

**X** Non-contact temperature measurement  
with *Infratherm* pyrometers

**impac**<sup>®</sup>



# IN 5 · IN 5/5

**2-Wire. Precise. Compact.**

- **Handling**  
easy mounting and installation
- **Application**  
IN 5: For non-metallic surfaces and coated or oxydized metals  
IN 5/5: For glass and quartz glass surfaces
- **Temperature ranges**  
IN 5: 7 ranges between -32 and 900°C  
IN 5/5: 4 ranges between 100 and 2500°C
- **Response time  $t_{90}$**   
80 ms, adjustable up to 5 s
- **Spot sizes**  
IN 5: min 2.0 mm  
IN 5/5: min 2.5 mm
- **Uncertainty**  
down to 0.6 % of measured value in °C
- **Analog Output**  
4 ... 20 mA linear
- **Housing**  
Stainless steel
- **Operating ambient temperature**  
up to 70°C
- **Food processing**  
can be used for food measurement



**Infratherm IN 5 and IN 5/5** are rigid, 2-wire pyrometers for non-contact temperature measurement. Due to the internal digital data management they are 40% more precise than the previous analog types.

**IN 5** is used for the temperature measurement of non-metallic surfaces and coated or oxydized metal surfaces.

**IN 5/5** is specifically designed for the temperature measurement of glass and quartz glass surfaces .

#### Typical applications IN 5:

- plastics, rubber
- paper
- textiles
- ceramics
- wood
- fluids, laquors, glues
- asphalt, building materials
- food

#### Typical applications IN 5/5:

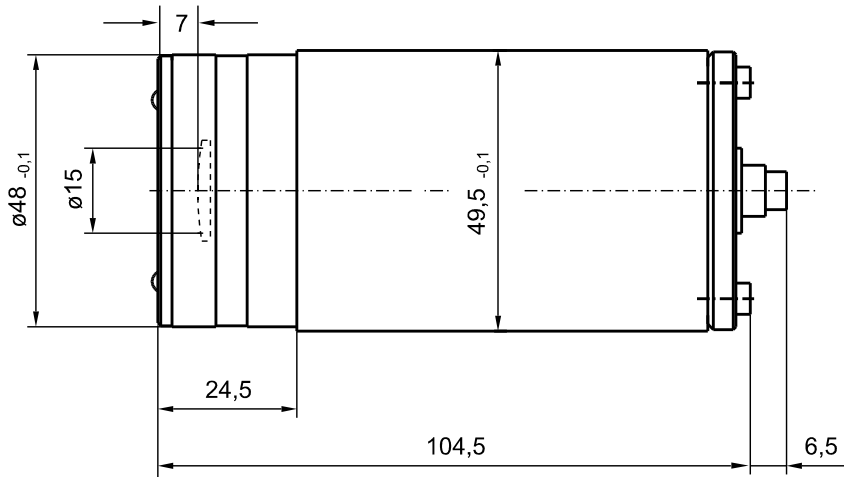
- glass and quartz glass surfaces
- e.g. float glass



→ Emissivity and response time can be set at the device. The switches for the emissivity allow an exactly repeatable setting.

