PYROSPOT DGE 55N

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
- Vario optics with motor focus
- Laser aiming light or through-lens sighting
- Very short response time from 2 ms

Description and application

The digital DIAS PYROSPOT DGE 55N pyrometers are specially designed for industrial use. They are suitable for temperature measurements from 75 °C on a variety of surfaces, such as metals, graphite or ceramics.

A special feature of this pyrometer is the vario optics with motor focus. For example, if the devices are installed in hard-to-reach places, the user can conveniently change or adjust the focus via interface and software. Alternatively, motor focus and the emissivity parameter can be set directly on the device using buttons and display. All other parameters are adjusted via interface and software, for example PYROSOFT Spot.

Even in harsh environments, the compact and robust IP 65 stainless steel housing of the pyrometer can withstand. With a minimum response time of only 2 ms (t_{95}), the devices also realize fast measuring tasks. The vario optics focus motorized and precise already small measuring fields from 1.5 mm diameter.

Thanks to the temperature linear standard output signal of 0/4 to 20 mA, the pyrometers can be easily integrated into existing measurement and control systems. The pyrometer has a galvanically isolated RS-485 interface. The device is thus bus capable and uses the Modbus RTU protocol. The connection to local networks can be supported by an Ethernet interface box.

The integrated red laser aiming light helps to precisely align the pyrometer with the target. If the objects are very hot, it is recommended to use an integrated through-lens sighting instead of the laser as a aiming variant.

Typical application areas:

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

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Technical data				
Type	**DGE 55N**			
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	65 : 1	80 : 1	160 : 1	100 : 1
Optics	vario optics with motor focus			
Aiming: Laser (Part nr.)	5551012221	5551012222	5551012223	5551012228
Aiming: Through-lens sighting (Part nr.)	5551022221	5551022222	5551022223	5551022228
Analog output	0/4 mA to 20 mA, temperature linear, maximum burden 500 Ω (galvanically isolated)			
Sub temperature range of analog output	adjustable within measuring 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[4]	0.5 K[3]			
Transmittance	50 % to 100 %			
Ambient radiation	adjustable within measuring temperature range			
Interface	RS-485 (galvanically isolated), half duplex, max. 115 kBd, Modbus RTU protocol			
Aiming	DGE 55N: laser aiming light (630 … 680 nm, class II, < 1 mW) or through-lens sighting			
Switching output/ Switching threshold	1 opto relay, R_{Burden} min. 48 Ω (galvanically isolated)/adjustable within measuring temperature range			
Operating and display elements	Two push-buttons for „Parameter menu", „Enter", „Up" and „Down", OLED with standard display of temperature and emissivity, pilot light button (option)			
Parameters	– adjustable via interface and software: emissivity, transmittane, ambient radiation, response time, memory settings, sub temperature range of measuring output, switching threshold of switching output, motor focus – adjustable additionaly on the device with push-buttons and display: emissivity, motor focus			
Power supply	24 V DC ± 25 %, residual ripple 500 mV			
Power consumption	max. 1.5 W (without burden on switching output)			
Operating temperature	0 °C to 70 °C			
Storage temperature	–20 °C to 70 °C			
Weight	approx. 750 g			
Housing	stainless steel housing with plug connector, length approx. 105 mm, diameter 50 mm			
IP code	IP65 nach DIN EN 60529 und DIN 40050			
Test regulations	EN 55 011:1998, limit class A			
CE symbol	according to EU regulations			
Scope of delivery	PYROSPOT DGE 55N, user manual, inspection sheet, software PYROSOFT Spot, without connection cable (please order seperately)			

[1] For trend measurements from 100 ° C. [2] With dynamic adaption at low signal level. [3] Specifications for black body radiator, $T_{ambience}$ = 23 °C, t_{95} = 1 s. [4] Noise equivalent temperature difference.

Vario optics with motor focus (adjustable in 8 steps)									
Measurement distance a [mm]		240	360	540	800	1200	1800	2500	4000
Measuring temperature range	Aperture diameter D [mm]	Target size M [mm]							
75 °C to 650 °C	10	3.7	5.5	8.3	12	19	28	39	62
100 °C to 800 °C	8.0	3.0	4.5	6.8	10	15	23	31	50
150 °C to 1200 °C	6.0	1.5	2.3	3.4	5.0	7.5	11	16	25
150 °C to 2200 °C	6.0	2.4	3.6	5.4	8.0	12	18	25	40

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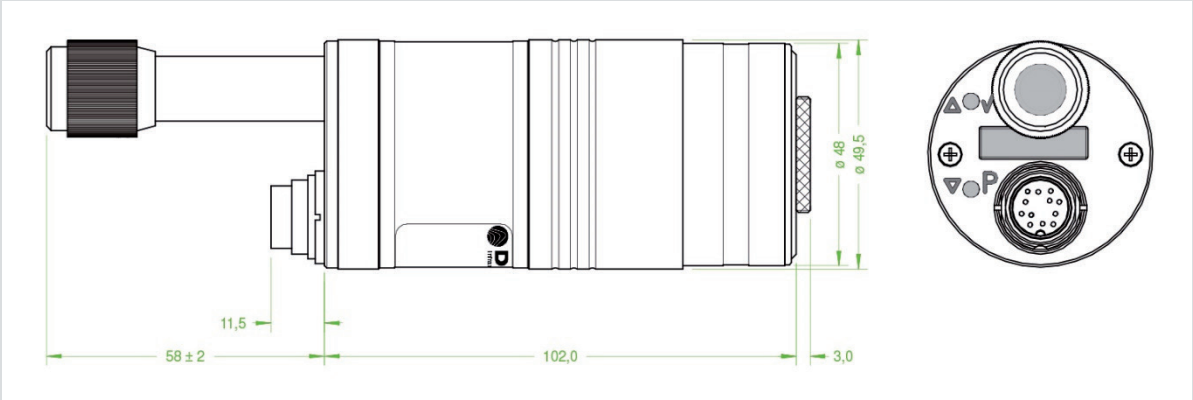
Pyrometer with different aiming variants

Laser aiming light

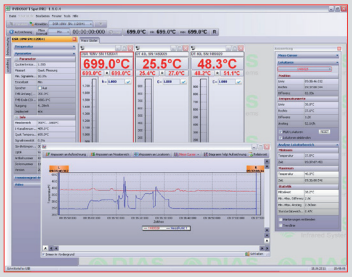
Through lens-sighting

Dimensional drawing: Pyrometer with through-lens sighting



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

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Electriacal, mechanical and optical accessories[1]		Part number
Connection cable, straight plug, 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
Connection cable, angulated plug, 12 pin	Length 2 m Length 5 m Length 10 m Length 15 m Length 20 m Length 25 m Length 30 m	3310A11131 3310A11132 3310A11133 3310A11134 3310A11135 3310A11136 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^{IoP}	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

Part number: 3310A21050

Cooling jacket

Part number: 3310A23050

Air purge unit

Part number: 3310A22050

Handheld programming device DHP 1040

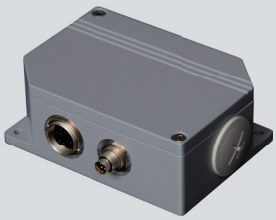
Part number: 3310A1710

Ball flange

Part number: 3310A24020

Ethernet Interface-Box DCU^{IoP}

Part number: 3310A13500



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