

PYROSPOT DSR 10NF

Pyrometers for combustors

Overview

Digital special pyrometers with RS-485 interface



Features

- For temperature measurements between 600 °C and 2500 °C
- Display and keyboard for soot factor adjustment
- Measuring distance adjustment up to 4 m
- Aiming: aiming light, through-lens sighting or camer module
- Short response times from 5 ms
- Temperature linear output 0/4 to 20 mA

Description and applications

The digital pyrometers PYROSPOT DSR 10NF are specially designed for industry applications. The devices can be particularly used for measuring the temperature of lighting flames with variable soot parts.

The solid compact housing and the standard protection window for the optics enables the use under rough environmental conditions. These pyrometers are suitable for the exact measurement of fast process with the very short response time (t_{95}) of only 5 ms. The vario optic has a protective glass made of quartz glass and enables the adjustment of the measurement distance up to 4 m.

For an easy and accurate alignment the instrument is equipped with a LED or laser aiming light or trough-lens-sighting. 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 switchable standard linear temperature output of 0/4 to 20 mA enables a simple integration into existing measurement and control systems.



The DSR 10NF are equipped with galvanically isolated RS-485 interface which allows parameterizing and software evaluation even in bus systems. The black body temperature with emissivity calculation, the colour temperature and the optical thickness are readable.

The soot factor n 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:

- Measurement of lighting flames
- Carbon dust and oil combustion system
- Waste bunkers
- Combustors



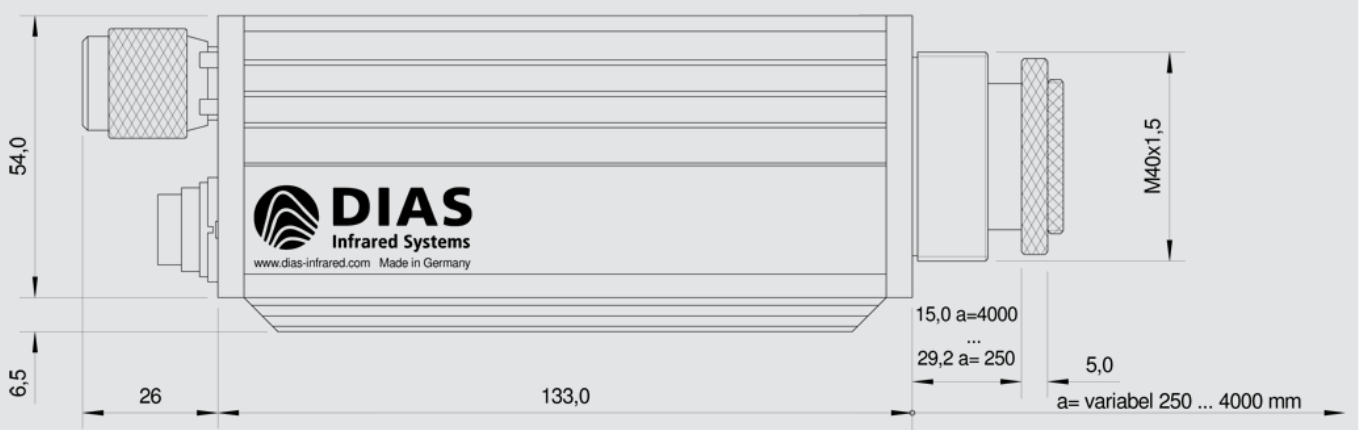
PYROSPOT DSR 10NF

Pyrometers for combustors

Technical data			
Type	DSR 10NF	DSR 10NF	DSR 10NF
Temperature range	600 °C to 1400 °C	700 °C to 1800 °C	800 °C to 2500 °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		
Distance ratio	100 : 1	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		
Soot factor n	0.5 to 2.5, adjustable via interface or at the device		
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, camera module		
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro		
Parameters	soot factor, response time, temperature unit °C or °F, storage, sub temperature range, adjustable via software and interface		
User controls	soot factor control push-buttons, aiming light push-buttons, display		
Power supply	24 V DC ± 25 %		
Power consumption	max. 1.5 W		
Operating temperature	0 °C to 70 °C		
Storage temperature	-20 °C to 70 °C		
Weight	ca. 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 10NF, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately)		

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

Dimensional drawing (with through-lens sighting)



