

PYROSPOT DP 10N

Pyrometers for industry and research

Overview

Digital pyrometers with RS-485 interface



Features

- For temperature measurements between 50 °C and 1200 °C
- Keyboard and display for emissivity and temperature
- Temperature linear output 0/4 to 20 mA
- Aiming: aiming light or through-lens sighting
- Short response times from 1.5 ms
- Vario optics

Description and applications

The digital pyrometers PYROSPOT DP 10N are specially designed for industry and research applications. The devices are suitable for temperature measurement from 50 °C on many different surfaces for example metals, ceramics or graphite.

The solid construction in form of a compact housing allows usage even under rough environmental conditions. With a short response time of only 1.5 ms (t95) these pyrometers are also suitable for fast measuring processes. The vario optics realise measuring field diameters from 0.7 mm.

The integrated LED or laser aiming light or the alternative through-lens sighting enables to focus the measuring object exactly.

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.

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

Typical pyrometer application areas:

- Steel industry
- Kiln engineering
- Welding installations
- Ceramic industry
- Metal industry
- Hardening
- Forging
- Rolling
- Preheating
- Sintering



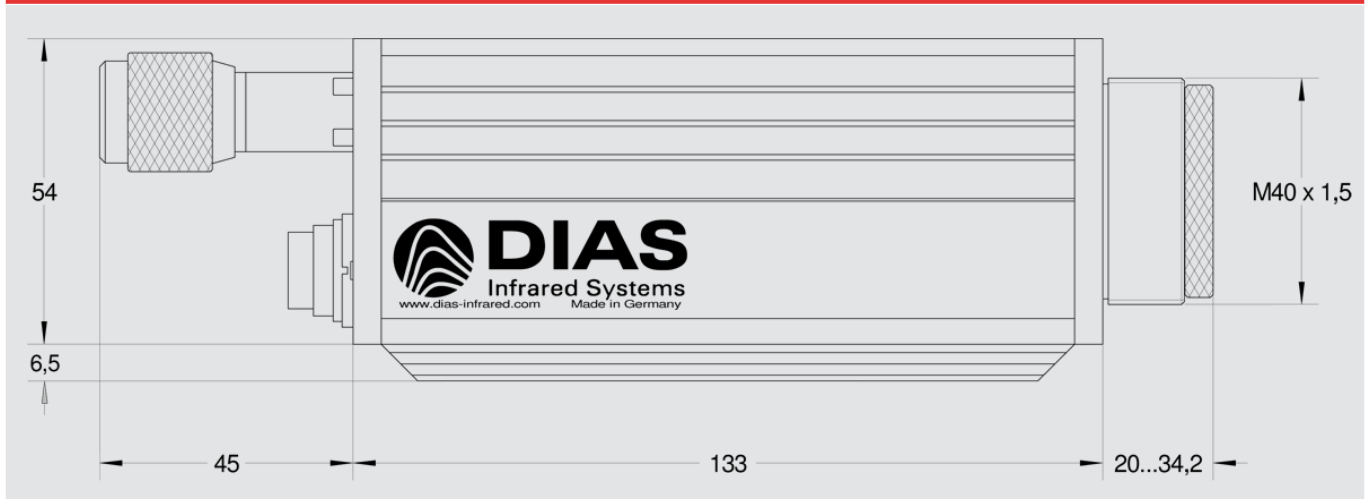
PYROSPOT DP 10N

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Technical data				
Type	DP 10N	DP 10N	DP 10N	DP 10N
Temperature range	50 °C to 500 °C	75 °C to 600 °C	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 2.8 µm			
Optics	vario optics, measuring field diameters from 0.7 mm			
Measurement uncertainty ¹	up to 400 °C: 2 K, over 400 °C: 0.3 % of measured value + 1 K			
Reproducibility ¹	0.1 % of measured value + 1 K			
NETD ²	0.1 K ³			
Response time (t95)	1.5 ms, adjustable up to 100 s			
Emissivity	0.010 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 700 Ω			
Interface	RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU			
Aiming	LED aiming light, laser aiming light or through-lens sighting			
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro			
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmission, ambient compensation, 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. 9 W			
Operating temperature	0 °C to 55 °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 and push-buttons			
Safety class	IP 65 (DIN 40 050)			
CE symbol	according to EU regulations (EN 50 011)			
Scope of delivery	PYROSPOT DP 10N, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately)			

¹T_U = 23 °C, ε = 1, t95 = 1 s. ²Noise equivalent temperature difference. ³T_U = 23 °C, ε = 1, t95 = 10 ms. T_{Object DP 10N (50 °C to 500 °C)} = 100 °C, T_{Object DP 10N (75 °C to 600 °C)} = 150 °C, T_{Object DP 10N (100 °C to 850 °C)} = 200 °C, T_{Object DP 10N (150 °C to 1200 °C)} = 300 °C.

