

Temperature Sensor Infrared TI-16-r / TI-16-s

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 ... 160 °C
Operating Temp. Range (sensing head)	-20 ... 120 °C
Operating Temp. Range (electronics)	-20 ... 70 °C
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 (predefined)	[1] 0.95 (rubber) [2] 0.80 (steel)
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	31.25 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 requested wire length with your order.	

Application Hint
The TI-16 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-16-r [1]	F 01T A21 207-01
TI-16-s [2]	F 01T A21 209-01

