

PYROSPOT Series 80

Portable pyrometers for high-temperature application

200 °C to 2500 °C



PYROSPOT Series 80 portable

Handheld pyrometer for high-temperature application



- ✓ Measurement temperatures from 200 °C to 2500 °C
- ✓ Integrated video module
- ✓ Color TFT display with measurement spot mark, option: additional laser
- ✓ User controls for parameterization
- ✓ Operation possible with protective gloves
- ✓ Vario optics for measurement distances between 0.65 m and 12 m
- ✓ Optics for close range (measurement distances between 225 mm and 230 mm)
- ✓ Small measuring field diameters from 1.2 mm
- ✓ Minimization of emissivity caused measurement errors
- ✓ Temperature resistant and shock resistant housing

Description and application

The digital pyrometers of the PYROSPOT series 80 portable are robust handheld devices for the mobile use in the industry. They are suitable for temperature measurements from 200 °C, for example on metals, graphite or ceramic.

The color video module enables together with the integrated 2.5" TFT display a very convenient aiming of the pyrometer even at high measurement temperatures. The robust portable pyrometers, that are specifically suitable for processes for the winning and working of metals, minimize measurement errors at a very low, not known or varying emissivity.

The devices PYROSPOT DG 80NV portable measure temperatures from 200 °C to 2000 °C at short wavelengths within the spectral range from 1.5 µm to 1.8 µm. The pyrometers PYROSPOT DS 80NV portable work at 0.8 µm to 1.1 µm wavelength and enable temperature measurements from 550 °C to 2500 °C.

If there are very harsh ambient conditions, where the optics can contaminate or if the measurement field of the pyrometer is not filled completely, the ratio pyrometer PYROSPOT DSR 80NV portable is available. It measures temperatures between 500 °C and 2500 °C at a wavelength of 0.7 µm to 1.1 µm.

The devices are very fast with response times starting at five milliseconds (t_{95}). All pyrometers have a vario optics up to a distance ratio of 200 : 1 and better.

Use the four user controls beneath the TFT display to adjust all important pyrometer parameters. An integrated measured data storage allows the storage of up to 999 data records. Data for evaluation can be transferred to an external computer via the USB interface.



PYROSPOT Series 80 portable

Handheld pyrometer for high-temperature application

Technical data							
Device type		DS 80NV portable		DG 80NV portable		DSR 80NV portable	
Measuring temperature range	Part number	550 °C to 1500 °C	5800031301	200 °C to 1200 °C	5801031304	500 °C to 1200 °C	5802031301
	Part number laser	(distance ratio 200 : 1)	5800011301	(distance ratio 200 : 1)	5801011304	(distance ratio 50 : 1)	5802011301
Measuring temperature range	Part number	600 °C to 1800 °C	5800031302	250 °C to 1500 °C	5801031305	600 °C to 1400 °C	5802031302
	Part number laser	(distance ratio 200 : 1)	5800011302	(distance ratio 200 : 1)	5801011305	(distance ratio 100 : 1)	5802011302
Measuring temperature range	Part number	800 °C to 2500 °C	5800031303	350 °C to 2000 °C	5801031306	650 °C to 2000 °C	5802031305
	Part number laser	(distance ratio 200 : 1)	5800011303	(distance ratio 200 : 1)	5801011306	(distance ratio 200 : 1)	5802011305
Measuring temperature range	Part number					700 °C to 1800 °C	5802031303
	Part number laser					(distance ratio 200 : 1)	5802011303
Measuring temperature range	Part number					800 °C to 2500 °C	5802031304
	Part number laser					(distance ratio 200 : 1)	5802011304
Spectral range	0.8 µm to 1.1 µm		1.5 µm to 1.8 µm		0.7 µm to 1.1 µm		
Emissivity ε	0.050 to 1.000		0.050 to 1.000		0.050 to 1.000, adjustable in 1 channel mode		
Ratio correction	–		–		0.800 to 1.200 (K factor)		
Response time t_{95}	5 ms ¹ , adjustable up to 100 s						
Data storage	momentary/maximum value storage (maximum 999 data records)						
Measurement uncertainty ²	0.5 % of measured value in °C + 1 K						
Reproducibility ²	0.1 % of measured value in °C + 0.5 K		0.1 % of measured value in °C + 0.5 K		0.2 % of measured value in °C + 0.5 K		
Ambience temperature dependence, static ²	< 0.05 K/K (T_{ambience})		< 0.05 K/K (T_{ambience})		< 0.1 K/K (T_{ambience})		
Transmittance	50 % to 100 %						
NETD ^{2,3}	0.1 K						
Interface	USB, Modbus RTU						
Aiming	6.35 cm (2.5") – TFT display with visible measurement field mark, option: additionally integrated laser aiming light						
Parameters	adjustable via user controls or via interface and software: emissivity, K factor (DSR 80NV portable), transmittance, ambient radiation (DS 80NV/DG 80NV), response time, temperature unit °C or °F, data storage settings, exposure time of the video image						
Operation via two-staged push-button	Stage 1: Turn on/off pyrometer Stage 2: Save measured value						
Power supply	4 protected lithium-ion battery á 3.7 V, 2600 mAh						
Running time	approximately 15 h						
Operating temperature	0 °C to 50 °C (battery recharging: 0 °C to 40 °C)						
Storage temperature	–20 °C to 60 °C						
Weight	approximately 800 g (incl. battery, without transport case)						
Housing	aluminium / plastic (approximately 230 mm x 135 mm x 85 mm)						
Protection class	IP 50 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	DS 80NV portable/DG 80NV portable/DSR 80NV portable, user manual, inspection sheet, software PYROSOFT Spot, USB cable, USB power pack, lithium-ion battery (4 pieces) set, transport case						

