

PYROSPOT DGF 11N/DGEF 11N

Pyrometer with fibre cable for industrial application

Overview

Digital pyrometers with fibre cables and optical head



Features

- For temperature measurements between 150 °C and 2500 °C
- Short response times from 2 ms
- Vario optics with measuring field diameter from 0.7 mm
- Integrated RS-485 interface
- Display and keyboard
- Applicable up to 250 °C ambient temperature

Description and applications

The digital pyrometers PYROSPOT DGF 11N and DGEF 11N are especially designed for industrial purpose. The devices are suitable for temperature measurement from 150 °C of many different surfaces for example metals, ceramics or graphite.

The solid body with fibre optics cable allows usage even under rough environmental conditions. The bright temperature display is visible even over long distance.

With a fast response time of only 2 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. A special vacuum lead through or variants with quartz or sapphire glass are also available.

The integrated red laser aiming light enables to focus the measuring object exactly. The temperature linear standard output signal of 0/4 to 20 mA allows easy implementation in existing measuring and controlling systems.

The device is equipped with integrated, galvanically isolated RS-485 interface, which allows parameterising and software evaluation even in bus systems.

All parameters are adjustable via push-buttons and display directly on the device. Also by using the comfortable parameterising and evaluation software PYROSOFT Spot the parameters can be easily adjusted to the application.

Typical application areas:

- Steel industry
- Kiln engineering
- Hardening
- Welding
- Metal industry



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Technical data					
Type	DGF 11N		DGF 11N		DGEF 11N
Temperature ranges	250 °C bis 1500 °C	350 °C bis 2000 °C	250 °C bis 2000 °C	400 °C bis 2500 °C	150 °C to 1200 °C
Order number	5111010205	5111010206	5111010208	5111010207	5111010203
Sub temperature range	adjustable within temperature range, minimum span 50 °C				
Spectral range	1.5 µm to 1.8 µm				2.0 µm to 2.6 µm
Optics	FOH I (aperture D = 6 mm), FOH II (aperture D = 9 mm) or FOH F (aperture D = 9 mm)				
Distance ratio	see table				
Measurement uncertainty ²	0.5 % of meas. value				0.5 % of meas. value + 2 K
Reproducibility ²	0.1 % of meas. value				0.1 % of meas. value + 1 K
NETD ^{1,2}	0.1 K				0.5 °C
Response time (t95)	2 ms, adjustable up to 100 s				
Emissivity	0.050 bis 1.000				
Storage	minimum-/maximum value storage				
Output	0/4 to 20 mA, adjustable via software, temperature linear, max. burden: 500 Ω				
Interface	galvanically isolated RS-485 interface, half duplex, max. 115 kBd				
Aiming	laser aiming light				
Software	PYROSOFT Spot for Windows®				
Parameters	emissivity, response time, temperature unit °C or °F, storage, sub range, baudrate, address				
User controls	display and keys for parameter settings				
Power supply	24 V DC ± 25 %				
Power consumption	max. 1.5 W				
Operating temperature	0 °C to 45 °C (electronics), 0 °C bis 250 °C (optical head) 0 °C to 250 °C (fibre cable), 0 °C to 150 °C (fibre cable with 90° curve)				
Storage temperature	-20 °C to 70 °C				
Weight	appr. 600 g (without fibre cable and optical head)				
Dimensions	appr. 110 mm × 80 mm × 40 mm				
Housing	cast housing with plug connector, display and keyboard				
Safety class	IP 65 (DIN 40 050)				
CE symbol	according to EU regulations (EN 50 011)				
Scope of delivery	PYROSPOT DGF/DGEF 11N, user manual, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, fibre cable and optics, please order separately)				

¹ Noise equivalent temperature difference. ² T_{amb} = 23 °C, ε = 1, t95 = 1 s

Fibre cables, stainless steel Ø 400 µm - Order numbers				Fibre cables, stainless steel Ø 200 µm - Order numbers			
Temperature range	length	straight	90° curve	Temperature range	length	straight	90° curve
DGEF 11N 150 °C to 1200 °C	1.5 m	3310A44001	3310A44011	DGF 11N 250 °C to 2500 °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
	10.0 m	3310A44006	3310A44016		10.0 m	3310A42006	3310A42016
	15.0 m	3310A44007	3310A44017		15.5 m	3310A42007	3310A42017

Other lengths on request! Variants with vacuum lead through or special quartz and sapphire glass available.

