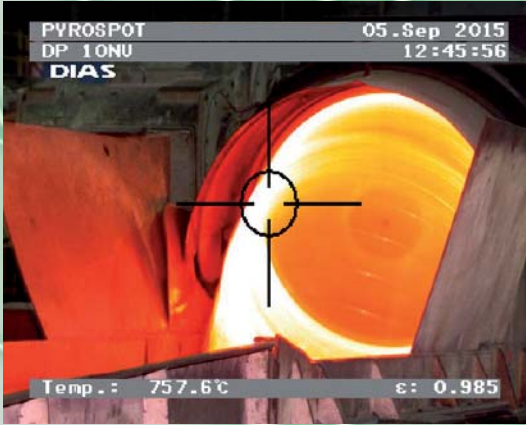


# 적외선 온도계 SPP 10N/SPP 10NV

## 산업 및 연구용 파이로미터

### Overview

RS-485 인터페이스가 통합된 디지털 파이로미터



### Features

- 온도 측정 범위 50 °C ~ 1200 °C
- 온도 및 파라미터 표시를 위한 디스플레이 및 키
- 최대 70°C의 작동 온도 범위
- 조준등, 렌즈를 통한 조준 또는 컬러 비디오 모듈이 있는 다양한 광학 장치
- 1.5ms의 짧은 응답 시간
- 온도에 따른 0/4 ~ 20mA의 선형 출력 신호

### Description and applications

디지털 적외선온도계 SPPE 10M/SPPE 10MV는 산업 및 연구용으로 최적화되어 설계되었습니다. 이 온도계는 금속, 세라믹 또는 흑연과 같은 다양한 표면에서 50°C부터의 온도 측정에 적합합니다

컴팩트 하우징 형태의 견고한 구조로 열악한 환경에서도 사용할 수 있으며 응답 시간이 1.5ms( $t_{95}$ )에 불과하여 빠른 측정 프로세스에도 적합합니다. 다양한 광학 장치로 필드 직경 0.7mm부터 측정할 수 있습니다

통합 LED, 레이저 조준등, 대체 렌즈로 측정 대상의 초점을 정확하게 맞출 수 있습니다.

선택 사양인 통합 컬러 비디오 모듈(SPP 10nV) 을 사용하여 측정 대상에 대한 파이로미터의 조준을 모니터링합니다.

파이로미터의 파라미터는 푸시 버튼을 통해 조정 가능하며 온도계에 직접 표시됩니다. 또한 편리한 파라미터 및 평가 소프트웨어인 PYROSOFT Spot을 사용하여 직접 디스플레이화 할 수 있습니다.

온도에 따라 0/4 ~ 20mA의 선형화된 출력신호로 기존 측정 및 컨트롤 시스템에 쉽게 연동할 수 있습니다. 전기적으로 절연된 RS-485 인터페이스가 장착되어 있어 버스 시스템에서도 파라미터 및 소프트웨어 평가가 가능합니다.

일반적인 적용 분야:

- |            |      |
|------------|------|
| • 철강 산업    | • 경화 |
| • 가마 엔지니어링 | • 단조 |
| • 납땜 설치    | • 롤링 |
| • 세라믹 산업   | • 예열 |
| • 금속 산업    | • 소결 |



