

**X** Non-contact thermometry best done with *Infratherm* Pyrometers

**impac**<sup>®</sup>



# Series 14 · Series 15

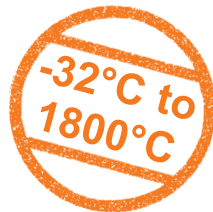
## Fast digital portable infrared pyrometers

A series of portable infrared thermometers for quick diagnostics and measurements of general applications. Special version for glass surface measurement.

- ◆ Fast temperature measurement
- ◆ High accuracy
- ◆ Locking switch for continuous mode
- ◆ Laser targeting light
- ◆ Large display with automatic back-light

Options:

- ◆ Serial interface
- ◆ Analysing software
- ◆ Portable printer
- ◆ Integrated data logger with real-time clock
- ◆ Small spot sizes down to 2.2 mm



All series 14 and 15 **portables** are thermometers for non-contact temperature measurement. For almost all applications an appropriate pyrometer is available which solves your measuring task at its best.

All types are equipped with a red **laser targeting light** to simplify the alignment of the pyrometer.

Special attention was given to **ergonomics** and a **simple operation**. It begins with the mechanical locking switch for continuous measurement and is going on in the easily understandable keyboard menu and the self-describing software PortaWin for series 15 (except IN 15-N).

The **series 14** thermometers offer temperature ranges between -32°C and 400, 500 or 600°C with different spot sizes.

The **series 15** thermometers have temperature ranges from -32°C up to 800 or 900°C and small spot sizes (e.g. 20 mm at 1 m distance). The three types differ by internal **data loggers**, external analog and digital interfaces.

The **15/5 types** are optimized for the temperature measurement of **glass surfaces** by appropriate selection of the spectral range, they measure glass temperatures between 150 and 1800°C.

The pyrometers of series 15 (except IN 15-N) equipped with the optional **close-up lens** are able to measure smallest objects with **2.2 mm** diameter (e.g. electronic components).

### → Typical application ranges

#### **Types 14 and 15:**

For non-metallic surfaces, also for coated, painted or anodized metals.

#### **Types 15/5:**

Measurements on glass surfaces.

## Criteria for Type Selection

### 1. The measurement temperature range

### 2. The size of the measuring object

Distance ratio = Distance / spot size.

Example: At a distance ratio of 10 : 1 you have a spot size of 100 mm at 1000 mm distance.

### 3. The material of the object

Most of non-metallic surfaces have emissivities above 80%, many are even around 95%. Do you want to adjust the emissiv-

ity, or is a fixed adjustment to 95% sufficient?

### 4. The data logger

Some types have an integrated memory. Thus measured values can be recalled later again.

### 5. The digital interface

Measured values can be transmitted via RS232-interface to a computer. This is possible immediately during the measurement or later from the memory, for evaluation and documentation.

## Technical Data Series 14

### Common data of Series 14:

Laser targeting light:	laser class II
Continuous measurement:	with locking switch
HOLD-function:	10 seconds
Display illumination:	automatically
Display resolution:	0.1°C from -10 ... 200°C at AVG, otherwise 1°C
Spectral range:	8 ... 14 μm
Response time $t_{90}$ :	300 ms

Operating temperature:	0 ... 55°C
Storage temperature:	-20 ... 70°C
Power supply:	9 V (block-battery or accu)
Battery life:	app. 80 h / 25 h (without/with laser)
Weight:	340 g (with battery)
Tripod thread:	UNC 1/4"
Safety system:	IP 20
CE-mark:	according to EU directives about electromagnetic immunity

