

# PYROSPOT DP 10N

Pyrometers for Industry and Research



- **Digital pyrometer for 50 °C to 1200 °C**
- **Short response time from 1.5 ms**
- **RS485 interface**
- **Display and keyboard**
- **Vario optics with aiming light or through-lens sighting**

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

The solid construction in form of a compact housing with protection window for optics 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 with quartz glass protection window realise measuring field diameters from 1.2 mm.

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

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measuring and controlling systems.

The device is equipped with integrated, galvanically isolated RS485 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 comfortable parameterizing and evaluation software PYROSOFT Spot.

Typical pyrometer application areas:

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

## Technical Data and Accessories

Technical data				
Type	DP 10N	DP 10N	DP 10N	DP 10N
Temperature ranges	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 $\mu\text{m}$ to 2.8 $\mu\text{m}$			
Optics	vario optics with quartz glass protection window, measuring field diameters from 1.2 mm			
Distance ratio	100 : 1			
Measurement uncertainty	up to 200 °C: 2 K ( $T_{\text{amb}} = 23 \text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{s}$ ) over 200 °C: 0.3 % of meas. value + 1 K ( $T_{\text{amb}} = 23 \text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{s}$ )			
Reproducibility	0.1 % of meas. value + 1 K ( $T_{\text{amb}} = 23 \text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{s}$ )			
NETD <sup>1</sup>	0.1 °C ( $T_U = 23 \text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{s}$ )			
Response time (t95)	1.5 ms, adjustable up to 10 s			
Emissivity	0.050 to 1.000, adjustable via interface or push-buttons directly on the device			
Storage	maximum value storage, adjustable via interface			
Output	0/4 to 20 mA, adjustable via software, temperature linear, max. burden: 500 $\Omega$			
Interface	RS485, galvanically isolated, half duplex, max. 115 kBd			
Aiming	LED or laser aiming light or through-lens sighting			
Software	PYROSOFT Spot for Windows®			
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub range, adjustable via interface and software			
User controls	emissivity control push-buttons (resolution 0.001), aiming light push-button, display			
Power supply	24 V DC $\pm$ 25 %			
Power consumption	max. 6 W			
Operating temperature	0 °C to 70 °C			
Storage temperature	-20 °C to 70 °C			
Weight	approx. 520 g			
Dimensions	54 $\times$ 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 DP 10N, manual, inspection sheet, PYROSOFT Spot for Windows® ( <b>without</b> connecting cable, please order separately)			

<sup>1</sup> noise equivalent temperature difference

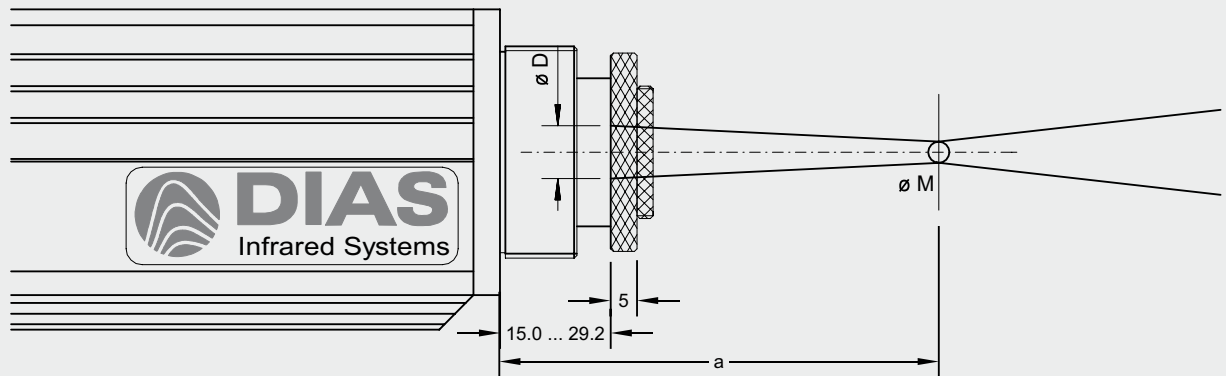
Accessories, mechanical, electrical and optical <sup>1</sup>	
Connecting cable 12-pin	length 2 m, 5 m, 10 m, 15 m, 20 m, 25 m or 30 m
Interface module	RS485 to USB
Handheld progr. device	DHP 1040, for programming of pyrometer series PYROSPOT
Power supply	24 V DC, 0.6 A
Mounting angle	adjustable, stainless 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

<sup>1</sup> other accessories on request

## Optics Types

Vario optics	I	II	III
Measuring distance a in mm	125 to 150	210 to 350	320 to 800
Measuring field diameter M in mm			
Measuring range: 50 °C to 500 °C	1.3 to 2.8	2.0 to 4.4	3.1 to 9.3
Measuring range: 75 °C to 600 °C	1.1 to 2.6	1.8 to 3.7	3.0 to 8.6
Measuring range: 100 °C to 850 °C	0.9 to 1.6	1.7 to 2.5	2.9 to 7.6
Measuring range: 150 °C to 1200 °C	0.7 to 1.5	1.5 to 1.8	2.8 to 6.8
Aperture D in mm	11.6	11.6	11.6

### Vario optics



### Display

- Displays the actual temperature
- Displays the adjusted emissivity

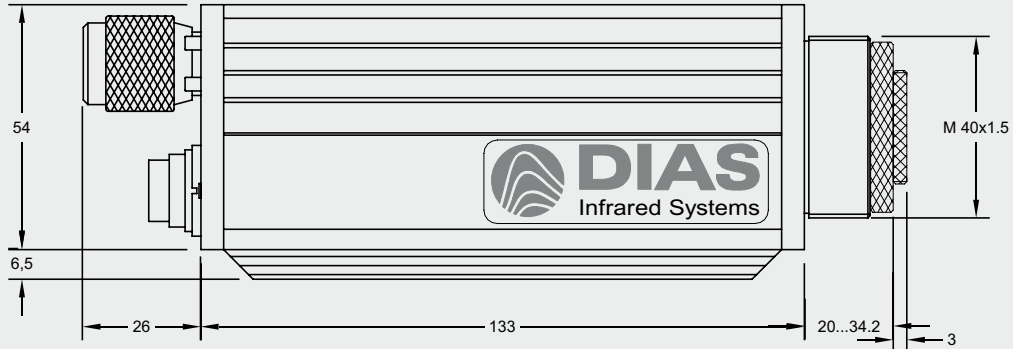
### Rear view

- Through-lens sighting or aiming light push-button
- Plug connector and interface
- Push-buttons for adjustment of emissivity



## Dimensions and Accessories

### Dimensions pyrometer (version with through-lens sighting)



### Accessories

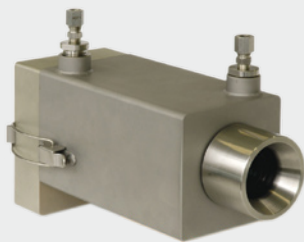
#### Mounting angle, adjustable



#### Ball and socket mounting



#### Cooling jacket



#### Air purge unit



#### Digital display DD 200 and DD 210



#### Power supply



Technical details are subject to change without notice. August 2010.