

# PYROSPOT DSF 44N/DGF 44N

## Pyrometers with Fibre Cable for Industrial Applications



- **Digital pyrometers for 250 °C to 2500 °C**
- **Several spectral ranges**
- **RS485 interface for bus system integration**
- **Maximum value storage**
- **Stainless steel housing with fibre optics connector**

The digital pyrometers PYROSPOT DSF 44N and DGF 44N are especially designed for industrial purpose. The devices are suitable for high temperature measurement from 250 °C of many different surfaces for example metals, ceramics or graphite.

The solid body in stainless steel housing with fibre cable and protection window for optics 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 vario optics for fibre optical head realizes spot sizes from 0.7 mm diameter. Several Laser rejection filters are applicable.

The integrated red LED or laser aiming light enables to focus the measuring object exactly. The size of the LED aiming light is identical to the measuring field.

The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measuring and controlling systems.

The DSF 44N/DGF 44N are equipped with integrated, galvanically isolated RS485 interface, which allows parameterizing and software evaluation even in bus systems.

Via an USB module parameters like emissivity sub range, response time and storage can be easily adjusted by using the comfortable parameterizing and evaluation software PYROSOFT Spot.

Typical application areas:

- Steel industry
- Furnace industry
- Soldering applications
- Ceramic industry
- Metal industry

## Technical Data and Accessories

Technical data				
Type	DSF 44N		DGF 44N	
Temperature range	600 °C to 1800 °C	800 °C to 2500 °C	250 °C to 1300 °C	350 °C to 1800 °C
Sub temperature range	adjustable within temperature range, minimum span 51 °C			
Spectral range	0.8 µm to 1.1 µm		1.5 µm to 1.8 µm	
Optics	optical head FOH II-65 <sup>2</sup> , FOH II-250 <sup>2</sup> or FOH I-100 <sup>3</sup>			
Distance ratio	100 : 1	200 : 1	100 : 1	200 : 1
Measurement uncertainty	0.5 % of meas. value ( $T_{amb} = 23\text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{ s}$ )			
Reproducibility	0.1 % of meas. value ( $T_{amb} = 23\text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{ s}$ )			
NETD <sup>1</sup>	0.1 °C ( $T_{amb} = 23\text{ °C}$ , $\varepsilon = 1$ , $t_{95} = 1\text{ s}$ )			
Response time (t <sub>95</sub> )	5 ms, adjustable up to 10 s			
Emissivity	adjustable, 0.05 to 1.00			
Storage	maximum value storage, adjustable via interface			
Output	0/4 to 20 mA, adjustable via software, temperature linear, max. burden: 500 Ω			
Interface	galvanically isolated RS485 interface, half duplex, max. 115 kBd			
Software	PYROSOFT Spot for Windows®			
Aiming	integrated red LED or laser aiming light			
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub range, adjustable via interface and software			
Power supply	24 V DC ± 25 %			
Power consumption	max. 1.5 W			
Operating temperature	0 °C to 70 °C			
Storage temperature	-20 °C to 70 °C			
Weight	approx. 455 g			
Dimensions	thread M40 × 1.5, length 125 mm			
Housing	stainless steel with plug connector and protection window			
Safety class	IP 65 (DIN 40 050)			
CE symbol	according to EU regulations (EN 50 011)			
Scope of delivery	PYROSPOT DSF 44N or DGF 44N, manual, inspection sheet, Software PYROSOFT Spot for Windows® (without connecting cable, fibre cable and optical head, please order separately)			

<sup>1</sup> Noise equivalent temperature difference. <sup>2</sup> Aperture 9 mm, with quartz glass protection window. <sup>3</sup> Aperture 6 mm.

Accessories, mechanical, electrical and optical <sup>1</sup>	
Connecting cable 5-pin	length 2 m, 5 m, 10 m, 15 m, 20 m, 25 m or 30 m
Interface module	RS485 to USB
Fibre cable	length 1.5 m, 2 m, 2.5 m, 5 m, 7.5 m, 10 m, 15 m or 20 m, stainless steel clad, anti-swiveling
Power supply	24 V DC, 0.6 A
Mounting angle	fixed or adjustable, for pyrometer
Mounting angle	adjustable, for FOH II
Air purge unit for FOH II	stainless steel, air pressure 0.1 to 0.5 bar, oil free
Mirror for FOH II	stainless steel, 90°
Protection window FOH II	quartz glass or sapphire glass
Laser rejection filter	940 nm, 1064 nm or on request

<sup>1</sup> Other accessories on request.