	IN 5	IN 5/5
<b>Temperature ranges:</b>	MB 1: 0... 100°C MB 2: 0... 200°C MB 3: 0... 300°C MB 4: 0... 400°C MB 5: 0... 500°C MB 9: 0... 900°C MB 0,5: -32...50°C	MB 6: 100... 600°C MB 8: 200... 800°C MB 13: 100... 1300°C MB 25: 400... 2500°C
<b>Internal data processing:</b>	Digital	Digital
<b>Spectral range:</b>	8 ... 14 μm	5.14 μm
<b>Optics:</b>	Ge lens	ZnS lens
<b>IR detector:</b>	Thermopile	
<b>Power supply:</b>	24 V DC (10...30 V) stabilized, ripple < 0.5 V	
<b>Analog output:</b>	4...20 mA, linear, resolution 2880 steps	
<b>Load:</b>	Max 700 Ω @ 24 V (max 100 Ω @ 12 V)	
<b>Emissivity:</b>	0.2 ... 1 adjustable	
<b>Response time t<sub>90</sub>:</b>	0.08s, adjustable up to 5 s	
<b>Measurement uncertainty*:</b>	(T <sub>1</sub> ...T <sub>2</sub> °C = object temperature, T <sub>A</sub> = ambient temperature) for ε = 1; t <sub>90</sub> = 1 s	
T <sub>A</sub> = 15...30°C	0...300°C: 0.6% of meas. value in °C or 1°C*	100...1300°C: 0.6% of measured value in °C or 2°C
T <sub>A</sub> = 15...30°C	300...900°C: 1% of measured value in °C	1300...1800°C: 0.8% of measured value in °C
T <sub>A</sub> = 15...30°C	-32... 0°C: 1.5°C	1800...2500°C: 1% of measured value in °C
T <sub>A</sub> = 0...15°C and 30...63°C	0...300°C: 1% of meas. value in °C or 1.5°C	100...1300°C: 1% of measured value in °C or 3°C
T <sub>A</sub> = 0...15°C and 30...63°C	300...900°C: 1.3% of measured value in °C	1300...1800°C: 1.2% of measured value in °C
T <sub>A</sub> = 0...15°C and 30...63°C	-32... 0°C: 2°C	1800...2500°C: 1.4% of measured value in °C
<b>Repeatability*:</b>	0.3 % of measured value in °C or 0.6°C*	
<b>Noise Equivalent Temperature Difference (NETD):</b>	@ t <sub>90</sub> = 80 ms: 0.2°C (σ = 1; 23°C object temperature, emissivity = 1) @ t <sub>90</sub> = 1 s: 0.05°C (σ = 1; 23°C object temperature, emissivity = 1)	
<b>Ambient temperature:</b>	0...+70 °C (0...+63°C for IN 5/5, MB 25)	
<b>Storage temperature:</b>	-20...+70 °C	
<b>Safety system:</b>	IP 65 (according to DIN 40 050)	
<b>Weight:</b>	400 g	
<b>Housing:</b>	111 mm x 49.5 mm (l x d), stainless steel	
<b>Operating position:</b>	Any	
<b>EMI tests:</b>	CE label, satisfies EU regulations for electromagnetic immunity (industry norm)	
<b>Scope of delivery:</b>	Device with chosen optics	
	<b>Attention:</b> Connection cable is <u>not</u> included. Please make shure to order cable as well	

\*) The larger value is valid. The instrument must be at a constant ambient temperature for a minimum of 15 minutes.



### Optics - general information

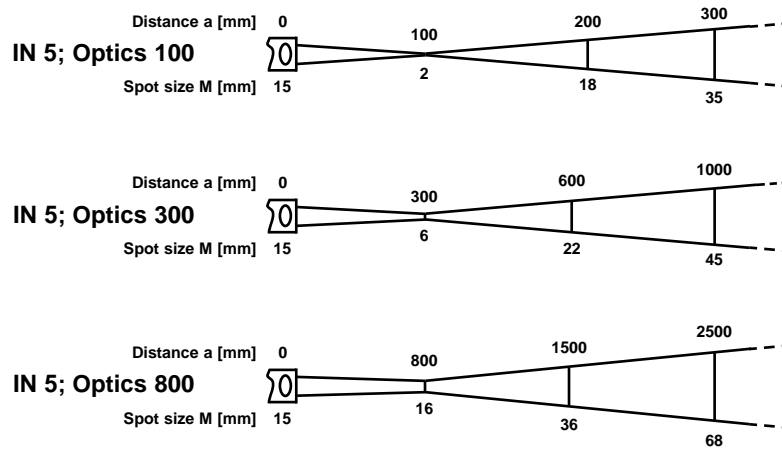
The optics available for IN 5 and IN 5/5 are fixed-focus optics which cannot be changed by the user.

The spot size at a distance  $a = 0$  mm is equal to the diameter of the aperture behind the lens.

