

# PYROSPOT DT 44G

Pyrometer for application in glass industry

## Overview

Digital pyrometer with RS-485 interface



## Features

- For temperature measurements between 100 °C and 2500 °C
- Temperature linear output 0/4 to 20 mA
- RS-485 interface
- Short response time from 10 ms
- Several fixed optics available
- Robust stainless steel housing

## Description and applications

The digital pyrometers PYROSPOT DT 44G are specifically designed for application in glass industry. The devices are suitable for temperature measurement from 100 °C to 2500 °C on glass surfaces, float glass and liquid glass especially in glass industry.

The solid body in stainless steel housing allows usage even under rough environmental conditions. With a fast response time of only 10 ms (t90) these pyrometers are also suitable for fast measuring recesses. Several fixed optic types realise measuring field diameters from 1.6 mm.

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

The devices are equipped with a galvanically isolated RS-485 interface, which allows parameterizing and software evaluation even in bus systems.

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

Via an optional interface module (RS-485 to USB) parameters like emissivity, sub range, response time and storage can be easily adjusted by using the convenient parameterizing and evaluation software PYROSOFT Spot. The parameters can also be adjusted via RS-485 interface with the optional available handheld programming device DHP 1040.

Typical application areas:

- Glass industry
- Float glass
- Glass bottle production
- Liquid glass
- Glass forms



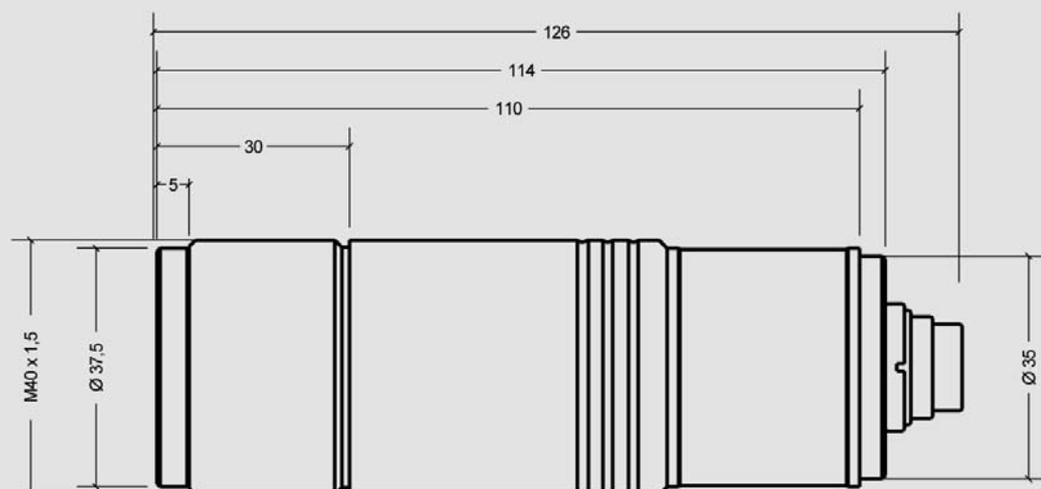
# PYROSPOT DT 44G

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Technical data			
Type	DT 44G	DT 44G	DT 44G
Temperature range	100 °C to 1300 °C	200 °C to 1400 °C	500 °C to 2500 °C
Sub temperature range	adjustable via RS-485 interface within temperature range, minimum span 50 °C		
Spectral range	around 5.0 µm		
Optics	several fixed optics (type 100, 300 and 800), aperture diameter D = 15 mm		
Distance ratio	approx. 50 : 1		
Measurement uncertainty <sup>1</sup>	0.6 % of meas. value in °C or 1 K <sup>2</sup>		
Reproducibility <sup>1</sup>	0.3 % of meas. value in °C or 0,5 K <sup>2</sup>		
NETD <sup>3</sup>	< 0.1 K <sup>4</sup>		
Response time (t90) <sup>5</sup>	10 ms, adjustable via RS-485 interface		
Emissivity	0.200 to 1.000, adjustable via RS-485 interface		
Storage	minimum and maximum value storage, adjustable via RS-485 interface		
Output	0/4 to 20 mA, temperature linear, max. burden: 700 Ω		
Interface	RS-485 (galvanically isolated), half duplex, max. baudrate 115 kBd, data protocol Modbus RTU		
Aiming	none, optional: integrated LED aiming light or laser aiming light adaptor		
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro		
Parameters	emissivity, response time, storage, sub range, adjustable via RS-485 interface and software		
Power supply	24 V DC ± 25 %, residual ripple 500 mV		
Power consumption	max. 1.5 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 44G, manual, inspection sheet, mounting screw nuts, PYROSOFT Spot for Windows® (without connecting cable, please order separately)		

