

**Stationary good value infrared sensor for non-contact temperature measurement of non-metallic surfaces or painted, coated or anodized metals.**

**IN 2000 • IN 3000**



IN 2000: Digital infrared sensor with 4-20 mA analog output and interface output for PC connection with USB

IN 3000: Analog infrared sensor with 3 different outputs: 10 mV/°C, thermocouple type K or J

- Built-in air purge unit to keep clean the lens in dusty environments
- Easy installation and connecting
- 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



**IN 2000** and **IN 3000** are good value stationary infrared sensors for non-contact temperature measurement of non-metallic surfaces or painted, coated or anodized metals.

The small housing dimensions enable the integration of the instruments in compact production machines; 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. This enables the instrument to be adapted to various measuring tasks.

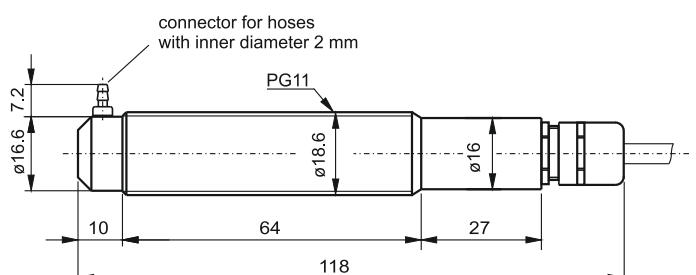
The **IN 3000** is an analog measuring device that provides 3 different outputs.

The **IN 2000** is a digital pyrometer equipped with a interface output for connection to an USB adapter. This enables the adjustment of all pyrometer parameters via PC.

**Typical applications are measurements of:**

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

**Dimensions:**



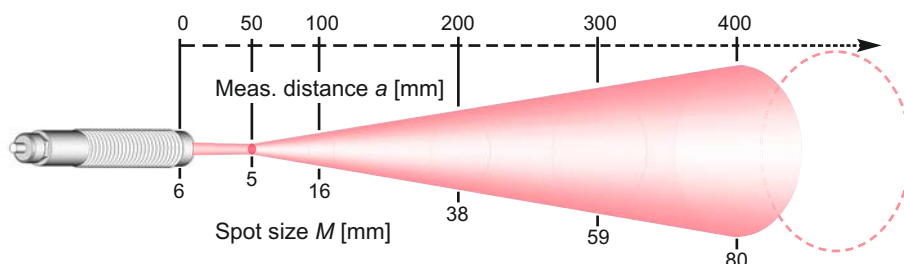
## Technical data

	IN 2000	IN 3000
Temperatur range(s):	-32 to 900 °C	0 to 120°C / 0 to 300°C / 100 to 500°C
Sub range:	Any range adjustable within the temperature range, minimum span 51°C	–
Spectral range:	8 to 14 µm	
Internal signal processing:	Digital	Analog
Power supply:	15 to 30 V DC	18 to 30 V DC
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
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)
Transmissionsgrad τ:	10.0 to 100.0% (adjustable via interface)	–
Exposure time t <sub>90</sub> :	95 ms (adjustable to 0.5 up to 120 s)	300 ms
Interface parameters:	Temp. display in °C or °F, emissivity ε, exposure time t <sub>90</sub> , settings of the max. / minimum value storage, temperatur sub range, ambient temperature compensation, adresse, baud rate	–
Maximum / minimum value storage:	Clear times t <sub>clear</sub> = OFF; 0.1 up to 25 s or automatically with the next measuring object	–
Uncertainty:	1% of measured value + 1°C <sup>1)</sup> (ε=1, T <sub>amb.</sub> =15...40°C) 1.4% of measured value + 1°C <sup>1)</sup> (ε=1, T <sub>amb.</sub> =0...15 or 40...70°C)	1.5% of temperature range or 2.5°C <sup>2)</sup>
Repeatability:	< 0.3% of measured value (ε=1)	1% of measured value or 1°C <sup>2)</sup>
Noise (NETD, σ=1):	< 0.2°C (ε=1, t <sub>90</sub> =min, T <sub>amb.</sub> =23°C)	< 0.2°C
Ambient temperature:	0 to 70°C	
Storage temperature:	-20 to 70°C	
Relative humidity:	No condensing conditions	
Housing:	Stainless steel	
Weight:	150 g	
Mounting position:	Any	
Connection cable:	2 m	1 m
Air purge unit:	For connecting hose with 2 mm inner diameter	
Protection class:	IP65 (DIN 40050)	
CE label:	According to EU directives about electromagnetic immunity	

<sup>1)</sup> The instrument must be at a constant ambient temperature for a minimum of 15 minutes and has to be connected to the power supply. <sup>2)</sup> the larger value is valid

## 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 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

	IN 2000	IN 3000		
<b>Output:</b>	<b>4 to 20 mA</b>	<b>10 mV / °C</b>		3 890 600
		<b>Type J</b>	<b>Type K</b>	3 826 650
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	–	–	–

Power supply 24 V DC  
 USB adapter  
 Cooled enclosure  
 90° mirror  
 Mounting angle, fixed  
 Mounting angle, adjustable

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