

PYROSPOT DSF 47N and DGF 47N

Ethernet-Pyrometer with fibre cable for industrial application

Overview

Digital pyrometers with Ethernet interface and web server



Features

- For temperature measurements between 250 °C and 2500 °C
- Temperature linear output 0/4 to 20 mA
- Ethernet-interface 100 Mbit/s
- Integrated web server
- Fast response times from 5 ms
- Several fixed and vario optics available
- Integrated LED or laser aiming light
- Fibre optics for up to 250 °C ambient temperature

Description and applications

The digital pyrometers PYROSPOT DSF 47N and DGF 47N are specifically designed for industrial purpose. 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 5 ms (t_{95}) these pyrometers are also suitable for fast measuring processes.

The different optics realize spot sizes from 0.7 mm diameter. Several laser rejection filters are applicable.

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

The devices are equipped with an Ethernet interface, which allows data transfer to local networks. Via an integrated web server or the Modbus-TCP protocol, the parameters can be optimally adapted to the application.

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

The comprehensive parameterization and evaluation software PYROSOFT Spot can also be used for parameterization and measured value recording.

Typical application areas:

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



Image source: Shutterstock.de/Oleksiy Mark

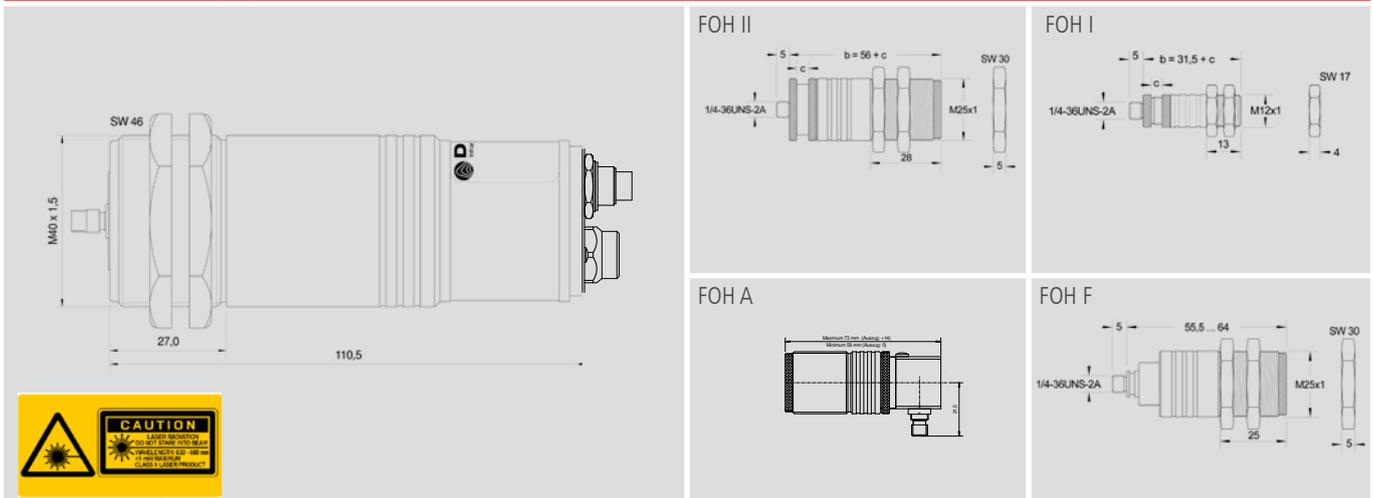
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Technical data					
Type	DSF 47N		DGF 47N		
Temperature ranges	600 °C to 1800 °C	800 °C to 2500 °C	250 °C to 1300 °C	250 °C to 2000 °C	350 °C to 1800 °C
Order number	447000401 (LED) 4470010401 (Laser)	447000402 (LED) 4470010402 (Laser)	4471000401 (LED) 4471010401 (Laser)	4471000403 (LED) 4471010403 (Laser)	4471000402 (LED) 4471010402 (Laser)
Sub temperature range of analog output	adjustable within temperature range, 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 and FOH II-250, FOH A-150 and FOH A-225, fixed optics FOH F)				
Measurement uncertainty ¹	0.5 % of measured value in °C + 1 K				
Reproducibility ¹	0.1 % of measured value in °C + 0.5 K				
NETD ^{1,2}	0.1 K				
Response time (t ₉₅)	5 ms (min.), adjustable up to 100 s				
Emissivity	0.05 to 1.00, adjustable				
Storage	minimum and maximum value storage				
Output	0/4 to 20 mA, temperature linear, max. burden: 500 Ω				
Interface	Ethernet 100 Mbit/s, web server, data protocol Modbus-TCP				
Aiming	integrated LED or laser aiming light				
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro				
Parameters	adjustable via web server or Modbus-TCP: emissivity, response time, storage, sub temperature range, transmittance, analog output, aiming light; additionally via Modbus-TCP: network configuration				
Power supply	24 V DC ± 25 %, residual ripple 500 mV				
Power consumption	max. 1.5 W				
Operating temperature	0 °C to 70 °C (pyrometer), 0 °C to 250 °C (optical head), 0 °C to 125 °C (fibre optics cable)				
Storage temperature	-20 °C to 70 °C				
Weight	appr. 450 g				
Dimensions	thread M40 × 1.5, length 125 mm				
Housing	stainless steel housing with plug connector				
Safety class	IP 65 (according to DIN EN 40050)				
CE symbol	according to EU regulations				
Scope of delivery	PYROSPOT DSF 47N or DGF 47N, manual, mounting screw nuts, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, fibre cable and optics, please order separately)				

