

More Precision



interferoMETER IMS5400-DS0.5/90/VAC

- Absolute measurement with nanometer accuracy, suitable for the measurement of e.g. step profiles
- Compact sensor for UHV and with right angle deflection
- Measuring rate up to 6 kHz for high speed measurements
- Ethernet / EtherCAT / RS422
- Robust controller with passive cooling
- Easy configuration via web interface



Model	IMS5400-DS0.5/90/VAC	
Measuring range	1.5 mm	
Start of measuring range	approx. 0.5 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	
Connection	Optical	pluggable optical fiber via E2000 socket (controller) and FC socket (sensor); 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 the 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.

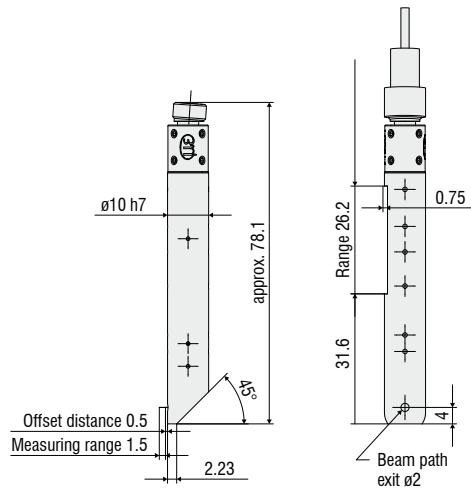
⁵⁾ Non-transparent materials require optically dense surface at a wavelength of 840 nm

⁶⁾ Optional connection via interface module (see accessories)

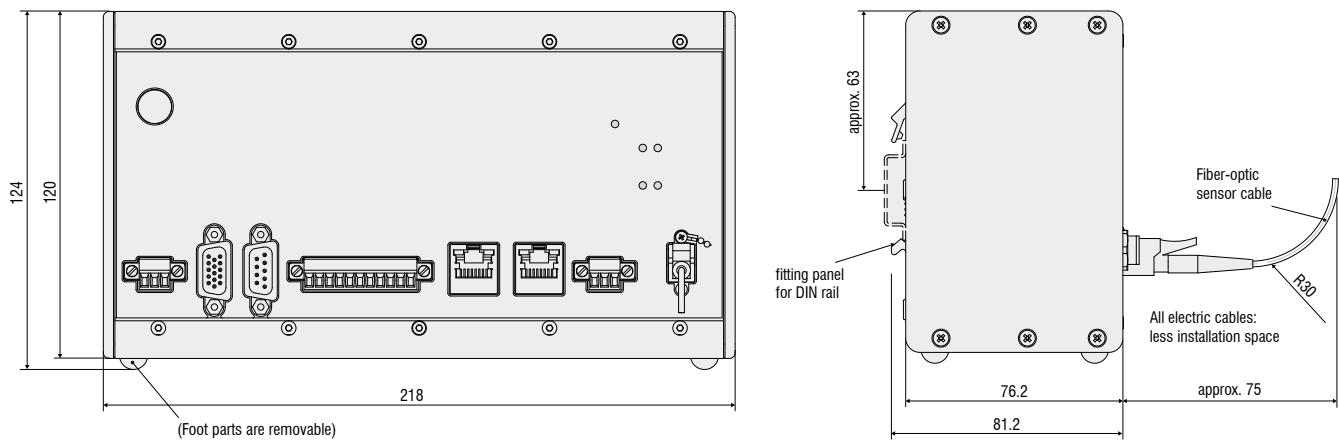
interferoMETER IMS5400-DS0.5/90/VAC

Dimensions:

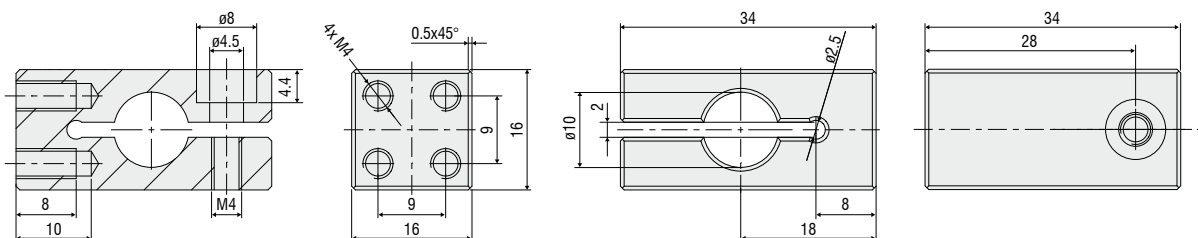
Sensor



Controller



Sensor mounting adapter



(dimensions in mm, not to scale)