PYROSPOT DSRF 44N

Ratio pyrometer with fibre cable for industrial application

DIAS
Infrared Systems

Digital ratio pyrometers with special optics and RS-485 interface

Features

- For temperature measurements between 700 °C and 1800 °C
- Measurement widely independent from emissivity
- Applicable up to 250 °C ambient temperature
- Very short response times from 5 ms
- Reliable even at not complete filled measurement spot
- RS-485 interface

Description and applications

The digital ratio pyrometers PYROSPOT DSRF 44N are specifically designed for industrial temperature measurement from 700 °C. They utilize the 2-color system which has the advantage of measurement widely independent from the emissivity.

The solid body with fibre optics cable allows usage even under rough environmental conditions. With a fast response time of only 5 ms (t_{95}) these pyrometers are also suitable for fast measuring processes.

The special optics for the fibre cable enables reliable temperature measurement even the measuring spot is not filled completely (up to 10 %).

The pyrometers can be aimed at any time at the measuring object with the integrated laser aiming light even when the measurement is running.

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.

All parameters are adjustable via interface. By using the convenient parameterizing and evaluation software PYROSOFT Spot the parameters can be easilyadjusted to the application. The parameters can also be adjusted via RS-485 interface with the optional available handheld programming device DHP 1040.

Typical application areas:

- Steel industry
- Kiln engineering
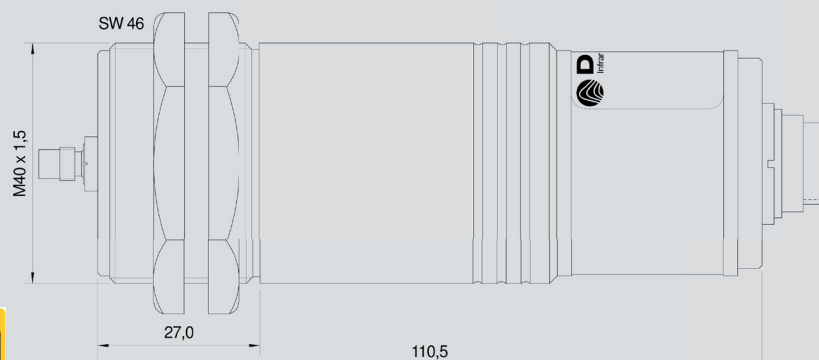- Soldering installations
- Ceramic industry
- Metal industry

www.dias-infrared.com

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Technical data	
Type (Order number)	**DSRF 44N** (4442010203)
Temperature range	700 °C to 1800 °C
Sub temperature range of analog output	adjustable via RS-485 interface within temperature range, minimum span 50 °C
Spectral range	0.7 µm to 1.1 µm
Optics	ROH F44
Distance ratio	approx. 40 : 1
Measurement uncertainty [1]	0.5 % of measured value in °C + 1 K
Reproducibility [1]	0.2 % of measured value in °C + 0.5 K
NETD [1,2]	0.1 K
Response time (t_{95})	5 ms, adjustable up to 100 s, adjustable via RS-485 interface
Ratio correction	0.800 to 1.200, adjustable via RS-485 interface
Emissivity	0.050 to 1.000, adjustable via RS-485 interface
Storage	minimum and maximum value storage, adjustable via RS-485 interface
Output	0/4 to 20 mA, switchable, temperature linear, max. burden: 700 Ω at 24 V
Interface	RS-485 (galvanically isolated), half duplex, max. baudrate 115 kBd, data protocol Modbus RTU
Aiming	laser aiming light
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro
Parameters	ratio correction, emissivity, response time, storage, sub temperature range, baudrate, address, measurement mode (1- or 2-channel)
Power supply	24 V DC ± 25 %
Power consumption	max. 1.5 W
Operating temperature	0 °C to 70 °C (pyrometer), 0 °C to 250 °C (fibre cable and optical head)
Storage temperature	−20 °C to 70 °C
Weight	appr. 450 g (without fibre cable and optical head)
Dimensions	thread M40 × 1.5, length 125 mm
Housing	stainless steel housing with plug connector
Safety class	IP 65 (according to DIN EN 40050 and EN 60529)
CE symbol	according to EU regulations
Scope of delivery	PYROSPOT DSRF 44N, manual, inspection sheet, mounting screw nuts, PYROSOFT Spot for Windows® (**without** connection cable, fibre cable and optics, please order separately)

[1] Specifications for black body radiator, T_u = 23 °C, t_{95} = 1 s. [2] Noise equivalent temperature difference.

Dimensional drawing pyrometer

SW 46

M40 x 1.5

27,0

110,5

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
WAVELENGTH: 630 - 680 nm
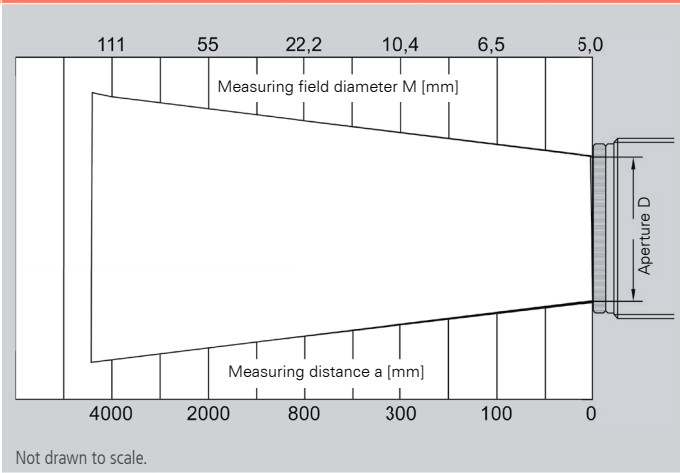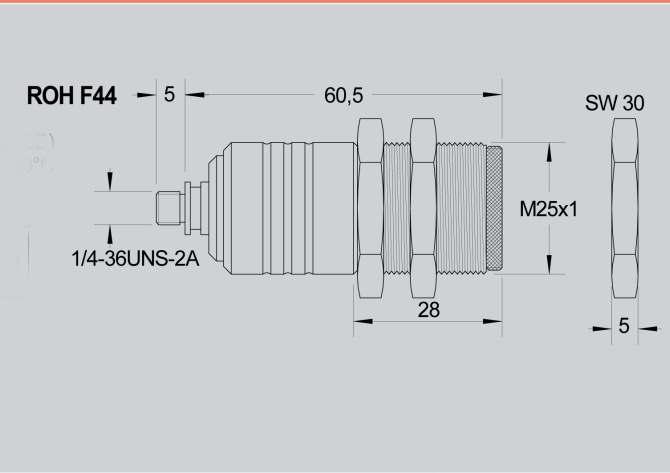<1 mW MAXIMUM
CLASS II LASER PRODUCT

