JUMO

Transducers for temperature and humidity

Temperature sensors

PR 90024 GB

Our strength – your gain

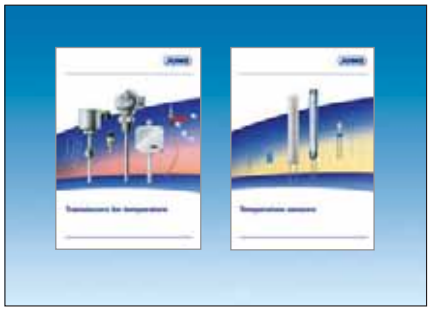
✔ All from a single source

The product range covers the entire measurement chain, from thermometers through measurement and control systems for temperature, pressure, humidity and other physical variables, up to customized automation software.

✔ Ex-stock service

To ensure prompt delivery, we have set up extensive stocks with more than 3000 items.
Whether you phone, write or order by 24-hour fax, your order will be processed immediately and dispatched to you within three working days by parcel service.
Stock / price catalogs ensure that you can order stock items quickly, without reference to the sectional catalogs.

✔ Easy ordering



The sectional catalog “Transducers for temperature and humidity” covers a large variety of thermocouples, resistance thermometers and humidity measuring instruments, as well as accessories.

The sectional catalog “Temperature sensors” contains a wide range of wire and thin-film temperature sensors. Stock items are indicated as such.
All items are fully described and carry a sales number.

✔ JUMO worldwide

In addition to the main factory at Fulda, JUMO has six subsidiaries and seven branch offices in Germany. There are also 13 subsidiary companies throughout Europe, one each in the USA and in China, and representatives in 27 countries.

✔ Consultation and service

We are continuously expanding our worldwide consultation, sales and service network so that we can solve our customers' problems quickly, individually and competitively. Experts at the factory, offices and subsidiaries are always available to give support. They will call on you at your premises to pass on their expertise, thereby ensuring and enhancing your success.

Our strength – your gain

✔ Seminars and training

Our seminar rooms are fully equipped with the latest media technology. Specialist members of staff give delegates technical instructions on the economically effective use of JUMO products. Free from every-day business, the delegates can familiarize themselves with state-of-the-art technology. Three seminar rooms are available to cater for varying group sizes up to 35 delegates. The number of delegates per seminar is restricted, to ensure that all individual questions and application problems can be dealt with.

✔ German Calibration Service (DKD)

JUMO operates a calibration laboratory for temperature in collaboration with the Physical-Technical Laboratory (PTB).
Certifiable products are resistance thermometers, thermocouples and complete measurement sets. The possible measurement ranges are shown in the picture on the right.

The calibration certificate states the technical data of the thermometer and summarizes the measurement results and tolerances. Works certificates for thermometers can also be issued. In this way, the test results are traceable to national standards.

Object for calibration	Measurement range	Measurement uncertainty
- resistance thermometers, - direct-reading electronic thermometers (temperature measuring system), - data loggers	0.01°C – 80 to 0°C >0 to 90°C >90 to 300°C	0.005°C 0.015°C 0.010°C 0.015°C
- thermocouples	– 80 to 200°C >200 to 300°C	0.2°C 0.3°C
- noble metal thermocouples	>300 to 1100°C	1.0°C
- base metal thermocouples, - direct-reading electronic thermometers	>300 to 1100°C	1.5°C
- resistance thermometers with transmitter, - direct-reading electronic thermometers, with transmitter	– 80 to 0°C >0 to 90°C >90 to 300°C	0.045°C 0.040°C 0.045°C
- temperature block calibrators	30 to 133°C >133 to 660°C >660 to 1100°C	0.2°C 0.0015°C x |t| 2.5°C

✔ State-approved testing station KF2 for heat

As a supplier of resistance thermometers for heat meters, JUMO runs a state-approved testing station. Resistance thermometers with type approval are measured at three temperatures between 20 and 200°C, paired and certified.

Under the registered trade name JUMO HEATtemp, we offer a large selection of PTB-approved resistance thermometers which conform to EN 1434 and AGFW guidelines.

