temperature sensors supplied by EPHY-MESS are also available as application specific custom-made versions. We offer individual assembly according to customers request and requirements, and if required we employ plugs or other accessory parts. Cable thermometers are offered in any imaginable variation. Thermometers with a metal or ceramic sleeve, different screw-in housings or with a bayonet lock are available.

Dimensions, wiring and materials are usually aligned to customer requirements. There are models for the most diverse applications. For instance, thermometers with a very high dielectric strength for the installation into the coil of electrical machines or sensor versions with a protection class up to IP68 for use in harsh environments are available. If you have further special requirements, please contact our sales department.



available measuring elements: Pt100 / PTC / NTC / KTY / TE / BIS

Cable thermometer with shrinking tube XX / SH

- sensor with a permanently connected supply line, bare or shrinking tube insulation
- upon request also assembled with a plug
- measuring range from -60°C ... +260°C
- measuring range Ex from -60°C ... +180°C
- connection as 2-, 3- or 4- wire circuit
- high-quality supply lines with Teflon® or silicone insulation, as single litzes, hose line or flat hose line
- supply line ends as bare or tin coated version, with cable end sleeve or assembled with a plug
- dielectric strength normally up to 4 kV / AC 50 Hz / 1 min.
- special versions with higher dielectric strength available



Certificates



available measuring elements: Pt100 / PTC / NTC / KTY / TE

Cable thermometers in a metal sleeve XX / MH

- sensor with a permanently connected supply line, installed in diverse sleeve forms, e.g. in stepped sleeves, flattened sleeves with mounting hole or with bend protection
- measuring range from -60°C ... +260°C, special versions up to 400°C
- measuring range Ex from -60°C ... +180°C
- sleeves made of brass, stainless steel or plastics
- sleeve diameter starting at ø 3 mm, sleeve length starting at 10 mm
- screened versions available
- IP protection class up to IP68 available
- with single litzes, hose line or screened wires
- as single or double thermometer
- connection as 2-, 3- or 4- wire circuit



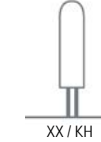
Certificates



available measuring elements: Pt100 / PTC / NTC / KTY / TE

Cable thermometers in a ceramic sleeve XX / KH

- sensor with a permanently connected supply line encapsulated in a ceramic sleeve
- measuring range from -60°C ... +400°C
- measuring range Ex from -60°C ... +180°C
- dimensions: ø 3 x 15 mm / ø 4.9 x 16 mm / ø 4.9 x 30 mm / ø 4 x 25 mm
- permanently connected single litzes or hose line with glass fibre dielectric strength normally up to 5 kV / AC 50 Hz / 1 min.
- special versions with higher dielectric strength available
- suitable not only for the installation into the coil of electrical machines



Certificates





available measuring elements: Pt100 / PTC / NTC / KTY / TE



available measuring elements: Pt100 / PTC / NTC / KTY / TE

Thermometers with a bayonet lock

- simple and fast installation / disassembly of the thermometer
- stageless adjustable bayonet lock
- contact pressure and pretension adjustable
- measuring range $-55^{\circ}\text{C} \dots +220^{\circ}\text{C}$
- measuring range Ex $-55^{\circ}\text{C} \dots +180^{\circ}\text{C}$
- metal sleeve with adjustable bayonet lock
- straight or angled versions
- different screw-in nipples are optionally available

Certificates



Thermometers with screw-in housing SGH

- sensor built into various screw-in housing types, optionally with a permanently connected supply line or with a connection plug
- measuring range from $-60^{\circ}\text{C} \dots +260^{\circ}\text{C}$
- temperature sensor head from $-30^{\circ}\text{C} \dots +90^{\circ}\text{C}$
- screw-in housing made of brass, aluminium or stainless steel
- customer specific dimensions are possible



