

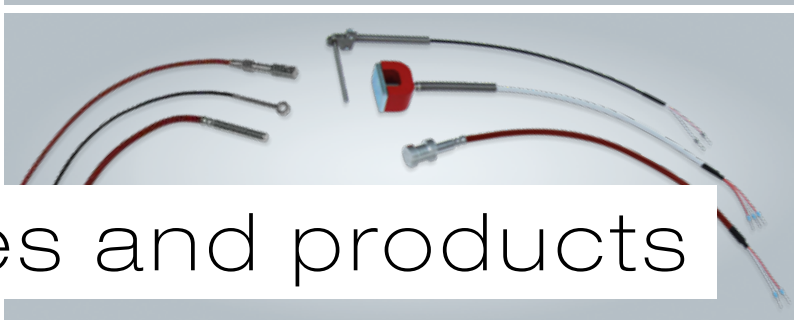


GÜNTHER



Brief overview

services and products



Temperature Measurement Technology
Reliable . Precise . Certified

Brief overview – services and products

More than 50 years of know-how

Founded in 1968, GÜNTHER is one of the most renowned companies in industrial temperature measurement technology. High quality thermocouples and resistance thermometers are developed and manufactured at **five international production sites** to provide our customers with the optimum temperature measurement technology for their respective applications. Our temperature sensors are used in a wide variety of industries around the globe - wherever precise measurement results are essential, sometimes under the most extreme conditions. The following is an overview of the sensors used in the various sectors/industries.



GÜNTHER temperature sensors in use

The range of applications for our temperature sensors covers almost all areas of industry, from miniature thermocouples in laboratories or medical technology to high temperature sensors for the metal or glass industry. The design of the sensors is basically determined by the respective area of application or the specifications of our customers.

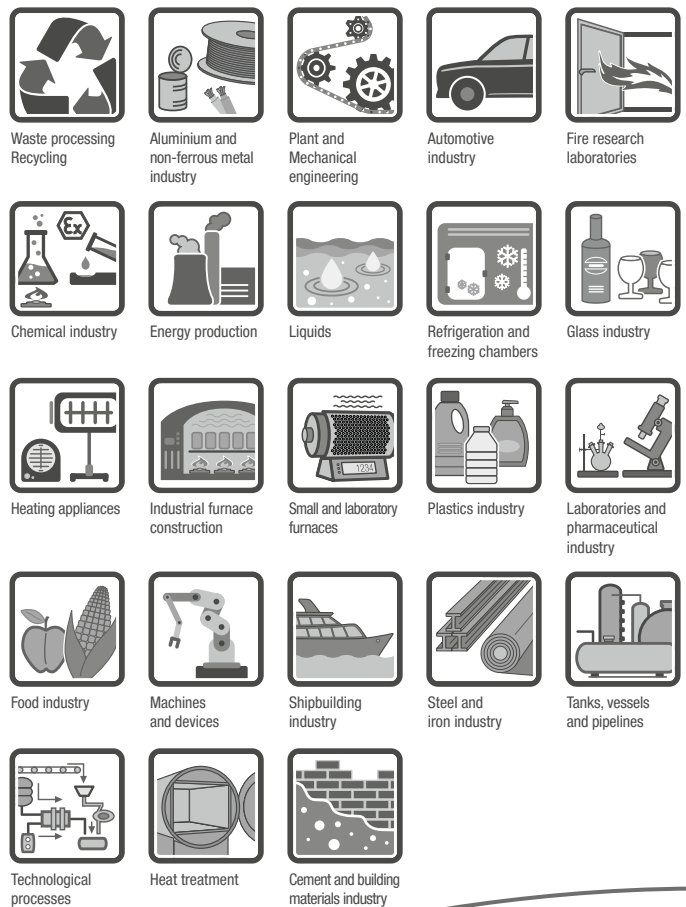


In principle, most temperature sensors are also available as explosion-proof versions **certified according to the ATEX (ATmosphères EXplosibles) directive 2014/34/EU** in the

explosion protection classes Ex i, Ex d, Ex e as well as Ex ec and Ex tc.

Product groups for which this is possible are marked accordingly.

