PYROSPOT DGE 44N

Pyrometer for industrial application

Overview

Digital pyrometer with RS-485 interface

Features

- For temperature measurements between 75 °C and 1200 °C
- Temperature linear output 0/4 to 20 mA
- Integrated RS-485 interface
- Very short response times from 5 ms
- Robust stainless steel housing
- Several fixed and vario optics available

Description and applications

The digital pyrometers PYROSPOT PYROSPOT DGE 44N are specifically designed for industrial purpose. The devices are suitable for high temperature measurement from 75 °C on many different metalic surfaces.

The solid body in stainless steel housing with protection window for optics allows usage even under rough environmental conditions.

With a fast response time of only 5 ms (t95) these pyrometers are also suitable for fast measuring processes. Several fixed or vario optic types realise measuring field diameters from 1.5 mm.

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measurement and control systems.

The pyrometer are equipped with a galvanically isolated RS-485 interface which allows parameterizing and software evaluation even in bus systems.

The integrated LED or laser aiming light enables to focus the measuring object exactly. The size of the LED aiming light is identical to the measuring field.

Via optional interface module (RS-485 to USB) parameters like emissivity sub range, response time and storage can be easily adjusted by using the comfortable parameterizing and evaluation software PYROSOFT Spot. The parameters can also be adjusted via RS-485 interface with the optional available handheld programming device DHP 1040.

Typical application areas:

- Preheating
- Tempering
- Hardening
- Soldering
- Rolling
- Heat treatment

Image credit: „Hot steel in the steel mill workshop production line" Copyright by pan demin, used with licence from Shutterstock.de

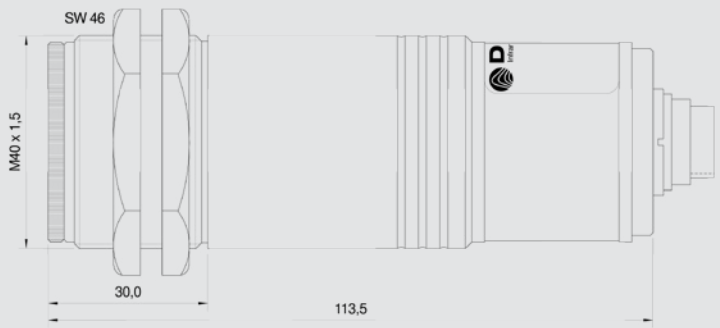
PYROSPOT DGE 44N

Pyrometer for industrial application

Technical data			
Typ	**DGE 44N**		
Temperature range	75 °C to 650 °C	100 °C to 800 °C	150 °C to 1200 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C		
Spectral range	2.0 µm to 2.6 µm		
Optics	several fixed optics (type 290, 650 and 1500) with quartz glass protection window, vario optics		
Part number	Laser	Laser	Laser
Optics 290	4441062205	4441062206	4441062207
Optics 650	4441063205	4441063206	4441063207
Optics 1500	4441067205	4441067206	4441067206
Vario optics	4441011205	4441011206	4441011206
Distance ratio	approx. 85 : 1	approx. 130 : 1	approx. 200 : 1
Measurement uncertainty [1]	0.5 % of measured value + 2 K		
Reproducibility [1]	0.3 % of measured value + 1 K		
NETD [2]	0.5 K [1]		
Response time (t95)[3]	5 ms, adjustable up to 100 s, adjustable via RS-485 interface		
Emissivity	0.05 to 1.00, adjustable via RS-485 interface		
Storage	minimum and maximum value storage, adjustable via RS-485 interface		
Output	0/4 to 20 mA, switchable via Software, temperature linear, max. burden: 500 Ω		
Interface	RS-485 (galvanically isolated), half duplex, baudrate 115 kBd, data protocol Modbus RTU		
Aiming	integrated laser aiming light		
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro		
Parameters	emissivity, response time, storage, sub temperature range, adjustable via RS-485 interface and software		
Power supply	24 V DC ± 25 %, residual ripple 500 mV		
Power consumption	max. 1.5 W		
Operating temperature	0 °C to 70 °C [4]		
Storage temperature	–20 °C to 70 °C		
Weight	appr. 455 g		
Dimensions	thread M40 × 1.5, length 125 mm		
Housing	stainless steel housing with plug connector		
Safety class	IP 65 (according to DIN EN 40050)		
CE symbol	according to EU regulations		
Scope of delivery	PYROSPOT DGE 44N, manual, mounting screw nuts, inspection sheet, PYROSOFT Spot for Windows® (**without** connecting cable, please order separately)		