<sup>1</sup> For black body radiator, T<sub>ambient</sub> = 23 °C, t95 = 1 s. <sup>2</sup> Whichever is higher value. <sup>3</sup> Noise equivalent temperature difference. <sup>4</sup> T<sub>ambient</sub> = 23 °C, ε = 1, t95 = 200 ms, T<sub>object</sub> = 250 °C. <sup>5</sup> With dynamic adaption at low signal level.

## Dimensional drawing



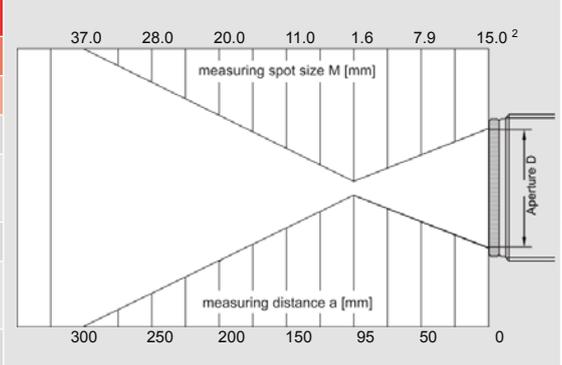
# PYROSPOT DT 44G

## Pyrometer for application in glass industry

### Optics 100, 300 and 800

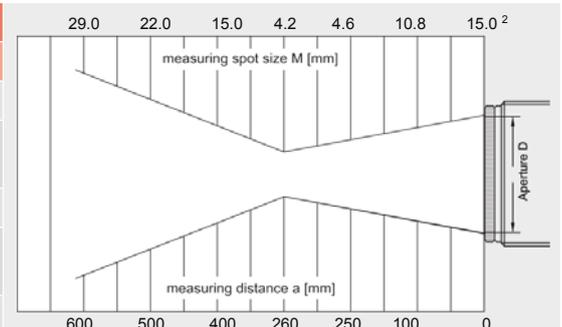
#### Optics 100 (sharp point at a = 95 mm measuring distance, marked bold)

Measuring distance a [mm]	0	50	<b>95</b>	150	200	250	300
Temperature range	Measuring field diameter M [mm]						
DT 44G (100 °C to 2500 °C) without LED aiming light	15.0	7.9	<b>1.6</b>	11.0	20.0	28.0	37.0
DT 44G (100 °C to 2500 °C) with LED aiming light <sup>1</sup>	13.0	7.1	<b>1.7</b>	11.0	18.0	26.0	34.0



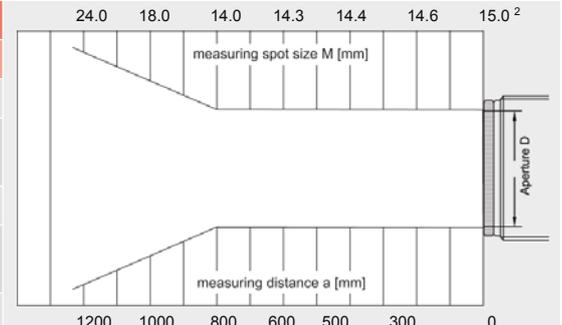
#### Optics 300 (sharp point at a = 250/260 mm measuring distance, marked bold)

