METIS MY45 / MY46 / MY47

Non-contact temperature measurement of flames and hot gases containing CO_2

The pyrometer models **METIS MY45**, **46** and **47** (TÜV certified) with pyroelectric detector measure in a narrow-band wavelength range, which is particularly suitable for measuring the temperature of hot CO_2 and at the same time avoids the absorption band of cold CO_2.
The appropriate wavelength range depends on the CO2 concentration, layer thickness and the temperature profile. In general, the MY45 is used with smaller flames or with a smaller layer thickness.

Temperature ranges: 400-1300°C (MY45 / MY46 / MY47)
500-1500°C (MY45 / MY46)
500-2000°C (MY45 / MY46)

Chart 1: Focusable optics Metis MY45 / 46 / 47

Optics	Distance	Spot size diameter Ø
OM45-D0	190 mm	2.5 mm
	400 mm	5.6 mm
	900 mm	12.6 mm
OM45-L0	250 mm	3.3 mm
	1500 mm	18 mm
	4000 mm	48 mm

Optics: The infrared radiation emanating from the measuring object is transmitted to the detector either via a fixed or focusable optics (MY47 only fixed optics, focused at 600 mm). The lens material used for the optics consists of CaF_2 (calcium fluoride). For measurements through viewing windows, a material with comparable transmission properties should be used.
The tables describe the conical course of the beam path from the lens aperture to the focal plane. The beam path then widens again. The field of vision must absolutely remain free of disturbing objects.

The focusing feature allows control of the cone of vision and offers the possibility to measure either a small spot (focused) or the average of a bigger spot (out of focus).

For full scale temperatures up to 1300°C the cone of vision diameter in front of the lens is about 16 mm and about 9 mm for full scale temperatures above. The spot size diameter for distances not given in the chart can be calculated by interpolation.

Chart 2: Fixed-Focus optics Metis MY45 / 46 / 47

Lens	Aperture Ø	Distance	Spot size Ø	
			MB13./ 15	MB20
OM45-0E	16 mm	1200 mm	7.5 mm	6 mm
OM45-0G	16 mm	800 mm	4.5 mm	4 mm
OM45-0D	16 mm	600 mm	3.5 mm	3 mm
Chart 3: Fixed-Focus optics for MY47 (TÜV certified)				
OM45-0D	16 mm	600 mm	8	–

Optical Alignment: For the optical alignment of the pyrometer to the measured object, there are two alternatives: The first method is the built-in laser pointer which is helpful in dark environments. For measurement tasks which make the inspection of the optical alignment during operation necessary, we recommend the version with through the lens sighting.

Output Signals: METIS Pyrometers offer a variety of analogue and digital output signals for displaying, controlling and archiving of measured process temperatures. The galvanically isolated analogue output is selectable from 0-20 mA or 4-20 mA. Start and end of the application for the customers required temperature span can be freely set-up within the stated temperature range. Minimum span: 51°C.
There is a choice of 2 digital communication interfaces: **RS232** or **RS485** with a maximum of 19.2 kBd (MY47 only RS485).

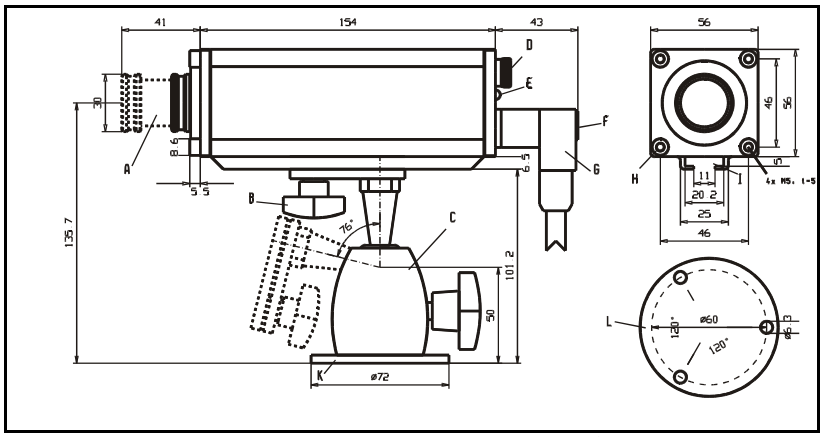
Software: The ***SensorTools*** software is standardly available for the automatic, process-reliant, parameters of the pyrometer, for the display and for the graphic and tabular file recording of the measured temperatures. At the same time, these files can be used for quality assurance purposes since the pyrometers parameter settings are recorded as well. **System requirements**: PC with min Windows 7.