✔ Quality assurance

Quality and reliability, the key features of JUMO products, are based on a comprehensive quality assurance system to ISO 9001 (EN 29 001).
JUMO thus conforms to strict international directives and qualifies as a supplier of high-quality products and services, which will also meet future requirements.

✔ Environmental protection

For JUMO, environmental protection starts with purchasing environmentally-friendly raw materials and selecting suppliers who do not use ecologically harmful materials. It continues with monitoring the workplace, protecting the workforce, making minimum use of harmful substances and reducing residues and ends with all unavoidable residues being collected separately, recycled as much as possible and, if necessary, safely disposed of.
JUMO is certified to ISO 14 001.

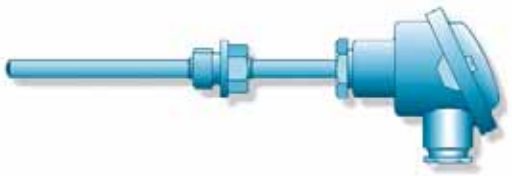
Thermocouples

- styles to DIN; thermocouples to EN 60 584 and DIN 43 710
- wide temperature range from –200 to + 1600 °C
- temperature measurement at a single point
- fast response
- low heat conduction error
- applications: ovens and furnaces, melts, engines, plastics machinery and chemical engineering

Screw-in thermocouples

with terminal head Form B

- for temperatures from –200 to +800 °C
- with protection tubes in stainless steel
- available with different thermocouples
- as single or twin thermocouple
- available with transmitter



Data Sheet 90.1002

with terminal head Form J

- for temperatures from –200 to +600 °C
- with protection tubes in different materials

Data Sheet 90.1003

with compensating cable

- for temperatures from –200 to +600 °C
- with protection tubes in different materials
- as single or twin thermocouple

Data Sheet 90.1005

Thermocouples approved to DIN 3440

screw-in and push-in versions

- for indirect heating installations to DIN 4754
- for temperatures up to 1500 °C
- as single or twin thermocouple
- for use in water, oil or air
- with approved control and limiting devices

Data Sheet 90.1006

Screw-in melt thermocouples

for the plastics industry

- for temperatures from –40 to +600 °C
- protection tube and measuring tip in stainless steel
- various measuring tips
- thermocouple extension cables in PTFE or metal braiding
- insulated construction or joined to measuring tip

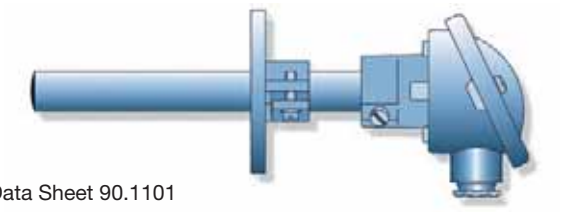
Data Sheet 90.1090

Thermocouples

Push-in thermocouples

with terminal head Form A

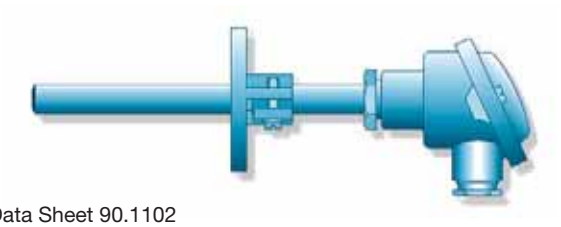
- for temperatures from –200 to +1600 °C
- with protection tubes in different materials
- as single or twin thermocouples



Data Sheet 90.1101

with terminal head Form B

- for temperatures from –200 to +1600 °C
- with protection tubes in different materials
- as single or twin thermocouples
- available with transmitter



Data Sheet 90.1102

with compensating cable

- for temperatures from 0 to +600 °C
- with protection tubes in stainless steel
- also with 90° cable entry

Data Sheet 90.1105

with bayonet lock

- for temperatures from 0 to +400 °C
- with protection tubes in stainless steel
- as single or twin thermocouples
- good heat transfer through adjustable spring pressure
- insertion and removal without tool