Measuring distance a [mm]	0	100	250	<b>260</b>	400	500	600
Temperature range	Measuring field diameter M [mm]						
DT 44G (100 °C to 2500 °C) without LED aiming light	15.0	10.8	4.6	<b>4.2</b>	15.0	22.0	29.0
DT 44G (100 °C to 2500 °C) with LED aiming light	15.0	11.0	<b>4.5</b>	5.3	17.0	25.0	32.0



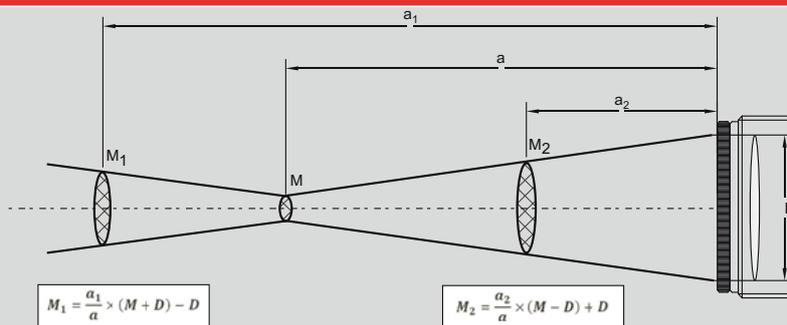
#### Optics 800 (sharp point at a = 800 mm measuring distance, marked bold)

Measuring distance a [mm]	0	300	500	600	<b>800</b>	1000	1200
Temperature range	Measuring field diameter M [mm]						
DT 44G (100 °C to 2500 °C) without LED aiming light	15.0	14.6	14.4	14.3	<b>14.0</b>	18.0	24.0
DT 44G (100 °C to 2500 °C) with LED aiming light	15.0	14.6	14.4	14.3	<b>14.0</b>	18.0	24.0



<sup>1</sup> With attachment lens tubus. Aperture D = 13 mm. <sup>2</sup> Measuring field diameter without LED aiming light.

### Calculation of measuring field diameter



### Order numbers

Device	Optics 100	300	800
DT 44G (100 °C to 1300 °C)	4448541201, 4448551201 (LED)	4448542201, 4448552201 (LED)	4448543201, 4448553201 (LED)
DT 44G (200 °C to 1400 °C)	4448541202, 4448551202 (LED)	4448542202, 4448552202 (LED)	4448543202, 4448553202 (LED)
DT 44G (500 °C to 2500 °C)	4448541203, 4448551203 (LED)	4448542203, 4448552203 (LED)	4448543203, 4448553203 (LED)
(LED = with LED aiming light)			

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## Pyrometer for application in glass industry

Electrical, mechanical and optical accessories <sup>1</sup>			Order number	
Connecting cable, straight plug, 12-pin	Connecting cable, angulate plug, 12-pin	length 2 m	3310A11111	3310A11151
		length 5 m	3310A11112	3310A11152
		length 10 m	3310A11113	3310A11153
		length 15 m	3310A11114	3310A11154
		length 20 m	3310A11115	3310A11155
		length 25 m	3310A11116	3310A11156
		length 30 m	3310A11117	3310A11157
Interface module		RS-485 to USB	3310A14020	
Power supply PSU 15		24 V DC, 0,6 A	3310A12010	
Mounting angle		fixed, adjustable	3310A21010 3310A21011	
Ball and socket mounting			3310A21012	
Air purge unit		stainless steel, purge air 0.1 to 0.5 bar, oil-free	3310A22010	
Cooling jacket		stainless steel, with integrated air purge unit	3310A23010	
Vacuum flange		KF 16 (without window) with zinc selenide window	3310A24010 3310A24010 + 3310A34041	
Laser aiming light adaptor		adapter (only for devices without integrated LED aiming light)	3310A33010	
DHP 1040		portable handheld device for pyrometer programming	3310A17010	

<sup>1</sup> More accessories available.

### Selected accessories - images

#### Mounting angle, adjustable

Order number: 3310A21011



#### Window slide (without window)

Order number: 3310A21210



#### Air purge unit for series 40/42/44

Order number: 3310A22010



#### Cooling jacket

Order number: 3310A23010



#### DHP 1040

Order number: 3310A17010



#### Digital display DD 200/210

Order number: 3310A13020/3310A13025

