

PYROSPOT DT 40L

Pyrometer for industrial application

Overview

Digital 2-wire pyrometers with integrated USB interface



Features

- For temperature measurement between $-40\text{ }^{\circ}\text{C}$ and $1000\text{ }^{\circ}\text{C}$
- 4 to 20 mA temperature linear output
- Integrated USB interface for stand-alone operation
- Maximum and minimum value storage
- Several fixed optics available
- Stainless steel housing

Description and applications

The digital pyrometers PYROSPOT DT 40L are specifically designed for industrial purposes. The devices are suitable for temperature measurement from $-40\text{ }^{\circ}\text{C}$ to $1000\text{ }^{\circ}\text{C}$ on many different nonmetallic or coated metallic surfaces.

The solid body in stainless steel housing allows usage even under rough environmental conditions. With a fast response time of only 60 ms (t_{95}) these pyrometers are also suitable for fast measuring processes. Several fixed optic types realize measuring field diameters from 1.7 mm.

The standard 4 to 20 mA temperature linear output signal allows easy implementation in existing measurement and control systems. The devices are equipped with integrated, galvanically isolated USB interface on the back. The USB interface simplifies parameterization and data evaluation via software, without needing an additional power supply.

The optional integrated LED aiming light enables exact alignment to the measuring object. The LED size is identical to measuring spot size and visible even at high temperatures.

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 the optional handheld programming device DHP 1040.



Typical application areas:

- Glass and ceramic industry
- Paper and packaging industry
- Furnace applications
- Chemical industry
- Food industry

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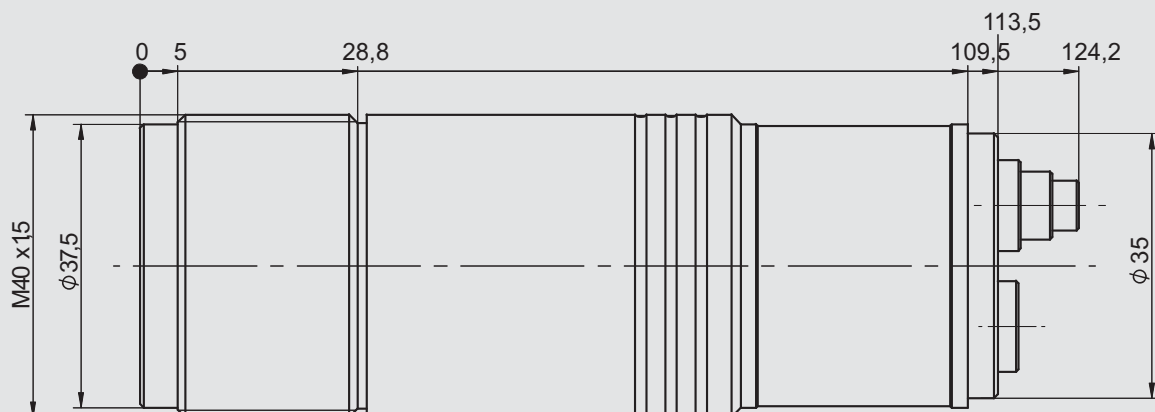
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Technical data

Type	DT 40L				DT 40L		
Temperature range	−40 °C to 1000 °C				0 °C to 1000 °C		
Fixed optics	100	300	800	2000	100	300	800
Order number	4408241301	4408242301	4408243301	4408246301	4408251302	4408252302	4408253302
Sub temperature range	adjustable within temperature range via USB interface, minimum span 50 °C						
Spectral range	8 μm to 14 μm						
Distance ratio	50 : 1						
Measurement uncertainty ¹	1.0 % of meas. value in °C or 1 K						
Reproducibility ¹	0.5 % of meas. value in °C or 0.5 K						
NETD ²	< 0.1 K ³						
Response time (t95)	60 ms, adjustable up to 100 s, adjustable via USB interface						
Emissivity ε	0.200 to 1.000, adjustable via USB interface						
Data storage	maximum or 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	none or optional laser aiming light				integrated LED aiming light		
Software	PYROSOFT Spot for Windows®						
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 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						
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						
Safety class	IP 65 (according to DIN EN 60529 and DIN 40050)						
CE symbol	according to EU regulations						
Scope of delivery	PYROSPOT DT 40L, manual, mounting screw nuts, inspection sheet, PYROSOFT Spot for Windows® (without connecting cable, please order separately)						