Data Sheet 90.1109

Mineral-insulated thermocouples to DIN EN 60 584 and DIN 43 710

various versions

- for temperatures from –200 to +1150 °C
- flexible sheath, shockproof
- protection tube diameter from 0.5 mm
- fast response
- fitting lengths to suit application

Data Sheet 90.1221

Insertion thermocouples

with several measurement points

- for temperatures from –100 to +260 °C
- steam-tight and pressure-proof
- high mechanical strength
- protection tube in stainless steel

JUMO FOODtemp

Data Sheet 90.1305

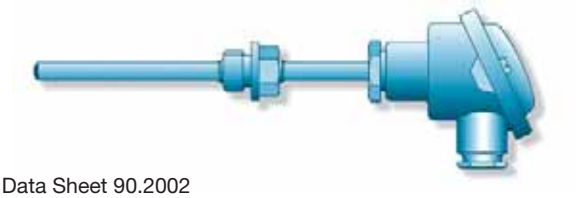
Resistance thermometers

- styles to DIN with temperature sensors to EN 60 751
- temperature ranges from –200 to +800 °C
- high accuracy and long-term stability
- industry-specific versions
- certifiable precision resistance thermometers
- resistance thermometers with explosion protection
- applications: HVAC, food technology, machinery, medicine, automobile industry, energy charging and process technology

Screw-in resistance thermometers

with terminal head Form B

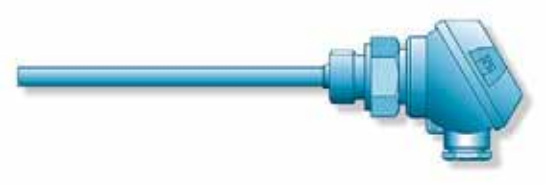
- for temperatures from –50 (–200) to +600 °C
- with protection tubes in different materials
- with replaceable measuring insert
- as single or twin resistance thermometer
- available with transmitter



Data Sheet 90.2002

with terminal head Form J

- for temperatures from –50 to +400 °C
- with protection tubes in different materials
- as single or twin resistance thermometer
- available with transmitter

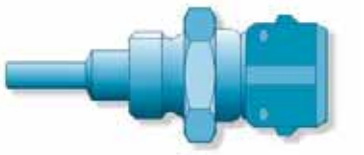


Data Sheet 90.2003

with plug connector

- for temperatures from –50 to +300 °C
- with protection fittings in different materials
- highly resistant to shock and vibration
- connector locked in for reliable contact, IP 65 protection
- connector with gold-plated contacts

JUMO VIBROtemp



Data Sheet 90.2004

with connecting cable

- for temperatures from –50 to +400 °C
- with protection tubes in different materials
- as single or twin resistance thermometer
- in 2-wire, 3-wire or 4-wire circuit
- connecting cables in PVC, silicone, PTFE or metal braiding

Data Sheet 90.2005

Resistance thermometers

Resistance thermometers approved to DIN 34 40

screw-in and plug-in versions

- for indirect heating installations to DIN 4754
- for temperatures up to +700 °C
- as single, twin or triple resistance thermometer
- for use in water, oil or air
- for approved control and limiting devices

Data Sheet 90.2006

Screw-in melt resistance thermometers

for the plastics industry

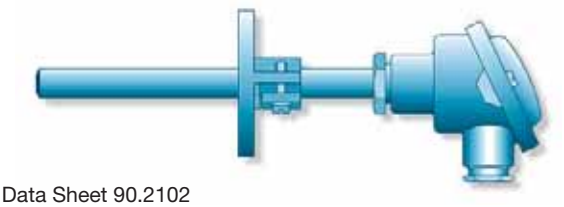
- for temperatures from –40 to +400 °C
- protection tube and measuring tip in stainless steel
- various measuring tips
- connecting cables in PTFE, PTFE-metal braiding or metal braiding

Data Sheet 90.2090

Push-in resistance thermometers

with terminal head Form B

- for temperatures from –50(–200) to +600 °C
- with protection tubes in different materials
- with replaceable measuring insert
- as single or twin resistance thermometer
- available with transmitter



