

PYROSPOT DG 10NT/DG 10NTV

Special pyrometer for measurement on tungsten in industry and research

Overview

Digital pyrometers for temperature measurement on tungsten



Merkmale

- For temperature measurement between 500 °C and 2500 °C
- Special spectral range for measurement on tungsten
- Keys and display for parameterization and display of temperature
- Vario optics with aiming light, through-lens sighting or color video module
- Short response time from 2 ms
- Temperature linear output 0/4 to 20 mA

Description and application

The digital pyrometers PYROSPOT DG 10NT/DG 10NTV are specifically designed for temperature measurement up to 2500 °C on tungsten materials. Due to a special narrow-band spectral range exact measurements with a constant emissivity in a wide temperature range can be made.

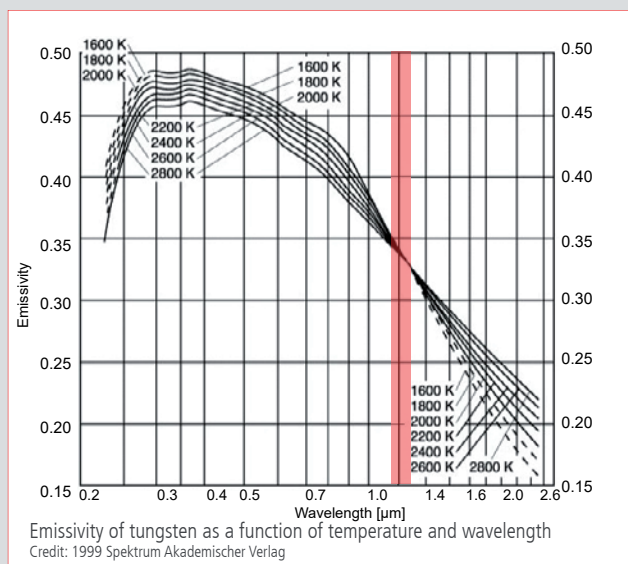
The solid construction in form of a compact housing with a protection window for optics allows usage even under rough environmental conditions. With a short response time of only 2 ms (t_{95}) these pyrometers are also suitable for fast measuring processes. The vario optics with quartz glass protection window realize 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 (PYROSPOT DG 10NTV) the alignment of the pyrometers to the target can be monitored visually and the entire process can be recorded and documented.



The device is equipped with a galvanically isolated RS-485 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 convenient parameterizing and evaluation software PYROSOFT Spot.



PYROSPOT DG 10NT/DG 10NTV

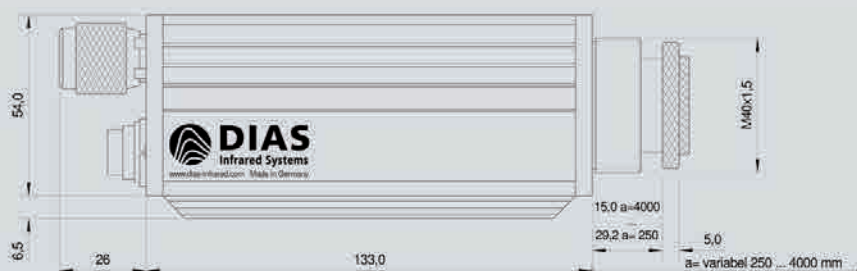
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Technical data

