

IMPAC IN 2000 AND IN 3000

Stationary infrared sensors for non-contact temperature measurement of non-metallic surfaces or painted, coated, or anodized metals in temperatures between -32 and 500°C.



The Impac® IN 2000 is a digital infrared sensor with 4 to 20 mA analog output and interface output for PC connection with USB and the IN 3000 is an analog infrared sensor with three different outputs: 10 mV/°C, thermocouple type K or J. The small housing dimensions enable integration of the instruments in compact production machines while the solid and robust design of the instrument guarantees reliability, even in rough industrial environments. With the built-in air purge the lens can be protected from contamination with dust and moisture.

PRODUCT HIGHLIGHTS

- Built-in air purge unit to keep clean the lens in dusty environments
- Easy installation and connections
- Stainless steel housing with PG 11 thread for easy mounting
- Very small housing dimensions, suited for use in confined spaces
- Up to 70°C operating temperature without cooling

TYPICAL APPLICATIONS

- | | |
|------------|-------------------|
| ■ Plastics | ■ Ceramic |
| ■ Textiles | ■ Paper |
| ■ Asphalt | ■ Liquids |
| ■ Rubber | ■ Food |
| ■ Paint | ■ Painted metals |
| ■ Glass | ■ Coated metals |
| ■ Wood | ■ Anodized metals |
| ■ Varnish | |

AT A GLANCE

Temperature Ranges

IN 2000

-32 to 900°C (-25.6 to 1652°F)

IN 3000

0 to 120°C (32 to 248°F)

0 to 300°C (32 to 572°F)

100 to 500°C (212 to 932°F)

Spectral Range

8 to 14 μm

Measurement Uncertainty

IN 2000

T_{amb} 15 to 40°C: 1% oR + 1°C

Other T_{amb}: 1.4% oR + 1°C

IN 3000

1.5% oR or 2.5°C

Repeatability

IN 2000

0.3% oR

IN 3000

1% oR or 1 °C

TECHNICAL DATA

Measurement Specifications		
	IN 2000	IN 3000
Temperature Ranges	-32 to 900°C (-25.6 to 1652°F)	0 to 120°C (32 to 248°F) 0 to 300°C (32 to 572°F) 100 to 500°C (212 to 932°F)
Sub Range	Any range adjustable within the temperature range, minimum span 51°C	-
Spectral Range	8 to 14 μm	
Digital Signal Processing	Digital	Analog
Resolution	0.1°C on interface, < 0.025% of temp. range at the analog output	
Emissivity ε	10.0 to 100.0% (adjustable via interface)	95% (fixed)
Transmittance τ	10.0 to 100.0% (adjustable via interface)	-
Measurement Uncertainty	1% of measured value + 1°C + 1 (ε=1, T _{amb} =15 to 40°C) ¹ 1.4% of measured value + 1°C + 1 (ε=1, T _{amb} =0 to 15 or 40 to 70°C) ¹	1.5% of temperature range or 2.5°C ²
Repeatability	< 0.3% of measured value (ε=1)	1% of measured value or 1°C 2)
Noise (NETD, σ = 1)	< 0.2°C (ε=1, t ₉₀ =min, T _{amb} =23°C)	< 0.2°C

Electrical Specifications		
	IN 2000	IN 3000
Power Supply	15 to 30 VDC	18 to 30 VDC)
Output	Analog output 4 to 20 mA, digital output for connecting a USB adapter	10 mV/°C or thermocouple type J or K
Load	Max 375 Ω at 15 V up to max 1125 Ω at 30 V	Min 50 kΩ

Communication and Interface Specifications		
	IN 2000	IN 3000
Exposure Time t ₉₀	95 ms (adjustable to 0.5 up to 120 s)	300 ms
Maximum Value Storage	Clear times t _{clear} = OFF; 0.1 up to 25 s or automatically with the next measuring object	-
Parameters	Temp. display in °C or °F, emissivity ε, exposure time t ₉₀ , settings of the max / minimum value storage, temperatur sub range, ambient temperature compensation, adresse, baud rate	-
Connection Cable	2 m	1 m

¹ The instrument must be at a constant ambient temperature for a minimum of 15 minutes and has to be connected to the power supply.