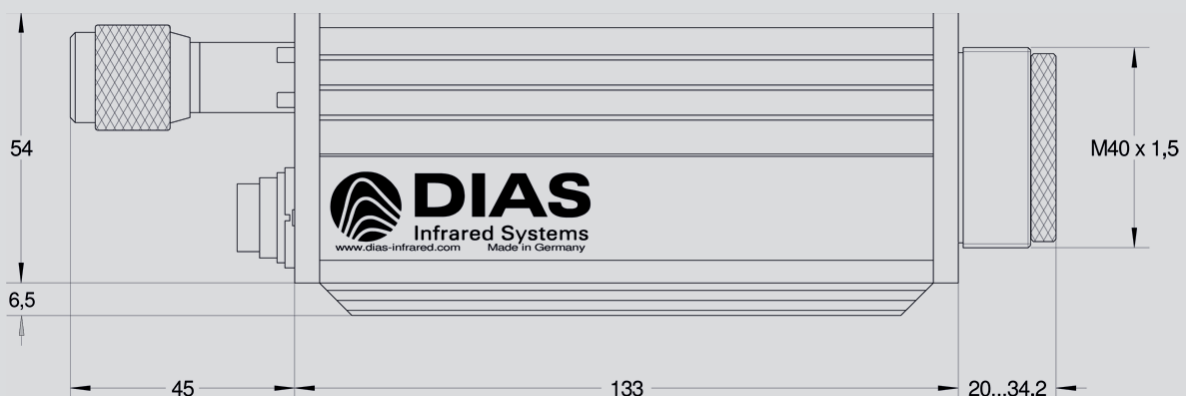
# PYROSPOT DP 10N/DP 10NV

## Pyrometers for industry and research

Technical data				
Type	DP 10N/DP 10NV	DP 10N/DP 10NV	DP 10N/DP 10NV	DP 10N/DP 10NV
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	measuring field diameters from 0.7 mm, vario optics			
Measurement uncertainty <sup>1</sup>	up to 400 °C: 2 K, over 400 °C: 0.3 % of measured value + 1 K			
Reproducibility <sup>1</sup>	0.1 % of measured value + 1 K			
NETD <sup>2</sup>	0.1 K <sup>3</sup>			
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 at the device or via interface			
Output	0/4 to 20 mA, switchable via software or adjustable at the device, temperature linear, max. burden 700 Ω			
Switching output/Switching threshold	1 opto relay, R <sub>Burden</sub> min. 48 Ω (galvanically isolated)/adjustable within temperature range			
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 color video module			
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro			
Parameters <sup>4</sup>	emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmission, ambient compensation, video parameters, key lock			
User controls	Keys for „Parameter Menu“, „Enter“, „Up“ and „Down“, aiming light push-button, display			
Power supply	24 V DC ± 25 %			
Power consumption	max. 3.6 W (without load at switching output)			
Operating temperature	0 °C to 70 °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/DP 10NV, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately)			

<sup>1</sup>T<sub>ambient</sub> = 23 °C, ε = 1, t95 = 1 s. <sup>2</sup>Noise equivalent temperature difference. <sup>3</sup>T<sub>ambient</sub> = 23 °C, ε = 1, t95 = 10 ms. T<sub>Object DP 10N (50 °C to 500 °C)</sub> = 100 °C, T<sub>Object DP 10N (75 °C to 600 °C)</sub> = 150 °C, T<sub>Object DP 10N (100 °C to 850 °C)</sub> = 200 °C, T<sub>Object DP 10N (150 °C to 1200 °C)</sub> = 300 °C. <sup>4</sup>Adjustable via software and interface or directly at the device.

