

# PYROSPOT DSRF 44N

Ratio pyrometer with fibre cable for industrial application

## Overview

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 (t95) 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 easily adjusted 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



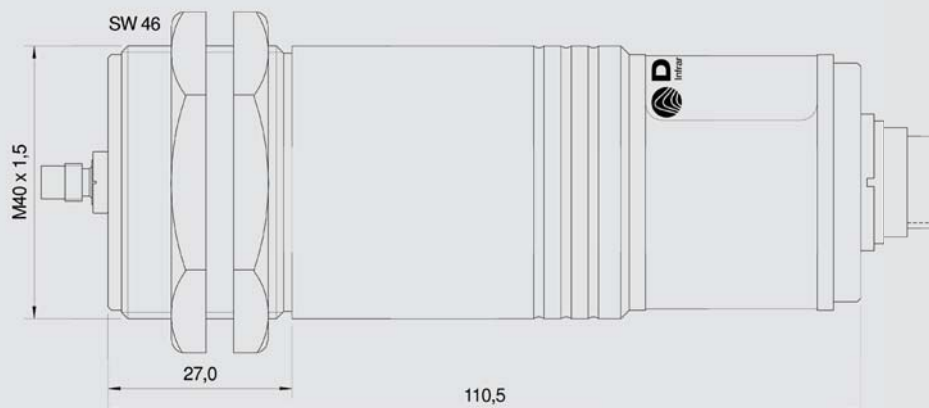
# PYROSPOT DSRF 44N

## Ratio pyrometer with fibre cable for industrial application

| Technical data                       |  |
|--------------------------------------|--|
| Type (Order number)                  | DSRF 44N (4442010203)  |
| Temperature range                    | 700 °C to 1800 °C  |
| Sub temperature range                | 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 <sup>1</sup> | 0.5 % of measured value  |
| Reproducibility <sup>1</sup>         | 0,2 % of measured value  |
| NETD <sup>2</sup>                    | 0.1 K <sup>-1</sup>  |
| Response time (t95)                  | 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® ( <b>without</b> connection cable, fibre cable and optics, please order separately) |

<sup>1</sup> Specifications for black body radiator,  $T_u = 23\text{ °C}$ ,  $t_{95} = 1\text{ s}$ . <sup>2</sup> Noise equivalent temperature difference.

### Dimensional drawing pyrometer



# PYROSPOT DSRF 44N

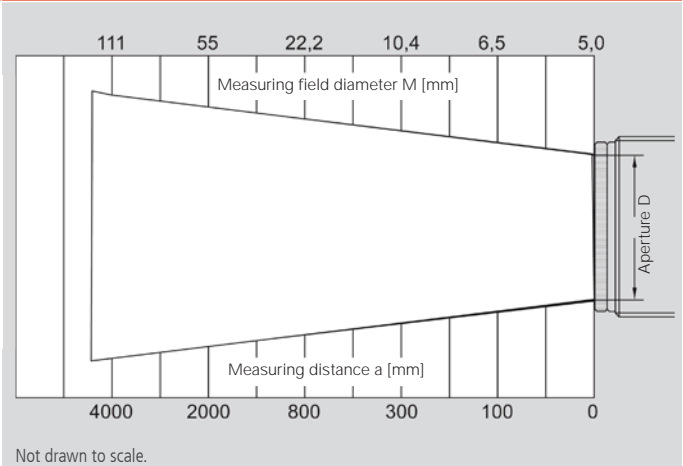
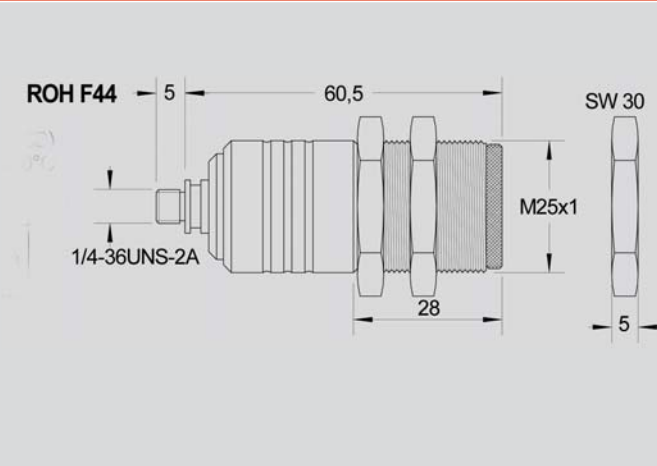
Ratio pyrometer with fibre cable for industrial application

