

PYROSPOT DPE 10MF/DPE 10MFV

Pyrometers for industry and research

Overview

Digital pyrometers with RS-485 interface



Features

- For temperature measurements between 50 °C and 2500 °C
- Display and keys for display of the temperature and parameterization
- Operating temperature range up to 70 °C
- Vario optics with aiming light, through-lens sighting or color video module
- Short response times from 1.5 ms
- Standard 0/4 to 20 mA temperature linear output signal

Description and applications

The digital pyrometers PYROSPOT DPE 10MF/DPE 10MFV are designed for industry and research applications. The devices are suitable specially for temperature measurement from 50 °C in the midwave spectral range (MWIR) between 3.5 µm and 4.0 µm.

The solid construction in form of a compact housing allows usage even under rough environmental conditions. With a short response time of only 1.5 ms (t_{95}) these pyrometers are also suitable for fast measuring processes. The vario optics realise measuring field diameters from 0.7 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 (DPE 10MFV) to monitor visually 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 parameterising and software evaluation even in bus systems.

Typical pyrometer application areas:

- Metal industry
- Kiln engineering
- Measurement through combustion gases and flames
- Glass industry
- Semiconductor industry



PYROSPOT DPE 10MF/DPE 10MFV

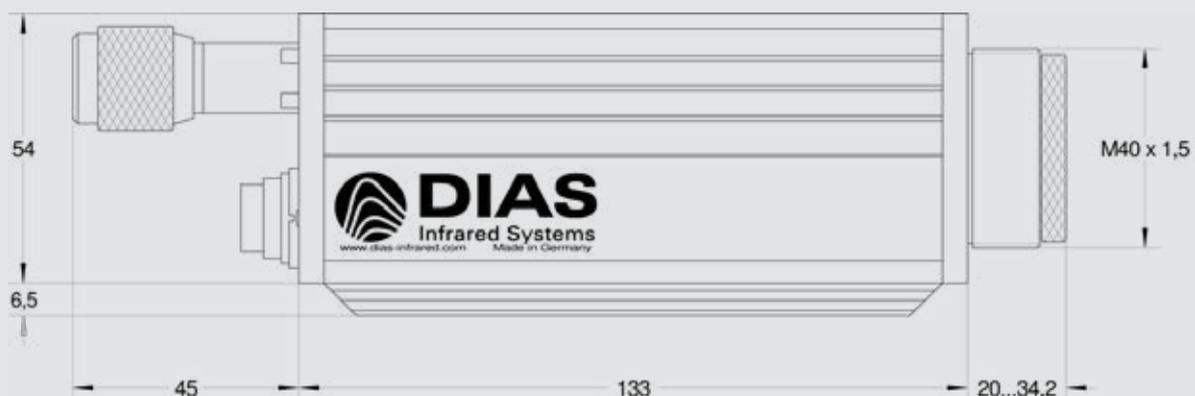
Pyrometers for industry and research

Technical data

Type	DPE 10MF/DPE 10MFV	DPE 10MF/DPE 10MFV	DPE 10MF/DPE 10MFV	DPE 10MF/DPE 10MFV
Temperature range	50 °C to 1000 °C	75 °C to 1200 °C	250 °C to 1500 °C	500 °C to 2500 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C			
Spectral range	3.5 µm to 4.0 µm			around 3.9 µm
Optics	measuring field diameters from 0.7 mm, vario optics			
Measurement uncertainty ¹	up to 400 °C: 2 K, over 400 °C: 0.3 % of measured value + 1 K			
Reproducibility ¹	0.1 % of measured value + 1 K			
NETD ²	0.1 K ³			
Response time (t ₉₅)	1.5 ms, adjustable up to 100 s			
Emissivity	0.010 to 1.000, adjustable at the device or via interface			
Storage	minimum and maximum value storage, adjustable at the device or via interface			
Output	0/4 to 20 mA, switchable via software or adjustable at the device, temperature linear, max. burden 700 Ω			
Switching output/switching threshold	1 opto relais, R _{burden} min. 48 Ω (galvanically isolated)/adjustable within temperature range			
Interface	RS-485 interface (galvanically isolated), half duplex, baudrate up to 115 kBD, data protocol Modbus RTU			
Aiming	LED aiming light, laser aiming light, through-lens sighting or color video module			
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro			
Parameters ⁴	emissivity, response time, temperature unit °C or °F, storage, sub temperature range, transmission, ambience compensation, video parameters, key lock			
User controls	aiming light push-button, four control keys, display			
Power supply	24 V DC ± 25 %			
Power consumption	max. 3.6 W (without load at switching output)			
Operating temperature	0 °C to 70 °C			
Storage temperature	-20 °C to 70 °C			
Weight	appr. 520 g			
Dimensions	54 × 54 mm, length 170 mm			
Housing	compact housing with plug connector, display, push-buttons			
Safety class	IP 65 (DIN 40 050)			
CE symbol	according to EU regulations (EN 50 011)			
Scope of delivery	PYROSPOT DPE 10MF/DPE 10MFV, mounting screw nut, inspection sheet, manual, PYROSOFT Spot for Windows® (without connection cable, please order separately)			

¹T_{ambient} = 23 °C, ε = 1, t₉₅ = 1 s. ²Noise equivalent temperature difference. ³T_{ambient} = 23 °C, ε = 1, t₉₅ = 10 ms. T_{Object DPE 10MF/DPE 10MFV (50 °C to 1000 °C)} = 150 °C, T_{Object DPE 10MF/DPE 10MFV (75 °C to 1200 °C)} = 200 °C, T_{Object DPE 10MF/DPE 10MFV (250 °C to 1500 °C)} = 400 °C, T_{Object DPE 10MF/DPE 10MFV (500 °C to 2500 °C)} = 700 °C. ⁴Adjustable via software and interface or directly at the device.