¹ For black body radiator, $T_u = 23$ °C, $t_{95} = 1$ s. Whichever is higher value ² Noise equivalent temperature difference. ³ $T_u = 23$ °C, $\epsilon = 1$, $t_{95} = 200$ ms, $T_{\text{Object}} = 100$ °C.

Dimensional drawing



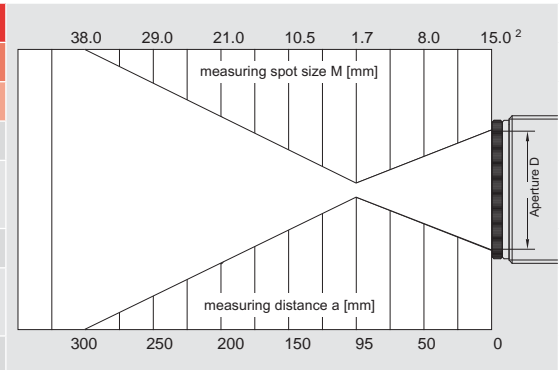
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Optics 100, 300, 800 and 2000 (aperture D = 15 mm)

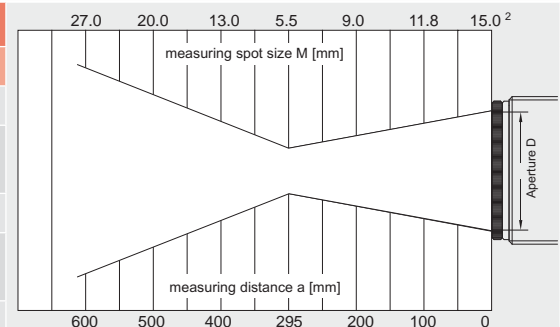
Optics 100 (sharp point at a = 95/100 mm measuring distance, marked bold)

Measuring distance a [mm]	0	50	95	100	200	250	300
Measuring range	Measuring field diameter M [mm]						
DT 40L (-40 °C to 1000 °C) without LED aiming light	15.0	8.0	1.7	2.0	21.0	29.0	38.0
DT 40L (0 °C to 1000 °C) with LED aiming light ¹	13.0	7.8	3.0	2.5	18.0	26.0	34.0



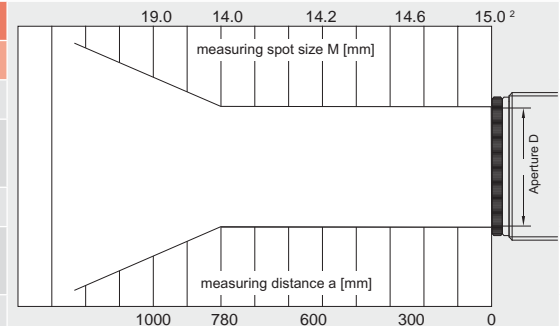
Optics 300 (sharp point at a = 270/295 mm measuring distance, marked bold)

Measuring distance a [mm]	0	100	270	295	400	500	600
Measuring range	Measuring field diameter M [mm]						
DT 40L (-40 °C to 1000 °C) without LED aiming light	15.0	11.8	6.3	5.5	13.0	20.0	27.0
DT 40L (0 °C to 1000 °C) with LED aiming light	15.0	11.6	5.7	7.6	16.0	24.0	31.0



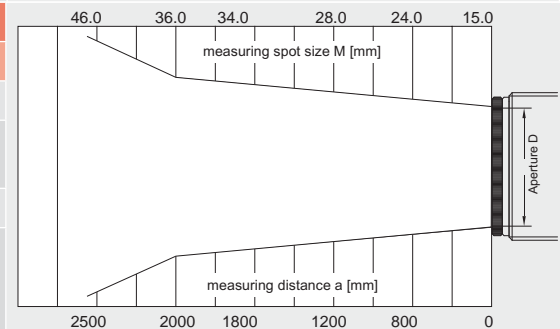
Optics 800 (sharp point at a = 750/780 mm measuring distance, marked bold)

