PYROSPOT DT 47L

Ethernet pyrometers for industrial application

DIAS
Infrared Systems

Overview

Digital pyrometer with Ethernet interface and web server

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Pyrometer

Integrated web server

DT 47L   **28.3°C**

Password:	
Unit in °F:	☐

Parameter

Emissivity ε:	1.000		Transmittance:	100.0 %
Response time t₉₅:	Min ▾		Peak memory:	Off ▾ Min ○ Max ●
Sub range begin (4mA):	-40.0 °C		Sub range end (20mA):	1000.0 °C
Output:	4..20mA ▾		Ambience compensation:	auto °C Auto ☑ Active ☑

SUBMIT   REFRESH

Information

Device temp.:	25.4°C		
Range:	-40.0°C...1000.0°C	Optics:	Ø 6.0 @ 300mm
Serial number:	7480002	Item number:	4478242401
IP address:	192.168.50.75;static	Version:	2020/09 V00.03

Features

- For temperature measurements between –40 °C and 1000 °C
- Temperature linear output 0/4 to 20 mA
- Ethernet interface 100 Mbit/s
- Intergrated web server
- Short response times from 10 ms
- Different fixed optics available
- Optionally integrated LED aiming light or laser aiming light adapter
- Robust stainless steel housing

Beschreibung und Anwendungen

The digital pyrometers PYROSPOT DT 47L are especially designed for industrial use. They are suitable for temperature measurements from –40 °C to 1000 °C on various non-metallic or coated metallic surfaces.

The solid construction in a compact IP65 stainless steel housing ensures use even under harsh environmental conditions.

With a response time of only 10 ms (t_{90}), these pyrometers are also suitable for fast measurements. Different optics variants realize measuring fields from 1.7 mm diameter.

The optional integrated LED pilot light allows the exact alignment of the pyrometer to the measuring object. Even at high temperatures, the pilot light can be seen very clearly.

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 into existing measurement and control systems.

Also for parameterization and measured value recording the comprehensive parameterization and evaluation software PYROSOFT Spot can be used.

Typical applications of the pyrometers are:

- Food
- Construction materials
- Paper and packaging
- Plastics
- Ceramics

Image source: Shutterstock.de/Mark Agnor
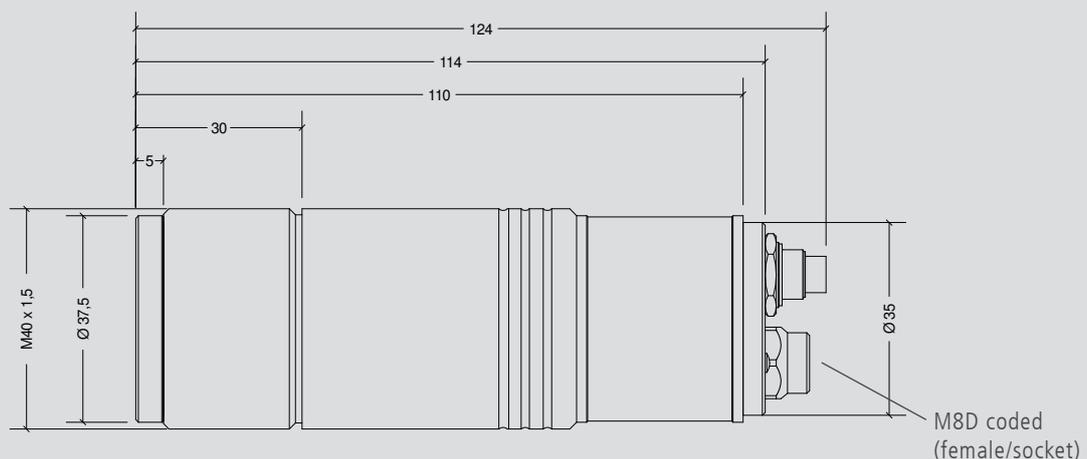
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Technical data

