

PYROSPOT DSR 10N

Pyrometers for industry and research

Overview

Digital ratio pyrometers with RS-485 interface



Features

- For temperature measurements between 600 °C and 3000 °C
- Display and keyboard for emissivity ratio adjustment
- Widely independent from emissivity
- Aiming: aiming light, through-lens sighting or camera module
- Short response times from 5 ms
- Temperature linear output 0/4 to 20 mA

Description and applications

The digital pyrometers PYROSPOT DSR 10N are especially designed for industry and research applications. They utilize the 2-colour system which has the advantage of measurement widely independent from the emissivity.

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 5 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.

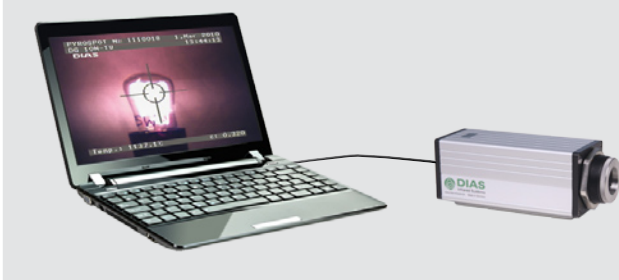
The integrated LED or laser aiming light or, the alternative through-lens sighting, enables an exact focus on the measurement object. With the optional color video module the alignment of the pyrometers to the target can be monitored visually and the entire process can be recorded and documented.

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

The ratio correction K and the emissivity (in single channel mode) 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 software PYROSOFT Spot.

Typical pyrometer application areas:

- Steel industry
- Kiln engineering
- Hardening
- Welding
- Metal industry



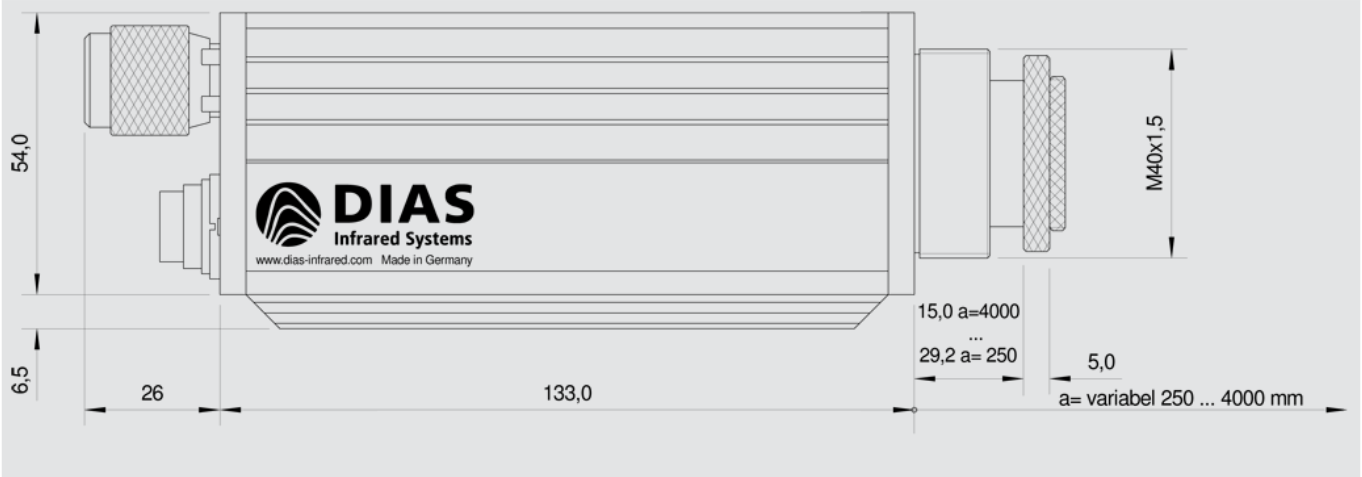
PYROSPOT DSR 10N

Pyrometers for industry and research

Technical data				
Type	DSR 10N	DSR 10N	DSR 10N	DSR 10N
Temperature range	600 °C to 1400 °C	700 °C to 1800 °C	800 °C to 2500 °C	900 °C to 3000 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C			
Spectral range	0.7 µm to 1.1 µm			
Optics	vario optics with quartz glass protection window, measuring field diameters from 1.2 mm			
Distance ratio	approx. 100 : 1	approx. 200 : 1		
Measurement uncertainty ¹	0.5 % of measured value			
Reproducibility ¹	0.2 % of measured value			
NETD ²	0.1 K ¹			
Response time (t95)	5 ms, adjustable up to 100 s			
Ratio correction K	0.800 to 1.200, adjustable at the device or via interface			
Emissivity	0.050 to 1.000, adjustable at the device (single channel mode) or via 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 up to 115 kBd, data protocol Modbus RTU			
Aiming	LED aiming light, laser aiming light, through-lens sighting or camera module			
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro			
Parameters	ratio correction, emissivity, response time, temperature unit °C or °F, storage, sub temperature range, 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 DSR 10N, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately)			

¹T₀ = 23 °C, ε = 1, t95 = 1 s. ²Noise equivalent temperature difference.

