

PYROSPOT DY 10L/DY 10LV

Pyrometer for industrial application

Overview

Digital pyrometers with RS-485 interface



Features

- For temperature measurements between 0 °C and 1000 °C
- Display and keys for displaying the temperature and parameterizing
- Vario optics with aiming light, through-lens sighting or video color module
- Short response times from 30 ms
- Standard 0/4 to 20 mA temperature linear output signal

Description and applications

The digital pyrometers PYROSPOT DY 10L/DY 10LV are specially designed for industry and research applications. The devices are suitable for precise temperature measurement between 0 °C and 1000 °C on different non-metallic and coated metallic surfaces.

The solid construction in form of a compact housing allows usage even under rough environmental conditions. With a short response time of only 30 ms (t95) these pyrometers are also suitable for fast measuring processes. The vario optics realize measuring field diameters from 1.3 mm.

The integrated LED or laser aiming light or the alternative through-lens sighting enables to focus the measuring object exactly.

Use the optional integrated color video modul (DY 10LV) to monitor the aiming of the pyrometer at the measurement object.

The parameters of the pyrometer are adjustable via push-buttons and display directly on the device or by using the convenient parameterizing and evaluation software PYROSOFT Spot.

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measurement and control systems. The device is equipped with a galvanically isolated RS-485 interface which allows parameterizing and software evaluation even in bus systems.

Typical pyrometer application areas:

- Ceramic and glass industry
- Furnace construction
- Paper and packaging industry
- Food industry



PYROSPOT DY 10L/DY 10LV

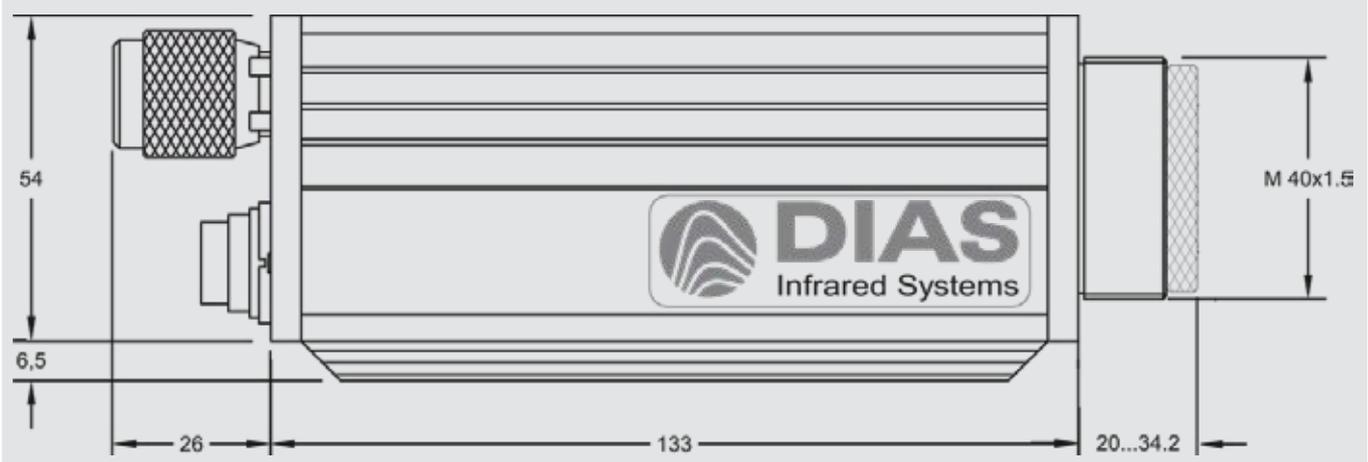
Pyrometer for industrial application

Technical data

Type	DY 10L/DY 10LV
Temperature range	0 °C to 1000 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C
Spectral range	8 μm to 14 μm
Optics	vario optics, measuring field diameters from 1.3 mm, distance ratio approx. 100 : 1
Measurement uncertainty ¹	0.6 % of measured value in °C or 1 K ³
Reproducibility ¹	0.3 % of measured value in °C or 0,5 K ³
NETD ²	0.2 K ⁴
Response time (t ₉₅)	30 ms, adjustable up to 100 s via RS-485 interface or directly at the device
Emissivity	0.200 to 1.000, adjustable via RS-485 interface or directly at the device
Data Storage	minimum/maximum value storage, adjustable via RS-485 interface or directly at the device
Output	0/4 to 20 mA, switchable via RS-485 interface or directly at the device, temperature linear, max. burden 700 Ω
Interface	RS-485 (galvanically isolated), half duplex, baudrate up to 115 kBd, data protocol Modbus RTU
Switching output/Switching threshold	1 opto relay, R _{burden} min. 48 Ω (galvanically isolated)/adjustable within temperature range
Aiming	LED aiming light, laser aiming light, through-lens sighting or color video module (DY 10LV)
Software	PYROSOFTE Spot for Windows®, optional: PYROSOFTE Spot Pro
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmission, ambience compensation, video parameter, adjustable via via RS-485 interface or directly at the device
User controls	aiming light push-button, four control keys, display
Power supply	24 V DC ± 25 %, residual ripple 500 mV
Power consumption	max. 2.0 W
Operating temperature	0 °C to 70 °C
Storage temperature	-20 °C to 70 °C
Weight	appr. 500 g
Dimensions	54 × 54 mm, length 170 mm
Housing	compact housing with plug connector, display and push-buttons
Safety class	IP65 (DIN 40 050, DIN EN 60529)
CE symbol	according to EU regulations (EN 50 011)
Scope of delivery	PYROSPOT DY 10L, mounting screw nut, inspection sheet, manual, PYROSOFTE Spot for Windows® (without connection cable, please order separately)

¹ Specifications for black body radiator T_U = 23 °C, ε = 1, t₉₅ = 1 s. ² Noise equivalent temperature difference. ³ Whichever is higher value. ⁴ At T_U = 23 °C, t₉₅ = 100 ms, ε = 1, T_{Object} = 100 °C.

