



ASRAS CO., LTD.



**DIAS**  
Infrared Systems

# PYROSPOT Series 80

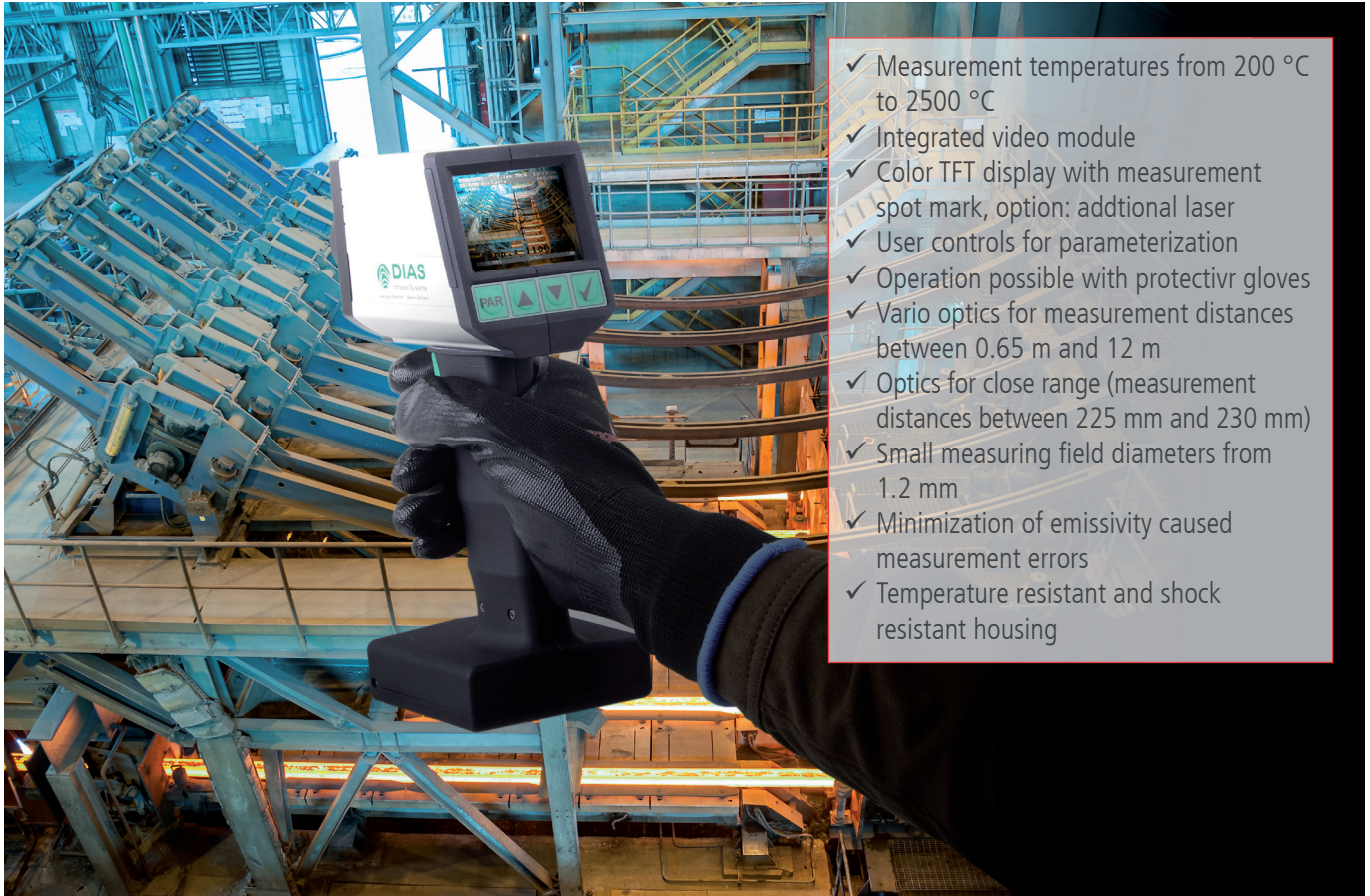
Portable pyrometers for high-temperature application

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.