PYROSPOT DGF 11N/DGEF 11N

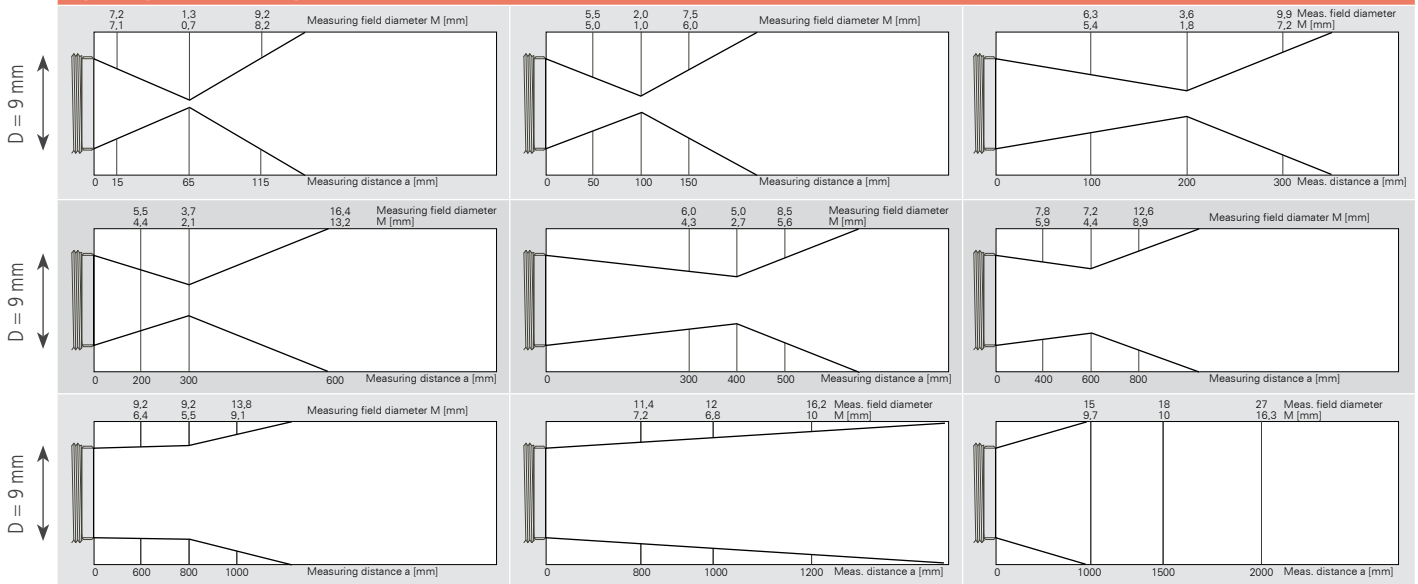
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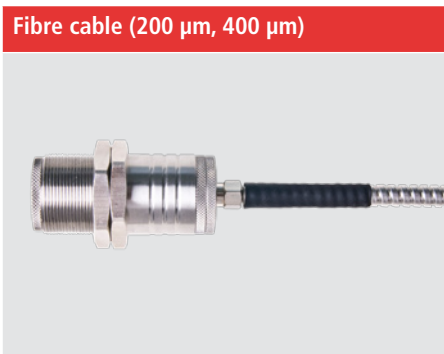
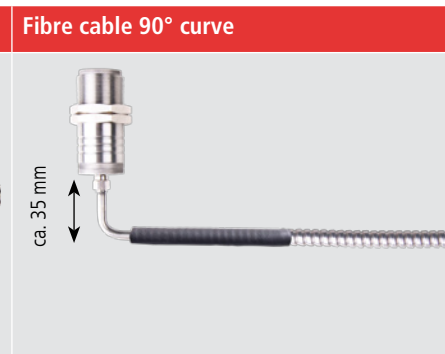
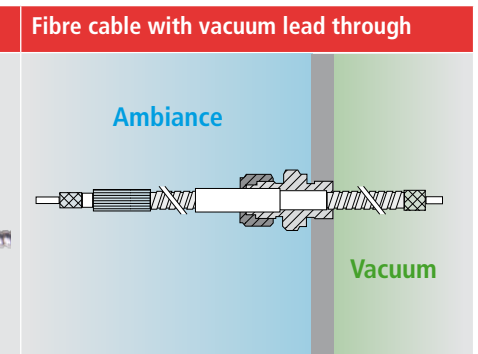
Optics			
Vario optics type	FOH II-65	FOH II-250	FOH I-100
Measurement distance a [mm]	65 ... 300	250 ... 2500	100 ... 1000
Measurement range	Measuring field diameter M [mm]		
DGF 11N (250 °C to 1300 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
DGF 11N (350 °C to 1800 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
DGF 11N (250 °C to 2000 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
DGF 11N (400 °C to 2500 °C)	0.7 ... 2.5	1.7 ... 17.0	0.9 ... 9.0
DGEF 11N (150 °C to 1200 °C)	1.3 ... 5.0	3.0 ... 31.0	1.8 ... 18.0
Order number	3310A50020	3310A50025	3310A50010



Fixed optics type FOH	F-65	F-100	F-200	F-300	F-400	F-600	F-800	F-1000	F-1500
Measurement distance a [mm]	65	100	200	300	400	600	800	1000	1500
Measurement range	Measuring field diameter M [mm]								
DGF 11N (250 °C to 1300 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGF 11N (350 °C to 1800 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGF 11N (250 °C to 2000 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGF 11N (400 °C to 2500 °C)	0.7	1.0	1.8	2.1	2.7	4.4	5.5	6.8	10.0
DGEF 11N (150 °C to 1200 °C)	1.3	2.0	3.6	3.7	5.0	7.2	9.2	12.0	18.0
Order number	3310A51006	3310A51010	3310A51020	3310A51030	3310A51040	3310A51060	3310A51080	3310A51100	3310A51150