## 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

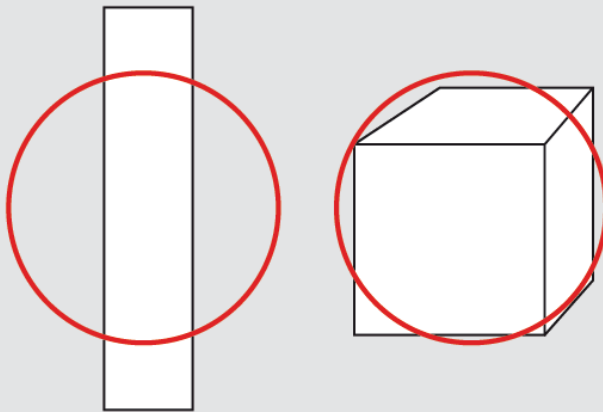
## Measuring field



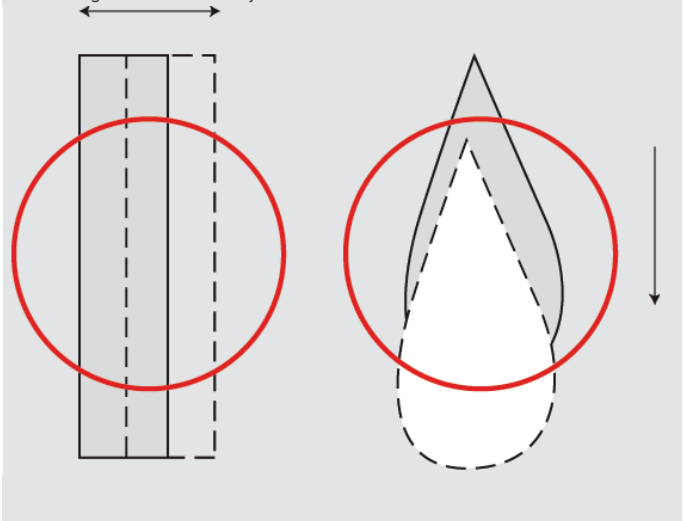
## Special features of the special optics

The special optics guarantees an accurate temperature 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.



# PYROSPOT DSRF 44N

Ratio pyrometer with fibre cable for industrial application

| Electrical, mechanical and optical accessories <sup>1</sup> |  |   | Order number |            |
|---|--|---|--------------|------------|
| Connecting cable, straight plug, 12-pin                     | Connecting cable, angulate plug, with aiming light button 12-pin | length 2 m  | 3310A11111   | 3310A11151 |
|   |  | length 5 m  | 3310A11112   | 3310A11152 |
|   |  | length 10 m   | 3310A11113   | 3310A11153 |
|   |  | length 15 m   | 3310A11114   | 3310A11154 |
|   |  | length 20 m   | 3310A11115   | 3310A11155 |
|   |  | length 25 m   | 3310A11116   | 3310A11156 |
|   |  | length 30 m   | 3310A11117   | 3310A11157 |
|   |  | Fibre cable, stainless steel                        |              | length 2 m |
|   | length 3 m   |   | 3310A46003   |            |
|   | length 6 m   |   | 3310A46005   |            |
|   | length 10 m  |   | 3310A46006   |            |
|   | length 15 m  |   | 3310A46007   |            |
|   | length 22 m  |   | 3310A46008   |            |
| Mounting angle for ROH F44                                  |  | fixed   | 3310A21522   |            |
|   |  | 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                                    |  |   | 3310A21521   |            |
| Sighting tube for air purge adaptor                         |  | 100 mm  | 3310A22530   |            |
|   |  | 300 mm  | 3310A22535   |            |

<sup>1</sup> More accessories available.

| Selected accessories  |   |  |
|---|---|--|
| Mounting angle, adjustable  | Mounting angle, adjustable for ROH F44  | Mirror 90° for ROH F44   |
| Order number: 3310A21011<br> | Order number: 3310A21520<br> | Order number: 3310A31020<br>            |
| Air purge unit for ROH F44  | Power supply  | Digital display DD 200/210   |
| Order number: 3310A22520<br> | Order number: 3310A12010<br> | Order number: 3310A13020/3310A13025<br> |

Technische Änderungen vorbehalten. Technical details are subject to change. 15.08.13



We are certified for many years according to ISO 9001

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