Type	DT 47L				DT 47L		
Measuring temperature range	−40 °C to 1000 °C				0 °C to 1000 °C		
Fixed optics Part numbers	100 4478241401	300 4478242401	800 4478243401	2000 4478246401	100 4478251402	300 4478252402	800 4478253402
Sub temperature range	adjustable within temperature range, minimum span 50 °C						
Spectral range	8 µm to 14 µm						
Distance ratio	approx. 50 : 1						
Measurement uncertainty [1]	0.6 % of measured value in °C or 1 K [2,5]						
Reproducibilty [1]	0.3 % of measured value in °C or 0,5 K [2,5]						
NETD [3]	0.1 K [4]						
Response time (t_{90})	10 ms (min.) [6], adjustable up to 100 s						
Emissivity	0.200 to 1.000						
Data storage	Minimum/maximum value storage						
Output	0/4 to 20 mA, temperature linear, max. burden: 700 Ω						
Interface	Ethernet 100 Mbit/s, web server, data protocoll Modbus-TCP						
Aiming	optional laser aiming light adapter				integrated LED aiming light		
Software	PYROSOFT Spot for Windows®, optional: PYROSOFT Spot Pro						
Parameters	adjustable via web server or Modbus-TCP: emissivity, response time, storage, sub range, transmittance, ambient compensation, analog output, pilot light additonally adjustbale via Modbus-TCP: network configuration						
Power supply	24 V DC ± 25 %, residual ripple 500 mV						
Power consumption	max. 1.5 W (without pilot light)						
Operating temperature	0 °C to 70 °C						
Storage temperature	−20 °C to 70 °C						
Weight	approx. 450 g						
Dimensions	thread M40 × 1.5, length 124 mm						
Housing	stainless stee housing with plug connectors, link LED						
Protection class	IP 65 (according to DIN EN 60529 and DIN 40050)						
CE symbol	according to EU regulations (EN 50 011)						
Lieferumfang	PYROSPOT DT 47L, user manual, mounting screw nuts, inspection sheet, PYROSOFT Spot for Windows® (without connection cable, please order separately)						

[1] Specifications for black body radiator, $T_{ambient}$ = 23 °C, t_{95} = 1 s. [2] Whichever is higher value. [3] Noise equivalent temperature difference. [4] $T_{ambient}$ = 23 °C, ε = 1, t_{95} = 200 ms, T_{Objekt} = 100 °C. [5] Applies from 100 °C with integrated LED pilot light. [6] DT 47L with LED t_{95} = 150 ms

Dimensional drawings


M8D coded (female/socket)

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

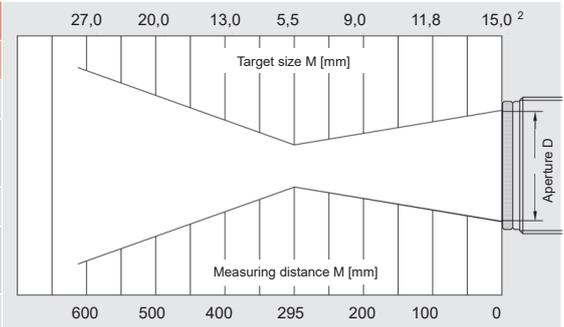#### Optics 100 (Focus point at a = 95/100 mm measurement distance)

Measurement distance a [mm]	0	50	95	100	200	250	300
Measurement range	Target size M [mm]						
DT 47L (–40 °C to 1000 °C) without LED pilot light	15	8.0	1.7	2.0	21	29	38
DT 47L (0 °C to 1000 °C) with LED pilot light [1]	13	7.8	3.0	2.5	18	26	34
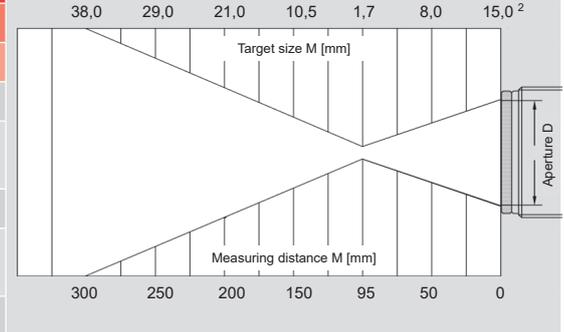
Optics 300 (Focus point at a = 270/295 mm measurement distance)

Measurement distance a [mm]	0	100	270	295	400	500	600
Measurement range	Target size M [mm]						
DT 47L (–40 °C to 1000 °C) without LED pilot light	15	11.8	6.3	5.5	13	20	27
DT 47L (0 °C to 1000 °C) with LED pilot light [1]	13	11.6	5.7	7.6	16	24	31

Optics 800 (Focus point at a = 750/780 mm measurement distance)

