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

Dimensions:
Technical data

IN 2000 | IN 3000
---|---
Temperatur range(s): | -32 to 900 °C | 0 to 1200°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 t90: | 95 ms (adjustable to 0.5 up to 120 s) | 300 ms
Interface parameters: | Temp. display in °C or °F, emissivity ε, exposure time t90, settings of the max. / minimum value storage, temperature sub range, ambient temperature compensation, address, baud rate | –
Maximum / minimum value storage: | Clear times tclear = OFF; 0.1 up to 25 s or automatically with the next measuring object | –
Uncertainty: | 1% of measured value + 1°C ¹ | 1.5% of temperature range or 2.5°C ²
Repetatability: | < 0.3% of measured value ε=1 | 1% of measured value or 1°C ²
Noise (NETD, σ=1): | < 0.2°C ε=1, T90= min, Tsea = 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 | –

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

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

<table>
<thead>
<tr>
<th>IN 2000</th>
<th>IN 3000</th>
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</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
<td><strong>10 mV / °C</strong></td>
</tr>
<tr>
<td>0 to 120°C</td>
<td>–</td>
</tr>
<tr>
<td>0 to 300°C</td>
<td>–</td>
</tr>
<tr>
<td>100 to 500°C</td>
<td>–</td>
</tr>
<tr>
<td>-32 to 900°C</td>
<td>3 885 200</td>
</tr>
</tbody>
</table>

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

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