

PYROSPOT DSF 40N and DGF 40N

Pyrometer with fibre cable for industrial application

Overview

Digital 2-wire pyrometers with integrated USB interface



Merkmale

- For temperature measurements between 250 °C and 2500 °C
- 4 to 20 mA temperature linear output
- Integrated USB interface for stand-alone operation
- Maximum and minimum value storage
- Robust stainless steel housing
- Several fixed and vario optics

Description and applications

The digital pyrometers PYROSPOT DSF 40N and DGF 40N are specifically designed for industrial purposes. The devices are suitable for high temperature measurement from 250 °C on 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 10 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 standard 4 to 20 mA temperature linear output signal allows easy implementation in existing measurement and control systems. The DSF 40N/DGF 40N are equipped with an integrated, galvanically isolated USB interface on the back side. The USB interface simplifies parameterization and data evaluation via software, without needing an additional power supply.

The integrated 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.

Due to direct USB connection parameters like emissivity sub range, response time and data storage are all easily adjusted through the user friendly parameterization and evaluation software PYROSOFT Spot or optional handheld programming device DHP 1040.

Typical application areas:

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



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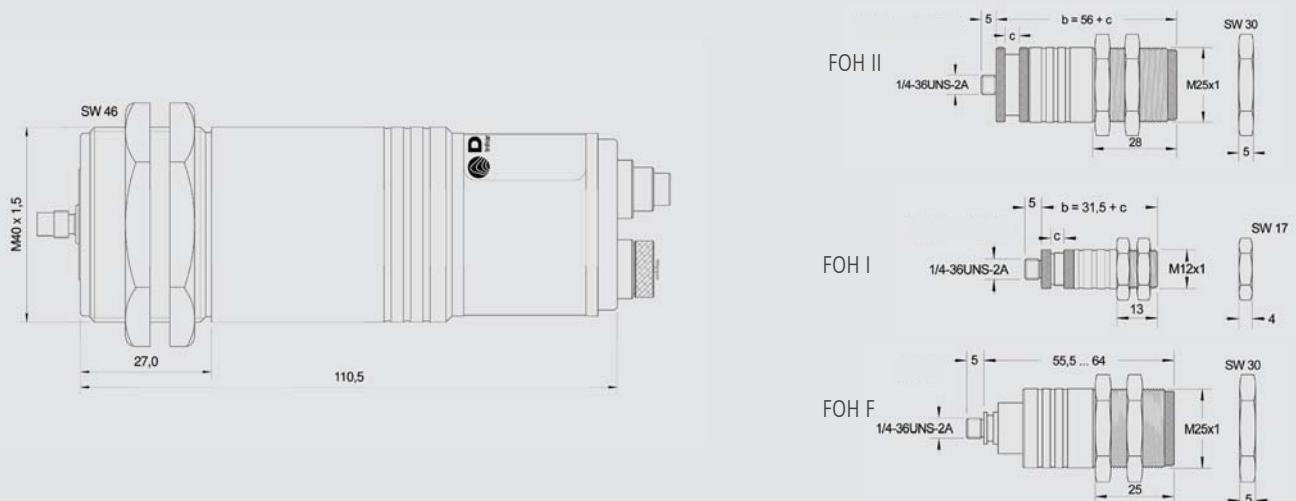
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Technical data

Type	DSF 40N		DGF 40N		
Temperature range	600 °C to 1800 °C	800 °C to 2500 °C	250 °C to 1300 °C	250 °C to 2000 °C	350 °C bis 1800 °C
Order number	4400000301 (LED) 4400010301 (laser)	4400000302 (LED) 4400010302 (laser)	4401000301 (LED) 4401010301 (laser)	4401000303 (LED) 4401010303 (laser)	4401000302 (LED) 4401010302 (laser)
Sub temperature range	adjustable within temperature range via USB interface, minimum span 50 °C				
Spectral range	0.8 µm to 1.1 µm		1.5 µm to 1.8 µm		
Optics	several optical heads (vario optics FOH I-100, FOH II-65, FOH II-250, fixed optics FOH F)				
Measurement uncertainty ¹	0.5 % of measured value in °C				
Reproducibility ¹	0.1 % of measured value in °C				
NETD ²	< 0.1 K ¹				
Response time (t95)	10 ms, adjustable from 50 ms up to 100 s, adjustable via USB interface				
Emissivity ε	0.05 to 1.00, adjustable via USB interface				
Data storage	maximum and minimum value storage, adjustable via USB interface				
Output	4 to 20 mA, temperature linear, max. burden: 600 Ω at 24 V				
Interface	galvanically isolated USB interface				
Aiming	integrated LED- or laser aiming				
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro				
Parameters	emissivity, response time, data storage, sub range, adjustable via USB interface and software				
Power supply	24 V DC ± 25 %, residual ripple 500 mV, LED or laser aiming light: 7 V to 30 V DC, < 200 mW				
Power consumption	max. 0.6 W (without aiming light)				
Operating temperature	0 °C to 70 °C (pyrometer), 0 °C to 250 °C (fibre cable and optical head), 0 °C to 150 °C (fibre cable with 90° curve)				
Storage temperature	–20 °C to 70 °C				
Weight	appr. 450 g				
Dimensions	thread M40 × 1.5, length 125 mm				
Housing	stainless steel with plug connector and protection window				
Safety class	IP 65 (according to DIN EN 55011)				
CE symbol	according to EU regulations				
Scope of delivery	PYROSPOT DSF 40N or DGF 40N, manual, mounting screw nuts, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, fibre cable and optics, please order separately)				