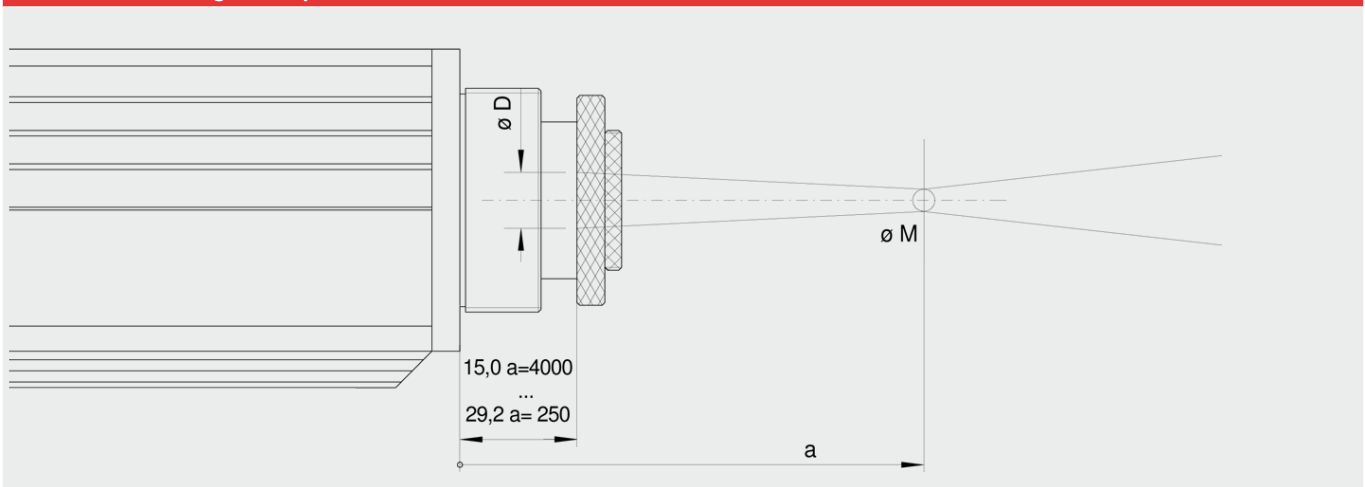
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Pyrometers for combustors

Vario optics

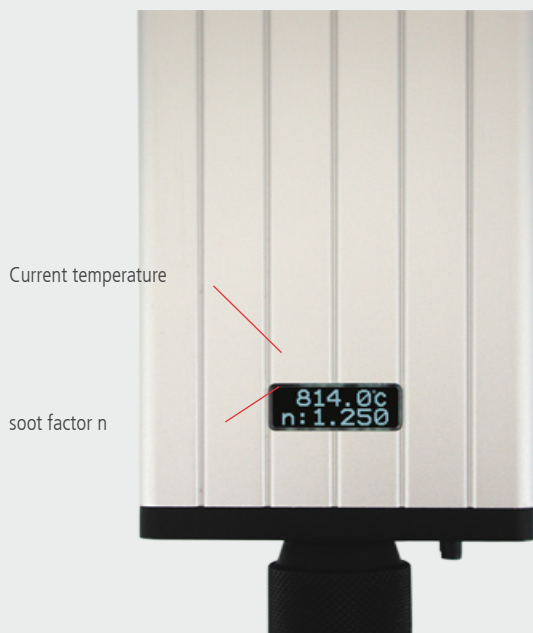
Measuring distance a [mm]	250	300	350	500	800	4000	Aperture diameter \varnothing D [mm]	Order number		
Optics pullout [mm]	29.2	25.5	23.5	20.3	18.0	15.0	at	LED aiming light	Laser aiming light	
Device	Measuring field diameter M [mm]						a = 250 mm	a = 4000 mm	Through-lens sighting	Color module
DSR 10NF (600 °C to 1400 °C)	2.5	3.0	3.5	5.0	8.0	40.0	8.0	6.5	5102001242 5102021242	5102011242 5102031242
DSR 10NF (700 °C to 1800 °C)	1.2	1.5	1.7	2.5	4.0	20.0	8.0	6.5	5102001243 5102021243	5102011243 5102031243
DSR 10NF (800 °C to 2500 °C)	1.2	1.5	1.7	2.5	4.0	20.0	8.0	6.5	5102001244 5102021244	5102011244 5102031244

Dimensional drawing vario optics



Detailed view: display

The digital display shows current temperature value and soot factor setting.



Detailed view: back side

The soot factor 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 soot factor 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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