

# PYROSPOT DG 54N/DG 54NV

## Pyrometer for industrial application

### Overview

#### Digital pyrometers with RS-485 interface



### Special features

- For temperature measurements between 200 °C and 2500 °C
- Temperature linear output 0/4 to 20mA
- Integrated RS-485 interface
- Integrated laser aiming light or video camera
- Robust stainless steel housing
- Very short response times from 2 ms

### Description and application

The digital DIAS pyrometer PYROSPOT DG 54N is specifically designed for industrial purposes. This devices are suitable for non-contact temperature measurement from 200 °C on different surfaces like metal, graphite or ceramics.

The solid and compact stainless steel housing allows usage even under rough environmental conditions. Measuring spot sizes from 3.5 mm for the PYROSPOT Series 50 can be easily realized. With a minimal response time of only 2 ms (t95) the devices are usable for fast measuring tasks.

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

Use the optional integrated red laser aiming light for the exact aiming of the pyrometer to the measurement object. The optional integrated video camera module (DG 54NV) provides an anti-glare aiming of the pyrometer even when the measurement object is very hot. It substantially facilitates the adjustment under difficult local conditions where the pyrometer is not easy to reach or the measurement object cannot be seen directly.

The PYROSPOT DG 54N possesses a RS-485 interface. The devices are bus-compatible in this way and use the Modbus RTU protocol.

You can connect the pyrometer via an optionally available interface adaptor RS-485 to USB with a PC. Connect the pyrometer to a PC to adjust the parameters emissivity, sub temperature range, data storage settings and response time to the application by using the comfortable parameterizing and evaluation software PYROSOFT Spot.

Typical application areas:

- Steel and metal industry
- Furnace industry
- Soldering applications
- Ceramic industry



# PYROSPOT DG 54N/DG 54NV

## Pyrometer for industrial application

Technical data										
Type	DG 54N/DG 54NV									
Temperature ranges	200 °C to 1200 °C	200 °C to 2000 °C	250 °C to 1500 °C	350 °C to 2000 °C	250 °C to 2500 °C					
Distance ratio	200 : 1	200 : 1	200 : 1	200 : 1	200 : 1					
Optics	several fixed optics (type 650, 2000, 4000) <sup>1</sup>									
Part number	Laser	Video	Laser	Video	Laser	Video	Laser	Video	Laser	Video
650	5541063204	5541083204	5541063208	5541083208	5541063205	5541083205	5541063206	5541083206	5541063207	5541083207
2000	5541066204	5541086204	5541066208	5541086208	5541066205	5541086205	5541066206	5541086206	5541066207	5541086207
4000	5541067204	5541087204	5541067208	5541087208	5541067205	5541087205	5541067206	5541087206	5541067207	5541087207
Sub temperature range	adjustable within temperature range, minimum span 50 °C									
Spectral range	1.5 µm to 1.8 µm									
Emissivity $\epsilon$	0.050 to 1.000									
Response time (t95)	2 ms (min.), adjustable up to 100 s									
Measurement uncertainty <sup>2</sup>	0.5 % of measured value in °C									
Reproducibility <sup>2</sup>	0.1 % of measured value in °C									
NETD <sup>3</sup>	0.1 K <sup>2</sup>									
Transmissivity	50 % to 100 %									
Ambient radiation	adjustable within temperature range									
Output	0/4 mA to 20 mA, temperature linear, burden max. 500 Ω (galvanically isolated)									
Interface	RS-485 (galvanically isolated), half duplex, max. 115 kBd, Modbus RTU									
Aiming	DG 54N: Laser aiming light, 630 ... 680 nm, class II, < 1 mW DG 54NV: Video camera, composite video signal PAL (B), 50Hz (galvanically isolated), optional NTSC (M), 60 Hz									
Switching output/threshold	1 opto relay, R <sub>load</sub> min. 48 Ω (galvanically isolated)/adjustable within temperature range									
Parameters	adjustable via interface and software or at the device: emissivity, transmissivity, ambient radiation, response time, data storage settings, sub range of measurement output, switching thresholds of switching output									
Power supply	24 V DC ± 25 %, residual ripple 500 mV									
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	approx. 600 g									
Housing	stainless steel round housing with plug connector, length: approx. 105 mm, Ø 50 mm									
Safety class	IP65 according to DIN EN 60529 and DIN 40050									
Test regulations	EN 55 011:1998, limit class A									
CE symbol	according to EU regulations									
Scope of delivery	PYROSPOT DG 54N/DG 54NV, manual, inspection sheet, software PYROSOFT Spot, without connection cable (please order separately)									

<sup>1</sup> Further fixed optics on request, e.g. 220 mm, 200 : 1. <sup>2</sup> Specifications for black body radiator, T<sub>ambient</sub> = 23 °C, t95 = 1 s. <sup>3</sup> Noise equivalent temperature difference.