## Optics Types FOH II and FOH I

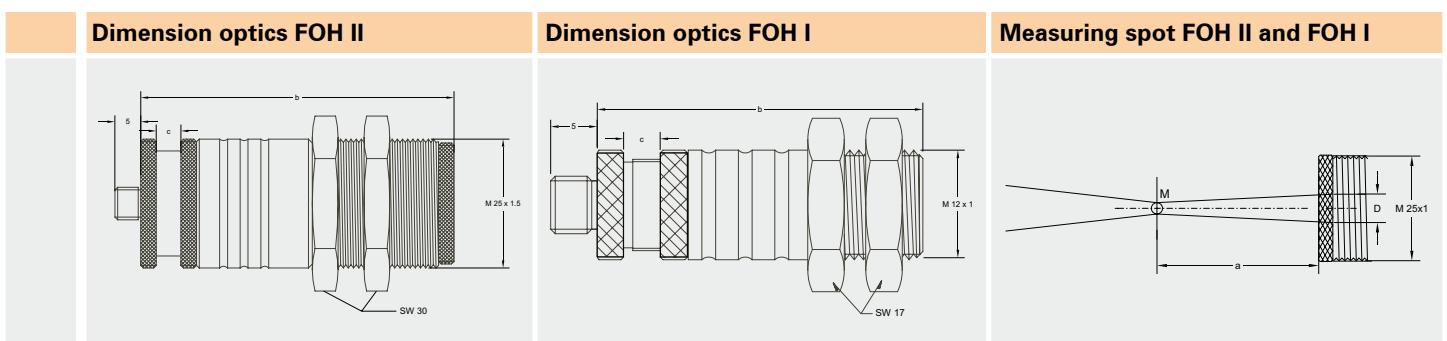
Optics FOH II-65 <sup>1</sup>									
Measuring distance a in mm	0	65	85	110	150	200	240	300	
Optics pullout in mm	–	14	11	7	4	2	1	0	
Optics length in mm	–	70	67	63	60	58	57	56	
Measuring spot size M in mm									
DSF 44N (600 °C to 1800 °C)	9	1.3	1.7	2.1	2.8	3.6	4.2	5.0	
DSF 44N (800 °C to 2500 °C)	9	0.7	0.9	1.1	1.4	1.8	2.1	2.5	
DGF 44N (250 °C to 1300 °C)	9	1.3	1.7	2.1	2.8	3.6	4.2	5.0	
DGF 44N (350 °C to 1800 °C)	9	0.7	0.9	1.1	1.4	1.8	2.1	2.5	

Optics FOH II-250 <sup>1</sup>										
Measuring distance a in mm	0	250	300	400	600	800	1000	1500	2000	2500
Optics pullout in mm	–	13.5	12.0	10.5	9.0	8.4	8.0	7.5	7.2	7.0
Optics length in mm	–	69.5	68.0	66.5	65.0	64.4	64.0	63.5	63.2	63.0
Measuring spot size M in mm										
DSF 44N (600 °C to 1800 °C)	9	3.0	3.7	5.0	7.2	9.2	12	18	24	31
DSF 44N (800 °C to 2500 °C)	9	1.7	2.1	2.7	4.4	5.5	6.8	10	13	17
DGF 44N (250 °C to 1300 °C)	9	3.0	3.7	5.0	7.2	9.2	12	18	24	31
DGF 44N (350 °C to 1800 °C)	9	1.7	2.1	2.7	4.4	5.5	6.8	10	13	17

Optics FOH I-100 <sup>1</sup>										
Measuring distance a in mm	0	100	130	165	225	300	500	700	1000	
Optics pullout in mm	–	5.8	4.0	3.0	2.0	1.3	0.6	0.3	0	
Optics length in mm	–	37.3	35.5	34.5	33.5	32.8	32.1	31.8	31.5	
Measuring spot size M in mm										
DSF 44N (600 °C to 1800 °C)	6	1.8	2.2	2.8	4.0	5.5	9.0	13	18	
DSF 44N (800 °C to 2500 °C)	6	0.9	1.1	1.4	2.0	2.7	4.5	6.5	9.0	
DGF 44N (250 °C to 1300 °C)	6	1.8	2.2	2.8	4.0	5.5	9.0	13	18	
DGF 44N (350 °C to 1800 °C)	6	0.9	1.1	1.4	2.0	2.7	4.5	6.5	9.0	

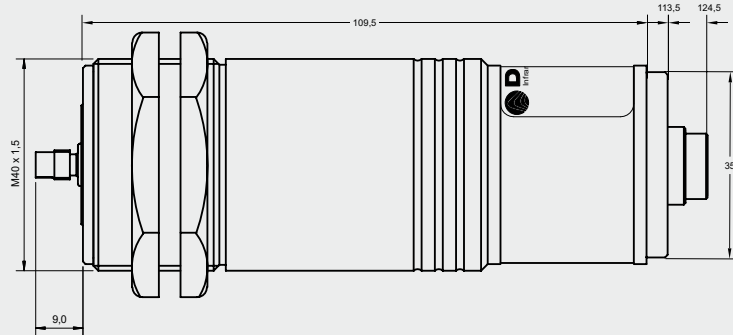
<sup>1</sup> Other optics on request.

Fibre cables for optics FOH II and FOH I		
Measuring range	Diameter in $\mu\text{m}$	Clad
DSF 44N (600 °C to 1800 °C) and DGF 44N (250 °C to 1300 °C)	400	stainless steel
DSF 44N (800 °C to 2500 °C) and DGF 44N (350 °C to 1800 °C)	200	stainless steel



# Dimensions and Accessories

## Dimensions Pyrometer



## Accessories

### Mounting angle, adjustable



### Mounting angle, adjustable, for FOH II



### Mirror 90° for FOH II



### Air purge unit for FOH II (optional with protection tube)



### Digital display DD 200 and DD 210



### Power supply



Technical details are subject to change without notice. August 2010.

## Metrum Information Storage Limited

The Stables, The Grange Centre, 24 Barkham Ride · Finchampstead, Berkshire, RG40 4EU · United Kingdom  
 phone: +44 118 9733000 · fax: +44 118 9734363  
 e-mail: enquiries@metrum.co.uk · internet: www.metrum.co.uk