

# PYROSPOT DS 40N/DG 40N

## Pyrometers for Industrial Applications



- **Digital 2-wire pyrometers for 250 °C to 2500 °C**
- **Several spectral ranges**
- **Integrated USB interface with stand-alone operation**
- **Maximum value storage**
- **Stainless steel housing**

The digital pyrometers PYROSPOT DS 40N and PYROSPOT DG 40N 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 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.

Several fixed optic types realise measuring field diameters from 1.2 mm.

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.

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

The DS 40N/DG 40N are equipped with integrated, galvanically isolated USB interface on rear side, which allows parameterizing and software evaluation even without connecting extra power supply.

Due to direct USB connection 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	DS 40N		DG 40N	
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	several fixed optics (type I, II, III and IV) with quartz glass protection window			
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 (t95)	10 ms, adjustable up to 10 s			
Emissivity	0.05 to 1.00, adjustable via interface			
Storage	maximum value storage, adjustable via interface			
Output	4 to 20 mA, temperature linear, max. burden: 700 Ω at 24 V			
Interface	galvanically isolated USB interface			
Software	PYROSOFT Spot for Windows®			
Aiming	integrated green LED or red 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 % and 12 V to 30 V DC (LED or laser aiming light)			
Power consumption	max. 0.6 W (without aiming light)			
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 DS 40N or DG 40N, manual, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, please order separately)			

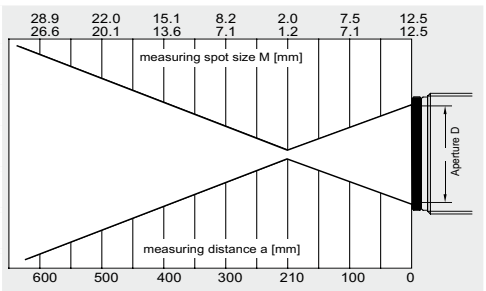
<sup>1</sup> Noise equivalent temperature difference.

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
USB connecting cable	length 1.8 m, screened
Power supply	24 V DC, 0.6 A
Mounting angle	fixed or adjustable
Air purge unit	stainless steel, air pressure 0.1 to 0.5 bar, oil free
Water cooling jacket	with integrated air purge and mounting angle
Vacuum flange	KF 16 with quartz glass
Protection window	quartz glass or sapphire glass

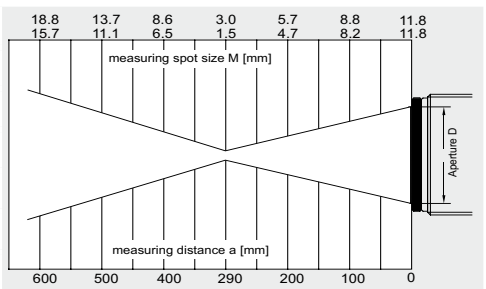
<sup>1</sup> Other accessories on request.

## Optics Types I, II, III and IV

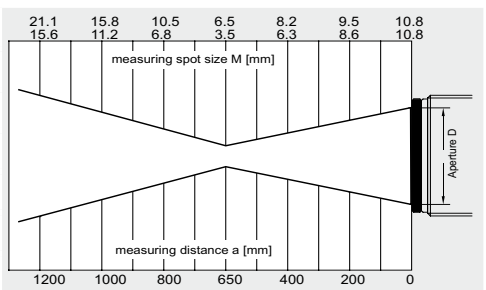
Optics I (sharp point at a = 210 mm measuring distance)							
Measuring distance a in mm	0	100	<b>210</b>	300	400	500	600
Measuring field diameter M in mm							
DS 40N (600 °C to 1800 °C)	12.5	7.5	<b>2.0</b>	8.2	15.1	22.0	28.9
DS 40N (800 °C to 2500 °C)	12.5	7.1	<b>1.2</b>	7.1	13.6	20.1	26.6
DG 40N (250 °C to 1300 °C)	12.5	7.5	<b>2.0</b>	8.2	15.1	22.0	28.9
DG 40N (350 °C to 1800 °C)	12.5	7.1	<b>1.2</b>	7.1	13.6	20.1	26.6



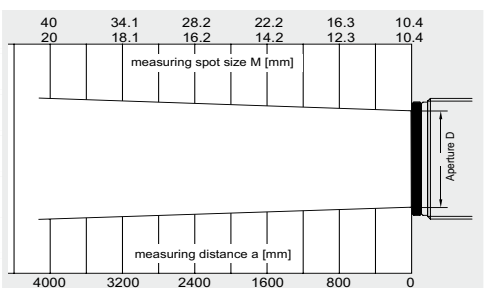
Optics II (sharp point at a = 290 mm measuring distance)							
Measuring distance a in mm	0	100	200	<b>290</b>	400	500	600
Measuring field diameter M in mm							
DS 40N (600 °C to 1800 °C)	11.8	8.8	5.7	<b>3.0</b>	8.6	13.7	18.8
DS 40N (800 °C to 2500 °C)	11.8	8.2	4.7	<b>1.5</b>	6.5	11.1	15.7
DG 40N (250 °C to 1300 °C)	11.8	8.8	5.7	<b>3.0</b>	8.6	13.7	18.8
DG 40N (350 °C to 1800 °C)	11.8	8.2	4.7	<b>1.5</b>	6.5	11.1	15.7