[1] Specifications for black body radiator, $T_{ambient}$ = 23 °C, ε = 1, t95 = 1 s. [2] Noise equivalent temperature difference. [3] With dynamic adaption at low signal level. [4] The measurement temperature must be at least 30 K higher than the operating temperature.

Dimensional drawing



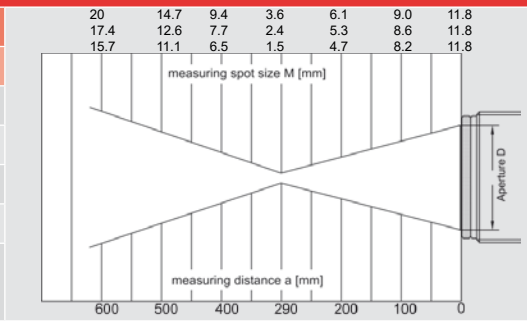
PYROSPOT DGE 44N

Pyrometer for industrial application

Optics type 290, 650 and 1500

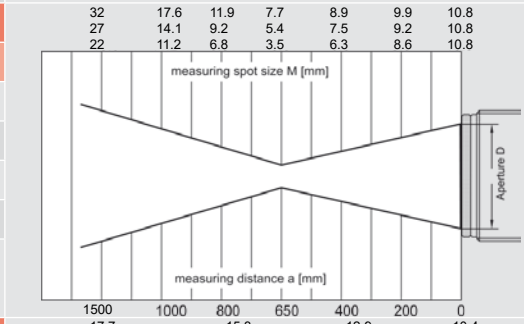
Optics 290 (sharp point at a = 290 mm measurement distance, aperture ∅ D = 11.8 mm)

Measurement distance a [mm]	0	100	200	**290**	400	500	600
Temperature range	Measurement field diameter M [mm]						
75 °C to 650 °C	11.8	9.0	6.1	**3.6**	9.4	14.7	20
100 °C to 800 °C	11.8	8.6	5.3	**2.4**	7.7	12.6	17.4
150 °C to 1200 °C	11.8	8.2	4.7	**1.5**	6.5	11.1	15.7



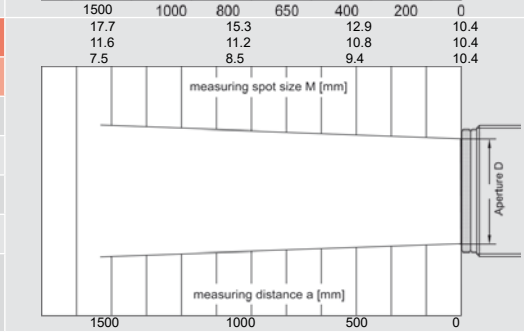
Optics 650 (sharp point at a = 650 mm measurement distance, aperture ∅ D = 10.8 mm)

Measurement distance a [mm]	0	200	400	**650**	800	1000	1500
Temperature range	Measurement field diameter M [mm]						
75 °C to 650 °C	10.8	9.9	8.9	**7.7**	11.9	17.6	32
100 °C to 800 °C	10.8	9.2	7.5	**5.4**	9.2	14.1	27
150 °C to 1200 °C	10.8	8.6	6.3	**3.5**	6.8	11.2	22