Dimensional drawing pyrometer (with through-lens sighting)



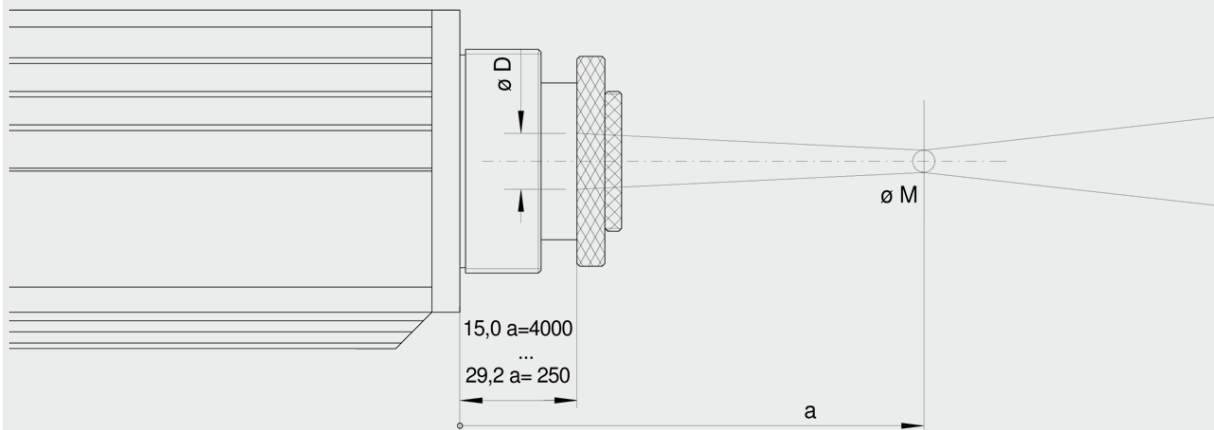
PYROSPOT DSR 10N

Pyrometers for industry and research

Vario optics

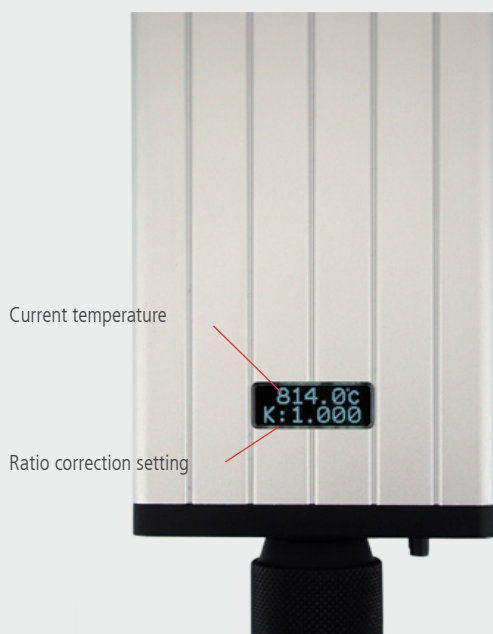
Measuring distance a [mm]	250	300	350	500	800	4000	Aperture diameter \varnothing D [mm]		Order number	
Optics pullout [mm]	29.2	25.5	23.5	20.3	18.0	15.0	at		LED aiming light	Laser aiming light
Device	Measuring field diameter M [mm]						a = 250 mm	a = 4000 mm	Through-lens sighting	Camera module
DSR 10N (600 °C to 1400 °C)	2.5	3.0	3.5	5.0	8.0	40.0	8.0	6.5	5102001202	5102011202
									5102021202	5102031202
DSR 10N (700 °C to 1800 °C)	1.2	1.5	1.7	2.5	4.0	20.0	8.0	6.5	5102001203	5102011203
									5102021203	5102031203
DSR 10N (800 °C to 2500 °C)	1.2	1.5	1.7	2.5	4.0	20.0	8.0	6.5	5102001204	5102011204
									5102021204	5102031204
DSR 10N (900 °C to 3000 °C)	1.2	1.5	1.7	2.5	4.0	20.0	5.5	4.3	5102001205	5102011205
									5102021205	5102031205

Dimensional drawing vario optics



Detailed view: display

The digital display shows current temperature value and emissivity setting.



Current temperature

Ratio correction 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 ratio correction/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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