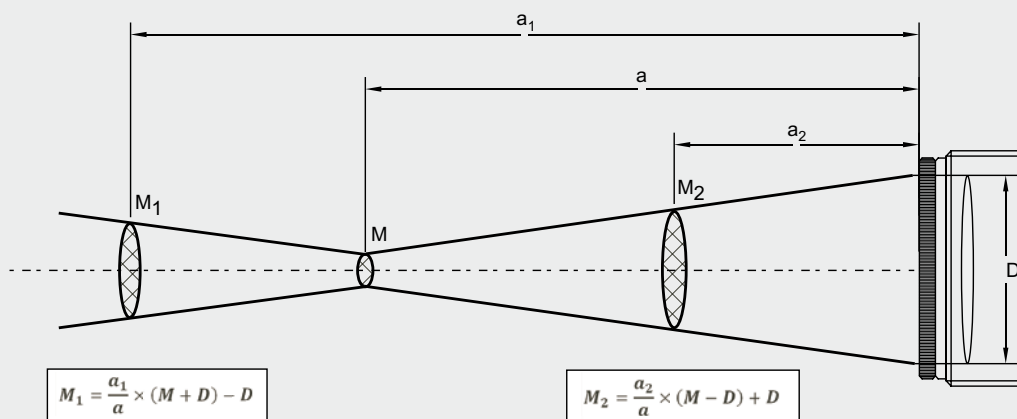
Optics III (sharp point at a = 650 mm measuring distance)							
Measuring distance a in mm	0	200	400	<b>650</b>	800	1000	1200
Measuring field diameter M in mm							
DS 40N (600 °C to 1800 °C)	10.8	9.5	8.2	<b>6.5</b>	10.5	15.8	21.1
DS 40N (800 °C to 2500 °C)	10.8	8.6	6.3	<b>3.5</b>	6.8	11.2	15.6
DG 40N (250 °C to 1300 °C)	10.8	9.5	8.2	<b>6.5</b>	10.5	15.8	21.1
DG 40N (350 °C to 1800 °C)	10.8	8.6	6.3	<b>3.5</b>	6.8	11.2	15.6



Optics IV (sharp point at a = 4000 mm measuring distance)							
Measuring distance a in mm	0	400	800	1600	2400	3200	<b>4000</b>
Measuring field diameter M in mm							
DS 40N (600 °C to 1800 °C)	10.4	13.4	16.3	22.2	28.2	34.1	<b>40</b>
DS 40N (800 °C to 2500 °C)	10.4	11.4	12.3	14.2	16.2	18.1	<b>20</b>
DG 40N (250 °C to 1300 °C)	10.4	13.4	16.3	22.2	28.2	34.1	<b>40</b>
DG 40N (350 °C to 1800 °C)	10.4	11.4	12.3	14.2	16.2	18.1	<b>20</b>

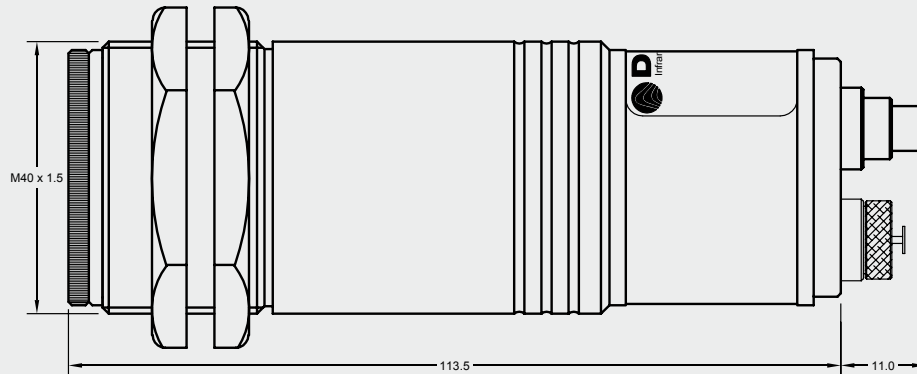


### Measuring field calculation



# Dimensions and Accessories

## Dimensions Pyrometer

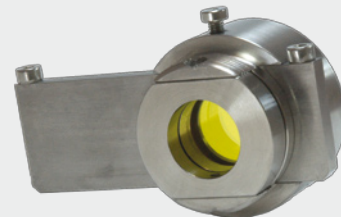


## Accessories

### Mounting angle, adjustable



### Window slide



### Cooling jacket with air purge and mounting angle



### Air purge unit



### Digital display DD 200 and DD 210



### Power supply



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