Data Sheet 90.2102

with terminal head Form J

- for temperatures from –50 to + 400 °C
- as single or twin resistance thermometer
- available with transmitter

Data Sheet 90.2103

with connecting cable

- for temperatures from –50 to + 400 °C
- with protection tubes in different materials
- as single or twin resistance thermometer
- in 2-wire, 3-wire or 4-wire circuit
- connecting cables in PVC, silicone, PTFE or metal braiding

Data Sheet 90.2105

with bayonet lock

- for temperatures from –50 to + 350 °C
- with protection tubes in different materials
- as single or twin resistance thermometer
- good heat transfer through adjustable spring pressure
- insertion and removal without tools

Data Sheet 90.2109

Resistance thermometers

Mineral-insulated resistance thermometers to EN 60 751

various versions

- for temperatures from –50 (–200) to +600 °C
- flexible sheath with shockproof measuring insert
- as single or twin resistance thermometer in 2-wire, 3-wire or 4-wire circuit
- fast response
- fitting length to suit application

Data Sheet 90.2221

Insertion resistance thermometers

various versions

- for temperatures from –50 to +260 °C
- steam-tight and pressure-proof
- high mechanical strength
- as single or twin resistance thermometer
- for use in the food industry

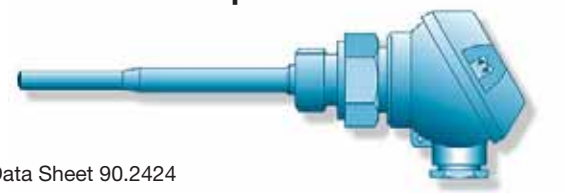
JUMO FOODtemp

Data Sheet 90.2305

Heat meter resistance thermometers with terminal head, PTB approved

- for temperatures from 0 to +200°C, Type Direct Long (DL) and Pocket Long (PL)
- approval to calibration regulation EO 22 and EN 1434 as interchangeable temperature probes according to AGFW regulation FW 202
- paired and certified in-house
- measurement directly in medium or in additional pocket

JUMO HEATtemp



Data Sheet 90.2424

Heat meter resistance thermometers with connecting cable, PTB approved

- for temperatures from 0 to +180 °C, Type Direct Short (DS) Direct Long (DL), Pocket Long (PL) and Pocket Short (PS)
- approved for compact meters and distributed metering
- short cable probes (PS) with diameters 5.0 mm, 5.2 mm, and 6 mm for Pt100, Pt500 and Pt1000
- paired and certified in-house

JUMO HEATtemp

Data Sheet 90.2425

Surface resistance thermometers

various versions

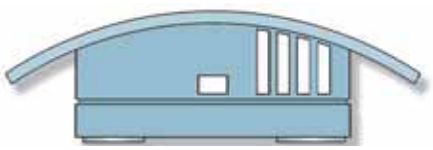
- for temperatures from –50 to +260 °C
- with protection fittings in different materials
- for round and flat surfaces
- quick and easy installation
- low thermal mass

Data Sheet 90.2522

Indoor and outdoor resistance thermometers

various versions

- for temperatures from –30 to +80 °C
- for use in HVAC
- IP20 protection to IP65
- quick and easy installation
- for 2-wire, 3-wire or 4-wire connections



Data Sheet 90.2523

Resistance thermometers

Test equipment for temperature and its traceability

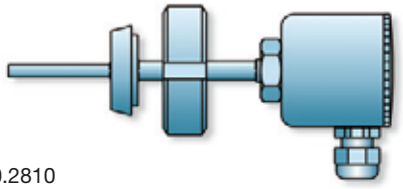
- Pt100 precision resistance thermometer
- complete temperature measurement sets with indicator and DKD calibration certificate
- DKD calibrations as a service for: resistance thermometers, thermocouples, data loggers, measuring sets, block calibrators
- calibration range –80 to +1100 °C
- on-site calibration

Data Sheet 90.2721

Industry-specific versions

for the food and pharmaceutical industries

- for temperatures from –50 to +250 °C
- protection tube in stainless steel
- as single or twin resistance thermometer
- CIP-conform installation
- available with transmitter



