

IMPAC IN 210/5

Digital pyrometer designed for temperature measurement of glass surfaces and quartz glass surfaces between 100 to 1200°C (212 to 2192°F).



The Impac® IN 210/5 is a stationary pyrometer for non-contact temperature measurement of glass surfaces and quartz glass surfaces. The digital pyrometers use a two-wire format that combines the high accuracy of the digital signal processing with the simple connection and operation with two wires.

Setting programmable parameters such as emissivity, sub range, and response time can be adjusted either with the portable setting device HT 6000 or via USB adapter and the setting software InfraWin. This enables the instrument to be adapted to various measuring tasks.

PRODUCT HIGHLIGHTS

- Spectral range optimized for measurement of glass surfaces
- Small, robust stainless steel housing for easy installation, with electrical connector for facile mounting / demounting
- Two-wire technique for current supply and temperature measurement at the same time
- Internal digital signal processing for high accuracy
- High quality optics for detection of small measuring objects
- Temperature sub range programmable for adaptation of the analog output to the measuring task

AT A GLANCE

Temperature Ranges

100 to 1200°C (212 and 2192°F)

Spectral Range

5.14 μm

Measurement Uncertainty

1% oR + 1°C

Repeatability

0.5% oR + 1°C

Optics

3 fixed optics
a = 100 mm, 300 mm, and 1200 mm

Exposure Time t_{90}

120 ms, adjustable up to 10 s

Output

4 to 20 mA

TECHNICAL DATA

Measurement Specifications

Temperature Range	100 to 1200°C (212 and 2192°F)
Spectral Range	5.14 μm
Resolution	0.1°C
Measurement Uncertainty ($\epsilon = 1, t_{90} = 1 \text{ s}, T_{\text{amb.}} = 25^\circ\text{C}$)	1% of reading in °C + 1°C
Repeatability ($\epsilon = 1, t_{90} = 1 \text{ s}, T_{\text{amb.}} = 25^\circ\text{C}$)	0.5% of reading in °C + 1°C
Emissivity ϵ	0.2 to 1.0 adjustable via service interface

Communication and Interface Specifications

Analog Output	4 to 20 mA, linear
Response Time t_{90}	120 ms, adjustable up to 10 s via service interface
Parameters [†]	Sub range, emissivity, response time
Aperture	15 mm

Electrical Specifications

Power Supply	24 VDC \pm 25%, ripple 500 mV
Power Consumption	Max 0.6 W
Load	Max 700 Ω @ 24 V

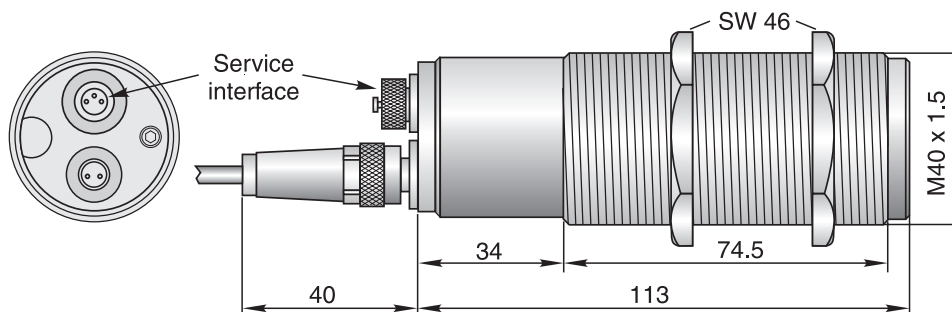
Environmental Specifications

Protection Class	IP 65 (DIN 40 050)
Ambient Temperature	0 to 70°C (32 to 158°F)
Storage Temperature	-20 to 70°C (-4 to 158°F)
Weight	~450 g (~0.992 lb)
CE Label	According to EU directives about electromagnetic immunity

1 Programming via service interface with portable battery driven setup device HT 6000 or via USB adapter and software infraWin (optional) or preset ex works (on request)

2 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.

