

PYROSPOT DSR 10N

Ratio Pyrometers for Industry and Research



- **Digital ratio pyrometer for 600 °C to 3000 °C**
- **Short response time from 5 ms**
- **RS485 interface for bus system integration**
- **Display and keyboard for emissivity ratio adjustment**
- **Vario optics with aiming light or through-lens sighting**

The digital ratio 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 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.

Due to the focusable optics the pyrometer can be adapted optimally to any measuring distance and offers very small spot sizes of 1.2 mm.

For an easy and accurate alignment the instrument is equipped with a green LED or red laser aiming light or through-lens-sighting.

The switchable standard linear temperature output of 0/4 to 20 mA enables a simple integration into existing measuring and controlling systems.

The DSR 10N are equipped with galvanically isolated RS485 interface which allows parameterizing 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 comfortable software PYROSOFT Spot.

Typical pyrometer application areas:

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

Technical Data and Accessories

Technical data				
Type	DSR 10N	DSR 10N	DSR 10N	DSR 10N
Temperature ranges	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 51 °C			
Spectral range	0.7 μm to 1.1 μm			
Optics	vario optics with quartz glass windows, measuring field diameters from 1.2 mm			
Distance ratio	50 : 1	100 : 1	200 : 1	200 : 1
Measurement uncertainty	0.5 % of meas. value ($T_{amb} = 23\text{ °C}$, $\varepsilon = 1$, $t_{95} = 1\text{ s}$)			
Reproducibility	0.2 % of meas. value ($T_{amb} = 23\text{ °C}$, $\varepsilon = 1$, $t_{95} = 1\text{ s}$)			
NETD ¹	0.1 °C ($T_U = 23\text{ °C}$, $\varepsilon = 1$, $t_{95} = 1\text{ s}$) ²			
Response time (t95)	5 ms, adjustable up to 10 s			
Ratio correction K	0.800 to 1.200, adjustable via interface or push-buttons directly on the device			
Emissivity	0.050 to 1.000, adjustable via interface or push-buttons on the device (single channel mode)			
Storage	maximum value storage, adjustable via interface			
Output	0/4 to 20 mA, adjustable via software, temperature linear, max. burden: 500 Ω			
Interface	RS485, galvanically isolated, half duplex, max. 115 kBd			
Aiming	green LED or red laser aiming light or through-lens sighting			
Software	PYROSOFT Spot for Windows®			
Parameters	ratio correction, emissivity, response time, temperature unit °C or °F, storage, sub range, adjustable via interface and software			
User controls	ratio correction/emissivity control push-buttons (res. 0,001), aiming light push-button, 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	approx. 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, manual, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, please order separately)			

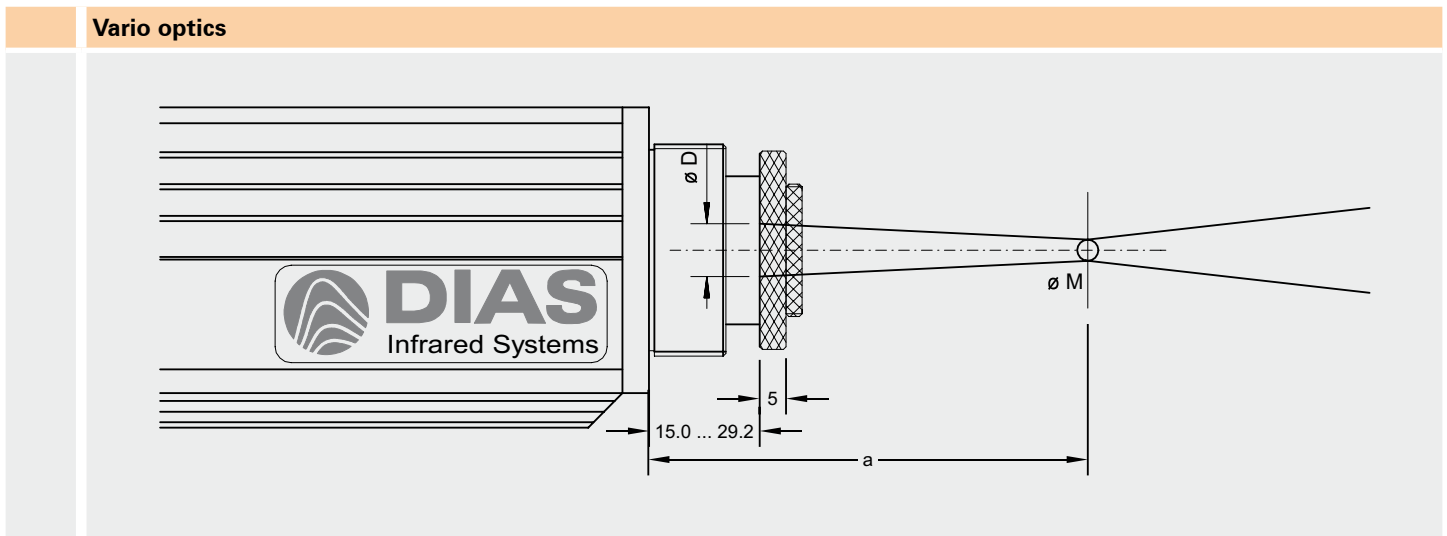
¹ Noise equivalent temperature difference. ² Specification for temperature measurement value = temperature range lower limit + 200 K.