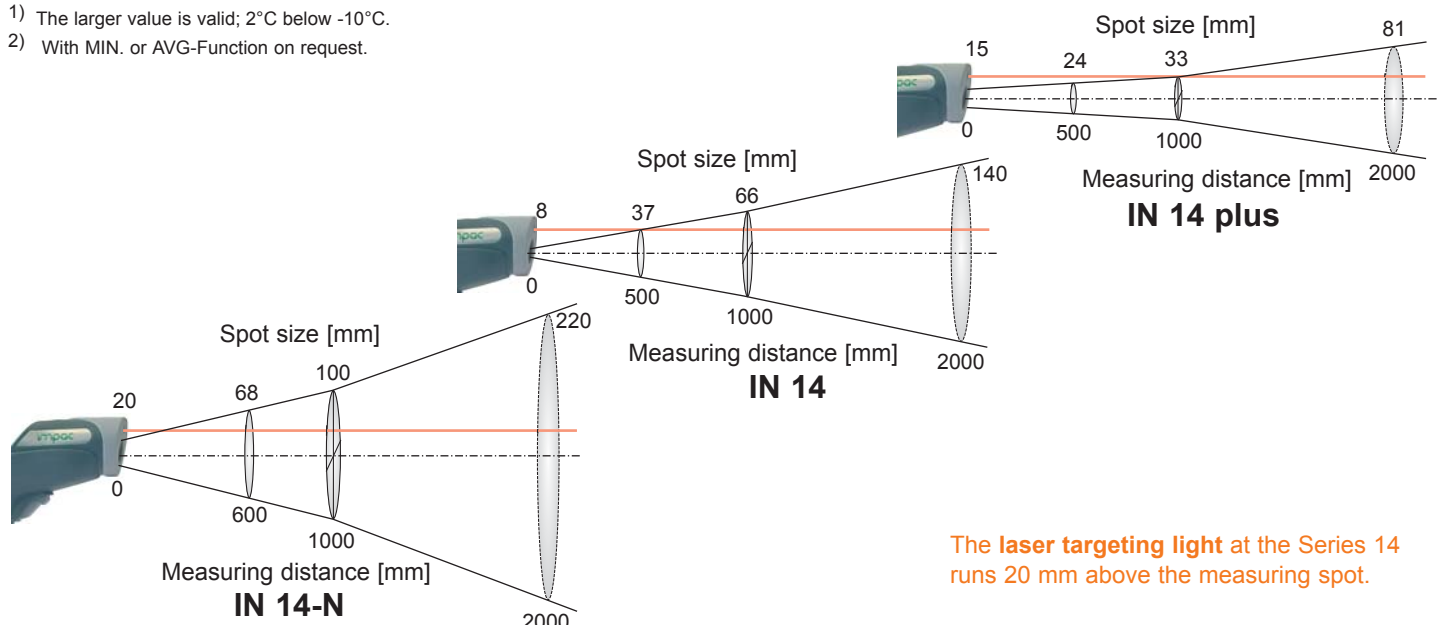


### Type related data of Series 14:

Type:	IN 14-N	IN 14	IN 14 plus
Temperature range:	-32 ... 400°C	-32 ... 500°C	-32 ... 600°C
Distance ratio (1 m):	10 : 1	15 : 1	30 : 1
Aperture:	20 mm	8 mm	15 mm
Measurement uncertainty (23°C, EMI = 100%):	2% of measured value or 2°C <sup>1)</sup>	1% of measured value or 1°C <sup>1)</sup>	1% of measured value or 1°C <sup>1)</sup>
Repeatability:	1% of measured value or 1°C <sup>1)</sup>	0.5% of measured value or 1°C <sup>1)</sup>	0.5% of measured value or 1°C <sup>1)</sup>
Emissivity:	fixed at 95%	20 ... 100%	20 ... 100%
MIN, MAX, Average-Function:	MAX <sup>2)</sup>	switchable	switchable
Temperature unit:	°C (optional °F, to specify when ordering)	°C / °F (switchable)	°C / °F (switchable)

<sup>1)</sup> The larger value is valid; 2°C below -10°C.

<sup>2)</sup> With MIN. or AVG-Function on request.



The laser targeting light at the Series 14 runs 20 mm above the measuring spot.

## Technical Data Series 15

### Common data of the types 15 and 15/5:

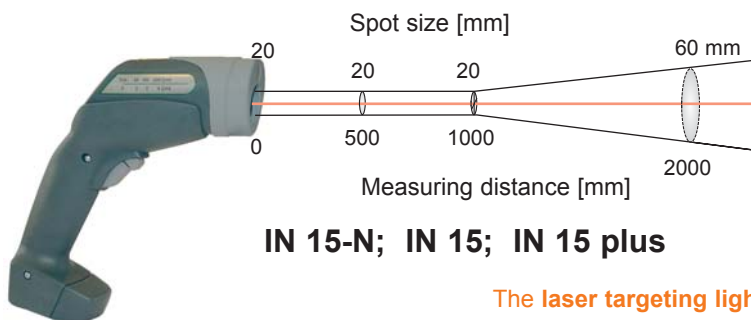
Laser targeting light:	laser class II, parallax-free
Temperature unit:	°C oder °F (switchable)
Emissivity:	20 ... 100% switchable
MIN, MAX, AVG-Function:	switchable
Continuous measurement:	with locking switch
HOLD-Function:	10 seconds
Display illumination:	automatically
Spectral range:	8 ... 14 μm (5.14 μm for types 15/5)
Aperture:	20 mm
Resonse time $t_{90}$ :	150 ms
Display resolution:	0.1°C

Meas. uncertainty (23°C):	1% of measured value or 1°C *)
Repeatability:	0.5% of measured value or 1°C *)
Temperature drift:	0.03% / °C (23°C)
Operating temperature:	0 ... 55°C
Storage temperature:	-20 ... 70°C
Power supply:	9 V (block battery or accu)
Battery life:	app. 50 h / 15 h (without / with laser)
Weight:	340 g (with battery)
Tripod thread:	UNC 1/4"
Safety system:	IP 20
CE-mark:	according to EU directives about electromagnetic immunity

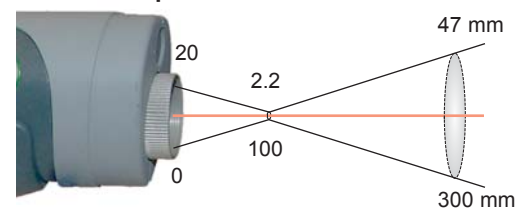
\*) The larger value is valid; 2°C below -10°C.