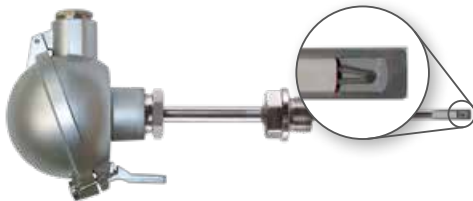
All GÜNTHER temperature sensors are manufactured by hand, mostly in small series or as individual pieces, and are subjected to various quality tests before delivery.



The GÜNTHER product range

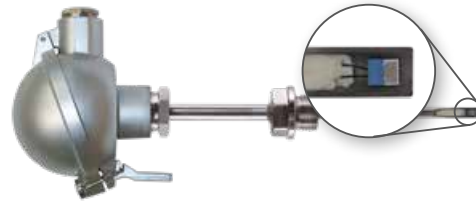
The main field of activity of GÜNTHER GmbH Temperaturmesstechnik is the **development and manufacture of temperature sensors** (resistance thermometers, thermocouples) and various **special probes**.

■ Thermocouples



Temperature sensors may optionally be equipped with thermocouples type R, S, B, J, T, E, K, N, C and A according to DIN EN 60584, and can also be realised as versions with two or more thermocouples.

■ Resistance thermometer



Resistance thermometers are manufactured according to DIN EN 60751 and are available in two-, three- or four-wire technology. Models with two or more measuring circuits are also possible.

■ Trade and supply of various components and spare parts

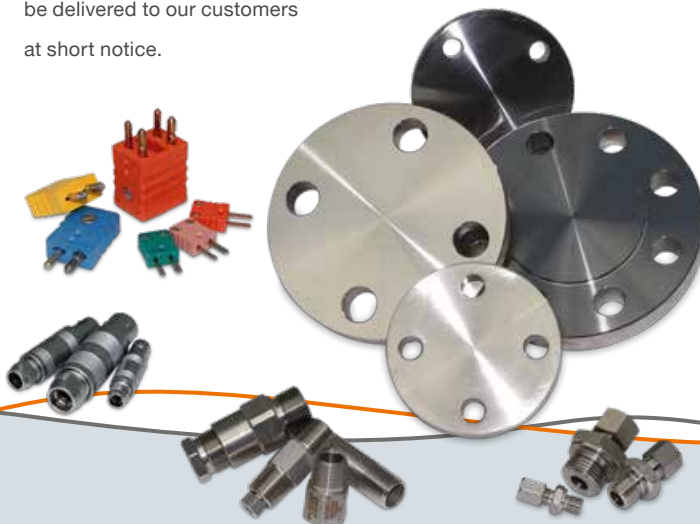
Temperature transmitters

Transmitters convert the signals of the temperature sensor analogue or digital into the stable 4...20 mA output signal commonly used in industry. Many of the transmitters manufactured exclusively for GÜNTHER also have a wide range of approvals, which enable them to be used in DNV, SIL or Ex applications, for example, or they are suitable for communicating via the HART® protocol.



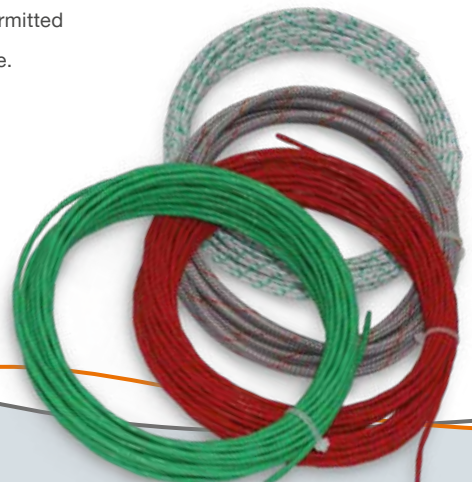
Connector plugs and process connections

To ensure a constant production flow, GÜNTHER maintains extensive warehouses at several locations. This means that spare or replacement parts can always be delivered to our customers at short notice.



Thermoelectric cables consist of the respective original thermocouple materials, or of materials that nominally have the same chemical composition as the associated thermocouples.

Compensating cables consist of substitute materials that are not identical to the original thermocouple materials but have the same thermoelectric properties up to a certain permitted temperature range.



