PYROSPOT DA 47M

Ethernet pyrometer for industrial application

Overview

Digital pyrometers with Ethernet interface and web server

DIAS Pyrometer — Integrated web server

DA 47M **27.7°C**	Password: ····
Aiming light: [*]	Unit in °F: ☐
Aiming light ON at start: ☐	

Parameter

Emissivity ε:	1.000	Transmittance:	100.0 %
Response time t95:	Min	Peak memory:	Off Min ○ Max ○
Sub range begin (4mA):	20.0 °C	Sub range end (20mA):	850.0 °C
Output:	4..20mA	Ambience compensation:	auto °C Auto ☑ Active ☑

SUBMIT REFRESH

Information

Device temp.:	32.5°C		
Range:	20.0°C...850.0°C	Optics:	Ø 6.0 @ 300mm
Serial number:	7430001	Item number:	4479152401

Features

- For temperature measurements between 20 °C and 1000 °C
- Temperature linear output 0/4 to 20 mA
- Ethernet interface 100 Mbit/s
- Intergrated web server
- Short response times from 5 ms
- Different fixed optics available
- Optionally integrated LED aiming light or laser aiming light adapter
- Robust stainless steel housing

Description and application

The digital pyrometers PYROSPOT DA 47M are especially designed for industrial use. They are suitable for temperature measurements from 20 °C to 1000 °C in the medium spectral range (MWIR) from 3 µm to 5 µm.

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

With a response time of only 5 ms (t_{95}), these pyrometers are also suitable for fast measurements. Different optics variants realize measuring fields from 1.6 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:

- Steel industry
- Kiln engineering
- Soldering systems
- Ceramics industry
- Metal industry
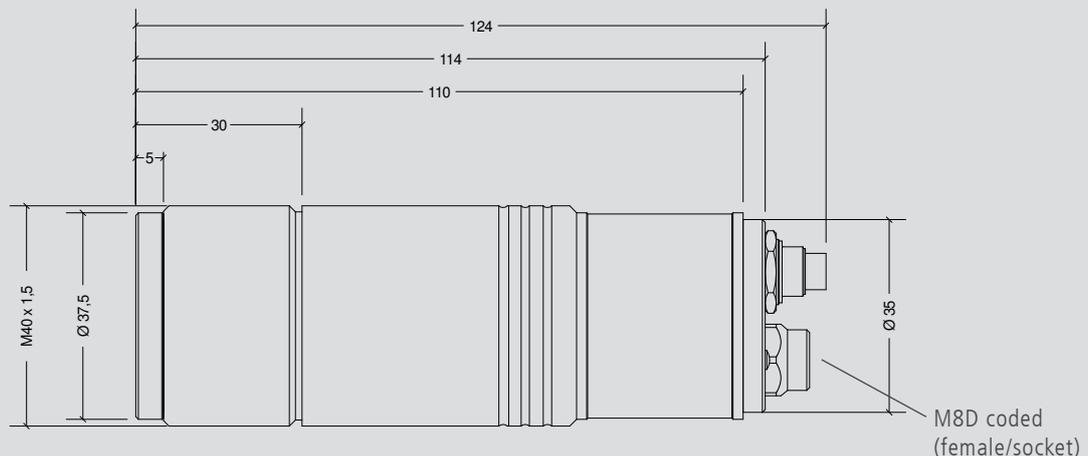

Image source: Shutterstock.de/asharkyu

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DIAS
Infrared Systems

Technical data		
Type	**DA 47M**	**DA 47M**
Measuring temperature range	20 °C to 850 °C	30 °C to 1000 °C
Sub temperature range	adjustable within temperature range, minimum span 50 °C	
Spectral range	3 µm to 5 µm	
Optics	different fixed optics (type 100, 300 and 800), aperture diameter D = 15 mm	
Distance ratio	approx. 50 : 1	
Measurement uncertainty [1]	0.6 % of measured value in °C or 1 K [2]	
Reproducibilty [1]	0.3 % of measured value in °C or 0.5 K [2]	
NETD [3]	0.1 K [4]	
Response time (t_{95})	5 ms (min.), adjustable up to 100 s	
Emissivity	0.050 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: integrated LED aiming light or laser aiming light adapter	
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 steel with plug connectors, link LED	
Protection class	IP 65 (according to DIN EN 60529 and DIN 40050)	
CE symbol	according to EU regulations	
Scope of delivery	PYROSPOT DA 47M, 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} = 100 ms, $T_{Object\ (20\ °C\ to\ 850\ °C)}$ = 100 °C, $T_{Object\ (30\ °C\ to\ 1000\ °C)}$ = 200 °C.

Maßzeichnung

M8D coded
(female/socket)

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DIAS Infrared Systems

Optics types 100, 300 and 800

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

Measurement distance a [mm]	0	50	95	150	200	250	300
Mesurement range	Target size M [mm]						
DA 47M (20 °C to 1000 °C) without LED pilot light	15.0	7.9	1.6	11.0	20.0	28.0	37.0
DA 47M (20 °C to 1000 °C) with LED pilot light [1]	13.0	7.1	1.7	11.0	18.0	26.0	34.0