Certificates



11. BIMETALLIC SWITCHES AND THERMOSTATS

Bimetallic switches or respectively bimetallic thermostats can be utilized if a switching operation should be triggered (open or close a circuit) when a predetermined temperature threshold is reached. They are an economical solution, because temperature measuring and switching operation can be handled by only one part. No additional electronics are therefore required.



available measuring elements: BIS

Bimetallic switches BIS

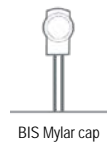
- in single, double or triple circuit
- normally closed or normally open
- nominal switching temperature (NST) of $+60^{\circ}\text{C} \dots +200^{\circ}\text{C}$
- standard cable length: 300mm
- nominal / switching current up to 10 A / 25 A
- nominal voltage 250 V AC (acc. VDE)
- optionally with a screw-in housing (LOx)
- with UL / CSA version on request
- special versions on request
- especially suited for the installation into the coil of electric motors

Certificates



Bimetalthermostate TBIS

- connection of the supply line through soldering pins, blade terminal or permanently connected supply line
- nominal switching temperature (NST) of $-20^{\circ}\text{C} \dots +400^{\circ}\text{C}$
- normally closed or normally open
- switching tolerances and hysteresis depend on the nominal switching temperature
- maximum switching current up to 25 A
- installation via screw connector or flange



12. SLOT THERMOMETERS NWT

As specialist for slot thermometers for use particularly in electric motors or generators, EPHY-MESS offers broad type diversity. A special feature in addition to sensors with a chip measuring resistor are slot resistance thermometers with a bifilar measuring winding. They are available in 3 different versions. These are the rigid, mica insulated NWT-ST, the flexible, shrinking tube insulated NWT-SH and the completely shielded NWT-A.

All thermometers can be obtained with an IECEx, ATEX or TR and UL / CSA approval according to the respective regulations for the utilization in hazardous areas. The bifilar wound slot resistance thermometers are complemented by a series of different forms, in which all available basic measuring elements can be implemented.



available measuring elements: Pt100 platinum wire, Cu wire, Ni wire

Slot thermometers with bifilar measuring winding

- temperature sensitive length selectable
- version as a rigid NWT-ST, flexible NWT-SH or shielded NWT-A slot resistance thermometer
- insulated with external mica or shrinking tube insulation
- bifilar measuring winding made of platinum, nickel or copper wire
- measuring range from -60°C ... +200°C
- measuring range Ex from -60°C ... +180°C
- tolerances according to the standard of the respective resistor material
- as single or double thermometer available
- connection as 2-, 3- or 4-wire circuit
- dimensions: thickness starting at 1 mm, width starting at 5 mm, length starting at 80 mm
- special dimensions are available on customer request
- ampacity of the shielding up to 50 A for NWT-A
- dielectric strength up to 3 kV / AC 50 Hz / 1 min.
- with single wires, hose line or flat hose line
- single wires and hose lines as shielded version available
- also available as slot thermocouple



NWT-Bifilar

Certificates



available measuring elements: Pt100 / PTC / NTC / KTY / TE

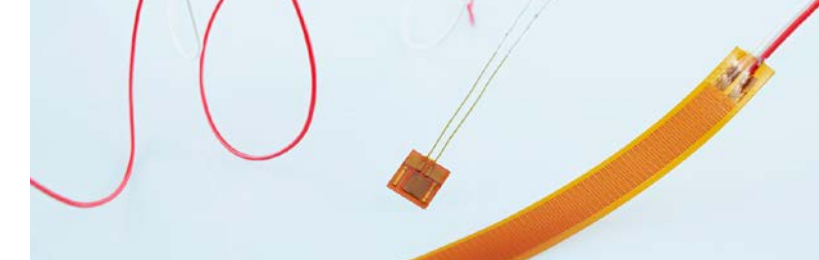
Slot thermometers with thin-film sensors

