

IMPAC IGA 315-K

Portable digital pyrometers for non-contact temperature measurement of nozzle bricks and air stages in coking ovens between 600 and 1600°C (1112 to 2912°F).



The Impac® IGA 315-K infrared thermometers are high-quality, battery driven portables for non-contact temperature measurement. The instruments feature a modified optical path for easily targeting the nozzle brick through a small space from the oven roof after opening the heating flue. With the high-quality focusable optics, accurate measurements can be made at distances between 1 and 12 m.

PRODUCT HIGHLIGHTS

- Rapid temperature recording of nozzle bricks and air stages in coking ovens
- Viewfinder with temperature area markings for simple aiming at the measuring point
- Double measurement temperature display on the housing and in the viewfinder
- Special measurement memory for storing measurement values in measurement series
- Focusable precision optics for adjustment to small measurement fields
- Infrared interface for transfer of measurement values to a PC
- Focusable optics with a small measuring fields at large measuring distances

TYPICAL APPLICATIONS

- Coking plants
- Blast furnaces

AT A GLANCE

Temperature Ranges

600 to 1600°C (1112 to 2912°F)

Spectral Range

1.58 to 1.8 μm

Measurement Uncertainty

0.75% oR

Repeatability

< 0.3% oR

Optics

Focusable: 1000 to 12,000 mm

Field of View

300:1 (e.g. 30 mm @ 9 m distance)

Alignment

Through-lens sighting

OVERVIEW

The IGA 315-K portable pyrometer has been specially developed for use in coking plants.

For easy sighting, a circular measuring field is marked in the viewfinder, which represents the size of the object to be measured. The correct measuring distance is found by adjusting the focusable optics until the item under test is sharply focused. The temperature indication can be viewed directly in the viewfinder.

Using the one-button operation, the instrument can be quickly switched on, or a measurement value can be saved. The data storage can save up to 2000 measurement values, including date and time. Typically, multiple measurements are made in a certain sequence throughout the coking plant, so in order to clearly allocate each stored data value to the correct measured spot, a series of measurements can be defined ahead of time. For example, certain data points could correlate with the heating flues of an oven.

The storage configuration facilitates later evaluation, even if the data is transferred to a PC, using the included software. The data can then be both displayed graphically or imported into a spreadsheet program such as Excel.



TECHNICAL DATA

Measurement Specifications	
Temperature Range	600 to 1600°C (1112 to 2912°F)
Spectral Range	1.58 to 1.8 μm
Resolution	1°C/°F
Emissivity ε	Adjustable from 0.1 to 0.99 in steps of 0.01
Measurement Uncertainty	0.75% of measurement value (ε = 1, T _{amb.} = 25°C, t ₉₀ = 1 s)
Repeatability	< 0.3% of measurement value (ε = 1, T _{amb.} = 25°C, t ₉₀ = 1 s)
Temperature Coefficient	0.01% / K (T _{amb.} = 23°C) of reading
Measuring Functions	Instantaneous meas. value, max meas. value, average temperature measurement

Optical Specifications	
Sighting	Viewfinder with measurement value in eyepiece and circular measuring field marking
Optics	Focusable optics, adjustable from a = 1 to 12 m
Distance Ratio	~300:1 (e.g. 30 mm @ 9 m distance)

TECHNICAL DATA (CONTINUED)

Electrical Specifications	
Power Supply	6 x AA batteries 1.2 V; 1,800 mA; NiMH

Environmental Specifications	
Protection Class	IP54 (to DIN 40 050)
Ambient Temperature	0 to 50°C (32 to 122°F)
Storage Temperature	-10 to 65°C (14 to 149°F)
Relative Humidity	Non-condensing conditions
Weight	1.3 kg with batteries
Housing	Powdercoated, black RAL 9005
CE Label	According to EU directives about electromagnetic immunity

Interface Specifications	
Display	LED 4 digit info display
	Infrared interface
Detector	InGaAs photodiode
Dimensions (L x W x H)	260 mm x 70 mm x 70 mm (10.2" x 2.8" x 2.8")

Communication Specifications	
Serial Interface	USB interface adapter
Response Time t_{90}	10 ms
Data Storage	2000 measurement values, storage of: measurement value, date, time

OPTICS



The pyrometer is equipped with high-quality focussable optics. These are adjusted to the distance of the object to be measured and therefore achieve the measuring field sizes stated as examples in the measuring field table.

The setting is made by sharply focussing the object to be measured in the viewfinder. Intermediate measuring distances or measuring field diameters can be determined by interpolation.

Measuring Field Table												
Measuring distance [m]	1	2	3	4	5	6	7	8	9	10	11	12
Spot size diameter [mm]	4.5	7	9.5	12	14.5	18	22	26	30	34	38	42

INSTRUMENT EQUIPMENT



REFERENCE NUMBERS

PN	Description
48315-10010	Basic equipment: IGA 315-K; battery set with 6 x AA NiMH batteries; thermal protection sleeve; neutral density filter, mounting screw for neutral density filter; high temperature protective screen; carrying straps; charger for internal charging; factory certificate; manual.
48315-10020	Complete equipment with carrying case: includes additional infrared IRS 315 interface with mains adapter and software; Voltcraft UFC-8 charger for external charging; additional rechargeable battery set, carrying strap with carabiner.
33154-10010	Carrying case, infrared interface / software, 6 x NiMH batteries, charger, carrying strap
33154-10040	Carrying strap with carabiner
33151-10010	Set of 6 x NiMH batteries
33151-10020	ASC 410 charger for internal charging
33151-10030	Voltcraft UFC-8 charger for external charging
33151-10040	IRS 315 USB infrared interface with software
33152-10020	Neutral density filter (eye protection filter)
33152-10030	Pipe wrench for neutral density filter
100903	Borofloat protective screen, D 37.8 x 2
33152-10040	Thermal protection sleeve
33152-10010	Thermal protection visor
33154-10030	Wrist strap



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