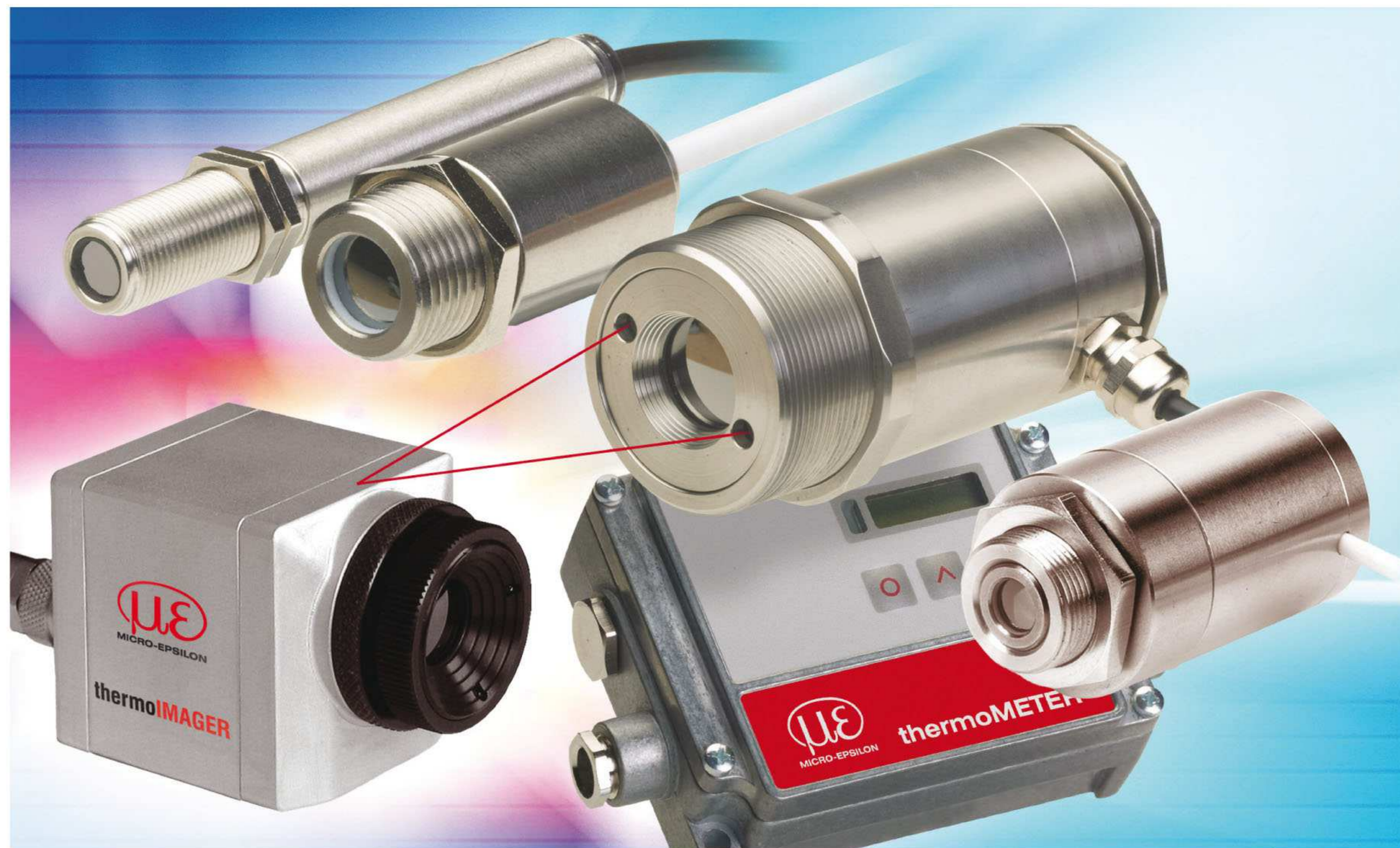


IR temperature analysis

For industry applications and test benches, infrared thermometers enable long-term monitoring, overheating control and can track warming-up and cooling-down processes

▶ Infrared thermometers, rather than having to come into contact with a body to determine its temperature, do so by measuring radiated energy. Fast and reliable temperature measurements of moving, very hot or difficult-to-access objects are thereby made possible. The use of infrared sensors is also possible for very high temperatures, where a contact sensor or contact probe would be destroyed or would have a very short service life. Furthermore, infrared sensors for process automation enable continuous temperature monitoring. Intelligent, digital systems allow the customer to remotely program the sensors, as well as conduct online transmission and recording of measured data. Infrared radiation is emitted from every body whose temperature is above absolute zero. The infrared sensor captures the emitted radiation and deflects this data to one or more detectors. The energy of the infrared radiation is converted into electrical signals in the detector, which are then converted into temperature values based on the calibration of the sensor and the specified emissivity.

Infrared sensors are not too different in their basic design. The important integral part for resolution and measurement of spot size for a specified distance is the infrared lens, which bundles the IR light on the infrared detector. It also specifies the relationship of the measurement spot size to the distance from the sensor. The detector element is at the heart of the sensor. There are two physically different elements for this one subsystem. Either a thermopile or a quantum detector is used to convert the radiation into electrical energy. Afterwards, an amplifier module and an A/D converter are required.



Depending on the sensor, there are other electronics for conditioning or stabilizing the signal.

IR temperature sensors in the ThermoMeter series by Micro-Epsilon measure precisely, wear-free and without any physical effect on the target. IR temperature sensors can be used in a variety of applications in any industry from R&D to production and process monitoring. IR temperature sensors in the ThermoMeter CT series are very durable, robust and reliable with an extremely long expected working life. These sensors can operate in a 250°C environment without requiring cooling.

The IR sensors in the ThermoMeter CTlaser series are designed for precision measurement tasks. The laser beams mark the actual measuring size for any given distance, while the

The series of infrared sensors from Micro-Epsilon are available in many versions, ensuring the appropriate sensor for every measurement task



ThermoMeter CTlaser series is designed with the most sophisticated optics for the IR sensors and measure with the world's smallest spot sizes of less than 1mm.

The key characteristics of these sensors are flexibility in application for different materials as well as separate controller functionality with easily accessible programming keys and a multicolor LCD display. In addition, the sensors are very

robust. The IR temperature sensors ThermoMeter CT and ThermoMeter CTlaser are used in engine test benches for V-belts and gear belts. They can also be applied to test stands for brakes and brake disks. ☺

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