¹ For black body radiators, $T_u = 23$ °C, $t_{95} = 1$ s, $\varepsilon = 1$. ² Noise equivalent temperature difference.

Dimensional drawing pyrometer and optical heads FOH I, FOH II and FOH F



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Optical heads FOH I, FOH II and FOH F

Vario optics type	FOH II-65	FOH II-250	FOH I-100
Measuring distance a [mm]	65 ... 300	250 ... 2500	100 ... 1000
Temperature range	Measuring field diameter M [mm]		
DSF 40N (600 °C to 1800 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0
DSF 40N (800 °C to 2500 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
DGF 40N (250 °C to 1300 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0
DGF 40N (250 °C to 2000 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0
DGF 40N (350 °C to 1800 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
Order number	3310A50020	3310A50025	3310A50010

Fixed optics type FOH F	F-65	F-100	F-200	F-300	F-400	F-600	F-800	F-1000	F-1500
Measuring distance a [mm]	65	100	200	300	400	600	800	1000	1500
Temperature range	Measuring field diameter M [mm]								
DSF 40N (600 °C to 1800 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DSF 40N (800 °C to 2500 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGF 40N (250 °C to 1300 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DGF 40N (250 °C to 2000 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DGF 40N (350 °C to 1800 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
Order number	3310A51006	3310A51010	3310A51020	3310A51030	3310A51040	3310A51060	3310A51080	3310A51100	3310A51150

Fibre cable, stainless steel Ø 400 µm – order numbers				Fibre cable, stainless steel Ø 200 µm – order numbers			
Temperature range	length	straight	90° curve	Temperature range	length	straight	90° curve
DSF 40N (600 °C to 1800 °C) DGF 40N (250 °C to 1300 °C) DGF 40N (250 °C to 2000 °C)	1.5 m	3310A44001	3310A44011	DSF 40N (800 °C to 2500 °C) DGF 40N (350 °C to 1800 °C)	1.5 m	3310A42001	3310A42011
	2.0 m	3310A44002	3310A44012		2.0 m	3310A42002	3310A42012
	2.5 m	3310A44003	3310A44013		2.5 m	3310A42003	3310A42013
	5.0 m	3310A44004	3310A44014		5.0 m	3310A42004	3310A42014
	7.5 m	3310A44005	3310A44015		7.5 m	3310A42005	3310A42015
	10 m	3310A44006	3310A44016		10 m	3310A42006	3310A42016
	15 m	3310A44007	3310A44017		15 m	3310A42007	3310A42017

More lengths on request! Variants available with vacuum lead-through or special quartz and sapphire rod optics.

Fibre cable (200 µm, 400 µm)



Fibre cable with 90° curve



Optical heads



Optics FOH-F (left), FOH II (middle) and optics FOH I (right)

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Electrical, mechanical and optical accessories ¹		Order number
Connection cable, 5-pin	length 2 m	3310A11511
	length 5 m	3310A11512
	length 10 m	3310A11513
	length 15 m	3310A11514
	length 20 m	3310A11515
	length 30 m	3310A11517
USB connection cable	length 1.8 m, screened	3310A14010
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting angle	fixed, for FOH I	3310A21510
	fixed, for FOH II	3310A21522
	adjustable, for FOH II	3310A21523
Air purge unit	stainless steel, purge air 0.1 to 0.5 bar, oilfree	3310A22520
Water cooling jacket	stainless steel, with integrated air purge unit	3310A23010
Ball and socket mounting	for FOH II	3310A21521
Sighting tube	100 mm for air purge unit FOH II	3310A22530
	300 mm for air purge unit FOH II	3310A22535
DHP 1040	mobile handheld programming device for pyrometer parameterizing	3310A17010

¹ More accessories available.

Selected accessories – pictures

Mounting angle, adjustable	Mounting angle, adjustable for FOH II	Mirror 90° for FOH II
Order number: 3310A21011 	Order number: 3310A21520 	Order number: 3310A31020 
Air purge unit for FOH II	Handheld programming device DHP 1040	Digital display DD 200/210
Order number: 3310A22520 	Order number: 3310A17010 	Order number: 3310A13020/3310A13025 