

PYROSPOT DGE 56N

Pyrometer for industrial application

Overview

Digital pyrometers with RS-485 interface



Special features

- For temperature measurements between 75 °C and 2200 °C
- Temperature linear output 0/4 to 20 mA, switchable
- Display, keys and integrated RS-485 interface
- Laser aiming light
- Optional through-lens sighting
- Very short response time 2 ms

Description and application

The digital DIAS pyrometer PYROSPOT DGE 56N is specifically designed for industrial purposes. This device is suitable for non-contact temperature measurement from 75 °C on different surfaces like metal, graphite or ceramics.

The solid and compact stainless steel housing allows usage even under rough environmental conditions. Measuring spot sizes from 1.3 mm can be easily realized. With a minimal response time of only 2 ms (t_{95}) the devices are usable for fast measuring tasks.

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

Use the integrated red laser aiming light for the exact aiming of the pyrometer to the measurement object. If the measured object is very hot, an optical through-lens sighting device is recommended instead of the laser aiming light for better visibility.

The PYROSPOT DGE 56N possesses a RS-485 interface. The devices are bus-compatible in this way and use the Modbus RTU protocol.

Connect the pyrometer to a PC to adjust the parameters emissivity, sub temperature range, data storage settings and response time to the application by using the comfortable parameterizing and evaluation software PYROSOFT Spot.

Typical application areas:

- Steel and metal industry
- Furnace industry
- Soldering applications
- Ceramic industry



Picture credit: Stahl-Zentrum

PYROSPOT DGE 56N

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Technical data

Type	DGE 56N			
Measuring temperature range	75 °C to 650 °C	100 °C to 800 °C	150 °C to 1200 °C	150 °C ¹ to 2200 °C
Distance ratio	80 : 1	100 : 1	200 : 1	130 : 1
Optics	several fixed optics (type 250, 650, 2000, 4000)			
Part number	Laser	Laser	Laser	Laser
	Through-lens sighting	Through-lens sighting	Through-lens sighting	Through-lens sighting
250	5561062221	5561062222	5561062223	5561062224
	5561072221	5561072222	5561072223	5561072224
650	5561063221	5561063222	5561063223	5561063224
	5561073221	5561073222	5561073223	5561073224
2000	5561066221	5561066222	5561066223	5561066224
	5561076221	5561076222	5561076223	5561076224
4000	5561067221	5561067222	5561067223	5561067224
	5561077221	5561077222	5561077223	5561077224
Sub temperature range of analog output	adjustable within temperature range, minimum span 50 °C			
Spectral range	2.0 µm to 2.6 µm			
Emissivity ϵ	0.050 to 1.000			
Response time (t_{95})	2 ms ² , adjustable up to 100 s			
Measurement uncertainty ³	0.5 % of measured value in °C + 2 K			
Reproducibility ³	0.3 % of measured value in °C + 1 K			
NETD ^{3,4}	0.5 K			
Transmittance	50 % to 100 %			
Ambient radiation	adjustable within temperature range			
Output	0/4 mA to 20 mA, temperatur linear, burden max. 500 Ω (galvanically isolated)			
Interface	RS-485 (galvanically isolated), half duplex, max. 115 k Bd, data protocol Modbus RTU			
Aiming	laser aiming light, 630 ... 680 nm, class II, < 1 mW, optional optical through-lens sighting			
Switching output/threshold	1 opto relay, R_{load} min. 48 Ω (galvanically isolated)/adjustable within temperature range			
Parameters	adjustable via interface and software or at the device: emissivity, transmissivity, ambient radiation, response time, data storage settings, sub range of measurement output, switching thresholds of switching output			
Power supply	24 V DC ± 25 %, residual ripple 500 mV			
Power consumption	max. 1.5 W (without load at switching output)			
Operating temperature	0 °C to 45 °C			
Storage temperature	-20 °C to 70 °C			
Weight	approx. 750 g			
Housing	stainless steel round housing with plug connector, length: approx. 140 mm (without through-lens sighting), Ø 50 mm			
Safety class	IP65 according to DIN EN 60529 and DIN 40050			
Test regulations	EN 55 011:1998, limit class A			
CE symbol	according to EU regulations			
Scope of delivery	PYROSPOT DGE 56N, manual, inspection sheet, software PYROSOFT Spot, without connection cable (please order separately)			

