DIAS Infrared Systems

- **2-wire technology (series 40) or 4-wire technology (series 44)**
- **Several spectral ranges for many application areas**
- **Integrated USB interface, stand-alone operation (series 40)**
- **RS485 interface for integration in bus systems (series 44)**
- **High accuracy and fast response times**

The **digital pyrometers of PYROSPOT series 40 and 44** are especially designed for industrial purpose. The devices are suitable for temperature measurement on many different metallic or non-metallic surfaces. The special spectral range of DT 40G and DT 44G makes the device suitable for measurement of glass surfaces. The DT 40F and DT 44F is suitable for measurement through flames and combustions gases by working in also special spectral range.

The solid body in compact, stainless steel housing allows usage even under rough environmental conditions. With a fast response time these Pyrometers are also suitable for fast measuring processes. Several fixed, vario or fibre optics realizes small measuring spot sizes.

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

The devices of series 40 are equipped with integrated, galvanically isolated USB interface on rear side, which allows parameterizing and software evaluation even without connecting extra power supply. Series 44 is equipped with RS485 interface for bus system integration and modules for USB and RS232.

Advantages of non-contact temperature measurement are:

- Measurement on difficult to access, moving, aggressive or very hot parts
- Very short measuring and response times
- No influence of the temperature of the measured object, non-reactive measurement
- No material abrasion, non-destructive measurement
- Long-life cycle of measuring point, no wear on measurement device

To choose the most suitable pyrometer for your application, several properties of the measured object needs to be considered. The object being measured could be in any distance from the pyrometer but it has to be at least as big as the spot size in this distance.

The material of the measured object and the required temperature range determine the choice for the appropriate device and spectral range:

Material	Temperature range	Spectral range
Metals, ceramics, molten glass	600 °C to 3000 °C	0.8 μm to 1.1 μm
Metals, ceramics, graphite	250 °C to 2500 °C	1.5 μm to 1.8 μm
Measurement through flames and combustion gases	300 °C to 2500 °C	3.9 μm
Glass surfaces	100 °C to 2500 °C	4.8 μm to 5.2 μm
Nonmetals, coated metals	–40 °C to 1000 °C	8 μm to 14 μm

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PYROSPOT Series 40 and 44

Digital Pyrometers for Industrial Applications

DIAS Infrared Systems

DIAS Infrared GmbH
certified to DIN EN ISO 9001:2008

PYROSPOT Series 44 – Digital Pyrometers with RS485 Interface

Type	DT 44L	DT 44G	DT 44F	DG 44N	DS 44N	DGF 44N	DSF 44N
Temperature ranges	–40 °C to 1000 °C 0 °C to 1000 °C	100 °C to 1300 °C 200 °C to 1400 °C 500 °C to 2500 °C	300 °C to 1300 °C 400 °C to 1400 °C 500 °C to 2500 °C	250 °C to 1300 °C 350 °C to 1800 °C	600 °C to 1800 °C 800 °C to 2500 °C	250 °C to 1300 °C 350 °C to 1800 °C	600 °C to 1800 °C 800 °C to 2500 °C
Spectral range	8 μm to 14 μm	5.14 μm	3.9 μm	1.5 μm to 1.8 μm	0.8 μm to 1.1 μm	1.5 μm to 1.8 μm	0.8 μm to 1.1 μm
Fibre optics	no	no	no	no	no	yes	yes
Optics	fixed optics, spot sizes from 2 mm			fixed or vario optics, spot sizes from 1.2 mm		vario optics, spot sizes from 0.7 mm	
Distance ratio	50 : 1	40 : 1 or 50 : 1	40 : 1 or 50 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1
Measurement uncertainty	0.6 %	0.6 %	0.6 %	0.5 %	0.5 %	0.5 %	0.5 %
Reproducibility	0.3 %	0.3 %	0.3 %	0.1 %	0.1 %	0.1 %	0.1 %
Response time (t95)	30 ms (optional 10 ms)	30 ms (optional 10 ms)	30 ms (optional 10 ms)	5 ms	5 ms	5 ms	5 ms
Emissivity	0.200 to 1.000	0.200 to 1.000	0.200 to 1.000	0.05 to 1.00	0.05 to 1.00	0.05 to 1.00	0.05 to 1.00
Storage	maximum/minimum value storage			maximum value storage		maximum value storage	
Output	0/4 to 20 mA, temperature linear						
Interface	galvanically isolated RS485 interface, half duplex, max 115 kBd, for parameterizing and data transfer						
Aiming	green LED aiming light or red laser aiming light (accessory)			green LED or red laser aiming light		red LED or red laser aiming light	
Software	PYROSOFT Spot for Windows®						
Parameters	adjustable via interface and software (emissivity, response time, temperature unit °C or °F, storage, sub range)						
Power supply	24 V DC ± 25 %						
Operating temperature	0 °C to 70 °C (device), up to 250 °C (fibre cable and optical head)						
Housing and dimensions	stainless steel with plug connector 12-pin, thread M40 × 1.5, length 125 mm, safety class IP 65						