Measuring distance a [mm]	0	300	500	600	750	780	1000
Measuring range	Measuring field diameter M [mm]						
DT 40L (-40 °C to 1000 °C) without LED aiming light	15.0	14.6	14.4	14.2	14.0	14.0	19.0
DT 40L (0 °C to 1000 °C) with LED aiming light	15.0	14.6	14.4	14.2	14.0	15.2	19.0



Optics 2000 (sharp point at a = 2000 mm measuring distance, marked bold)

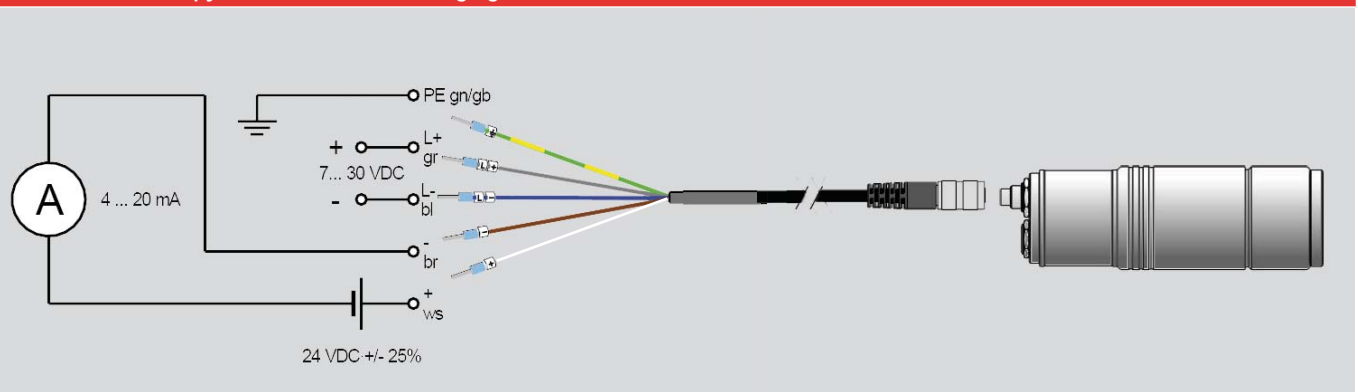
Measuring distance a [mm]	0	800	1200	1800	2000	2500	3000
Measuring range	Measuring field diameter M [mm]						
DT 40L (-40 °C to 1000 °C) without LED aiming light	15.0	24.0	28.0	34.0	36.0	46.0	57.0



¹ With attachment lens tubus. Aperture D = 13 mm.

² Measuring field diameter without LED aiming light.

Connection of the pyrometer with LED aiming light



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Electrical, mechanical and optical accessories ¹		Order number
Connecting cable	length 2 m length 5 m length 10 m length 15 m length 20 m length 30 m	3310A11511 3310A11512 3310A11513 3310A11514 3310A11515 3310A11517
USB connecting cable	length 1.8 m, screened	3310A14010
Power supply	24 V DC, 0.6 A	3310A12010
Mounting angle	fixed adjustable	3310A21010 3310A21011
Air purge unit	stainless steel, purge air 0.1 to 0.5 bar, oil free	3310A22010
Water cooling jacket	stainless steel with integrated air purge unit	3310A23010
Vacuum flange	KF 16 with ZnSe window	3310A24010 3310A34041
Laser aiming light	provided with thread (only for pyrometer without integrated LED)	3310A33010
DHP 1040	mobile handheld programming device	3310A17010

¹ More accessories available.

Selected accessories – pictures

Mounting angle, adjustable	Window slide	Air purge unit
Order number: 3310A21011 	Order number: 3310A21210 	Order number: 3310A22010 
Water cooling jacket	Handheld programming device DHP 1040	Digital display DD 200/210
Order number: 3310A23010 	Order number: 3310A17010 	Order number: 3310A13020/3310A13025 