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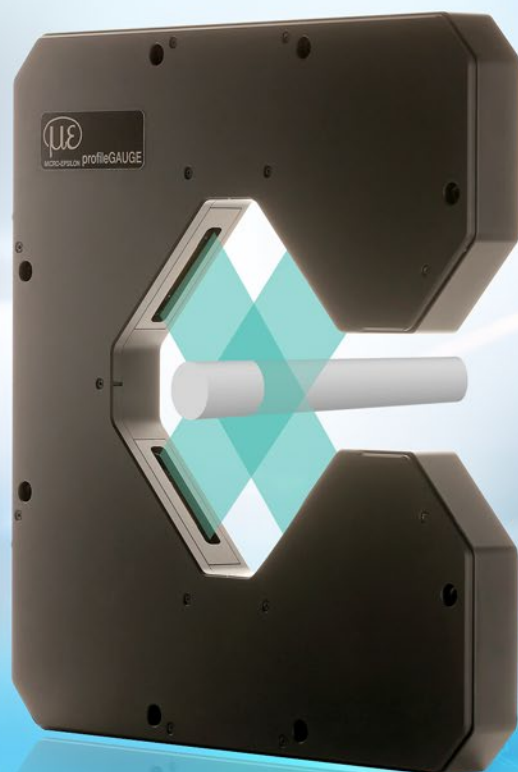
Web: www.scigate.com.sg

Business Hours: Monday - Friday 8.30am - 6.15pm

More Precision

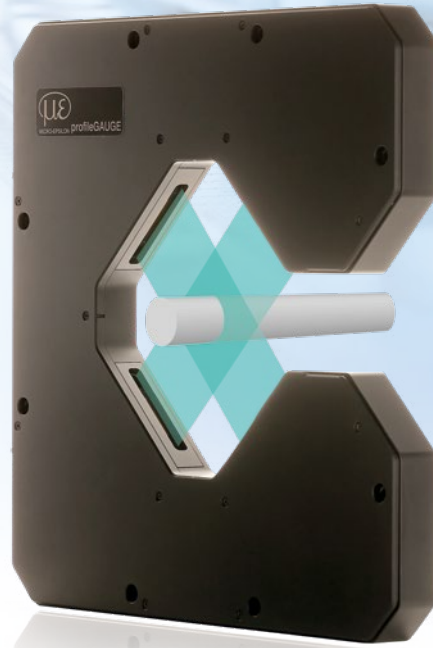
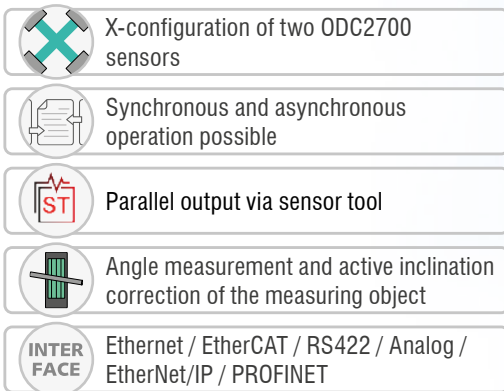
profileGAUGE

Measuring and inspection system for (inline) profile measurement



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profileGAUGE



The profileGAUGE is a precise sensor system for biaxial measurement of the profile, diameter, and position of ultra-fine wires and round materials. Two pre-mounted optoCONTROL ODC2700 micrometers arranged in an X-configuration measure the target on two axes. The system is fully aligned and wired. The statistical values of both axes can be calculated downstream by the customer. The common fieldbus interfaces EtherCAT, EtherNET/IP, or PROFINET are available as standard.

Inline round profile and diameter measurement

The profileGAUGE can be used to perform non-contact diameter measurements from 30 μm . The active inclination correction of the two ODC2700 micrometers on two axes avoids measurement errors caused by a tilted measuring object, as the measurement values are automatically adjusted to the inclination - and therefore the alignment of the measuring object. The inclination correction is performed up to 5000 times per second for each output measurement value in the measurement programs for outside diameter, wire and contour measurement. Based on a high-precision optical method, the integrated ODC2700 micrometers reliably detect transparent objects, enabling the measurement of transparent glass or plastic.

Reliable and precise measurements

The extremely short exposure time of 8.5 μs easily enables very precise measurements of objects that vibrate or move at high speed through the light curtain. Synchronous or optionally asynchronous measurement acquisition allows for measurement values at exactly the same time in both axes. This means, for example, that center axis positions can also be determined in motion with maximum precision.