Data Sheet 90.2810

for the food and pharmaceutical industries

- with / without transmitter
- for temperatures from –50 to +260 °C
- protection tube in stainless steel
- process connections for the food and pharmaceutical industries
- configuration from a PC
- connection by M12 plug connector
- IP67 protection, with the machinery connector plugged in

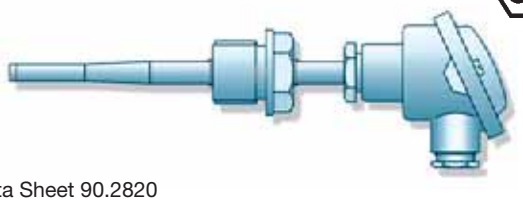
JUMO Dtrans T100

Data Sheet 90.2815

for process technology (with ATEX approval)

- for temperatures from –200 to +600 °C
- protection tubes in stainless steel, titanium, tantalum, Iconel and Hastelloy
- with test approval
- intrinsically safe transmitter Ex “i”
- terminal head in flameproof enclosure Ex “d”

JUMO PROCESStemp



Data Sheet 90.2820

for sterilizers

- for temperatures from –70 to +200 °C
- steam-tight
- pressure-proof up to 5.0 bar
- as single, twin or triple resistance thermometer
- 2-wire, 3-wire or 4-wire circuit
- connecting cable in PTFE, FEP or silicone

JUMO STEAMtemp

Data Sheet 90.2830

with CANopen output

- for temperatures from –50 to +450 °C
- as single or twin resistance thermometer
- vibration-proof construction
- limit monitoring
- can be set using standard CANopen software tools

JUMO CANtrans T

Data Sheet 90.2830

Resistance thermometers

Insertion resistance thermometers with radio measurement transmission

Transmitter

- for temperatures from –30 to +260 °C
- radio frequency: 868 MHz, optionally 915 MHz
- wireless measurement transmission
- powered by a long-life lithium battery

JUMO Wtrans Transmitter T01.G1

Data Sheet 90.2930

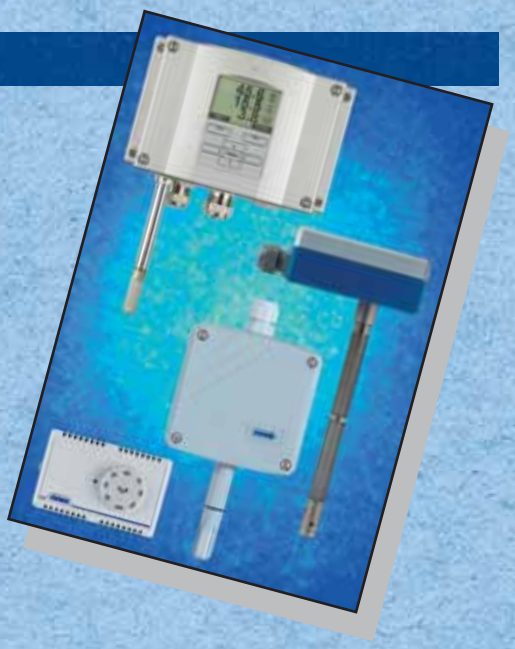
Receiver

- up to 16 transmitters for each receiver
- four analog outputs
- RS 485 interface with Modbus protocol
- configuration from the keys or PC
- DIN rail mounting

JUMO Wtrans Receiver T01

Data Sheet 90.2931

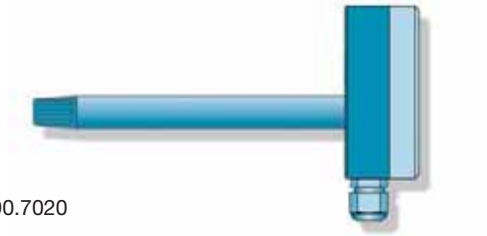
Humidity



- styles for industry, HVAC and building automation
- capacitive, hygrometric and psychrometric measurements
- measurement range 0 to 100% rH at temperatures from –40 to +180 °C
- pressure-resistant versions from 0 to 100 bar
- intrinsically safe transducers for use inside Ex areas
- applications: HVAC, industrial engineering, cooling and storage, medicine and laboratories