² The larger value is valid.

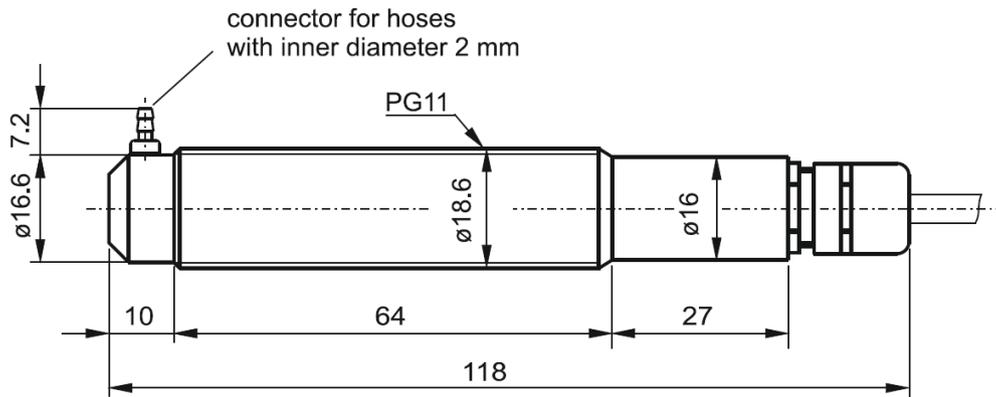
³ The determination of the technical data of this pyrometer is carried out in accordance with VDI/VDE IEC TS 62942-2, the calibration / adjustment in accordance with VDI/VDE 3511, Part 4.4.

TECHNICAL DATA (CONTINUED)

Environmental Specifications

Protection Class	IP 65 (DIN 40050)
Mounting Position	Any
Ambient Temperature	0 to 70°C (32 to 158°F) at housing
Storage Temperature	-20 to 70°C (-4 to 158°F)
Relative Humidity	Non-condensing conditions
Housing	Stainless steel
Weight	150 g (~0.331 lb)
CE Label	According to EU directives about electromagnetical immunity

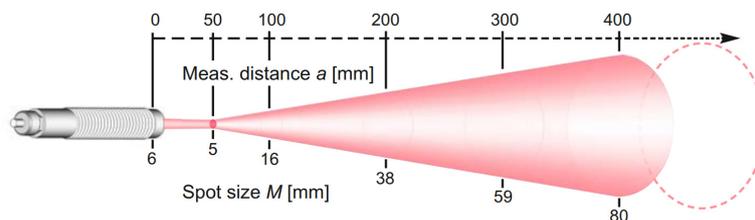
DIMENSIONS



Dimensions in mm

OPTICS

The optics is fixed to a distance of 50 mm, i.e. at this distance the optic achieves its smallest spot size in relation to the measuring distance. The spot size will be enlarged in any other distance (shorter or longer). Please note that the measuring object must be at least as big as the spot size.



REFERENCE NUMBERS

Temperature Range	IN 2000	IN 3000		
	4 to 20 mA	10 mV / °C	Type J	Type K
0 to 120°C	-	3 885 710 (0 to 1.2 V)	3 885 720	3 885 730
0 to 300°C	-	3 885 750 (0 to 3 V)	3 885 760	3 885 770
100 to 500°C	-	3 885 810 (1 to 5 V)	3 885 820	3 885 830
-32 to 900°C	3 885 200	-	-	-

ACCESSORIES

PN	Description
3 890 600	Power supply 24 VDC
3 826 650	USB adapter
3 837 180	Cooled enclosure
3 835 250	90° mirror
3 834 260	Mounting angle, adjustable



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