A shared encoder input is available for both axes, providing further system-related information or trigger functionality.

Soiling check

The integrated soiling check feature identifies soiling on the lenses at an early stage, enabling the system to compensate accordingly and prevent measurement distortion. This prevents failures and malfunctions. Via the integrated interfaces, the optoCONTROL 2700 provides information on the degree of soiling on request, e.g. at maintenance intervals. The intelligent evaluation detects even minor soiling, both on the glass panes and in the measuring field. Dust particles or oil splashes, for example, which are invisible to the human eye, are reliably detected.

Three types of soiling can be output:

- **Clean:** no soiling detected in the entire measuring range
- **Restricted:** detected soiling is in the ignored area
- **Contaminated:** detected soiling is in the relevant area

Optional accessories

The profileGAUGE can optionally be fitted with a protective glass or an air purge collar. The former ensures that the glass of the ODC2700 micrometers is not damaged in harsh environments. The purge collar is used to blow out the LED beam path so that no foreign particles affect the measurement accuracy.

Model		C.ODC-10/2	C.ODC-10/2.PG	C.ODC-10/2.PGA	C.ODC-40/2	C.ODC-40/2.PG	C.ODC-40/2.PGA
Sensor used		ODC2700-10			ODC2700-40		
Measuring range		10 mm			40 mm		
Min. target size ^[1]		0,05 mm (0,03 mm)			0,3 mm (0,1 mm)		
Distance light source - receiver		300 mm			300 mm		
Measuring distance target - receiver		150 (±2,5) mm			150 (±10) mm		
Version		without protective glass attachment and air purge	with protective glass attachment	with protective glass attachment and air purge	without protective glass attachment and air purge	with protective glass attachment	with protective glass attachment and air purge
Sampling rate ^[2]		15.0 kHz					
Measuring rate ^[3]		5.0 kHz					
Exposure time ^[4]		8.5 μs					
Resolution ^[5]		10 nm					
Linearity ^[6]		≤ 0.5 μm ^[7]			≤ 1 μm ^[8]		
Repeatability ^[6]		≤ 0.03 μm			≤ 0,1 μm		
Light source		LED turquoise 508 nm (blue-green)					
Laser class		no laser, LED according to DIN EN 62471 risk group 1			no laser, LED according to DIN EN 62471 risk group 1		
Permissible extraneous light		30,000 lx indirect; 5000 lx direct irradiation					
Supply voltage		11 ... 30 VDC					
Max. current consumption		≤ 1 A					
Signal input		3x inputs (for both axes) optionally for encoder, zero point, reset, trigger; light on/off (can be switched off via menu)					
Digital interface ^[9]		Ethernet, RS422 (up to 8 Mbaud) EtherCAT, EtherNet/IP, PROFINET					
Switching output		3 outputs (per axis), optionally for error and 2x limit values, not galvanically isolated 24V logic (HTL), High level depends on operating voltage Switchable TTL level					
Digital output		Synchronization					
Connection	Receiver	2x 12-pin M12 sockets for power supply, sync, and RS422, 2x 4-pin M12x1 sockets for Ethernet or fieldbus, 1x 12-pin M12 plug for outputs (errors, limit values) - inputs (trigger/encoder)					
Mounting		Both a feed-through connection with 8 × M10 and a screw connection with 8 × M12 screws are possible.					
Temperature range ^[10]	Storage	-20 ... +70 °C					
	Operation	0 ... +50 °C					
Shock (DIN EN 60068-2-27)		15 g / 6 ms in XY axis, 100 shocks each					
Vibration (DIN EN 60068-2-6)		2 g / 20 ... 500 Hz in XY axis, 10 cycles each					
Protection class (DIN EN 60529)		IP67 (with protective glass and connected cables)					
Material		Aluminum housing					
Weight		26 kg					
Measuring programs		Diameter / gap / segment measurement / edge measurement with rising or falling edge / search and measurement direction / additional detection of edge positions and center axes					
Presets		Strip edge / wire measurement / (outer) diameter incl. inclination correction / contour measurement incl. encoder value / Multi-segment as well as roller, gap and angle measurement					
Control and indicator elements		4x LEDs (Power, Status, Link, Speed) Website: Inclination correction, soiling indicator, 6 application-specific presets, freely selectable averaging, data reduction, 8 editable user programs, value-time charts, measurement chart in mm/inch, video signal, setup mode with measuring line and measuring object; menu languages: German, English, and others					
Special features		Includes "sensorTOOL" software for data acquisition and processing, "MedaQLib" programming library					

^[1] Value in brackets related to the mid of the measuring range

^[2] Number of measurements taken per second

^[3] Number of measured values that are output at the sensor interface

^[4] With video averaging switched on = 3 x 8.5 µs exposures per measurement

^[5] At the digital interface

^[6] The data applies to a 95% confidence interval for diameter measurements with an average of 1024 values over a period of 5 minutes in a temperature-stabilized environment after a warm-up time of 45 minutes.