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## 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 $\epsilon$                                |                   | 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 <sup>1</sup> , adjustable up to 100 s                                                                                                                                                                                                                     |            |                                       |            |                                              |            |  |  |  |  |
| Data storage                                         |                   | momentary/maximum value storage (maximum 999 data records)                                                                                                                                                                                                     |            |                                       |            |                                              |            |  |  |  |  |
| Measurement uncertainty <sup>2</sup>                 |                   | 0.5 % of measured value in °C + 1 K                                                                                                                                                                                                                            |            |                                       |            |                                              |            |  |  |  |  |
| Reproducibility <sup>2</sup>                         |                   | 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 <sup>2</sup> |                   | < 0.05 K/K ( $T_{\text{ambience}}$ )                                                                                                                                                                                                                           |            | < 0.05 K/K ( $T_{\text{ambience}}$ )  |            | < 0.1 K/K ( $T_{\text{ambience}}$ )          |            |  |  |  |  |
| Transmittance                                        |                   | 50 % to 100 %                                                                                                                                                                                                                                                  |            |                                       |            |                                              |            |  |  |  |  |
| NETD <sup>2,3</sup>                                  |                   | 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:<br>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<br>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                                     |                   |                                                                                                                                                                                                                                                                |            |                                       |            |                                              |            |  |  |  |  |

# PYROSPOT Series 80 portable

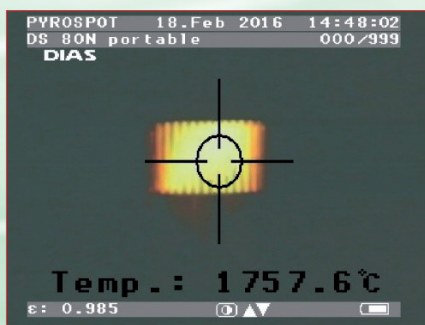
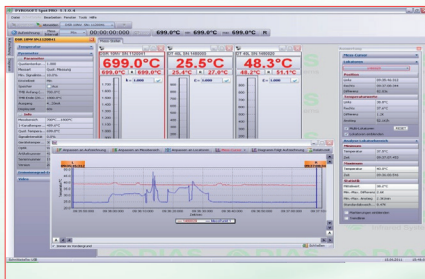
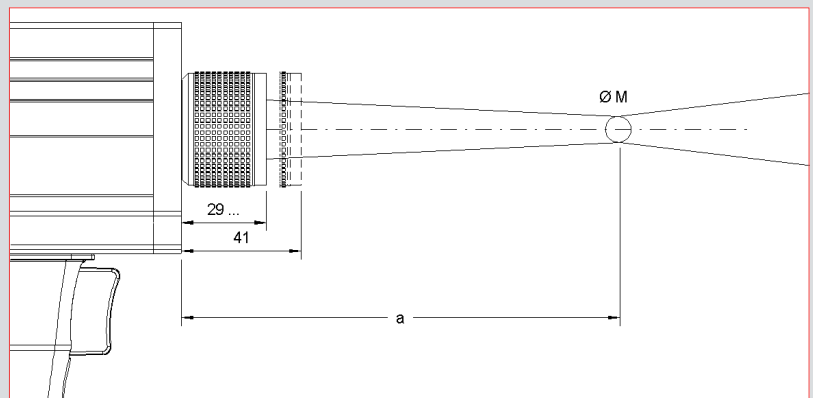
## Handheld pyrometer for high-temperature application

### 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 data<sup>1)</sup>
- Trigger functions<sup>1)</sup>
- Extensive statistical analysis of measurement data<sup>1)</sup>
- Export of the measured values as text file and generation of Excel tables
- Report and print functions

<sup>1)</sup> only available for PYROSOFT Spot Pro



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