| Type | DG 10NT/DG 10NTV |
|--|---|
| Temperature range | 500 °C to 2500 °C (others on request) |
| Sub temperature range of analog output | adjustable within temperature range, minimum span 50 °C |
| Spectral range | around 1.25 µm |
| Optics | vario optics with quartz glass protection window, measuring field diameters from 1.2 mm |
| Distance ratio | approx. 200 : 1 |
| Measurement uncertainty ¹ | 0.5 % of measured value in °C + 1 K |
| Reproducibility ¹ | 0.1 % of measured value in °C + 0.5 K |
| Transmittance | 50 % to 100 % |
| Ambient radiation | adjustable within temperature range |
| NETD ^{1,2} | 0.1 K |
| Response time (t ₉₅) | 2 ms ³ , adjustable up to 100 s |
| Emissivity | 0.050 to 1.000, adjustable at the device or via RS-485 interface |
| Storage | minimum and maximum value storage, adjustable via interface |
| Output | 0/4 to 20 mA, switchable via software, temperature linear, max. burden 500 Ω (galvanically isolated) |
| Interface | RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU |
| Switching output/threshold | 1 Opto relay, R _{Load} min. 48 Ω/adjustable within temperature range |
| Aiming | LED aiming light, laser aiming light (630 to 680 nm, class II, < 1 mW), through-lens sighting or camera module (DG 10NV) |
| Software | PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro |
| Parameters ⁴ | emissivity, transmittance, ambient radiation, response time, temperature unit °C or °F, storage settings, sub temperature range of measurement output, switching thresholds of switching output |
| User controls | keys for „Parameter Menu“, „Enter“, „Up“ and „Down“, aiming light push-button, display |
| Power supply | 24 V DC ± 25 % |
| Power consumption | max. 1.5 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, 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 DG 10NT/DG 10NTV, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately) |

¹T_{ambient} = 23 °C, ε = 1, t₉₅ = 1 s. ²Noise equivalent temperature difference. ³With dynamic adaption at low signal level. ⁴Adjustable via software and interface or directly at the device.

Dimensional drawing pyrometer (with through-lens sighting)



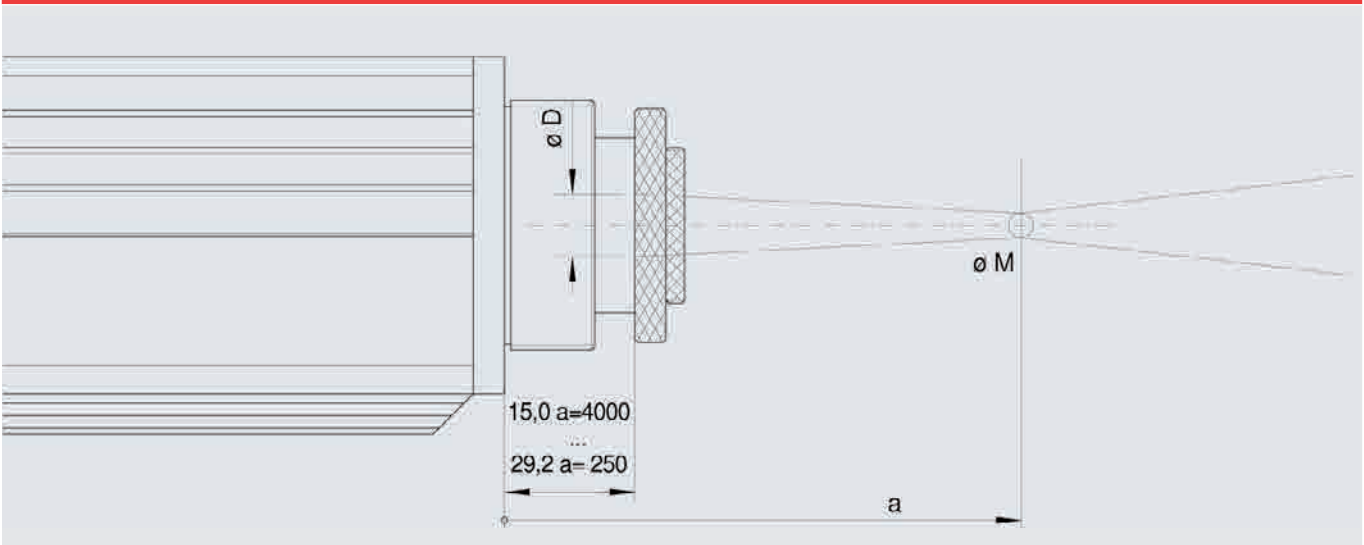
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Vario optics