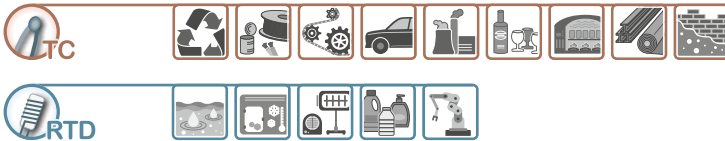
Brief overview – services and products

Product groups – construction and areas of application

■ 00-TMT / 51-WMK

Thermocouples with metal protection tube and thermocouple as well as resistance thermometers with metal protection tube and cable measuring insert

Straight temperature sensors with metallic protection tube are used for general temperature measurement in liquid, gaseous or plastic media, depending on the nature of the protection tube.



■ 05-TKT / 06-TKT

Thermocouples with ceramic protection tube

Straight thermocouples with ceramic protection tube and thermocouple are mainly used for general temperature measurement in gaseous media.



■ 08-TMP

Thermocouples with precious metal protective sleeves

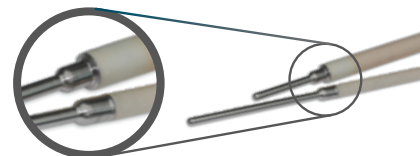
Straight thermocouples with precious metal protection sleeves are used in the glass industry to measure the temperature of molten glass.



■ 09-TMP

Thermocouples with precious metal protective sleeve and stabilising sleeve

Thermocouples of product group 08-TMP with an **additional type-tested reinforcement** at the transition between ceramic protection tube and platinum protection sleeve, for a mostly significantly extended service life.



■ 10-TMM / 50-WMS

Thermocouples and resistance thermometers with metal protection tube and mineral insulated measuring insert

Straight temperature sensors with metallic protection tube and sheath measurement insert are used for general temperature measurement in liquid, gaseous and plastic media.



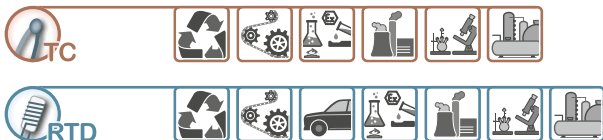
 ATEX version possible

■ 12-THD / 53-WHD

Thermocouples as well as resistance thermometers with weld-in protection sleeve

Weld-in temperature sensors are used for temperature measurements in gaseous and liquid media such as air, steam, water, oil, etc. at high flow rates and pressures, whereby the material of the protective sleeve determines the operating temperature.

Special, deep-hole drilled welding sleeves are suitable for pressures up to 700 bar. The fittings of this assembly are equipped with exchangeable sheath measuring inserts.



 ATEX version possible

■ 13-TFL / 54-WFL

Flange thermocouples and resistance thermometers with blank flanges welded on

Temperature sensors with welded blind flange are used for temperature measurements in gaseous or liquid media such as air, steam, water or oil.



 ATEX version possible

Brief overview – services and products

■ 14-TES / 55-WES / 56-WEK

Screw-in thermocouples and resistance thermometers with mineral insulated sheath measuring insert and cable measuring insert

Screw-in temperature sensors are used for general temperature measurements in the low pressure range in gaseous, liquid and plastic media.



ATEX version possible

■ 15-TKM / 16-TKM

Thermocouples with ceramic protection tube and mineral insulated sheath measurement insert

Straight thermocouples with ceramic protection tube and mineral insulated sheath measuring insert are used for general temperature measurement, mainly in gaseous media.

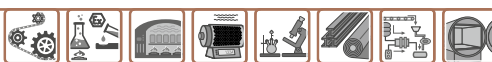


ATEX version possible

■ 18-TKL

Smallest and laboratory thermocouples

Smallest and laboratory thermocouples are preferably used for technical temperature measurements in gaseous media. Depending on the area of application, a wide variety of designs and process connections such as retaining brackets, support brackets, etc. are possible.



■ 20-TOM

Sheath thermocouples without protection tube

Mineral insulated sheath thermocouples without protection fitting are available in any required length with sheath diameters between 0.35 mm and 12.7 mm. They are used in almost all industrial sectors for temperature measurements.