### Dimensional drawing pyrometer (with through-lens sighting)

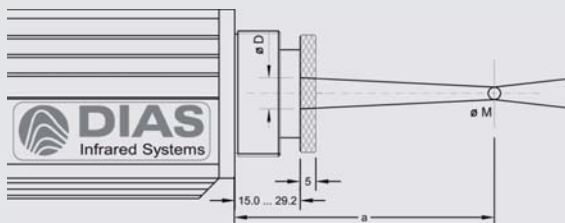


# PYROSPOT DP 10N/DP 10NV

## Pyrometers for industry and research

Vario optics					Part number			
Optics	Temperature range	Measuring field diameter M [mm]	Measurement distance a [mm]	Aperture D [mm]	LED aiming light	Laser aiming light	Through-lens sighting	Video module
I	50 °C to 500 °C	1.3 to 2.8	125 to 150	11.6	5104001201	5104011201	5104021201	5104031201
	75 °C to 600 °C	1.1 to 2.6			5104001202	5104011202	5104021202	5104031202
	100 °C to 850 °C	0.9 to 1.6			5104001203	5104011203	5104021203	5104031203
	150 °C to 1200 °C	0.7 to 1.5			5104001204	5104011204	5104021204	5104031204
II	50 °C to 500 °C	2.0 to 4.4	210 to 350	11.6	5104002201	5104012201	5104022201	5104032201
	75 °C to 600 °C	1.8 to 3.7			5104002202	5104012202	5104022202	5104032202
	100 °C to 850 °C	1.7 to 2.5			5104002203	5104012203	5104022203	5104032203
	150 °C to 1200 °C	1.5 to 1.8			5104002204	5104012204	5104022204	5104032204
III	50 °C to 500 °C	3.1 to 9.3	320 to 800	11.6	5104003201	5104013201	5104023201	5104033201
	75 °C to 600 °C	3.0 to 8.6			5104003202	5104013202	5104023202	5104033202
	100 °C to 850 °C	2.9 to 7.6			5104003203	5104013203	5104023203	5104033203
	150 °C to 1200 °C	2.8 to 6.8			5104003204	5104013204	5104023204	5104033204
IV	50 °C to 500 °C	2.4 to 8.6	260 to 570	11.6	5104004201	5104014201	5104024201	5104034201
	75 °C to 600 °C	2.1 to 8.2			5104004202	5104014202	5104024202	5104034202
	100 °C to 850 °C	1.6 to 5.0			5104004203	5104014203	5104024203	5104034203
	150 °C to 1200 °C	1.3 to 3.4			5104004204	5104014204	5104024204	5104034204

### Dimensional drawing vario optics



### Color video module (DP 10NV)

- PAL (50 Hz), optional NTSC (60 Hz)
- 628 × 586 pixels (PAL) or 510 × 496 pixels (NTSC)
- Composite video signal approx. 1 V<sub>SS</sub> at 75 Ω (galvanically isolated)
- Target mark in size of measurement field, display of measurement, temperature, emissivity
- Exposure control automatically or manually



### Detailed view: Display

The digital display shows the current measurement value and the emissivity set.

Current measurement temperature



Set emissivity value

Status switching output

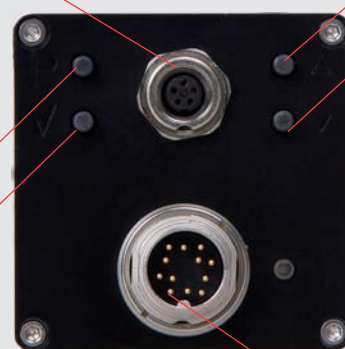
### Detailed view: rear side of the device

The parameters can be set by using the keys on the rear side of the device. The value set is transferred directly.

Through-lens sighting, pilot light or video connector

Keys for „Up“ and „Down“

Keys for „Parameter Menu“ and „Enter“



Plug connection and interface

# PYROSPOT DP 10N/DP 10NV

## Pyrometers for industry and research

Electrical, mechanical and optical accessories (more accessories on request)		Part number	
Connection cable, 12 pin, angled 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	
Video connection cable	Length 2 m	3310A16521	
	Length 5 m	3310A16522	
	Length 10 m	3310A16523	
	Length 15 m	3310A16524	
	Length 20 m	3310A16525	
	Length 25 m	3310A16526	
	Length 30 m	3310A16527	
Interface adapter	RS-485 to USB	3310A14020	
Power supply PSU 15	24 V DC, 0.6 A	3310A12010	
Mounting angle	Adjustable	3310A21020	
Air purge unit	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 glass	3310A34021	
	with sapphire glass (scratch-proof)	3310A34051	
Cooling jacket	including air purge unit	3310A23031	
Mounting angle	for cooling jacket	3310A23036	
ATEX housing		3310A23100	
Handheld programming device DHP 1040	mobile device for pyrometer parameterization	3310A17010	
TFT display	TFT display industrial	3.5" with 2 m cable	3310A16110      3310A16120
Adapter	Video/USB	3310A14030	

### Selected accessories – images

#### Mounting angle, adjustable

Part number: 3310A21020



#### Ball and socket mounting

Part number: 3310A21025



#### Cooling jacket

Part number: 3310A23031



#### Cooling plate

Part number: 3310A23020



#### Air purge unit

Part number: 3310A22020



#### ATEX housing

Part number: 3310A23100