Optical path of fixed optics



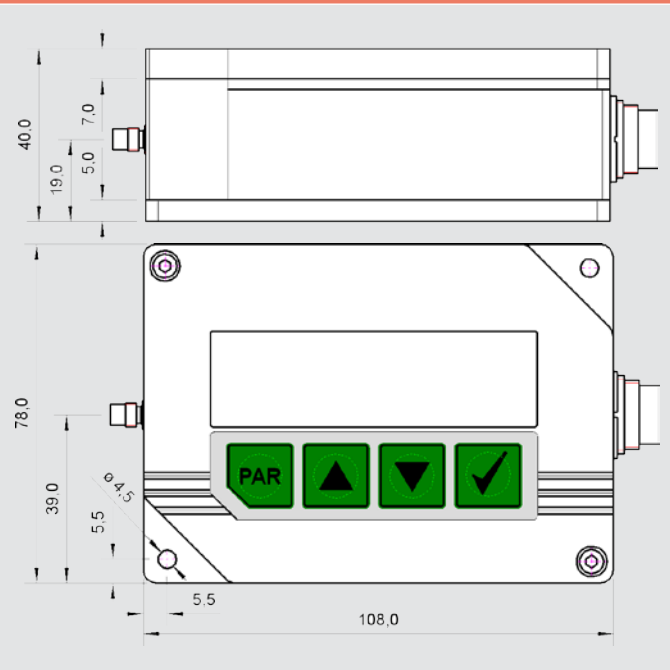
Fibre cable (200 µm, 400 µm)	Fibre cable 90° curve	Fibre cable with vacuum lead through
		

PYROSPOT DGF 11N/DGEF 11N

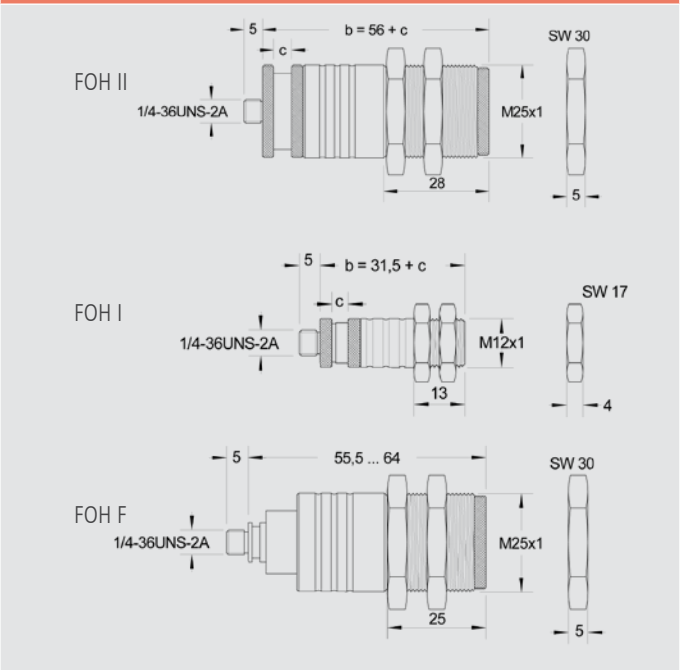
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Dimensional drawings

Dimensional drawing pyrometer



Dimensional drawing optical heads



Electrical accessories¹ – Order numbers

Connecting cable 12 pin	straight plug	angulated plug
Length 2 m	3310A11111	3310A11131
Length 5 m	3310A11112	3310A11132
Length 10 m	3310A11113	3310A11133
Length 15 m	3310A11114	3310A11134
Interface module RS-485 to USB	3310A14020	
Interface module RS-485 to ProfiBus DP	3310A14021	
Power supply PSU 15 (24 V DC, 1 A)	3310A12010	

Mechanical and optical accessories¹

Mounting angle, fixed for optical head FOH I	3310A21510
Mounting angle, fixed for optical head FOH II	3310A21522
Mounting angle, adjustable for optical head FOH II	3310A21520
Air purge for FOH II	3310A22520
Sighting tube 100 mm	3310A22530
Sighting tube 300 mm	3310A22535
Mirror for FOH II, stainless steel, 90°	3310A31020

¹ Selected accessories, other is available

Selected accessories - Pictures

Mounting angle, fixed	Mounting angle, adjustable, for FOH II	Air purge for FOH II
Order number: 3310A21522 	Order number: 3310A21520 	Order number: 3310A22520 
Mirror 90° for FOH II	Power supply	Sighting tube (100 mm)
Order number: 3310A31020 	Order number: 3310A12010 	Order number: 3310A22030 

Technical details are subject to change without notice. January 2012.



We are certified for many years according to ISO 9001

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