Ex ATEX version possible

■ 30-WTE / 36-WTE

Angle thermocouples with screwed protection tube

Angle thermocouples with screwed elbow are mainly used for temperature measurement in molten metals and hardening baths. Compared to angle thermocouples with a one-piece protection tube, they offer the benefit that the immersion tubes are interchangeable and the less stressed support tube can be made of more cost-efficient materials.



■ 35-WGG

Angle thermocouples with bent or welded protection tube

Angle thermocouples with bent or welded protection tube are mainly used for temperature measurement in molten metals and salt baths.

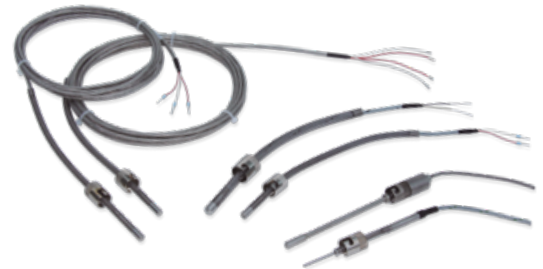
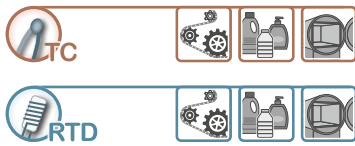


Brief overview – services and products

■ 6X-BTF

Cable sensors with bayonet connection

Temperature sensors with bayonet fitting can be either resistance thermometers or thermocouples. The differently designed measuring tips as well as the adjustable contact pressure serve the optimal adaptation to the respective measuring point. Matching screw-in fittings are also available as an option.



 ATEX version possible

■ 64-TKG

Temperature sensor with plastic connection box

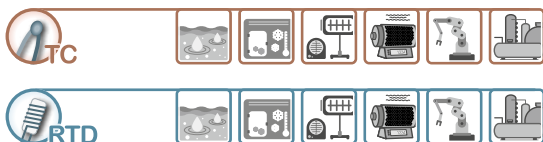
Temperature sensors with plastic connection box are intended for measuring the temperature of air and non-aggressive gases in air conditioning and ventilation systems at room temperature. The sensors are available for wall mounting, for installation in ducts and for mounting on pipes. The sensor is located inside the housing or in a sensor tube.



■ 7X-KFT/KFW

Cable thermocouples and cable resistance thermometers

Sensors of this type are mainly used for temperature measurement in liquid and gaseous media. There is a wide range of configuration and assembly options that are adapted to the specific application.



 ATEX version possible

■ 74-WTH

Resistance thermometer with machine plug connection

Screw-in resistance thermometers of this type are used to measure the temperature of liquids in areas with vibrations and difficult ambient media. They are available both with and without an integrated temperature transmitter.

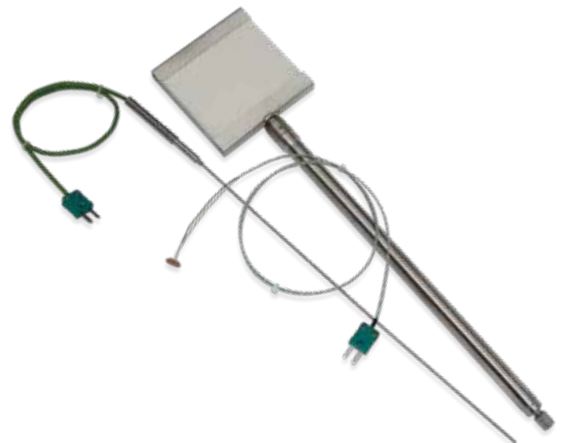
The standardised machine plug connections are frequently encountered especially in machine and plant construction.



