More Precision

interferoMETER IMS5400-DS1/VAC

- Absolute measurement with nanometer resolution, suitable for the measurement of e.g. step profiles
- Measuring rate up to 6 kHz for high speed measurements
- Miniature sensor with 4 mm diameter
- Vacuum compatible sensor
- Ethernet / EtherCAT / RS422
- Robust controller with passive cooling
- Easy configuration via web interface

Model		IMS5400-DS1/VAC
Measuring range	Distance	1 mm
Start of measuring range		1 mm
Resolution [1]		< 1 nm
Measuring rate		continuously adjustable from 100 Hz to 6 kHz
Linearity [2]		< ±50 nm
Temperature stability	Sensor	Linearity: typ. 0.1 nm / K (without offset displacement)
	Controller	temperature compensated, stability < 10 ppm between +15 ... +35 °C
Light source		NIR-SLED, wavelength 840 nm; pilot laser: laser LED, wavelength 635 nm
Laser class		Class 1 according to DIN EN 60825-1: 2015-07; pilot laser: Class 1, power (< 0.2 mW)
Light spot diameter [3]		10 μm
Measuring angle [4]		±2°
Target material		Glass, reflecting or diffuse surfaces [5]
Supply voltage		24 VDC ±15 %
Power consumption		approx. 10 W (24 V)
Signal input		Sync in, trigger in, 2x encoders (A+, A-, B+, B-, index)
Digital interface		Ethernet / EtherCAT / RS422 / PROFINET [6]/ EtherNet/IP [6]
Analog output		4 … 20 mA / 0 ... 10 V (16 bit D/A converter)
Switching output		Error1-Out, Error2-Out
Digital output		sync out
Connector	Optical	Sensor with integrated vacuum optical fiber; length 2 m and FC/APC connector. Extendable via pluggable optical fiber via E2000 socket (controller) and FC socket (vacuum feed through); standard length 3 m, 5 m and 10 m; other cable lengths on request; bending radius: static 30 mm, dynamic 40 mm
	Electrical	3-pin supply terminal strip; encoder connection (15-pin, HD-sub socket, max. cable length 3 m, 30 m with external encoder supply); RS422 connection socket (9-pin, Sub-D, max. cable length 30 m); 3-pin output terminal strip (max. cable length 30 m); 11-pin I/O terminal strip (max. cable length 30 m); RJ45 socket for Ethernet (out) / EtherCAT (in/out) (max. cable length 100 m)
Mounting	Sensor	Clamping, mounting adapter (see accessories)
	Controller	free-standing, DIN rail mounting
Temperature range	Storage	-20 … +70 °C
	Operation	Sensor: +5 … +70 °C; controller: +15 … +35 °C
Shock (DIN EN 60068-2-27)		15 g / 6 ms in XY axis, 1000 shocks each
Vibration (DIN EN 60068-2-6)		2 g / 20 … 500 Hz in XY axis, 10 cycles each
Protection class (DIN EN 60529)	Sensor	IP40
	Controller	IP40
Vacuum		UHV (cable and sensor)
Material	Sensor	Stainless steel
	Controller	Aluminum housing, passive cooling
Control and indicator elements		Multifunction button: two adjustable functions and reset to factory settings after 10 s; web interface for setup: selectable presets, freely selectable averaging, data reduction, setup management; 6 x color LEDs for intensity, range, SLED, pilot laser, status and power; pilot laser: can be switched on for sensor alignment