Dimensional drawing pyrometer

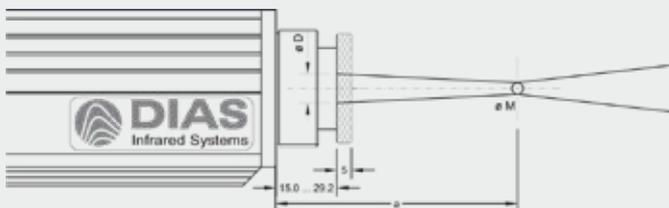


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Vario optics					Part number			
Optics variant	Temperature range	Measuring field diameter M [mm]	Measuring distance a [mm]	Aperture D [mm]	LED aiming light	Laser aiming light	Through-lens sighting	Video
I	50 °C to 1000 °C	1.2 to 2.0	130 to 150	11.6	5105401202	5105411202	5105421202	5105431202
	75 °C to 1200 °C	1.0 to 1.1			5105401203	5105411203	5105421203	5105431203
	250 °C to 1500 °C	0.7 to 0.8			5105401204	5105411204	5105421204	5105431204
	500 °C to 2500 °C	0.7 to 0.8			5105401205	5105411205	5105421205	5105431205
II	50 °C to 1000 °C	1.9 to 3.9	230 to 380	11.6	5105402202	5105412202	5105422202	5105432202
	75 °C to 1200 °C	1.7 to 3.0			5105402203	5105412203	5105422203	5105432203
	250 °C to 1500 °C	1.4 to 2.2			5105402204	5105412204	5105422204	5105432204
	500 °C to 2500 °C	1.4 to 2.2			5105402205	5105412205	5105422205	5105432205
III	50 °C to 1000 °C	3.3 to 9.0	360 to 800	11.6	5105403202	5105413202	5105423202	5105433202
	75 °C to 1200 °C	3.1 to 8.7			5105403203	5105413203	5105423203	5105433203
	250 °C to 1500 °C	2.8 to 8.3			5105403204	5105413204	5105423204	5105433204
	500 °C to 2500 °C	2.8 to 8.3			5105403205	5105413205	5105423205	5105433205
IV	50 °C to 1000 °C	2.3 to 6.8	270 to 580	11.6	5105404202	5105414202	5105424202	5105434202
	75 °C to 1200 °C	2.0 to 4.2			5105404203	5105414203	5105424203	5105434203
	250 °C to 1500 °C	1.6 to 2.8			5105404204	5105414204	5105424204	5105434204
	500 °C to 2500 °C	1.6 to 2.8			5105404205	5105414205	5105424205	5105434205

Dimensional drawing vario optics



Color video module (DPE 10MFV)

- 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



Image credit: Patryk Kosmider/Shutterstock.de

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

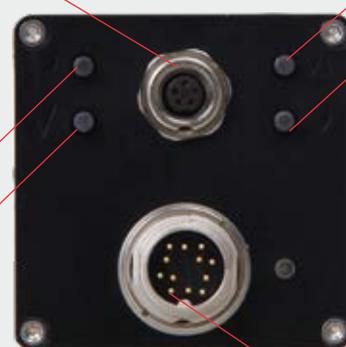
The parameters can be set by using the keys on the rear side of the device. The value set is transferred directly.

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 (more accessories on request)		Part number	
Connection cable, 12 pin, angled 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	
	Length 5 m	3310A16522	
	Length 10 m	3310A16523	
	Length 15 m	3310A16524	
	Length 20 m	3310A16525	
	Length 25 m	3310A16526	
	Length 30 m	3310A16527	
Interface adapter	RS-485 to USB	3310A14020	
Power supply PSU 15	24 V DC, 0.6 A	3310A12010	
Mounting angle	Adjustable	3310A21020	
Air purge unit	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	
Cooling jacket	including air purge unit	3310A23031	
Mounting angle	for cooling jacket	3310A23036	
ATEX housing		3310A23100	
Handheld programming device DHP 1040	mobile device for pyrometer parameterization	3310A17010	
TFT display	TFT display industrial	3.5" with 2 m cable	3310A16110 3310A16120
Adapter	Video/USB	3310A14030	

Selected accessories – images

Mounting angle, adjustable

Part number: 3310A21020



Ball and socket mounting

Part number: 3310A21025



Cooling jacket

Part number: 3310A23031



Cooling plate

Part number: 3310A23020



Air purge unit

Part number: 3310A22020



ATEX housing

Part number: 3310A23100



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



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