| Measurement distance a [mm] | 250 | 300 | 350 | 500 | 800 | 4000 | Aperture diameter \varnothing D [mm] | Part number | | |
|-----------------------------|-----------------------------|------|------|------|------|------|--|------------------|-----------------------|--------------------|
| Optics pullout [mm] | 29.2 | 25.5 | 23.5 | 20.3 | 18.0 | 15.0 | at | LED aiming light | Laser aiming light | |
| Temperature range | Messfeld Durchmesser M [mm] | | | | | | a = 250 mm | a = 4000 mm | Through-lens sighting | Color video module |
| 500 °C to 2500 °C | 1.2 | 1.5 | 1.7 | 2.5 | 4.0 | 20.0 | 5.5 | 4.3 | 5101001237 | 5101011237 |
| | | | | | | | | | 5101021237 | 5101031237 |

Dimensional drawing vario optics



Technical data video camera (DG 10NTV)

| | |
|-------------------------|---|
| Video signal | Composite video signal approx. 1V _{ss} at 75 Ω (galvanically isolated, video signal can be deactivated via software) |
| Color norm | PAL (B), 50 Hz (optional color norm NTSC (M), 60 Hz) |
| Resolution | 1/3 inch video chip 628 x 586 pixels (NTSC option: 510 x 496 pixels) |
| Exposure control | automatic |
| Visible field | approx. 8 % x 6 % of adjusted measurement distance (NTSC option: 6.5 % x 5 %) |
| Date/time | Real-time clock with minimum 3 days power reserve, adjustable via software |
| Durable image displays | Target mark in measurement spot size, measurement temperature, emissivity |
| Optional image displays | Via software: serial number, device name or user-defined text (16 characters), date, time, temperature unit °C/°F, 12/24 hours display |

Pyrometer with TFT monitor



The video image can be displayed via the additionally available TFT monitor.

Detailed view of video image


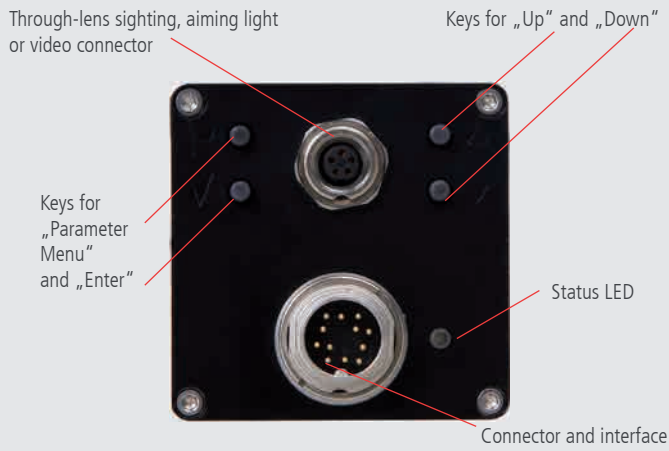


PYROSPOT DG 10NT/DG 10NTV

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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. ² Cable lengths 5 m and 10 m also available.

| Detailed view: Display | Detailed view: Rear side |
|--|--|
| <p>The digital display shows the current measured value and the emissivity set as well as further information.</p>  | <p>The parameters can be adjusted with the keys at the rear side of the device. The set value is taken over directly.</p> <p>Through-lens sighting, aiming light or video connector</p> <p>Keys for „Up“ and „Down“</p> <p>Keys for „Parameter Menu“ and „Enter“</p> <p>Status LED</p> <p>Connector and interface</p>  |

| Selected accessories – images | | |
|--|---|--|
| Mounting angle, adjustable | Ball and socket mounting | Cooling jacket |
| Part number: 3310A21020  | Part number: 3310A21025  | Part number: 3310A23031  |

Technische Änderungen vorbehalten. Technical details are subject to change. 12.03.19



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