PYROSPOT DGE 10N/DGE 10NV

Pyrometers for industry and research

Overview

Digital pyrometers with RS-485 interface

Features

- For temperature measurements between 100 °C and 1200 °C
- Keyboard and display for emissivity and temperature
- Temperature linear output 0/4 to 20 mA
- Aiming: aiming light, through-lens sighting or camera module
- Short response times from 2 ms
- Vario optics

Description and applications

The digital pyrometers PYROSPOT DGE 10N/DGE 10NV are specifically designed for industry and research applications. The devices are suitable for temperature measurement from 100 °C on many different surfaces for example metals, ceramics or graphite.

The solid construction in form of a compact housing with a protection window for optics allows usage even under rough environmental conditions. With a short response time of only 2 ms (t95) these pyrometers are also suitable for fast measuring processes. The vario optics with quartz glass protection window realise measuring field diameters from 1.2 mm.

The integrated LED or laser aiming light or, the alternative through-lens sighting, enables an exact focus on the measurement object. With the optional color video module (DGE 10NV)the alignment of the pyrometers to the target can be monitored visually and the entire process can be recorded and documented.

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measurement and controll systems. The device is equipped with a galvanically isolated RS-485 interface which allows parameterising and software evaluation even in bus systems.

The emissivity is also adjustable via push-buttons and display directly on the device. All parameters can be easily adjusted to the application by using the convenient parameterizing and evaluation software PYROSOFT Spot.

Typical pyrometer application areas:

Steel industry, metal industry, ceramic industry, kiln engineering, soldering installations

PYROSPOT DGE 10N/DGE 10NV

Pyrometers for industry and research

Technical data		
Type	**DGE 10N/DGE 10NV**	**DGE 10N/DGE 10NV**
Temperature range	100 °C to 850 °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	vario optics with quartz glass protection window, measuring fields from 1.2 mm	
Distance ratio	approx. 100 : 1	approx. 200 : 1
Measurement uncertainty [1]	0.5 % of measured value + 2 K	
Reproducibility [1]	0.3 % of measured value + 1 K	
Transmissivity	50 % to 100 %	
Ambient radiation	adjustable within temperature range	
NETD [2]	0.5 K [1]	
Response time (t95)	2 ms, adjustable up to 100 s	
Emissivity	0.050 to 1.000, adjustable at the device or via interface	
Storage	minimum and maximum value storage, adjustable via interface	
Output	0/4 to 20 mA, switchable via software, temperature linear, max. burden 500 Ω (galvanically isolated)	
Interface	RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU	
Switching output/threshold	1 Opto relay, R_{Load} min. 48 Ω/adjustable within temperature range	
Aiming	LED aiming light, laser aiming light (630 to 680 nm, class II, < 1 mW), through-lens sighting or camera module (DGE 10NV)	
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro	
Parameters	emissivity, transmissivity, ambient radiation, response time, temperature unit °C or °F, storage settings, sub temperature range of measurement output, switching thresholds of switching output (adjustable via software and interface)	
User controls	emissivity control push-buttons (resolution 0.001), aiming light push-button, display	
Power supply	24 V DC ± 25 %	
Power consumption	max. 1.5 W	
Operating temperature	0 °C to 45 °C	
Storage temperature	–20 °C to 70 °C	
Weight	appr. 520 g	
Dimensions	54 × 54 mm, length 170 mm	
Housing	compact housing with plug connector, display, push-buttons and optics protection window	
Safety class	IP 65 (DIN 40 050)	
CE symbol	according to EU regulations (EN 50 011)	
Scope of delivery	PYROSPOT DGE 10N/DGE 10NV, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (**without** connection cable, please order separately)	

[1] $T_{ambient}$ = 23 °C, ε = 1, t95 = 1 s. [2] Noise equivalent temperature difference.

Dimensional drawing pyrometer (with through-lens sighting)

