Digital pyrometers with miniature sensor head for non-contact temperature measurement of non-metallic or coated metallic surfaces between -40 to 700 °C

IN 510-N • IN 510 • IN 520-N • IN 520

- Sensor head and cable usable in ambient temperature up to 85 or 180 °C without cooling
- Sensor head exchangeable without recalibration
- Close focus lens for small objects
- Switchable digital interface RS232 / RS485
- Isolated relays contact
- Selectable analog output
- Setting of parameters via keyboard or interface

IN 510-N

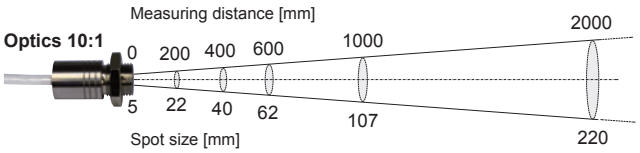
IN 520

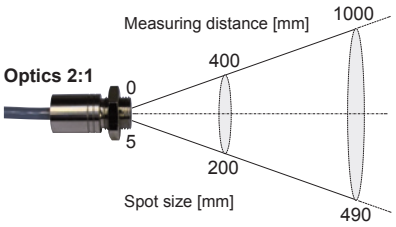
The pyrometers IN 510-N, IN 510, IN 520-N, and IN 520 are digital pyrometers for non-contact temperature measurement of non-metallic or coated metallic objects.

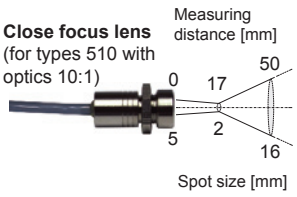
The versions IN 510 and IN 520 are equipped with an illuminated LC display, which shows the actual temperature reading. All available parameters can be set via the integrated keyboard. The types IN 510-N and IN 520-N do not have display and keyboard, they will be parametrized via interface.

All pyrometers are equipped with a stainless steel miniature sensor head, the field of view is 10:1 or 2:1, they can be used in ambient temperatures up to 85 °C or 180 °C without cooling dependent on the type.

Optics

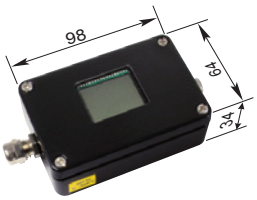




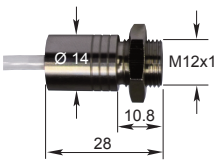


Dimensions

Converter:



Sensor head:



Technical Data

Temperature range:	-40 to 700 °C
Sub range:	Adjustable; min. range 51 °C; ex works preadjusted to 0 to 500 °C
Spectral range:	8 to 14 µm
Optics:	10:1 or 2:1
Power supply:	10 to 30 V DC, ripple < 0.5 V, current consumption max. 60 mA
Analog output:	Linear current (0/4 to 20 mA), voltage (0 to 5 V) or thermocouple (type J or K)
Output for sensor head temperature:	10 mV/°C
Load:	Max. 700 Ω at 24 V power supply (for current output) (500 Ω / 20 V)
Output impedance:	100 Ω (for thermocouple or voltage output)
Relays contact:	Isolated relays contact, 50 V DC, 0.2A; temperature and hysteresis adjustable
Digital interface:	switchable RS232/RS485
Emissivity ε:	10 to 120% adjustable in steps of 0.1%
Max. / minimum value storage:	Clear time: OFF; 0.1 s; 0.25 s; 0.5 s; 1 s; 5 s; 25 s; extern; auto
Response time t_{90}:	180 ms; switchable: 0.5 s; 1 s; 2 s; 5 s; 10 s or 30 s
Temperature display (only IN 510 and IN 520):	LCD, 4 digit, 3 values per second, display illumination permanent

Resolution:	1/10 °C (1/10 °F, 1 °F >1000 °F meas. temp.)
Measurement uncertainty: (ε=1, t_{90}=1 s; $T_{amb.}$=15...30°C)	0 to 700 °C: 0.8% of reading in °C or 1° C *) 0 to -20 °C: 2 °C; -20 to -40 °C: 3 °C T_K: 0.03%/°C or 0.05 °C/°C (25 °C) With thermocouple output: min. 2.5 °C
Repeatability:	0.5% of reading in °C or 0.5 °C *)
Max. ambient temp. converter:	0 to 65 °C (storage temperature: -20 to 70 °C)
Max. ambient temp. sensor head:	types 510: 0 to 85 °C types 520: 0 to 180 °C (storage temp.: -20 to 85 °C / 180°C)
Relative humidity:	10 to 95%, non condensing
Protection class:	IP65 (converter, sensor head 10:1, IN 520-sensor head 2:1) IP20 (IN 510-sensor head 2:1)
Weight:	320 g
Housing:	Aluminium (converter) stainless steel (sensor head)

*) The larger value is valid. The sensor head must be in constant ambient temperature for at least 15 min.

Note: The calibration / adjustment of this pyrometer is carried out in accordance with VDI/VDE 3511, Part 4.4.
See http://info.lumasenseinc.com/calibration for more information.

Reference Numbers

Pyrometers:			**3 m cable**	**15 m cable**
IN 510-N	**Optics 2:1**	(85 °C head)	3 874 160	3 874 170
	Optics 10:1		3 874 260	3 874 270
IN 510	**Optics 2:1**	(85 °C head)	3 874 360	3 874 370
	Optics 10:1		3 874 460	3 874 470
IN 520-N	**Optics 2:1**	(180 °C head)	3 874 180	3 874 190
	Optics 10:1		3 874 280	3 874 290
IN 520	**Optics 2:1**	(180 °C head)	3 874 380	3 874 390
	Optics 10:1		3 874 480	3 874 490

Accessories:

3 821 010	Connection cable (10 wire) 2 m, with additional digital cable (1 m) and InfraWin analysing software
3 821 020	Connecting cable 2 m for power supply and thermocouple output (compensating cable)
3 848 790	Close focus lens (only for 10:1 optics, max. 85 °C ambient temperature, not in combination with air purge, cooling / purging unit or 90° mirror)
3 834 370	Fixed mounting angle (for sensor head or air purge with sensor head 10:1)
3 834 380	Adjustable mounting angle (for sensor head or air purge with sensor head 10:1)
3 835 330	Air purge (for sensor head 10:1)
3 835 410	Air purge (for sensor head 2:1)
3 834 260	Adjustable mounting angle (for air purge with sensor head 2:1)
3 835 340	90° mirror (only for sensor head 10:1)
3 890 560	DA 6000-N: LED-digital display with possibility for pyrometer parameter setting; RS232 interface
3 890 570	DA 6000-N with RS485 interface
3 826 500	HT 6000: portable battery driven indicator and instrument for pyrometer parameter setting
3 852 290	DIN-rail-power supply NG DC; 100 to 240 V AC, 50 to 60 Hz => 24 V DC, 1 A
3 852 440	Protocol converter RS485 <-> Profibus DP (max. 1 instr.)
3 852 460	Protocol converter RS485 <-> Profibus-DP (max. 32 instruments)