^[7] Measured with 2 mm testing pin at a measurement distance of 150 mm in measuring field 1 (Z=±0.5 mm) linearity ≤ 0.5, in measuring field 2 (Z=±1.5 mm) linearity ≤ 1 µm, in measuring field 3 (Z=±2.5 mm) linearity ≤ 2,5 µm

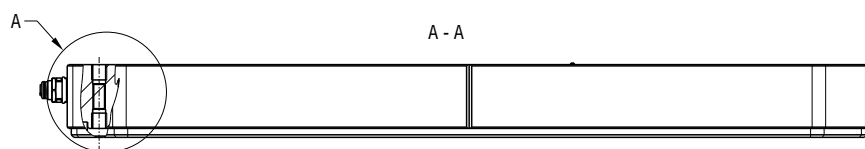
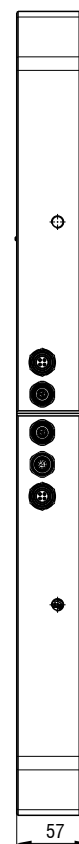
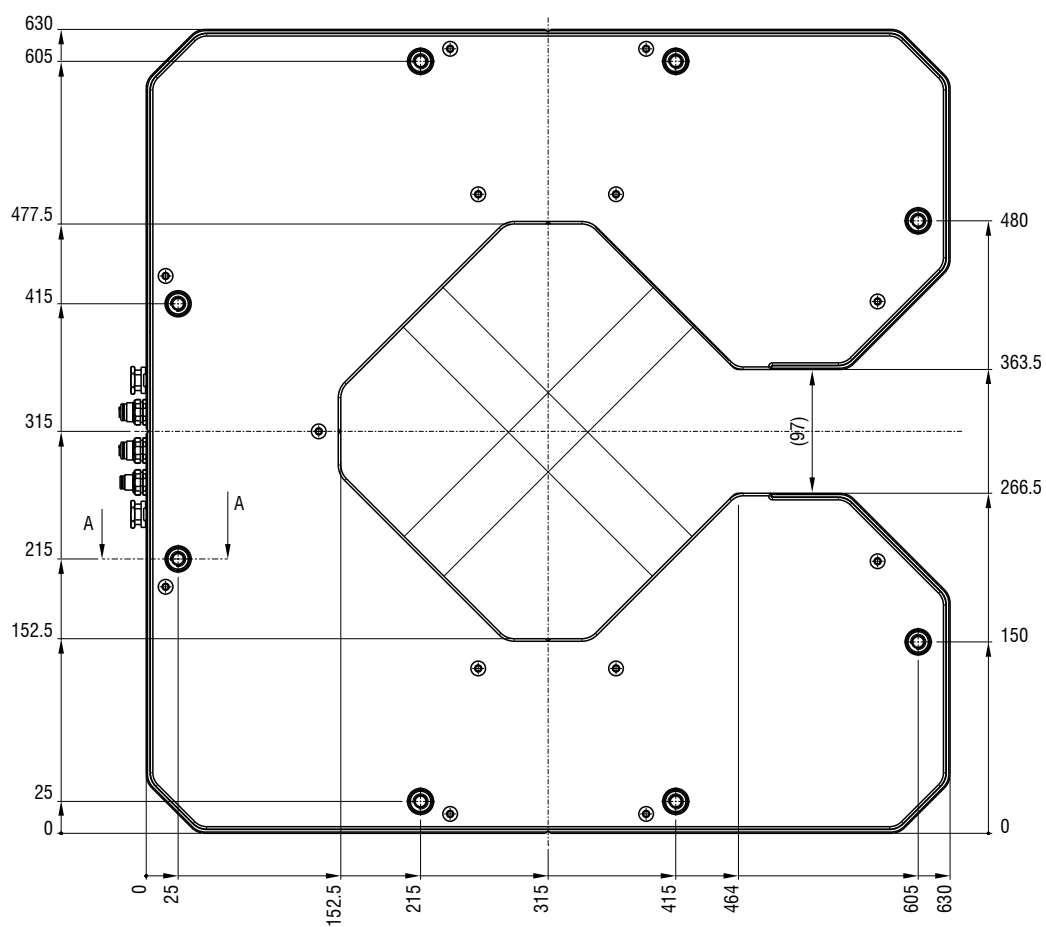
^[8] Measured with 2 mm testing pin at a measurement distance of 150 mm in measuring field 1 (Z=±2.5 mm). In measuring field 2 (Z=±10 mm) linearity ≤ 3 µm - 95% confidence interval