### Type related data of the types 15:

Type:	IN 15-N	IN 15	IN 15 plus
Temperature range:	-32 ... 800°C	-32 ... 900°C	-32 ... 900°C
Distance ratio (1 m):	50 : 1	50 : 1	50 : 1
Close-up lense:	–	option	option
Data logger:	20 measured values	–	250 measured values
Integrated clock:	–	–	Yes
Acoustic alarm:	HI / LO	HI	HI / LO
Digital interface:	–	RS232	RS232
Analog output:	–	–	1 mV / °C
Charging connector:	–	yes	yes



#### With close-up lens:

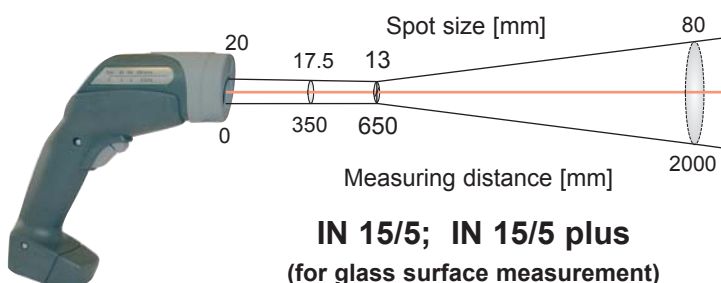


The laser targeting light of the Series 15 always points to the center of the spot.

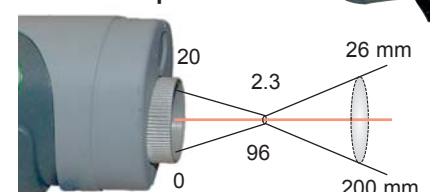
## → → The 15/5 Special Pyrometers for Glass ← ←

### Type related data of the types 15/5:

Type:	IN 15/5	IN 15/5 plus
Temperature range:	150 ... 1800°C	150 ... 1800°C
Distance ratio (0,6 m):	50 : 1	50 : 1
Close-up lense:	option	option
Data logger:	–	250 measured values
Integrated clock:	–	yes
Acoustic alarm:	HI	HI
Digital interface:	RS232	RS232
Analog output:	–	1 mV / °C
Charging connector:	yes	yes



#### With close-up lens:



- Asphalt
- Chemistry, glueing
- Electric / electronics
- Glass
- Rubber
- Heating technique
- Wood
- Air conditioning technology
- Ceramics
- Plastics
- Lacquer drying
- Leathers
- Food
- Paper, cardboard, packing
- Tobacco
- Textiles
- Environmental, solar



## Reference numbers

Type	Ref. no.	Type	Ref. no.	Type	Ref. no.
IN 14-N	3 886 130	IN 15-N	3 887 090	IN 15/5	3 887 170
IN 14	3 886 140	IN 15	3 887 120	IN 15/5 plus	3 887 160
IN 14 plus	3 886 150	IN 15 plus	3 887 100		



**Scope of delivery:** portable pyrometer with battery and plastic case

## Accessories

### For all Infrared portables series 14 and 15:

- ◆ NiMH-Accu 9 V (3 749 150)
- ◆ Universal battery recharger for NiMH Accu (3 806 330)
- ◆ Fanny pack (3 858 520)

### Additionally for Series 15 (except IN 15-N):

- ◆ Accu-charger(3 858 490)
- ◆ Analysing software **PortaWin** (Windows® 95 B or higher) incl. RS232 cable (3 858 460)
- ◆ Battery-driven printer (3 858 090)
- ◆ RS232 cable to printer (3 858 470)
- ◆ Analog cable (3 858 480)
- ◆ Close-up lens (3 858 500)

Close-up lens:



Printer:



Analysing software  
PortaWin:



### Precision measuring device for contact temperature measurement (e.g. for determination of the emissivity):

- ◆ Tastoherm MP 2000 (3 740 300)
- ◆ Tastoherm MP 2001 (3 740 310)
- ◆ Probe (type K) OT 2000 (3 759 110)
- ◆ RS232 cable for Tastoherm thermometers (3 749 820)

### Complete temperature measurement sets:

- ◆ **IN 15 plus Set 1** (3 887 140) or
- ◆ **IN 15 plus Set 2** (3 887 150)

Plastic case with: pyrometer IN 15 plus, accu with charging unit, software PortaWin with interface cable, Tastoherm MP 2000 (Set 2: Tastoherm MP 2001), probe OT 2000 and RS232 cable for Tastoherm.

Set 1:



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Specifications are subject to change without notice.