¹ With dynamic adaption at low signal level. ² Specifications for black body radiator, $T_{\text{ambience}} = 23 \text{ °C}$, $t_{95} = 1 \text{ s}$. ³ Noise equivalent temperature difference.

Options and accessories			
Part number	Description	Part number	Description
3310A33085	Close-up lens 225 mm to 300 mm	3310A12085	USB power supply
3310A12088	USB connection cable	3310A27080	Carrying case
3310A12081	Set of lithium ion batteries (4 pieces)	3310A23810	Device and glare protection
3310A12080	External battery recharger for lithium ion batteries	3310A23820	Lens protection

PYROSPOT Series 80 portable

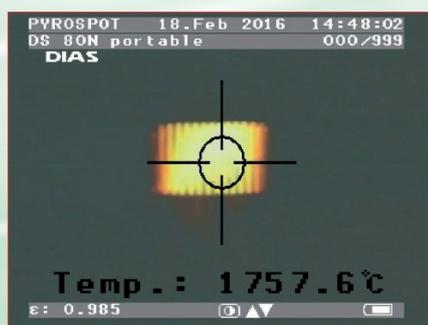
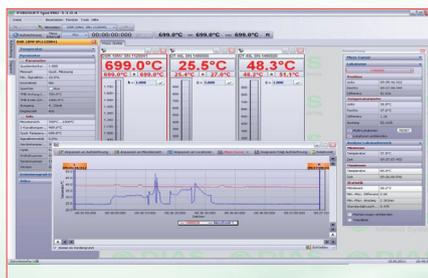
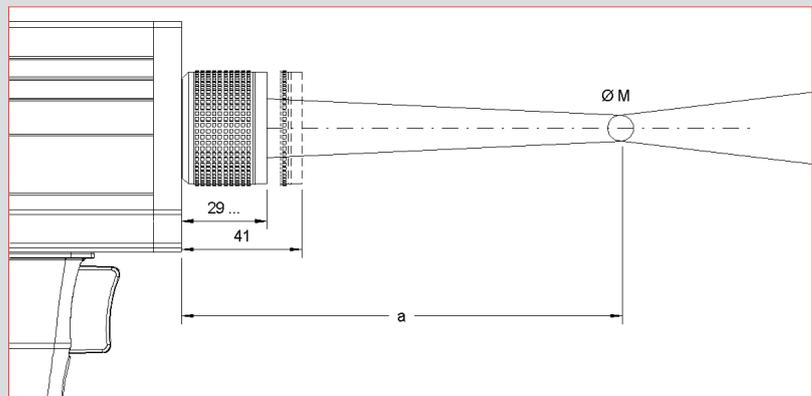
Handheld pyrometer for high-temperature application

Optical data

		Vario optics				Close lens			
Measurement distance a [mm]		650	1000	4000	12000	225	250	275	300
Device	Distance ratio	Target size M [mm]							
DS 80NV portable	200 : 1	3.5	5.0	20	60	1.2	1.3	1.4	1.5
DG 80NV portable	200 : 1	3.5	5.0	20	60	1.2	1.3	1.4	1.5
DSR 80NV portable	50 : 1	14	20	80	240	4.5	5.0	5.5	6.0
	100 : 1	7.0	10	40	120	2.3	2.5	2.8	3.0
	200 : 1	3.5	5.0	20	60	1.2	1.3	1.4	1.5

Please note:

The measurement object has to be at least as large as the target at the current measurement distance (PYROSPOT DS 80NV/DG 80NV portable).



Software PYROSOFT Spot

For evaluation and processing of measured data obtained DIAS provides two variants for its pyrometer **PYROSPOT**. These are the free Windows software **PYROSOFT Spot** and the pay version **PYROSOFT Spot Pro**. Both versions allow the transfer of the measured value of the pyrometers (offline data acquisition of the saved data, but also online data acquisition).

Further functions are:

- Parameterization of the pyrometer
- Visualization of the measured values
- Minimum, maximum, average value over complete recording
- Extensive statistical analysis of measurement data¹⁾
- Trigger functions¹⁾
- Extensive statistical analysis of measurement data¹⁾
- Export of the measured values as text file and generation of Excel tables
- Report and print functions

¹⁾ only available for PYROSOFT Spot Pro