All data at constant ambient temperature (24 ± 2 °C)
[1] Measuring rate 0.5 kHz, moving average over 64 values, measured differentially between the front and back of a thin glass plate in the mid of the measuring range (2 sigma)
[2] Maximum deviation from reference system over entire measuring range, measured on front surface of ND filter
[3] In the mid of the measuring range
[4] Maximum sensor tilt angle that produces a usable signal on polished glass (n = 1.5) in the mid of the measuring range. The accuracy decreases when approaching the limit values.
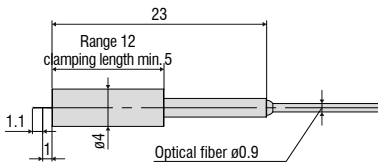[5] Non-transparent materials require optically dense surface at a wavelength of 840 nm
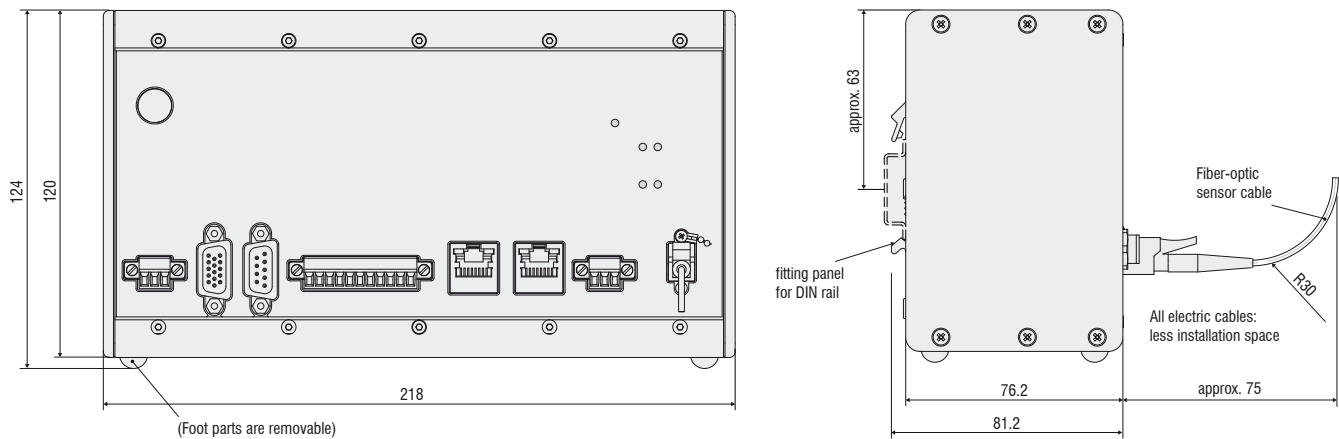[6] Optional connection via interface module (see accessories)

MICRO-EPSILON

Dimensions:

Sensor

23

Range 12
clamping length min. 5

1.1

1

ø4

Optical fiber ø0.9

Controller

124

120

218

(Foot parts are removable)

approx. 63

fitting panel
for DIN rail

Fiber-optic
sensor cable

R30

All electric cables:
less installation space

76.2

81.2

approx. 75

Sensor mounting adapter

ø8

ø4.5

4.4

8

10

M4

4x M4

0.5x45°

9

16

9

16

34

ø2.5

ø10

2

8

18

34

28
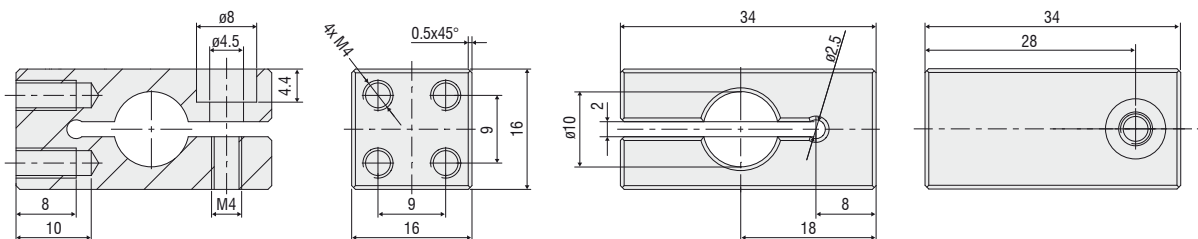
Dimensions in mm,
not to scale.

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