Target size M [mm]: 37,0 28,0 20,0 11,0 1,6 7,9 15,0 [2]
Measuring distance M [mm]: 300 250 200 150 95 50 0
Aperture D
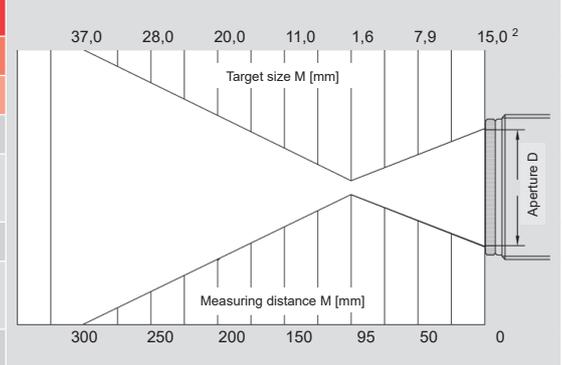
Optics 300 (Focus point at a = 250/260 mm measurement distance)

| Measurement distance a [mm]	0	100	250	260	400	500	600
Mesurement range	Target size M [mm]						
DA 47M (20 °C to 1000 °C) without LED pilot light	15.0	10.8	4.6	4.2	15.0	22.0	29.0
DA 47M (20 °C to 1000 °C) with LED pilot light	15.0	11.0	4.5	5.3	17.0	25.0	32.0

Target size M [mm]: 29,0 22,0 15,0 4,2 4,6 10,8 15,0 [2]
Measuring distance M [mm]: 600 500 400 260 250 100 0
Aperture D
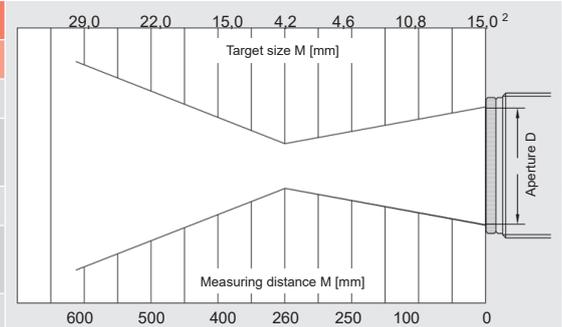
Optics 800 (Focus point at a = 800 mm measurement distance)

Measurement distance a [mm]	0	300	500	600	800	1000	1200
Mesurement range	Target size M [mm]						
DA 47M (20 °C to 1000 °C) without LED pilot light	15.0	14.6	14.4	14.3	14.0	18.0	24.0
DA 47M (20 °C to 1000 °C) with LED pilot light	15.0	14.6	14.4	14.3	14.0	18.0	24.0

Target size M [mm]: 24,0 18,0 14,0 14,3 14,4 14,6 15,0
Measuring distance M [mm]: 1200 1000 800 600 500 300 0
Aperture D
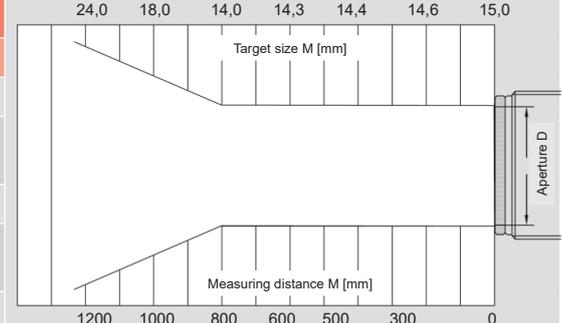
[1] With attachment tube, aperture D = 13 mm, length 24 mm, 19 mm   [2] Target size without LED pilot light.
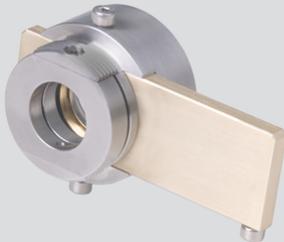
Calculation of the target size

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

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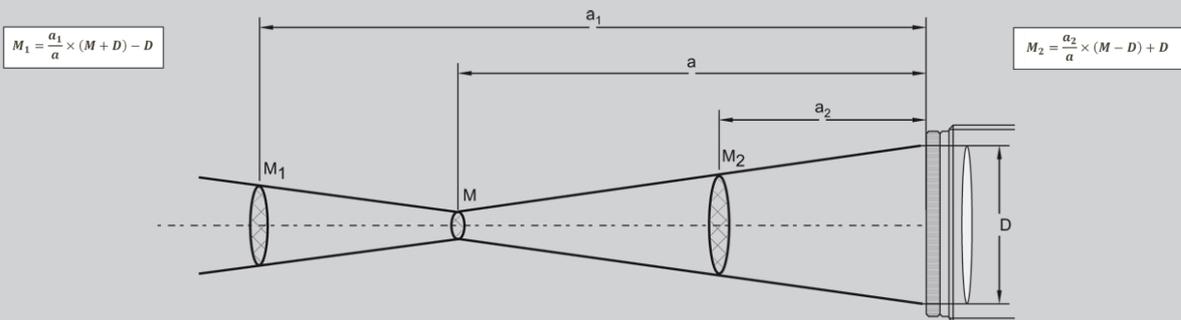
Part numbers

Device	Optics	100	300	800
DA 47M (20 °C to 850 °C)		4479141401, 4479151401 (LED)	4479142401, 4479152401 (LED)	4479143401, 4479153401 (LED)
DA 47M (30 °C to 1000 °C)		4479141402, 4479151402 (LED)	4479142402, 4479152402 (LED)	4479143402, 4479153402 (LED)
(LED = with LED pilot light)				

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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 calcium fluoride window	3310A24010 3310A24010 + 3310A34031
Protection window	calcium fluoride window with threaded ring	3310A34032
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