- model with carrier body (AK) made of silicone hard glass fibre
- model with intermediate slider case (ZS) made of epoxy
- model with a plastic case (KS) made of PESU
- dimensions aligned to the slot form
- different measuring elements can be implemented
- measuring range from -60°C ... +200°C
- measuring range Ex from -60°C ... +180°C
- connection as 2-, 3- or 4- wire circuit
- as multispot version with up to 4 measuring points
- dimensions: thickness starting at 2 mm, width starting at 6 mm, length starting at 50 mm
- special dimensions available on request
- dielectric strength up to 5 kV / AC 50 Hz / 1 min.
- with single litzes, hose line or flat hose line



NWT-Chip

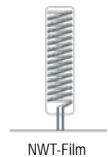
Certificates



available measuring elements: Pt100 platinum wire, TE

Foil thermometers

- very thin, flexible foil thermometers as Pt100 or thermocouple
- measuring element embedded in Kapton® foil
- partially also with factory attached adhesive film (one-sided)
- dimensions for example:
 - 0.7 x 8 x 8 mm (D x B x L)
 - 2 x 10 x 102 mm (D x B x L)
- on request with a permanently connected supply line
- also available as thermocouple type J or K



NWT-Film

13. SCREW-IN THERMOMETERS LTH

Screw-in thermometers with DIN heads are commonly used for industrial purposes. They possess a fixed or a moveable screw connection and are mostly installed to cabinets, containers or pipes. They are available in various dimensions and forms. Thermometers of the EM12 / 18 / 24 / 38 series have a compact design and are often used as bearing thermometers (LT) in electric motors and drives.



available measuring elements: Pt100 / PTC / NTC / KTY / TE

Screw-in thermometers with EM12 / 18 / 24 / 38 head

- measuring resistor built into a stainless steel protective tube with a compact connection head made of brass or copper
- measuring range: -60°C ... +260°C
- measuring range Ex -60°C ... +180°C (only EM24 / 38)
- connection head diameter (diameter without lateral cable connection):
 - EM12 = ø 12 mm / LTH12 = ø 12 mm
 - EM18 = ø 18 mm / LTH18 = ø 18 mm
 - EM24 = ø 24 mm / LTH24 = ø 24 mm
 - EM38 = ø 38 mm / LTH38 = ø 38 mm
- optionally with head transmitter 4 - 20 mA
- as single or double thermometer
- connection as 2-, 3- or 4- wire circuit
- with screw connection



LT EM38-head

Certificates



available measuring elements: Pt100 / PTC / NTC / KTY / TE

Screw-in thermometers with DIN head

- screw-in thermometer with DIN connection head
- with a fixed or exchangeable measuring insert
- measuring range -60°C ... +400°C
- measuring range Ex -60°C ... +180°C
- connection heads form MA, A, B, BUS, BUZ (others on request)
- processing connector with a fixed or flexible screw connection
- as single or double thermometer
- optionally with a connection head transmitter 4 - 20 mA / 0 - 10 V
- with screw connection



LT DIN-head

Certificates



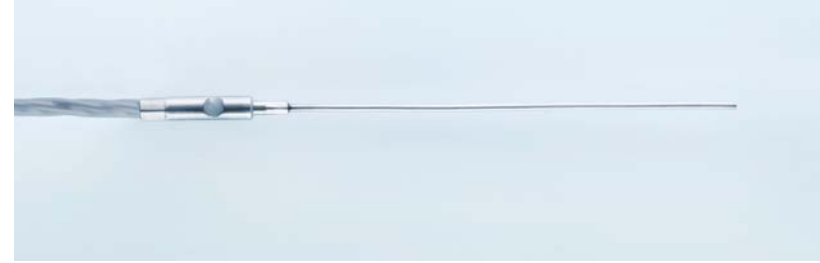
available measuring elements: Pt100 / PTC / NTC / KTY / TE