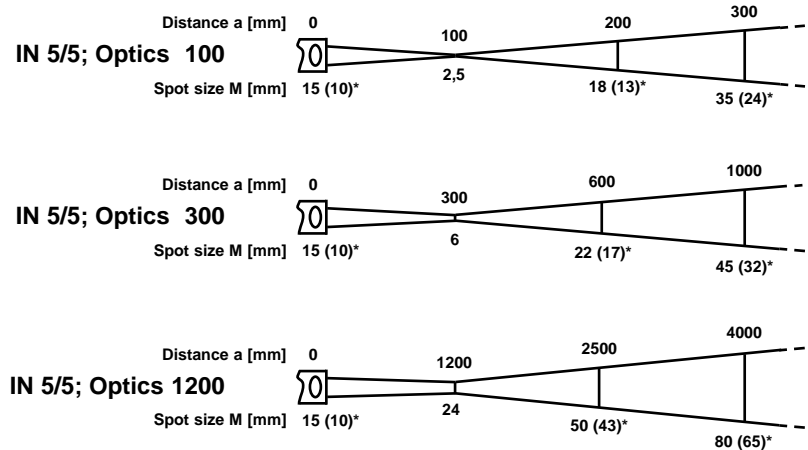
The diagrams below give an overview of the spot sizes  $M$  at distances  $a$ .

Distance  $a$  is measured from the front surface of the lens.

### Optics IN 5



### Optics IN 5/5



\*) Spot sizes for range MB 25

## Order numbers



**Order numbers: Measuring devices** (Attention: A connection cable must be ordered separately. See example.)

Order no.	Model,	Range	Order no.	Model,	Range	Order no.	Model,	Range
3 869 010	IN 5	0... 100°C	3 869 050	IN 5	0... 500°C	3 869 110	IN 5/5	100... 600°C
3 869 020	IN 5	0... 200°C	3 869 090	IN 5	0... 900°C	3 869 120	IN 5/5	200... 800°C
3 869 030	IN 5	0... 300°C	3 869 100	IN 5	-32... +50°C	3 869 130	IN 5/5	100... 1300°C
3 869 040	IN 5	0... 400°C				3 869 140	IN 5/5	400... 2500°C

Special ranges on request

**When ordering please add the distance of the desired optics!**

**Attention: The connecting cable must be ordered separately.**



## Ordering example

Order no.	Orders
3 869 030	IN 5, range 0...300°C, <b>with optics a = 800 mm</b>
3 820 210	Connection cable, 2 m long

## Order numbers: accessories

Order no.	Mechanical accessories	Order no.	Electrical accessories
3 834 210	Mounting bracket (adjustable)	3 820 210	Standard connection cable, 2 m long
3 835 160	Air purge	3 820 560	Connection cable, 5 m long
	<u>Water cooling system (combination)</u>	3 820 570	Connection cable, 10 m long
3 837 080	Standard water cooling jacket for ambient temperatures up to 170°C	3 820 580	Connection cable, 15 m long
3 835 100	Connecting flange	3 820 590	Connection cable, 30 m long
3 835 080	Mounting angle	3 890 600	Power supply for DIN rail (230 V AC to 24 V DC)
3 835 070	Mounting flange	3 890 960	Power supply for DIN rail (115 V AC to 24 V DC)
3 835 160	Air purge	3 890 640	DA 4000-N: LED digital display with integrated supply for 2-wire pyrometer
3 835 090	Mounting socket	3 890 650	DA 4000: like DA 4000-N, but with 2 additional limit switches
3 835 110	Rear wall for cooling jacket	3 890 660	IP65 front cover for DA 4000-N or DA 4000 (additional cover for protection)
3 837 230	Water cooling jacket (heavy duty) with integrated air purge for ambient temperatures up to 280°C	3 890 520	DA 6000 LED digital display, with maximum value storage, interface RS232, analog output, 2 limit switches, supply: 85...265 V AC or 24 V DC, InfraWin software, integrated supply for 2-wire pyrometer
3 846 100	Mounting tube	3 890 530	DA 6000, with RS485 instead of RS232 interface
3 846 120	Flange tube	3 890 630	LDP 1224, large digits display (57 mm digit height with integrated 2-wire supply
3 846 620	Vacuum flange KF16 with CaF <sub>2</sub> window for IN 5/5	3 890 110	Recorder (1 ... 4 channels)
3 846 630	Vacuum flange KF16 with ZnSe window for IN 5	... 140	
3 846 650	Spare window CaF <sub>2</sub> Ø 25 x 3 with Viton O-ring	3 863 010	Converter IW 5-C (4...20 mA into 0...20 mA)
3 846 660	Spare window ZnSe Ø 25 x 3 with Viton O-ring		

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Temperature Measurement

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Specifications are subject to change without notice.