

Pyrometer especially for temperature measurements of glass surfaces and quartz glass surfaces between 100 and 1200°C.

IN 210/5



- Spectral range optimized for measurement of glass surfaces
- Small, robust stainless steel housing for easy installation, with electrical connector for facile mounting / demounting
- 2-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 subrange programmable for adaptation of the analog output to the measuring task



The **IN 210/5** is a stationary pyrometer for non-contact temperature measurement of glass surfaces and quartz glass surfaces.

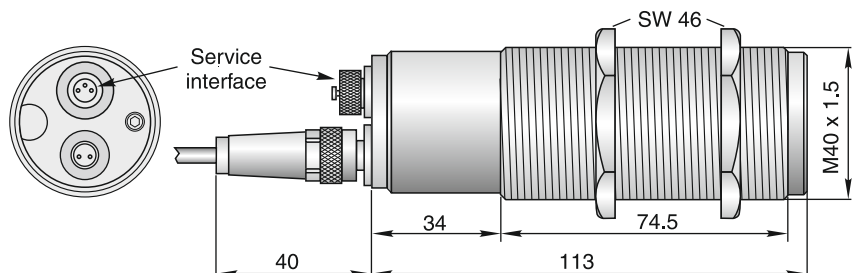
The instruments are operating as digital two wire pyrometers. This technique combines the high accuracy of the digital signal processing with the simple connection and operating with two wires.

The setting of the 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. On request all necessary values can be set ex works.

The solid and robust design of the instrument guarantees high operational safety even in rough industrial environments.

Dimensions:



Technical Data

| | | | |
|---------------------------------|--|--------------------|---|
| Temperature range: | 100 ... 1200°C | Power supply: | 24 V DC ± 25%; ripple ≤ 500 mV |
| Spectral range: | 5.14 μm | Power consumption: | Max. 0.6 W |
| Accuracy: | 1% of reading in °C + 1°C (ε = 1, T _{amb} =25°C, t ₉₀ = 1 s) | Aperture: | 15 mm |
| Repeatability: | 0.5% of reading in °C + 1°C (ε = 1, T _{amb} =25°C, t ₉₀ = 1 s) | Protection class: | IP65 (according to DIN 40 050) |
| Resolution: | 0.1°C | Ambient temp.: | 0 to 70°C |
| Parameters ¹⁾ : | Sub range, emissivity, response time | Storage temp.: | -20 to 70°C |
| Response time t ₉₀ : | 120 ms, adjustable up to 10 s via service interface | Weight: | Approx. 450 g |
| Emissivity ε: | 0.2 to 1.0 adjustable via service interface | CE-label: | According to EU directives about electromagnetic immunity |
| Output: | 4 to 20 mA, linear; max. load 700 Ohm at 24 V | | |

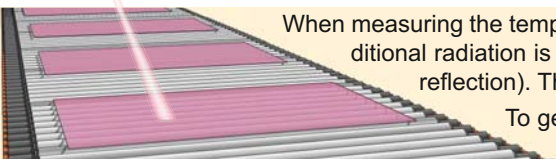
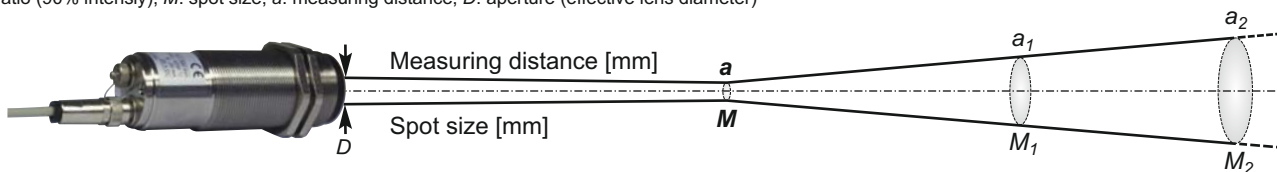
¹⁾ Programming via service interface with portable battery driven setup device HT 6000 or via USB adapter and software *infraWin* (optional) or preset ex works (on request)

Optica Data

The pyrometers are equipped ex works with one of the following optics. These optics are fixed to a certain distance, i.e. at these distances each optic achieves its smallest spot size in relation to the measuring distance. The spot size will change in any other distance (shorter or longer). Please note that the measuring object must be at least as big as the spot size.

| Optics | a : M ^{*)} | 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 | |

^{*)} a : M; distance ratio (90% intensity); M: spot size; a: measuring distance; D: aperture (effective lens diameter)



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 so-called **float glass calibration**.

Reference Numbers

Instruments:

| | |
|---|--|
| 3 819 440 IN 210/5; 100 ... 1200°C, optics a = 100 mm | 3 826 500 Portable battery driven setup device HT 6000 |
| 3 819 450 IN 210/5; 100 ... 1200°C, optics a = 300 mm | 3 820 980 Connecting cable to HT 6000 |
| 3 819 460 IN 210/5; 100 ... 1200°C, optics a = 1200 mm | 3 826 660 USB adapter + adjustment software <i>InfraWin</i> |
| 3 891 040 Float glass calibration (to order separately) | 3 890 640 Digital display DA 4000-N with 2 wire form power supply |
| | 3 890 640 Digital display DA 4000-N with 2 wire form power supply |
| | 3 890 650 Digital display DA 4000 with 2 wire form power supply and 2 limit switches |

Scope of delivery: Instrument, works certificate, user manual.

Ordering note: A connection cable is not included in scope of delivery and has to be ordered separately.

Accessories:

Connection cable:

| | | | | | | | |
|-----------|--------|--------|--------|--------|--------|--------|--------|
| | 2 m | 5 m | 10 m | 15 m | 20 m | 25 m | 30 m |
| 3 821 ... | ...820 | ...830 | ...840 | ...850 | ...860 | ...870 | ...880 |

| | |
|-----------|---|
| 3 852 290 | Power supply NG DC (100...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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