Thermometers with industrial plug

- temperature range from -60°C ... +260°C
- temperature sensor head from -30°C ... +90°C
- compact connection head (28 mm x 28 mm x 50 mm)
- quickly released without disconnecting the cable
- reverse polarity protection
- alternatively with spring-loaded protection fitting
- special version with 100 bar pressure resistance

14. SHEATHED RESISTANCE THERMOMETERS AND SHEATHED THERMOCOUPLES

Sheathed resistance sensors (Pt100) and thermocouples (TE) are well-suited for measuring high temperatures due to their configuration. They are generally designed moisture sealed and shock resistant. Depending on the diameter, they are quite bendable and flexible and can therefore be adapted very well to the respective installation location, especially in power plant technology.

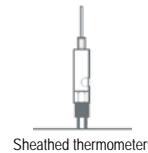


available measuring elements: Pt100 / TE

Sheathed resistance thermometer / -thermocouples

- with bare supply line ends
- with a cable transition sleeve and a permanently connected Teflon® or silicone supply line
- with a permanently connected plug
- as single or double element
- connection as 2-, 3- or 4- wire circuit
- diameter starting at \varnothing 1 mm
- nominal length according to customer request
- measuring ranges:

a) thermometers Pt-based	-60°C ... +400°C
b) thermocouples (sheathed material stainless steel)	-200°C ... +850°C
c) thermocouples (sheathed material Inconel®600)	-200°C ... +1100°C



Sheathed thermometers

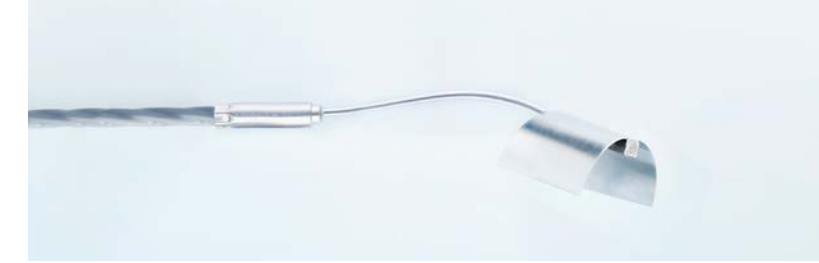


available measuring elements: Pt100 / TE

Sheathed resistance thermometers special design „Halbmondfühler“

- bendable, flexible mineral insulated wire (MI) or rigid as capillary tube version
- protection tube diameter from \varnothing 1.8 mm
- pressure and vibration resistant
- corrosion resistant
- customized stainless steel moulding at sensor tip for special installation situations
- with bare supply line ends or with a permanently connected plug
- with a cable transition sleeve and a permanently connected supply line
- as single or double element
- connection as 2-, 3- or 4- wire circuit
- measuring ranges:

a) thermometers Pt-based (MI)	-60°C ... +400°C
b) thermometer Pt-based (capillary tube)	-40°C ... +180°C
c) thermocouples (sheathed material stainless steel)	-200°C ... +850°C
d) thermocouples (sheathed material Inconel®600)	-200°C ... +1100°C



available measuring elements: Pt100 / TE

Sheathed resistance thermometer special design „Flügelfühler“

- bendable, flexible mineral insulated wire (MI) or rigid pre-bent as capillary tube version
- protection tube diameter from \varnothing 1.8 mm
- design with strip-wings or clamp ring
- optional spigot connection port
- optional coated with ceramic fibre leaves (upper and lower insulation part)
- with bare supply line ends or with a permanently connected plug
- with a cable transition sleeve and a permanently connected supply line
- as single or double element
- connection as 2-, 3- or 4- wire circuit
- measuring ranges:

a) thermometers Pt-based (MI)	-60°C ... +400°C
b) thermometer Pt-based (capillary tube)	-40°C ... +180°C
c) thermocouples (sheathed material stainless steel)	-200°C ... +850°C
d) thermocouples (sheathed material Inconel®600)	-200°C ... +1100°C

