

More Precision



interferoMETER IMS5400-DS35/VAC

- Absolute measurement with nanometer resolution
- Large offset distance for difficult-to-access or low areas
- Compact sensor design: Easy integration into confined spaces
- Multi-layer measurement of up to 13 layers
- Measuring rate up to 6 kHz for fast measurements
- Ethernet / EtherCAT / RS422 / PROFINET / EtherNet/IP
- Robust controller with passive cooling
- Easy configuration via web interface



Model		IMS5400-DS35/VAC	IMS5400MP-DS35/VAC
Measuring range	Distance	2.1 mm	
	Thickness	-	0.01 ... 1.3 mm ^[1]
Start of measuring range		approx. 35 mm	
Resolution ^[2]		< 1 nm	
Measuring rate		continuously adjustable from 100 Hz to 6 kHz	
Linearity ^[3]		< ±50 nm	< ±50 nm for the first distance; < ±150 nm for each further distance
Multi-peak measurement		-	up to 13 layers
Temperature stability	Sensor	Linearity: typ. 0.1 nm / K (without offset shift)	
	Controller	temperature compensated, stability < 10 ppm between +15 ... +35 °C	
Light source		NIR-SLED, narrow wavelength band at approx. 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 ^[4]		15 μm	
Measuring angle ^[5]		±1°	
Target material		Glass, reflecting or diffuse surfaces ^[6]	
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 ^[7]		Ethernet / EtherCAT / RS422 / PROFINET / EtherNet/IP	
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 fiber optical fiber via E2000 socket (controller) and FC socket (sensor); see accessories for cable lengths	
	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	Radial 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	IP30	
	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	

^[1] Measuring range for BK7 with refractive index n = 1.5

^[2] All data at constant ambient temperature (24 ±2 °C). 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)

^[3] Maximum deviation from reference system over the entire measuring range, measured on front surface of ND filter

^[4] In the mid of the measuring range

^[5] 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.

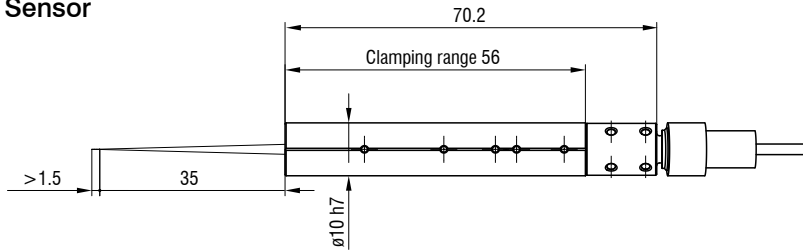
^[6] Non-transparent materials require an optically opaque surface at a wavelength of 840 nm; intensity optimized for measurements on silicon

^[7] PROFINET / EtherNet/IP: Optional connection via interface module

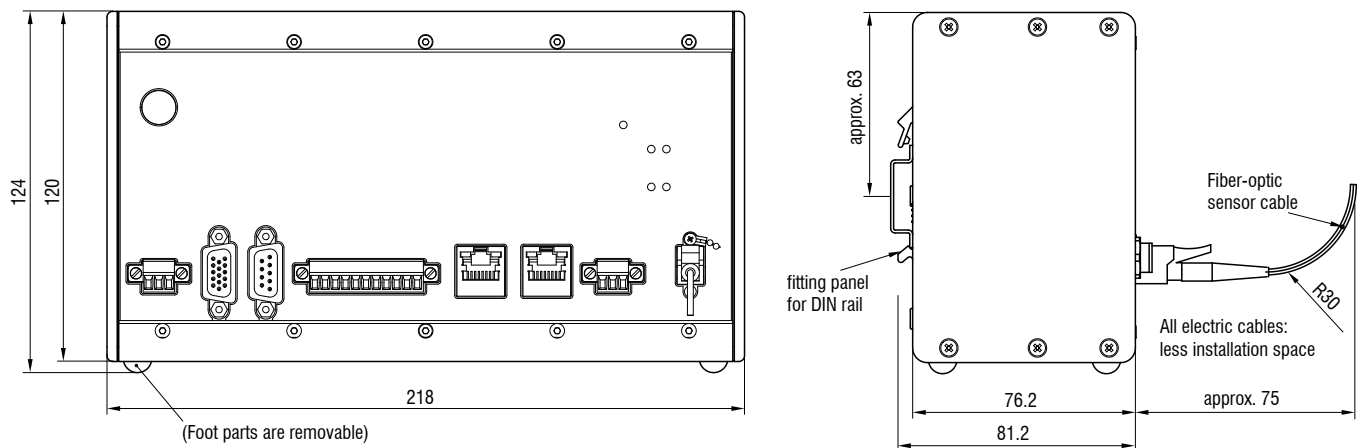
interferoMETER IMS5400-DS35/VAC



Sensor

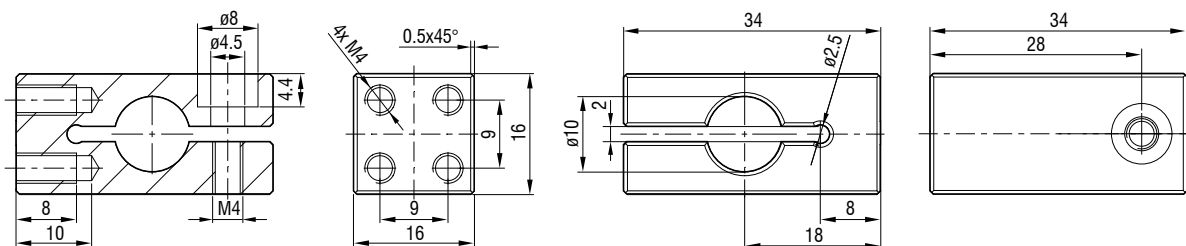


Controller



Accessories

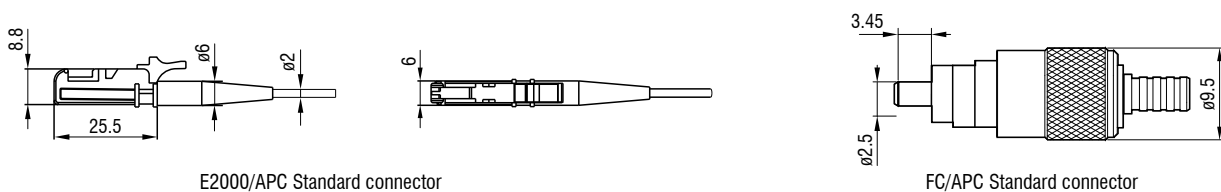
Sensor mounting adapter MA5400-10



Optical fiber:

C5401-x, available in lengths of 2 m, 3 m, 5 m, 10 m; other lengths up to 20 meters available upon request

Connector



(dimensions in mm, not to scale)