Hygro and hygrothermo transducers (capacitive) for HVAC applications

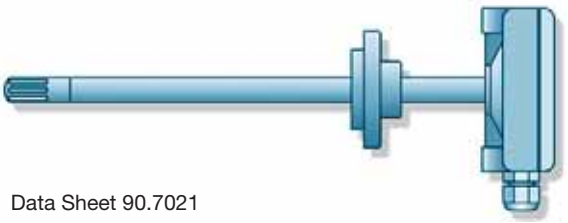
- for humidity from 10 to 95% rH
- for temperatures from –30 to +80 °C
- as indoor or duct version
- rod version with connecting cable for flexible applications
- with current and voltage outputs
- with fast-response capacitive humidity sensor



Data Sheet 90.7020

Hygro and hygrothermo transducers (capacitive) for HVAC monitoring

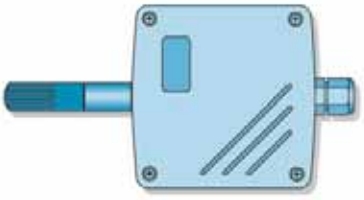
- for humidity from 10 to 100% rH
- for temperatures from –20 to +80 °C
- as indoor, wall or duct version
- special miniature rod version for OEM applications
- with current and voltage outputs
- for HVAC applications



Data Sheet 90.7021

Hygrostats (capacitive) for HVAC applications

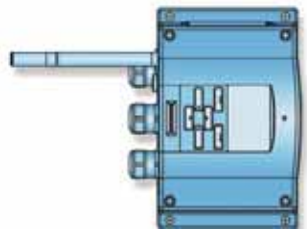
- for humidity from 10 to 95% rH (setting range)
- as wall or duct version
- output relay with changeover contact
- for on-off control of relative humidity
- for the control of ventilation systems, for domestic and office buildings



Data Sheet 90.7022

Humidity and temperature transducers for industrial applications

- for humidity from 0 to 100 % rH
- for temperatures from –70 to +180 °C
- option: calculation of dew point temperature (Td), mixing ratio (x), absolute humidity (a), wet bulb temperature (Tw), enthalpy (h) and vapor pressure (pw)
- two freely selectable and scalable analog outputs (current, voltage)

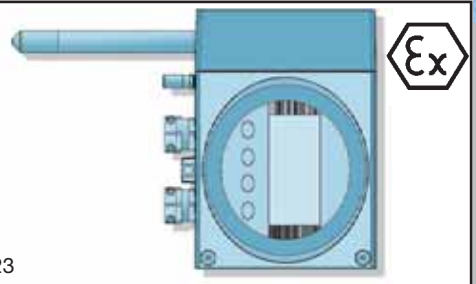


Data Sheet 90.7023

Humidity

Intrinsically safe industrial transducers for humidity, temperature and derived variables

- for humidity from 0 to 100 % rH
- for temperatures from –40 to +180 °C
- suitable for use in areas with a continuous explosion hazard, Category 1 (gas and dust)
- PTB approval according to CENELEC standard (94 / 9 / EC, ATEX)



Data Sheet 90.7023

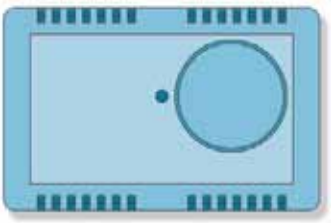
Hygro and hygrothermo transducers (hygrometric)

- for humidity from 30 to 100% rH
- for temperatures from –30 to +80 °C
- for indoor, duct and outdoor mounting
- with resistance, current or voltage outputs

Data Sheet 90.7031

Hygrostats (hygrometric)