Technical Data

Model	**MY45**	**MY46**	**MY47**
Model option	Standard		**TÜV** certified according to DIN EN 15267-3 [1]
Spectral range	4,5 µm	4,6 µm	
Temperature ranges	400-1300°C, 500-1500°C and 500-2000°C		400 – 1300°C
Measurement uncertainty	1°C + 0.5% - (T_a = 23°C, ε = 1, t_{90} = 1 s)		
Repeatability	0.1% of measured temperature in °C + 1°C - (T_a = 23°C, ε = 1, t_{90} = 1 s)		
Response time t_{90}	100 ms adjustable up to 10 s		
Analogue output signal	0 or 4 – 20 mA selectable, max. Load: 500 Ω		
Digital communication:	RS232 or RS485 (half duplex) 19.2 kBaud max		
Emissivity range:	0.20 – 1.00		
Temperature resolution	Analog: < 0.1% adjusted temperature range, digital: 0.1°C		
Power Supply	24 V AC/DC (15 – 30 V AC/DC), AC: 48 – 62 Hz, max. 2.5 VA		
Isolation	power supply, analogue and digital outputs are galvanically isolated from each other and from the housing		
Laser aiming light (option):	λ=650 nm, < 1 mW, class II per IEC 60825-1-3-4		
Weight	700 g		
Housing and rating	Aluminum, IP65 per DIN 40 050		
Ambient temperature	Pyrometer: operation: 0 – 70°C, storage: -20 – 80°C		
Rel. humidity:	No condensing conditions		
CE label	According to EU directives for electromagnetic compatibility (EMC)		

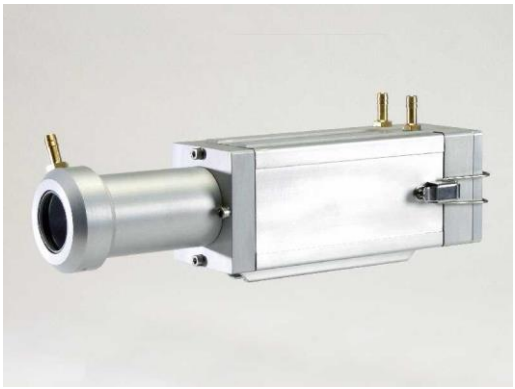
Dimensions:

METIS MY with focusable optics and swivel base HA20 (accessory)

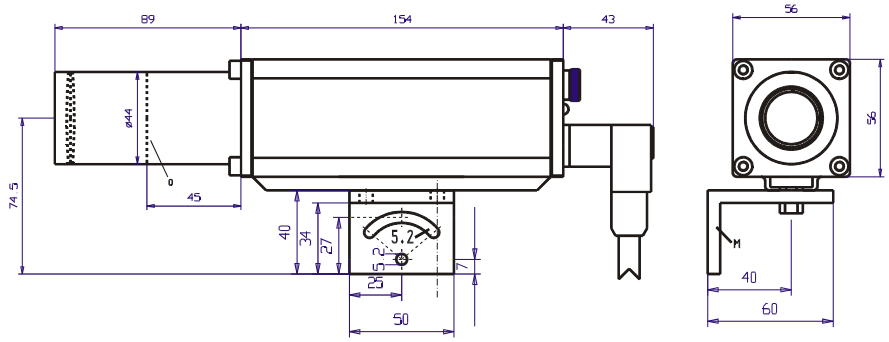


A: Focusable Lens
B: Fast-Mount Screw
C: Swivel Mounting Base
D: Eye Piece (sight-through optics)
E: Operation LED
F: Laser Push Button
G: 12-pin Connector
H: Front-Mount Threads
I: Mounting Rail
K: Swivel Base Mounting Flange
L: Base View of item K with Mounting Holes
M: Mounting Bracket

Water Cooling Jacket accessory KG10
for use in ambient temperatures up to 200°C



Metis MY45 with Fixed Focus Lens and **Mounting Bracket HA10** (accessory)



Depending on model, the lens tube length is either 45 mm or 89 mm.

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