Measurement distance a [mm]	0	300	500	600	750	780	1000
Measurement range	Target size M [mm]						
DT 47L (–40 °C to 1000 °C) without LED pilot light	15	14.6	14.4	14.2	14.0	14.0	19.0
DT 47L (0 °C to 1000 °C) with LED pilot light	15	14.6	14.4	14.2	14.0	15.2	19.0
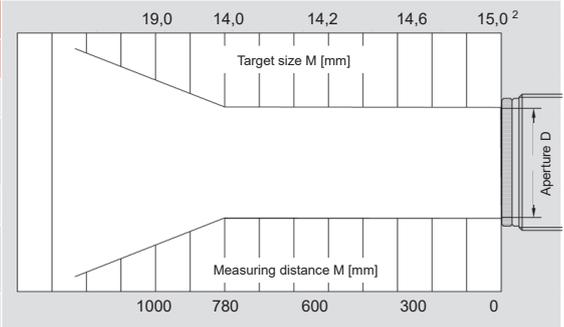
Optics 2000 (Focus point at a = 2000 mm measurement distance)

Measurement distance a [mm]	0	800	1200	1800	2000	2500	3000
Measurement range	Target size M [mm]						
DT 47L (–40 °C to 1000 °C) without LED pilot light	15	24	28	34	36	46	57
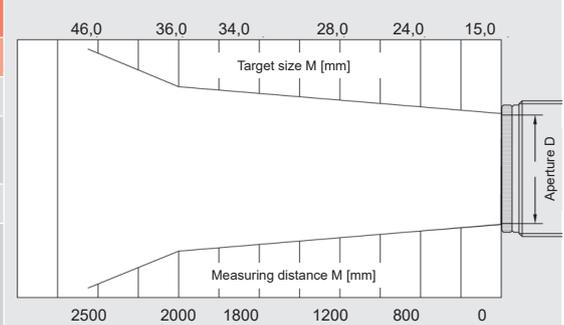
[1] With attachment tube, aperture D = 13 mm, length 24 mm, diameter 19 mm.
[2] Target size without LED pilot light.

Calculation of the target size

$$M_1 = \frac{a_1}{a} \times (M + D) - D$$

$$M_2 = \frac{a_2}{a} \times (M - D) + D$$

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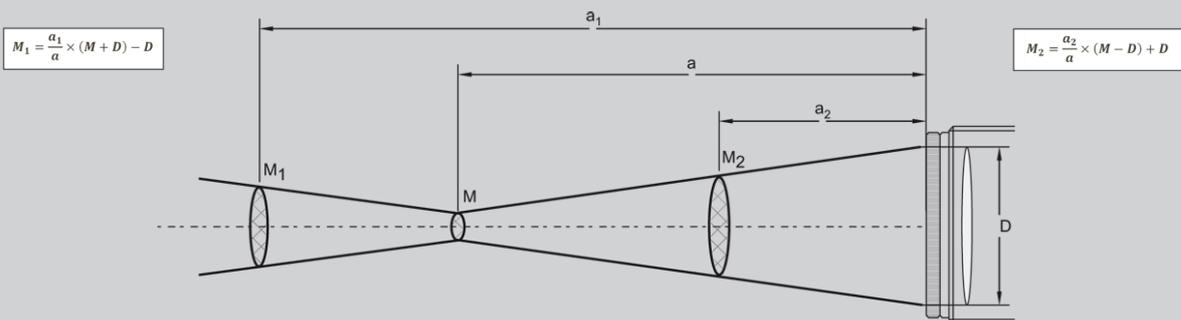
Electrical, mechanical and optical accessories[1]		Part number
Connection cable (5 pin)	length 5 m length 10 m length 15 m	3310A11512 3310A11513 3310A11514
Ethernet cable RJ45 (4 pin)	length 5 m length 10 m length 15 m	3310A11412 3310A11413 3310A11414
Power supply PSU 15	24 V DC, 0.6 A	3310A12010
Mounting 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
Sighting tube for air purge unit	length 100 mm length 300 mm	3310A22030 3310A22035
Mirror	90°, including air purge	3310A24110
Cooling jacket	stainless steel with integrated air purge unit	3310A23010
Vacuum flange	KF 16 (without window) with zinc selenide window	3310A24010 3310A24010 + 3310A34041
Protection window	zinc selenide window with threaded ring	3310A34042
Ball flange	with sleeve	3310A24020 + 3310A24021
Laser pilot light adapter	screw-on attachment (only for version without integrated LED pilot light)	3310A33010
[1] More accessories on request.		

Selected accessories – images

Mounting angle, adjustble
Part number: 3310A21011

Cooling jacket
Part number: 3310A23010

Air purge unit
Part number: 3310A22010

Window slide
Part number: 3310A21210 (ohne Scheibe)

Laser pilot light adapter
Part number: 3310A33010

Power supply PSU 15
Part number: 3310A12010

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