DIMENSIONS



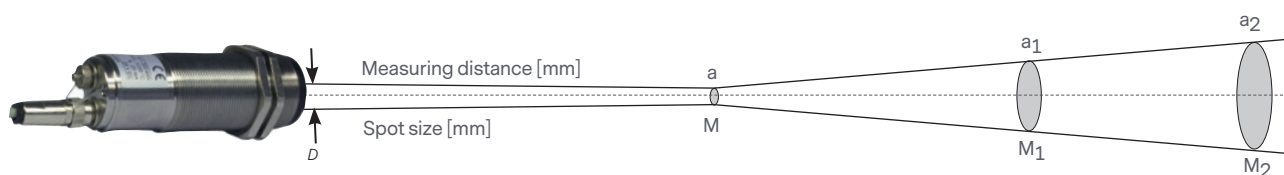
Dimensions in mm

OPTICS

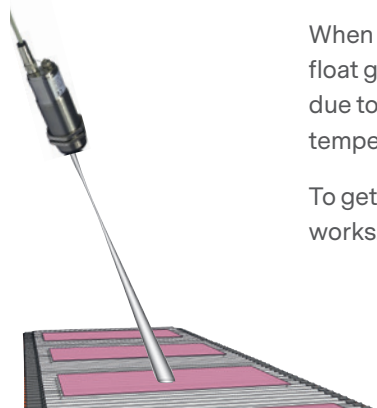
The pyrometers are equipped ex works with one of the specified optics. The smallest spot size M [mm] for each optics is in the nominal distance a [mm]. If the distance to the measuring object is decreased or increased the spot sizes will enlarge (see example values in the table).

IN 210/5								
Type	a:M ¹	a [mm]	M [mm]	a ₁ [mm]	M ₁ [mm]	a ₂ [mm]	M ₂ [mm]	D [mm]
100	40:1	100	2.5	200	18	300	35	15
300	50:1	300	6	600	22	1000	45	
1200	50:1	1200	24	2500	50	4000	80	

¹ a :M; distance ratio (90% intensity); M: spot size; a: measuring distance; D: aperture (effective lens diameter).



FLOAT GLASS CALIBRATION



When measuring the temperature of very large and hot surfaces (for example by the float glass production), additional radiation is received by the pyrometer's detector due to unavoidable effects (diffraction, multiple reflection). These effects increase the temperature output.

To get correct temperature values in this case, the pyrometer must be prepared ex works. The effect will be compensated by the "float glass calibration."

REFERENCE NUMBERS

IN 210/5

PN	Description
3 819 440	IN 210/5, 100 to 1200°C, optics a = 100 mm
3 819 450	IN 210/5, 100 to 1200°C, optics a = 300 mm
3 819 460	IN 210/5, 100 to 1200°C, optics a = 1200 mm
3 891 040	Float glass calibration (to order separately)

Scope of Delivery

Instrument with selected optic, works certificate, operation manual.

Ordering Notes

A connection cable is not included with the instrument and has to be ordered separately.

ACCESSORIES

PN	Description
3 821 820	Connection cable, 2 m
3 821 830	Connection cable, 5 m
3 821 840	Connection cable, 10 m
3 821 850	Connection cable, 15 m
3 821 860	Connection cable, 20 m
3 821 870	Connection cable, 25 m
3 821 880	Connection cable, 30 m
3 826 500	HT 6000: portable battery driven indicator and instrument for pyrometer parameter settings; RS232 / RS485
3 820 980	RS232 adapter cable HT 6000
3 826 660	USB adapter and InfraWin software
3 890 640	DA 4000-N, Digital display, with integrated 2-wire power supply
3 890 650	DA 4000: LED-display, 2-wire power supply, 2 limit switches (relay contacts), 230 VAC
3 852 290	Power supply NG DC for DIN rail mounting; 100 to 240 VAC → 24 VDC, 1 A
3 837 360	Water cooling jacket with integrated air purge unit
3 835 320	Air purge unit
3 834 350	Mounting angle, adjustable
3 834 360	Mounting angle, fixed
3 827 110	Battery driven laser targeting light



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