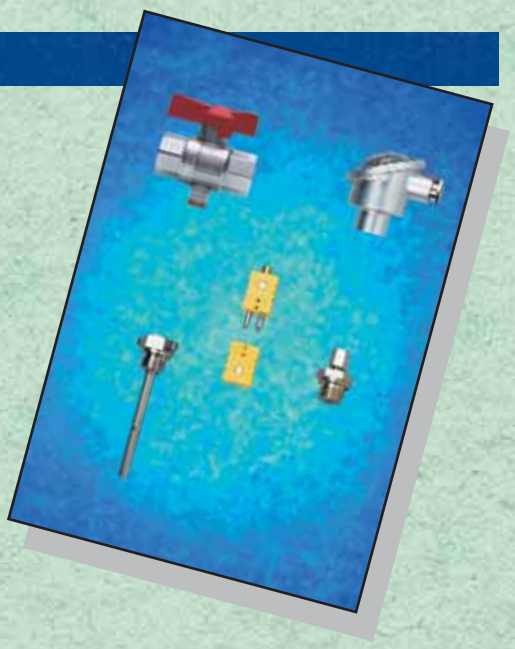
- for humidity from 35 to 100 %rH (setting range)
- for duct, wall and DIN rail mounting
- for on-off control of relative humidity
- for controlling humidifying and de-humidifying plant
- in air ducts, climatic cabinets, storage and cold rooms



Data Sheet 90.7032

Accessories

- fittings for thermocouples and resistance thermometers
- cables for correct connection
- pockets and ball valve with probe location
- connectors for problem-free replacement



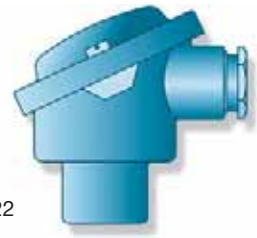
Screw-in and weld-in pockets

- for thermocouples and resistance thermometers
- thermometers replaceable without draining the system
- pockets in different materials
- operating pressure up to 320 bar

Data Sheet 90.9721

Terminal heads and plates

- for thermocouples and resistance thermometers
- terminal heads in different materials
- IP 65 protection max.
- versions for lead sealing



Data Sheet 90.9722

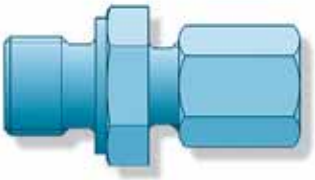
Compensating and connecting cables

- compensating cables to EN 60584-3 and DIN 43713
- connecting cables for 2-wire, 3-wire and 4-wire circuit
- versions from –190 to +400 °C
- sheath in Teflon, silicone, PVC or glass fiber, with steel or stainless steel braiding
- for single or twin thermocouples

Data Sheet 90.9723

Pipe fittings and flanges, sockets for bayonet locks

- for temperatures up to 550 °C
- for various fitting lengths
- simple installation and replacement
- pressure-proof sealing



Data Sheet 90.9725

Accessories

Connectors

- for temperatures from –60 to +260 °C
- easy replacement with fixed cabling
- quick connection of test instruments
- locking device for reliable contact

Data Sheet 90.9726

Measuring inserts for screw-in thermocouples and resistance thermometers with terminal head Form B

- for temperatures from –200 to +1150 °C
- as single or twin insert
- available with transmitter

Data Sheet 90.9727

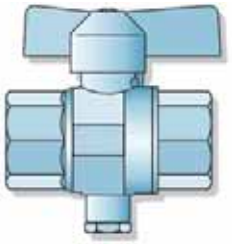
Thermocouples to DIN 43 732

- for temperatures up to +1600 °C
- standardized thermal emf series to EN 60 584, Part 1 and DIN 43 710
- for push-in thermocouples to DIN 43 733

Data Sheet 90.9728

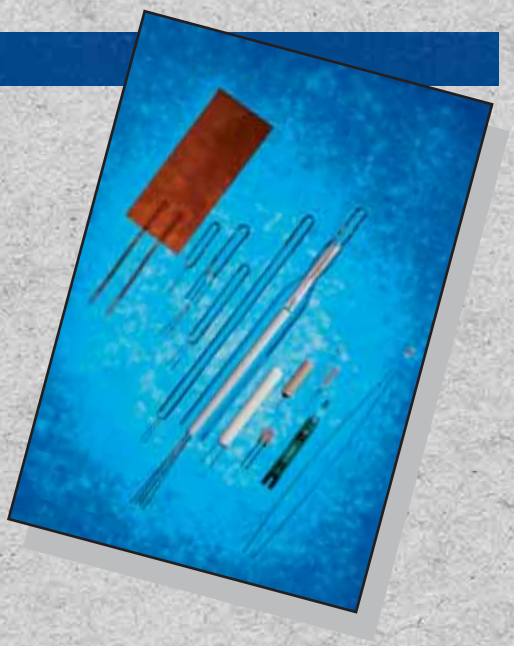
Installation locations for temperature probes