PYROSPOT Series 40 – Digital 2-Wire Pyrometers with USB Interface

Type	DT 40L	DT 40G	DT 40F	DG 40N	DS 40N	DGF 40N	DSF 40N
Temperature ranges	–40 °C to 1000 °C 0 °C to 1000 °C	100 °C to 1300 °C 200 °C to 1400 °C 500 °C to 2500 °C	300 °C to 1300 °C 400 °C to 1400 °C 500 °C to 2500 °C	250 °C to 1300 °C 350 °C to 1800 °C	600 °C to 1800 °C 800 °C to 2500 °C	250 °C to 1300 °C 350 °C to 1800 °C	600 °C to 1800 °C 800 °C to 2500 °C
Spectral range	8 μm to 14 μm	5.14 μm	3.9 μm	1.5 μm to 1.8 μm	0.8 μm to 1.1 μm	1.5 μm to 1.8 μm	0.8 μm to 1.1 μm
Fibre optics	no	no	no	no	no	yes	yes
Optics	fixed optics, spot sizes from 2 mm			fixed optics, spot sizes from 1.2 mm		vario optics, spot sizes from 0.7 mm	
Distance ratio	50 : 1	40 : 1 or 50 : 1	40 : 1 or 50 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1	100 : 1 or 200 : 1
Measurement uncertainty	1 %	1 %	1 %	0.5 %	0.5 %	0.5 %	0.5 %
Reproducibility	0.5 %	0.5 %	0.5 %	0.1 %	0.1 %	0.1 %	0.1 %
Response time (t95)	60 ms	60 ms	60 ms	10 ms	10 ms	10 ms	10 ms
Emissivity	0.200 to 1.000	0.200 to 1.000	0.200 to 1.000	0.05 to 1.00	0.05 to 1.00	0.05 to 1.00	0.05 to 1.00
Storage	maximum/minimum value storage			maximum value storage		maximum value storage	
Output	4 to 20 mA, temperature linear						
Interface	galvanically isolated USB interface for parameterizing and data transfer, stand-alone-operation						
Aiming	green LED aiming light or red laser aiming light (accessory)			green LED or red laser aiming light		red LED or red laser aiming light	
Software	PYROSOFT Spot for Windows®						
Parameters	adjustable via interface and software (emissivity, response time, temperature unit °C or °F, storage, sub range)						
Power supply	24 V DC ± 25 % and 12 V to 30 V DC (aiming light)						
Operating temperature	0 °C to 70 °C (device), up to 250 °C (fibre cable and optical head)						
Housing and dimensions	stainless steel with plug connector 3-pin or 5-pin, thread M40 × 1.5, length 125 mm, safety class IP 65						

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Further information: www.dias-infrared.com