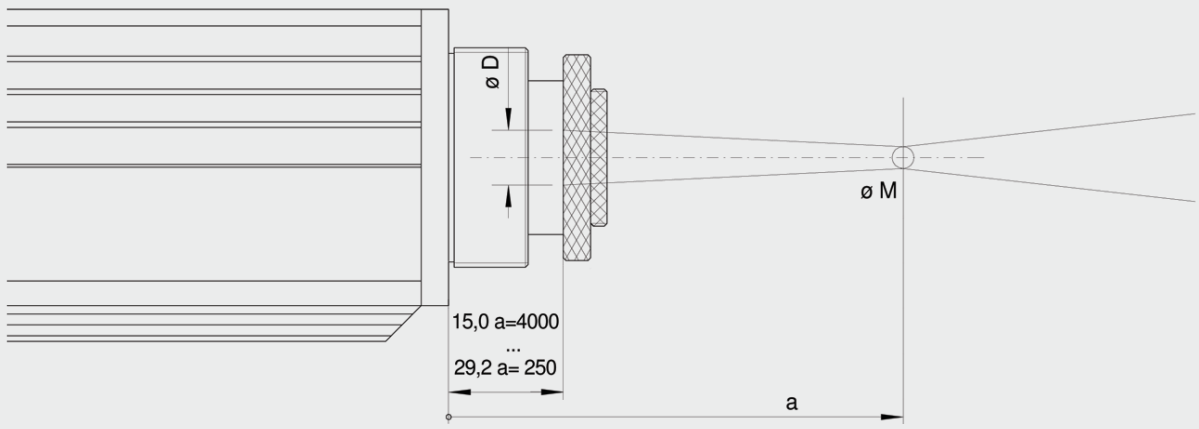
PYROSPOT DGE 10N/DGE 10NV

Pyrometers for industry and research

Vario optics

Measuring distance a [mm]	250	300	350	500	800	4000	Aperture diameter ∅ D [mm]		Order number	
Optics pullout [mm]	29.2	25.5	23.5	20.3	18.0	15.0	at		LED aiming light	Laser aiming light
Device	Measuring field diameter M [mm]						a = 250 mm	a = 4000 mm	Through-lens sighting	Camera module
100 °C to 850 °C	2.5	3.0	3.5	5.0	8.0	40.0	8.0	6.5	5101002222	5101012222
									5101022222	5101032222
150 °C to 1200 °C	1.2	1.5	1.7	2.5	4.0	20.0	8.0	6.5	5101002223	5101012223
									5101022223	5101032223

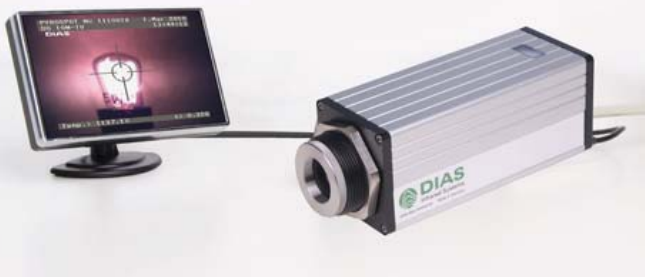
Dimensional drawing vario optics



Technical data video camera (DGE 10NV)

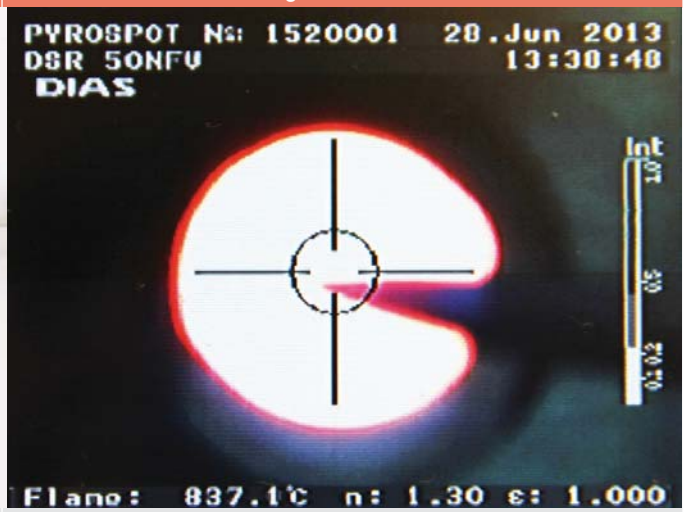
Video signal	Composite video signal approx. 1Vss at 75 Ω (galvanically isolated, video signal can be deactivated via software)
Color norm	PAL (B), 50 Hz (optional color norm NTSC (M), 60 Hz)
Resolution	1/3 inch video chip 628 × 586 pixels (NTSC option: 510 × 496 pixels)
Exposure control	automatic
Visible field	approx. 8 % × 6 % of adjusted measurement distance (NTSC option: 6.5 % × 5 %)
Date/time	Real-time clock with minimum 3 days power reserve, adjustable via software
Durable image displays	Target mark in measurement spot size , measurement temperature, emissivity
Optional image displays	Via software: serial number, device name or user-defined text (16 characters), date, time, temperature unit °C/°F, 12/24 hours display

Pyrometer with TFT monitor



The video image can be displayed via the additionally available TFT monitor.

Detailed view of video image



PYROSPOT DGE 10N/DGE 10NV

Pyrometers for industry and research

Electrical, mechanical and optical accessories[1]			Order number	
Connection cable, 12 pin, angulate plug		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	
Video connection cable		length 2 m length 5 m length 10 m length 15 m length 20 m length 25 m length 30 m	3310A16521 3310A16522 3310A16523 3310A16524 3310A16525 3310A16526 3310A16527	
Interface module		RS-485 to USB	3310A14020	
Power supply PSU 15		24 V DC, 0.6 A	3310A12010	
Mounting angle		adjustable	3310A21020	
Air purge adaptor		stainless steel, purge air 0.1 to 0,5 bar, oil-free	3310A22020	
Window slide		without window	3310A21210	
Vacuum flange		KF 16 with quartz window with sapphire window (scratch-proof)	3310A24015 3310A34021 3310A34051	
Mounting angle		for cooling jacket	3310A23036	
DHP 1040		handheld programming device for parameterizing	3310A17010	
TFT monitor	TFT-monitor industrial	3.5" with 2 m cable[2]	3310A16110	3310A16120
Adapter		Video/USB	3310A14030	

[1] More accessories available. [2] Cable lengths 5 m and 10 m also available.

Detailed view: display

The digital display shows current temperature value and emissivity setting.

Detailed view: back side

The emissivity can be adjusted by using the two keys on the back side of the device. The value settings will be stored automatically.

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