

Temperature Sensor Infrared TI-100-s / TI-100-c

This infrared temperature sensor is designed for non-contact surface temperature measurement of various parts (e.g. tires or cylinder heads) based on IR radiation.

Using ruggedized silicon-coated optics with internal electronics and cabling packaged inside a stainless steel housing, this sensor measures the emitted infrared radiation of an object and calculates its temperature. The output signal has a linear characteristic (temperature vs. output voltage).

The main features of this sensor are its compact size, robust design, and high signal quality at a low cost. In addition, it offers the ability to change the temperature range, the output voltage and emissivity by request.



| Application | |
|--------------------------------------|---|
| Application | 0 ... 1,000 °C |
| Operating Temp. Range (sensing head) | -20 ... 120 °C |
| Operating Temp. Range | -20 ... 70 °C (electronics) |
| Storage Temperature Range | -40 ... 85 °C |
| Relative Humidity | 10 ... 95 % |
| Max. Vibration any axis | 30 m/s ² @ 11 ... 200 Hz 500 m/s ² , 11 ms shock |

| Mechanical Data | |
|----------------------|----------|
| Male Thread | M12x1 mm |
| Wrench Size | 14 mm |
| Length Housing | 28 mm |
| Weight with Wire 1 m | 42 g |

| Electrical Data | |
|----------------------------------|------------|
| Power Supply U _s | 5 ... 28 V |
| Max Power Supply U _s | 28 V |
| Full Scale Output U _A | 0 ... 5 V |
| Current I _s | 9 mA |

| Characteristic | |
|--|--|
| Emissivity (pre defined) | [1] 0.80 (steel) [2] 0.75 (carbon) |
| Optical Resolution | 10 : 1 |
| Spectral Range | 8 ... 14 μm |
| Compensated Range | -20 ... 120 $^{\circ}\text{C}$ |
| Temperature resolution @ $T_{\text{obj}} < 100\text{ }^{\circ}\text{C}$ | 0.1 $^{\circ}\text{C}$ |
| System Accuracy @ 23 $^{\circ}\text{C}$ t_{amb} , or max. value | $\pm 1.5\text{ }^{\circ}\text{C}$ or 1.5 % |
| Repeatability @ 23 $^{\circ}\text{C}$ t_{amb} , or max. value | $\pm 0.75\text{ }^{\circ}\text{C}$ or 0.75 % |
| Sensitivity | 5 mV/ $^{\circ}\text{C}$ |
| Offset | 0 mV |

| Connectors and Wires | |
|--|------------------|
| Connector | ASL 6-06-05PN-HE |
| Mating connector | ASL 0-06-05SN-HE |
| Pin 1 | Us |
| Pin 2 | Gnd |
| Pin 3 | Sig |
| Pin 4 | Prg |
| Pin 5 | Scr |
| Various motorsport and automotive connectors are available on request. | |
| Sleeve | Viton |
| Wire Size | AWG 26 |
| Wire Length L | 70 ... 100 cm |
| Please specify the required wire length with your order. | |

Application Hint

The TI-100 can be connected directly to most control units and data logging systems.

The temperature measurement range can be changed anywhere in the range of -20 $^{\circ}\text{C}$ to 1,000 $^{\circ}\text{C}$ per request.

The emissivity can be changed by request.

The predefined emissivity can differ from the real emissivity.

To determine the emissivity, please contact Bosch Motorsport for assistance.

The sensor is protected against reverse polarity and short-circuit.

Sensor can be mounted in any orientation.

Do not disconnect the electronics housing from the sensor.

The sensor meets the EMV qualification 89/336/EWG.

Please avoid abrupt temperature changes.

For mounting please use only the integrated thread.

Please ensure that the environmental conditions do not exceed the sensor specifications.

To clean the lens use only a soft, wet (water or water based glass cleaner) cloth -> NO DISSOLVER cleaner!

Please find further application hints in the offer drawing (<http://www.bosch-motorsport.com>).

| Part Numbers | |
|-----------------------|-------------------------|
| TI-100-s (steel) [1] | F 01T A21 210-01 |
| TI-100-c (carbon) [2] | F 01T A21 211-01 |

