

PYROSPOT DY 10L cal/DY 10G cal/DY 10F cal

Transfer radiation thermometers

Overview



Description and application

The digital DIAS transfer radiation thermometers PYROSPOT DY 10L cal/DY 10G cal/DY 10F cal are particularly long-term stable and high-precision calibrated devices that are specifically designed for inspection of black body calibration sources and for the traceable calibration of infrared temperature measurement devices.

The PYROSPOT DY 10L cal/DY 10G cal are equipped with a fixed optics.

To compensate the Size Of Source Effect (SSE) of larger calibration sources, the devices have an individual protocol. The response time t_{95} of the pyrometer is set to 1 s (fixed) to guarantee a stable operation.

Via the included USB connection cable the devices can be connected to a computer. In this way the measured values can be visualized and the Size Of Source Effect (SSE) can be revised.

The pyrometer can be aimed exactly to the measurement object by using the integrated laser aiming light or the through-lens sighting.

Scope of delivery

Transfer radiation thermometer set including:

- PYROSPOT DY 10L cal/DY 10G cal/DY 10F cal
- Clamp base with tripod adapter
- Manual
- Inspection sheet with 10 measurement points (traceable back to PTB national measurement standards), optional PTB calibration certificate
- "Size Of Source Effect" curve
- Plug connector with AC connection adapter for EU/US/UK/AU
- USB connection cable
- Software PYROSOFT Spot
- Plastic device case



PYROSPOT DY 10L cal/DY 10G cal/DY 10F cal

Transfer radiation thermometers

Technical data			
Type	DY 10L cal	DY 10G cal	DY 10F cal
Measuring temperature range	0 °C to 1000 °C	100 °C to 1400 °C	200 °C to 1500 °C
Spectral range	8 µm to 14 µm	about 5 µm	about 3.9 µm
Optics	Fixed optics a = 500 mm	Fixed optics a = 600 mm	
SSE correction (Emissivity ε)	0.900 to 1.100, adjustable via interface and software		
Response time (t ₉₅)	1 s (fixed)		
Measurement uncertainty ¹	0.6 % of measured value or 1 K and specifications in inspection sheet (optional: PTB calibration certificate)		
Repeatability ¹	0.3 % of measured value in °C or 0.5 K		
NETD ²	0.1 K ¹		
PC connection	via included USB connection cable		
Aiming	laser aiming light	through-lens sighting	through-lens sighting
Parameters	adjustable via software: SSE correction (emissivity), temperature unit °C or °F		
Power supply	via included wall power supply 100 to 240 V AC		
Power consumption	max. 2 W		
Operating temperature	23 °C ± 3 K		
Storage temperature	0 °C to 70 °C		
Weight	approx. 560 g		
Housing	54 mm (H) × 54 mm (W) × 170 mm (L)		
Protection 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	please refer scope of delivery on page 1		

¹ T_{ambient} = 23 °C, Measurement temperature DY 10L cal = 100 °C, Measurement temperature DY 10G cal = 250 °C, Measurement temperature DY 10F cal = 350 °C, ² Noise equivalent temperature difference.

Radiation temperature ³	Uncertainty ⁴
in °C	in K
150.02	0.17
260.04	0.18
400.16	0.11
600.07	0.17
800.06	0.23
960.05	0.3
1050.4	1.3
1200.4	1.2
1351.3	1.3

Example: PTB Calibration Certificate
Radiation temperatures and associated uncertainty (extract from PTB calibration certificate 73219 PTB 17 for PYROSPOT DY 10G cal, serial number 3150004)

³ Radiation temperature values: correspond to international temperature scale from 1990 (ITS-90)
⁴ Uncertainty: standard measurement uncertainty, multiplied with coverage factor k = 2



Fixed optics

Type, Measuring temperature range	Aperture D [mm]	Target size M [mm]	
		Measuring distance a [mm] = 500	Measuring distance a [mm] = 600
DY 10L cal (0 °C to 1000 °C)	10.0	5.6	–
DY 10G cal (100 °C to 1400 °C)	11.6	–	8.5
DY 10F cal (200 °C to 1500 °C)	11.6	–	8.5

Dimensional drawing pyrometer (Example: DY 10G cal, DY 10F cal)