¹Specifications for black body radiator, T_{ambient} = 23 °C, t₉₅ = 1 s. ²Noise equivalent temperature difference.

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



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Optical heads FOH I, FOH II, FOH A and FOH F

Vario optics type	FOH II-65	FOH II-250	FOH I-100	FOH A-150	FOH A-225
Measuring distance a [mm]	65 ... 300	250 ... 2500	100 ... 1000	150 ... 230	225 ... 2500
Measuring temperature range	Target size M [mm]				
DSF 47N (600 °C to 1800 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0	2.0 ... 3.0	3.0 ... 31.0
DSF 47N (800 °C to 2500 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0	1.1 ... 1.7	1.7 ... 17.0
DGF 47N (250 °C to 1300 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0	2.0 ... 3.0	3.0 ... 31.0
DGF 47N (250 °C to 2000 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0	2.0 ... 3.0	3.0 ... 31.0
DGF 47N (350 °C to 1800 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0	1.1 ... 1.7	1.7 ... 17.0
Part number	3310A50020	3310A50025	3310A50010	3310A52020	3310A52025

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 47N (600 °C to 1800 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DSF 47N (800 °C to 2500 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGF 47N (250 °C to 1300 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DGF 47N (250 °C to 2000 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
DGF 47N (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 \varnothing 400 μ m – order numbers				Fibre cable, stainless steel \varnothing 200 μ m – order numbers			
Temperature range	length	straight	90° curve	Temperature range	length	straight	90° curve
DSF 47N (600 °C to 1800 °C) DGF 47N (250 °C to 1300 °C) DGF 47N (250 °C to 2000 °C)	1.5 m	3310A44001	3310A44011	DSF 47N (800 °C to 2500 °C) DGF 47N (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 μ m, 400 μ m)



Optical heads FOH F, FOH II, FOH I



Fibre cable 90° curve



Optical head FOH A, 90° angled



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Electrical, mechanical and optical accessories ¹		Order number
Connection cable (5 pin)	length 5 m	3310A11512
	length 10 m	3310A11513
	length 15 m	3310A11514
Ethernet cable RJ45 (4 pin)	length 5 m	3310A11412
	length 10 m	3310A11413
	length 15 m	3310A11414
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting angle	fixed, for FOH I	3310A21014
	fixed, for FOH II	3310A21522
	adjustable, for FOH II	3310A21523
Air purge unit for FOH II	stainless steel, purge air 0.1 to 0.5 bar, oilfree	3310A22520
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

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	Power supply PSU 15	Digital display DD 200/210
Order number: 3310A22520	Order number: 3310A12010	Order number: 3310A13020/3310A13025
		

Technische Änderungen vorbehalten. Technical details are subject to change. 10.02.23



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