Dimensional drawing pyrometer (with through-lens sighting)

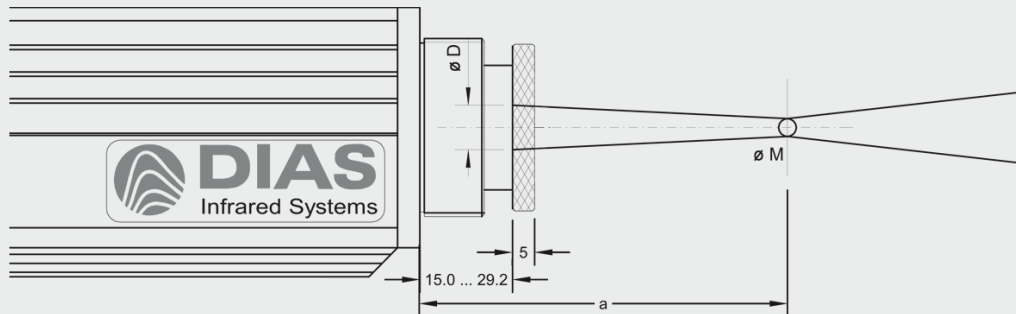


PYROSPOT DP 10N

Pyrometers for industry and research

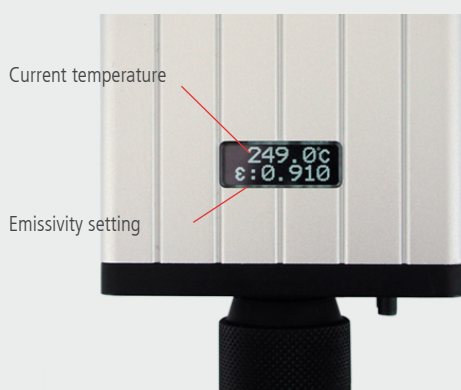
Vario optics					Order number		
Optics variant	Temperature range	Meas. field diameter M [mm]	Meas. distance a [mm]	Aperture D [mm]	LED aiming light	Laser aiming light	Through-lens sighting
I	50 °C to 500 °C	1.3 to 2.8	125 to 150	11.6	4104001201	4104011201	4104021201
	75 °C to 600 °C	1.1 to 2.6			4104001202	4104011202	4104021202
	100 °C to 850 °C	0.9 to 1.6			4104001203	4104011203	4104021203
	150 °C to 1200 °C	0.7 to 1.5			4104001204	4104011204	4104021204
II	50 °C to 500 °C	2.0 to 4.4	210 to 350	11.6	4104002201	4104012201	4104022201
	75 °C to 600 °C	1.8 to 3.7			4104002202	4104012202	4104022202
	100 °C to 850 °C	1.7 to 2.5			4104002203	4104012203	4104022203
	150 °C to 1200 °C	1.5 to 1.8			4104002204	4104012204	4104022204
III	50 °C to 500 °C	3.1 to 9.3	320 to 800	11.6	4104003201	4104013201	4104023201
	75 °C to 600 °C	3.0 to 8.6			4104003202	4104013202	4104023202
	100 °C to 850 °C	2.9 to 7.6			4104003203	4104013203	4104023203
	150 °C to 1200 °C	2.8 to 6.8			4104003204	4104013204	4104023204
IV	50 °C to 500 °C	2.4 to 8.6	260 to 570	11.6	4104004201	4104014201	4104024201
	75 °C to 600 °C	2.1 to 8.2			4104004202	4104014202	4104024202
	100 °C to 850 °C	1.6 to 5.0			4104004203	4104014203	4104024203
	150 °C to 1200 °C	1.3 to 3.4			4104004204	4104014204	4104024204

Dimensional drawing vario optics



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.

Through-lens sighting or aiming light push-button

Push-buttons for emissivity adjustment



Plug connector and interface

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Electrical, mechanical and optical accessories ¹		Order number
Connection cable, 12 pin, angulate plug	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
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	3310A24015
	with quartz window	3310A34021
	with sapphire window (scratch-proof)	3310A34051
Mounting angle	for cooling jacket	3310A23036
DHP 1040	handheld programming device for parameterizing	3310A17010

¹ More accessories available.

Selected accessories

Mounting angle, adjustable

Order number: 3310A21020



Ball and socket mounting

Order number: 3310A21025



Cooling jacket

Order number: 3310A23031



Cooling plate

Order number: 3310A23020



Air purge unit for cooling jacket

Order number: 3310A22020



Mirror 90°

Order number: 3310A24110



Technical details are subject to change. November 2012.



We are certified for many years according to ISO 9001

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