Fixed optics				
Measurement distance a [mm]	Aperture D [mm]	a = 650	a = 2000	a = 4000
Temperature range		Measuring field diameter M [mm]		
200 °C to 1200 °C	10.0	3.5	10.0	20.0
250 °C to 1500 °C	8.0	3.5	10.0	20.0
350 °C to 2000 °C	5.0	3.5	10.0	20.0
200 °C to 2000 °C	5.0	3.5	10.0	20.0
250 °C to 2500 °C	3.5	3.5	10.0	20.0

# PYROSPOT DG 54N/DG 54NV

## Pyrometer for industrial application

### Technical data Video-Kamera (DG 54NV)

Video signal	Composite video signal approx. 1Vss 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 × 586 pixels (NTSC option: 510 × 496 pixels)
Exposure control	automatic
Visible field	approx. 8 % × 6 % of adjusted measurement distance (NTSC option: 6.5 % × 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

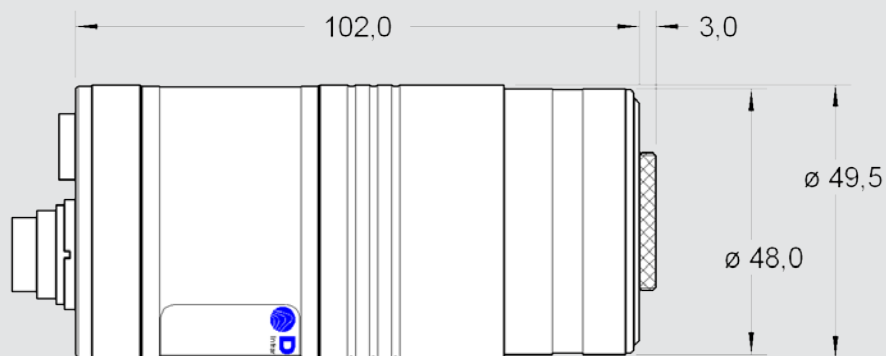
### Pyrometer with TFT monitor



### Detailed view of video image

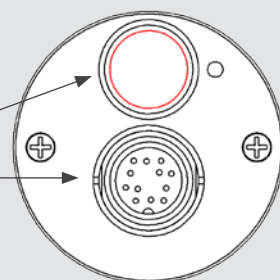


### Dimensional drawing pyrometer



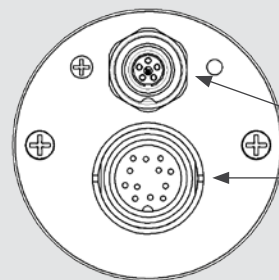
Option laser aiming light:

laser button  
12 pin device connection



Option video camera:

5 pin video circular plug  
12 pin device connection



# PYROSPOT DG 54N/DG 54NV

## Pyrometer for industrial application

Electrical, mechanical and optical accessories <sup>1</sup>		Part number		
Connection cable, straight plug, 12 pin	length 2 m	3310A11111		
	length 5 m	3310A11112		
	length 10 m	3310A11113		
	length 15 m	3310A11114		
	length 20 m	3310A11115		
	length 25 m	3310A11116		
	length 30 m	3310A11117		
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		
Mounting angle	adjustable	3310A21050		
Cooling jacket	including air purge unit, without mounting angle	3310A23050		
Ball flange	thread M40 × 1.5	3310A24020		
Air purge unit		3310A22050		
Power supply PSU 15	24 V DC, 0.6 A	3310A12010		
Ring nut	with quartz glass window with sapphire glass window	3310A34022 3310A34052		
TFT monitor	TFT monitor industrial	3.5" with 2 m connection cable <sup>2</sup>	3310A16110	3310A16120
Adaptor	video/USB		3310A14030	
DHP 1040	handheld programming device		3310A17010	

<sup>1</sup> More accessories on request. <sup>2</sup> Cable lengths 5 m and 10 m also available.

### Selected accessories

#### Mounting angle, adjustable

Part number: 3310A21050



#### Cooling jacket

Part number: 3310A23050



#### Air purge unit

Part number: 3310A22050



#### Ball flange

Part number: 3310A24020



#### Screwed coupling for ball flange

Part number: 3310A24021



#### Handheld programming device DHP 1040

Part number: 3310A17010