¹ From 100 °C for trend measurement. ² With dynamic adaption at low signal level. ³ Specifications for black body radiator, $T_{ambient} = 23 °C$, $t_{95} = 1 s$. ⁴ Noise equivalent temperature difference.

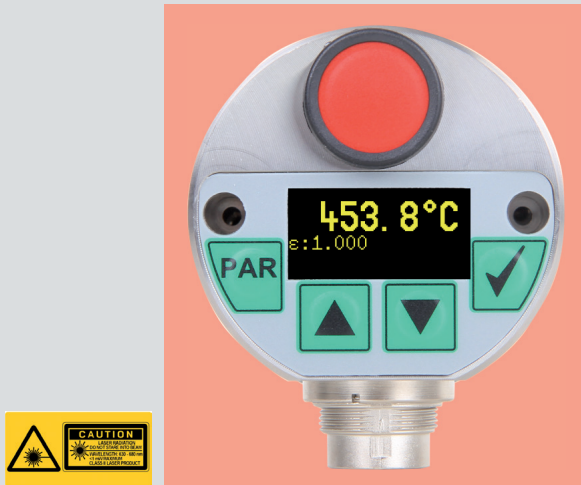
Fixed optics

Measurement distance a [mm]	Aperture D [mm]	a = 250	a = 650	a = 2000	a = 4000
Temperature range		Measuring field diameter M [mm]			
75 °C to 650 °C	10.0	3.5	8.5	25	50
100 °C to 800 °C	8.0	2.5	6.5	20	40
150 °C to 1200 °C	6.0	1.3	3.3	10	20
150 °C to 2200 °C	6.0	2.0	5.0	15	30

PYROSPOT DGE 56N

Pyrometer for industrial application

Pyrometer with different aimings



Laser



Through-lens sighting

Dimensional drawings



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.



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

^{*)}only for PYROSOFT Spot Pro






PYROSPOT DGE 56N/DGE 56NV

Pyrometer for industrial applications

Electrical, mechanical and optical accessories ¹		Part number
Connection cable, straight plug, 12 pin	Length 2 m	3310A11111
	Length 5 m	3310A11112
	Length 10 m	3310A11113
	Length 15 m	3310A11114
	Length 20 m	3310A11115
	Length 25 m	3310A11116
	Length 30 m	3310A11117
Connection cable, angulated plug, 12 pin	Length 2 m	3310A11131
	Length 5 m	3310A11132
	Length 10 m	3310A11133
	Length 15 m	3310A11134
	Length 20 m	3310A11135
	Length 25 m	3310A11136
	Length 30 m	3310A11137
Mounting angle	adjustable	3310A21050
Cooling jacket	including air purge unit, without mounting angle	3310A23050
Ball flange	M40 × 1,5	3310A24020
Air purge unit	stainless steel	3310A22050
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Threaded ring	with protection window quartz glass with protection window sapphire glass	3310A34022 3310A34052
Handheld programming device DHP 1040	mobile handheld device for pyrometer parameterization	3310A17010
Ethernet interface box DCU ^{loP}	for integration into local networks and parameterization	3310A13500

¹ More accessories on request. ² Cable length 5 m or 10 m available, too.

Selected accessories – Images

Mounting angle, adjustable	Cooling jacket	Air purge unit
Part number: 3310A21050 	Part number: 3310A23050 	Part number: 3310A22050 
Handheld programming device DHP 1040	Ball flange	Ethernet Interface-Box DCU ^{loP}
Part number: 3310A17010 	Part number: 3310A24020 	Part number: 3310A13500 