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Optics ROH F44 (Order number 3310A55010)

Measuring distance a in mm	0	100	300	800	1000	2000	3000	4000
	Measuring field diameter M in mm							
DSRF 44N (700 °C to 1800 °C)	5.0	6.5	10.4	22.2	27.5	55.0	83.0	111.0

Optics ROH F44

ROH F44 — 5 — 60,5 — SW 30

1/4-36UNS-2A

28

M25x1

5

Measuring field

111   55   22,2   10,4   6,5   5,0

Measuring field diameter M [mm]

Aperture D

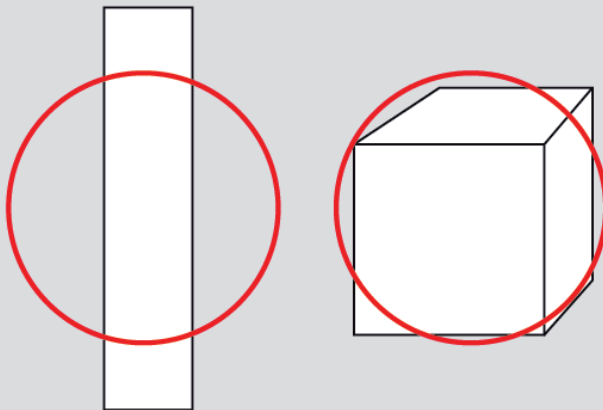Measuring distance a [mm]

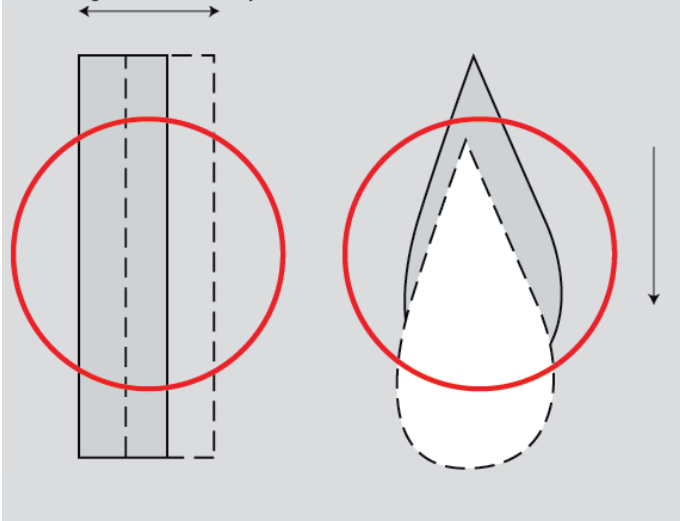4000   2000   800   300   100   0

Not drawn to scale.

Special features of the special optics

The special optics guarantees an accurate temperture acquisition even for:

- not completely filled measuring spots

- moving measurement objects

Handheld programming device DHP 1040

The handheld programming device DHP 1040 is working with batteries and enables the user to easily change parameter settings of pyrometer series PYROSPOT.

A pyrometer can be connected to the DHP 1040 via USB or RS-485 interface. The connected pyrometer is detected automatically by the device.

The handheld programming device shows the actual measured temperature and the type of pyrometer in display mode. Several pyrometer parameters can be selected with buttons and an easy-to-use menu.

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Electrical, mechanical and optical accessories[1]			Order number	
Connecting cable, straight plug, 12-pin	Connecting cable, angulate plug, with aiming light button, 12-pin	length 2 m length 5 m length 10 m length 15 m length 20 m length 25 m length 30 m	3310A11111 3310A11112 3310A11113 3310A11114 3310A11115 3310A11116 3310A11117	3310A11151 3310A11152 3310A11153 3310A11154 3310A11155 3310A11156 3310A11157
Fibre cable, stainless steel		length 2 m length 3 m length 6 m length 10 m length 15 m length 22 m	3310A46002 3310A46003 3310A46005 3310A46006 3310A46007 3310A46008	
Mounting angle for ROH F44		fixed	3310A21522	
Mounting angle for ROH F44		adjustable	3310A21520	
Air purge adaptor for ROH F44		stainless steel, purge air 0.1 to 0.5 bar, oil-free	3310A22520	
Ball and socket mounting for ROH F44			3310A21521	
Sighting tube for air purge adaptor		100 mm 300 mm	3310A22530 3310A22535	

[1] More accessories available.

Selected accessories

Mounting angle, adjustable	Mounting angle, adjustable for ROH F44	Mirror 90° for ROH F44
Order number: 3310A21011	Order number: 3310A21520	Order number: 3310A31020

Air purge unit for ROH F44	Power supply	Digital display DD 200/210
Order number: 3310A22520	Order number: 3310A12010	Order number: 3310A13020/3310A13025

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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