- ball valves
- tees
- pockets
- adapter screw fittings
- mounting accessories



Data Sheet 90.2440

Platinum temperature sensors



- reference values and tolerances to EN 60751
- wire-wound styles in glass, ceramic and foil
- thin-film styles
- laboratory RTDs
- reference values: Pt100, Pt500, Pt1000 (special values on request)
- temperature ranges between –200 and +800 °C
- applications: HVAC, white goods, laboratory/medical engineering, automobile industry

Wire temperature sensors to EN 60751

Platinum-glass versions

- for temperatures from –200 to +400 °C
- as single, twin temperature sensor / laboratory RTD
- reference values: Pt100, Pt500, Pt1000
- can be used directly in liquids
- dimensions: diameter 0.9 - 4.8 mm; length 8 - 45 mm

Data Sheet 90.6021

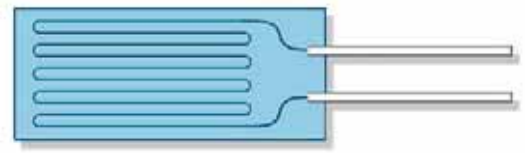
Platinum-ceramic versions

- for temperatures from –200 to +800°C
- as single or twin temperature sensor
- reference value: Pt100
- excellent temperature cycling stability
- highly resistant to temperature shock
- dimensions: diameter 0.9 - 4.8 mm; length 6 - 30 mm

Data Sheet 90.6022

Platinum-foil versions

- for temperatures from –80 to +180 °C
- small thickness, only 0.3 mm
- reference value: Pt100
- for measurement on flat and curved surfaces
- insulation strength up to 3 kV
- dimensions: width 21 mm, length 50 mm, height 0.3 mm

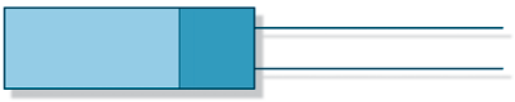


Data Sheet 90.6023

Thin-film temperature sensors to EN 60751

Platinum-chip versions with connecting wires

- for temperatures from –70 to +600 °C
- reference values from 20 to 5000 Ω
- fast response
- low price level
- customized special styles (on request)



Data Sheet 90.6121

Platinum temperature sensors

Thin-film temperature sensors to EN 60751

Platinum-chip versions on epoxy card

- for temperatures from –20 to +150 °C
- reference values: Pt100, Pt500 and Pt1000
- pre-assembled measuring insert
- supplied as panels
- also suitable for automated processing

Data Sheet 90.6122

Platinum-chip versions with terminal clamps

- for temperatures from –40 to +105 °C
- reference values: Pt100, Pt500 and Pt1000
- featuring particularly rigid terminal clamps with high directional stability
- coated with an additional protective varnish
- supplied in blister belt

Data Sheet 90.6123

Platinum-chip versions, cylindrical style

- for temperatures from –70 to +300 °C
- reference values: Pt100, Pt500, Pt1000
- readily adaptable to protection tubes
- high mechanical strength
- dimensions: diameters 3.8/4.8 mm; length 15 mm

Data Sheet 90.6124

Platinum-chip versions in SMD style

- for temperatures from –50 to +150 °C
- reference values: Pt100, Pt500, Pt1000
- supplied in blister belt for automatic insertion
- galvanic wrap-around contact with diffusion blockage
- dimensions: width 1.5 mm; length 3.1 mm; height 0.8 mm
  width 1.3 mm; length 2.0 mm; height 0.5 mm

Data Sheet 90.6125

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