■ FT-FireTECH

Thermocouples and accessories for fire resistance testing

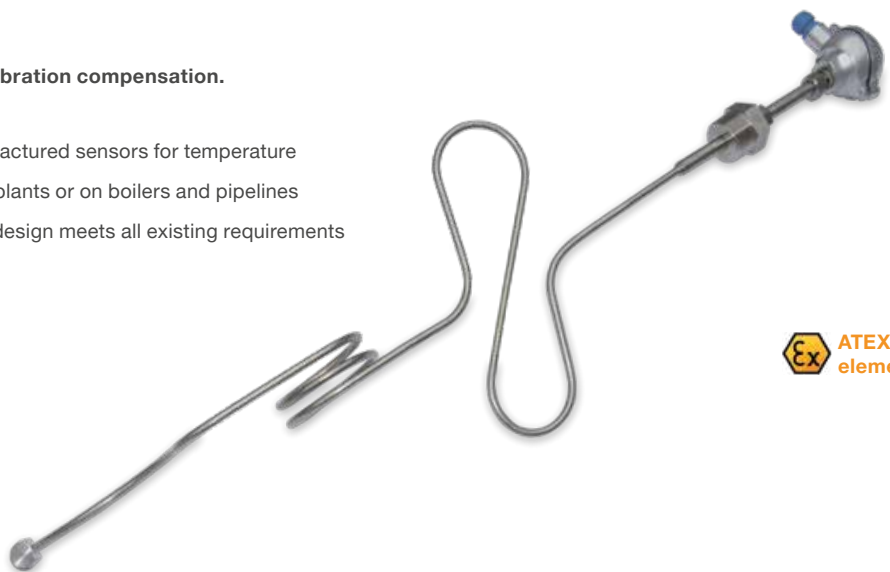
The temperature sensors of the FT-FireTECH series are designed for temperature measurements in and on fire test furnaces. Sensors in this product group include measurement on hot surfaces as well as of the air or the temperature of fire gases.



■ TS-TubeSkin

Surface thermocouples with length and vibration compensation.

TubeSkin thermocouples are specially manufactured sensors for temperature measurement on pipelines in petrochemical plants or on boilers and pipelines in power plants. The flexible, self-contained design meets all existing requirements in these areas.



Brief overview – services and products

■ MarineTECH

Temperature sensors for the maritime industry, ships, boats, offshore etc. with DNV type approval.

Sensors manufactured for the requirements of the shipbuilding industry in accordance with the guidelines of the maritime classification societies for a wide range of applications in modern shipbuilding.



■ Multipoint elements

Thermocouples with a large number of measuring points

Multipoint thermocouple systems with up to 30 measuring points are mainly used in the chemical industry. They are used, for example, in reactors for the production of paints and binders.



■ Glass stand probes, bubbler tubes, sampling probes, etc.

Another area of the GÜNTHER product portfolio is the manufacture of glass level probes and bubbler tubes for the glass industry. Furthermore, sampling probes for the analysis and supply of process gases are part of the GÜNTHER Group's product range.



■ Specials

Temperature sensors which cannot be assigned to a specific product group

A large proportion of temperature sensors manufactured by GÜNTHER cannot be clearly assigned to one of the product groups mentioned. This is due to the ever-increasing demands placed on modern temperature sensors in a constantly changing industrial landscape.

GÜNTHER has set itself the goal of finding the best possible solution for every conceivable requirement.

Therefore, we manufacture a large number of individual special solutions. These are developed in close consultation with the customer.

This way, we can also produce sensors that are not based on a predefined construction plan, but are manufactured as customised individual pieces or small series for our customers.

Calibration laboratory, service, training and certification

Calibration and on-site service

At the company's headquarters in Schwaig, Germany and Wrocław, Poland, the GÜNTHER Group maintains two accredited calibration laboratories where the calibration of temperature sensors is carried out.

The DAkkS accreditation of GÜNTHER GmbH Temperaturmesstechnik is in the temperature range from -100°C to +1500°C. In the temperature range between -100°C and +1550°C a factory test certificate can be issued for calibration.

We also offer our customers on-site service from our company headquarters in Schwaig and Wrocław. Our experienced employees work for you at home and abroad. The main component of the GÜNTHER service are **SAT measurements** (measurement of system accuracy), **TUS measurements** (measurement of temperature uniformity in the furnace) and the performance of **instrument calibrations**.



Trainings

To further support our customers, we offer various practical training courses on the subject of temperature measurement technology.

The topics range from the basics of temperature measurement technology to more in-depth topics such as the contents of CQI-9 or AMS 2750.

All training courses can be held either in the GÜNTHER training rooms or at the customer's premises.



Certifications





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