Dimensional drawing pyrometer

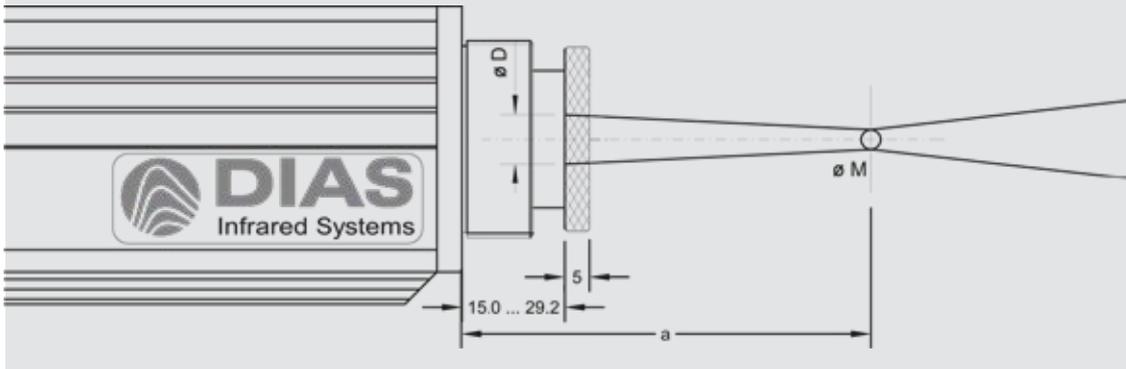


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Pyrometer for industrial application

Vario optics					Part number			
Optics	Temperature measurement range	Measuring field diameter M [mm]	Meas. distance a [mm]	Aperture D [mm]	LED aiming light	Laser aiming light	Through-lens sighting	Color video module
I	0 °C to 1000 °C	1.3 to 1.8	130 to 150	11.6	5106211201	5106201201	5106221201	5106231201
III	0 °C to 1000 °C	5.0 to 32	500 to 2600	11.6	5106213201	5106203201	5106223201	5106233201

Dimensional drawing vario optics



Color video module (DY 10LV)



- PAL (50 Hz), optional NTSC (60 Hz)
- 628 × 586 pixels (PAL) or 510 × 496 pixels (NTSC)
- Composite video signal approx. 1 V_{SS} at 75 Ω (galvanically isolated)
- Target mark in size of measurement field, display of measurement, temperature, emissivity
- Exposure control automatically or manually



Detailed view: Display

The digital display shows the current measurement value and the emissivity set.

Current measurement temperature

Set emissivity value



Status switching output

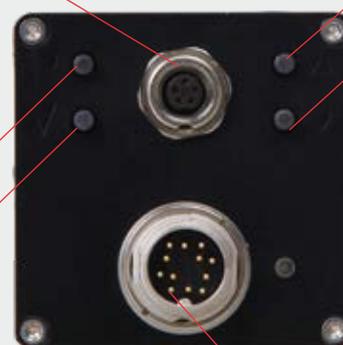
Detailed view: Rear side of the device

The parameters can be set by using the control keys at the rear side of the device. The value set is transferred directly.

Through-lens sighting, pilot light or video connector

Keys for „Up” and „Down”

Keys for „Parameter Menu” and „Enter”



Plug connection and interface

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Electrical, mechanical and optical accessories ¹		Order number
Connection cable, 12 pin, angulate plug	length 2 m	3310A11131
	length 5 m	3310A11132
	length 10 m	3310A11133
	length 15 m	3310A11134
	length 20 m	3310A11135
	length 25 m	3310A11136
	length 30 m	3310A11137
Video connection cable	length 2 m	3310A16521
Interface module	RS-485 to USB	3310A14020
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting angle	adjustable	3310A21020
Air purge adapter	stainless steel, purge air 0.1 to 0.5 bar, oil-free	3310A22020
Window slide	without window	3310A21210
Vacuum flange	KF 16	3310A24015
	with zinc selenide window	3310A34041
TFT display/TFT display industrial	3.5" with 2 m cable	3310A16110/3310A16120
Adapter	Video/USB	3310A14030

¹ More accessories available.

Selected accessories

Mounting angle, adjustable

Order number: 3310A21020



Ball and socket mounting

Order number: 3310A21025



Cooling jacket

Order number: 3310A23031



Cooling plate

Order number: 3310A23020



Air purge unit

Order number: 3310A22020



Mirror 90°

Order number: 3310A24110



Technische Änderungen vorbehalten. Technical details are subject to change. 13.02.20



Phone: +49 351 896 74-0
 Fax: +49 351 896 74-99
 Email: info@dias-infrared.de
 Internet: www.dias-infrared.com

DIAS Infrared GmbH
 Pforzheimer Straße 21
 01189 Dresden
 Germany