Optics 1500 (sharp point at a = 1500 mm measurement distance, aperture ∅ D = 10.4 mm)

Measurement distance a [mm]	0	500	750	1000	1250	**1500**	2000
Temperature range	Measurement field diameter M [mm]						
75 °C to 650 °C	10.4	12.9	14.1	15.3	16.5	**17.7**	27
100 °C to 800 °C	10.4	10.8	11.0	11.2	11.4	**11.6**	18.9
150 °C to 1200 °C	10.4	9.4	8.9	8.5	8.0	**7.5**	13.5



Vario optics

DGE 44N

Temperature range	Measurement distance a	Measurig field diameter M	Aperture ∅ D
75 °C to 650 °C	300 mm to 800 mm	3.6 mm to 10.3 mm	10 mm
100 °C to 800 °C	300 mm to 800 mm	2.4 mm to 8.5 mm	10 mm
150 °C to 1200 °C	300 mm to 800 mm	1.5 mm to 5.5 mm	10 mm

Software PYROSOFT Spot

For evaluation and processing of measured data obtained DIAS provides two software variants for its pyrometer **PYROSPOT**. These are the free Windows software **PYROSOFT Spot** and the pay version **PYROSOFT Spot Pro**. The Pro version allows the measurement, visualization and measurement recording of several simultaneously connected pyrometers, whereas this is possible with the free version only for one connected pyrometer.

*only for PYROSOFT Spot Pro

Further functions are for example:

- Measurement data logging with real-time display, parameterization of DIAS pyrometers
- Trigger functions*) and auto save*)
- Extensive statistical analysis of measurement data
- Measurement cursor, print functions, automatic emissivity determination
- Export of measured data as text file and automatic creation of Microsoft Excel® spreadsheets
- Integrated report function with customized templates for Microsoft Word®
- Integrated calculator for easy calculation of optics parameters

PYROSPOT DGE 44N

Pyrometer for industrial application

Electrical, mechanical and optical accessories[1]			Order number	
Connecting cable, straight plug, 12-pin	Connecting cable, angulate plug, with aiming light button, 12-pin	length 2 m length 5 m length 10 m length 15 m length 20 m length 25 m length 30 m	3310A11111 3310A11112 3310A11113 3310A11114 3310A11115 3310A11116 3310A11117	3310A11151 3310A11152 3310A11153 3310A11154 3310A11155 3310A11156 3310A11157
Interface module		RS-485 to USB	3310A14020	
Power supply		24 V DC, 0.6 A	3310A12010	
Mounting angle		fixed adjustable	3310A21010 3310A21011	
Air purge unit		stainless steel, purge air 0.1 to 0.5 bar, oil free	3310A22010	
Water cooling jacket		stainless steel with integrated air purge unit	3310A23010	
Vacuum flange KF16		with quartz window or with sapphire window	3310A24010 and 3310A34021 3310A24010 and 3310A34051	
Mirror		90°, with integrated air purge unit	3310A33010	
DHP 1040		mobile handheld programming device	3310A17010	

[1] More accessories available.

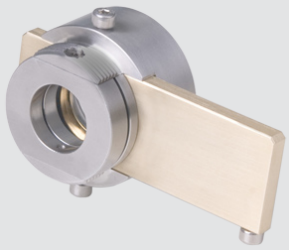
Selected accessories – pictures

Mounting angle, adjustable

Order number: 3310A21011

Window slide

Order number: 3310A21210



Air purge unit

Order number: 3310A22010

Water cooling jacket

Order number: 3310A23010

Handheld programming device DHP 1040

Order number: 3310A17010

Digital display DD 200/210

Order number: 3310A13020/3310A13025

We are certified for many years according to ISO 9001

Phone: +49 351 896 74-0
Fax: +49 351 896 74-99
E-Mail: info@dias-infrared.de
Internet: www.dias-infrared.com

DIAS Infrared GmbH
Pforzheimer Straße 21
01189 Dresden
Germany