Accessories, mechanical, electrical and optical ¹	
Connecting cable 12-pin	length 2 m, 5 m, 10 m, 15 m, 20 m, 25 m or 30 m
Interface module	RS485 to USB
Power supply	24 V DC, 1 A
Mounting angle	adjustable, stainless steel
Ball and socket mounting	adjustable, stainless steel
Air purge unit	stainless steel, air pressure 0.1 to 0.5 bar, oil free, optional with protection tube
Cooling Plate	attachment or with air purge unit
Water cooling jacket	stainless steel
Protection window	quartz glass or sapphire glass (spare parts)

¹ other accessories on request

Optics Types

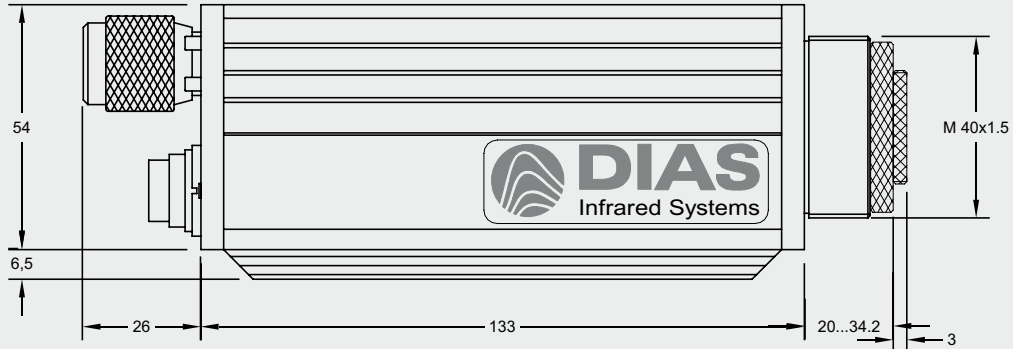
Vario optics							
Measuring distance a in mm	0	250	300	350	500	800	4000
Optics pullout in mm	0	14.2	10.5	8.5	5.3	3.0	0
Measuring field diameter M in mm							
DSR 10N (600 °C to 1400 °C)	10	5.0	6.0	7.0	10.0	16.0	80
DSR 10N (700 °C to 1800 °C)	10	2.5	3.0	3.5	5.0	8.0	40
DSR 10N (800 °C to 2500 °C)	10	1.2	1.4	1.5	2.3	4.0	20
DSR 10N (900 °C to 3000 °C)	6	1.2	1.4	1.5	2.3	4.0	20



Display	Rear view
<ul style="list-style-type: none"> - Displays the actual temperature - Displays the adjusted ratio correction K or the adjusted emissivity (in single channel mode) 	<ul style="list-style-type: none"> - Through-lens sighting or aiming light push-button - Plug connector and interface - Push-buttons for adjustment of ration correction/emissivity
	

Dimensions and Accessories

Dimensions pyrometer (version with through-lens sighting)



Accessories

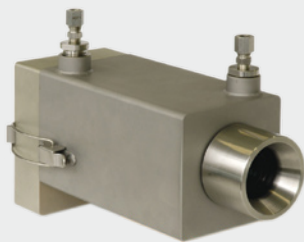
Mounting angle, adjustable



Ball and socket mounting



Cooling jacket



Air purge unit



Digital display



Power supply



Technical details are subject to change without notice. March 2009.