^[9] EtherCAT, PROFINET, and EtherNet/IP: Connection via interface module (see accessories) or directly in the sensor "on board" as an alternative to Ethernet on request

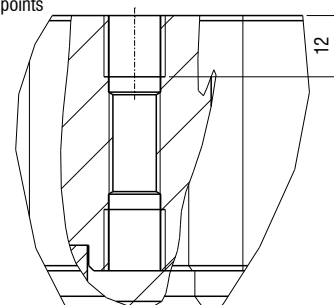
^[10] Relative humidity % 5 ... 95 (non-condensing)

Dimensions

profileGAUGE



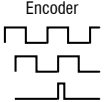
A
2:1
8x fixing points



(Dimensions in mm, not to scale)

Interface modules and accessories

profileGAUGE

Connection	Interface modules	Connection cables	Mounting
Power supply 2420096 (24V; 1A) 2420062 (24 VDC/2,5 A) Power supply Power supply unit PS2031 2420096 Power supply unit PS2020 2420062		Supply, interface and signal cables with open ends PC/SC2700-3 (3 m) 29011452 PC/SC2700-5 (5 m) 29011453 PC/SC2700-10 (10 m) 29011454 PC/SC2700-20 (20 m) 29011455 	
PLC ProfiNET / EthernetIP 	IF2035-EtherCAT 2211036 IF2035-PROFINET 2211039 IF2035-EtherNetIP 2211038 		
Serial RS422	Direct RS422 OE to PC		
Digital output / USB / Ethernet 	IC2001/USB 2213041 Converter cable  IF2001/USB 2213025 Converter 		
Serial RS422	Direct RS422 to PC		
Analog 0 ... 10 V	IF2004/USB 2213024  IF2008PCIE 2213032  IF2008E 2213018 	Interface and supply cables for IF2008; PC/SC2700-3/IF2008 (3 m) 29011508  IF2008-Y adapter cable for connection of a 3rd or 4th sensor (0.1 m) 	
	Encoder and IOs 	Output cable Phoenix Cable 12-pin / shielded / coding A / 5 m / SAC-12P-5,0-35T/FS SH 0467957	
Ethernet	Directly via Ethernet to PC via RJ45	Digital output cables SCD2700-3 (3 m) 29011456 SCD2700-5 (5 m) 29011457 SCD2700-10 (10 m) 29011458 SCD2700-20 (20 m) 29011459 	
EtherCAT, EtherNET/IP, PROFINET 	Directly via RJ45 via EtherCAT Switch M12	SCD2700-5 M12 (5 m) 29011460	
Digital output Ethernet 	IF2008ETH 2213018 	Supply and output cable PCE2700-3/M12 (3 m) 29011541 	For extension: Connection cable extension Transmitter / Receiver CE2700-1/E (1 m) 29011483 CE2700-2/E (2 m) 29011484 CE2700-5/E (5 m) 29011485

PS2020 Power supply unit 24 VDC / 2.5 A for mounting on DIN rail
 PS2031 Power supply unit Universal power supply unit 100-240V/24V/ 1A

2420062
2420096



PS2020



PS2031

Interface modules and accessories

profileGAUGE

IF2001/USB converter RS422 to USB

The RS422/USB converter converts the digital signals of an optical micrometer into a USB data packet. The sensor and the converter are connected via the RS422 interface of the converter. Data output is done via USB interface. The converter loops through further signals and functions such as laser on/off, switch signals and function output. The connected sensors and the converter can be programmed through software.

Special features

- Robust aluminum housing
- Easy sensor connection via screw terminals (plug and play)
- Conversion from RS422 to USB
- Supports baud rates from 9.6 kBaud to 12 MBaud



IC2001/USB Single-channel converter cable RS422/USB

The IC2001/USB single-channel converter cable is used for the USB connection of optoCONTROL sensors equipped with an RS422 interface. The cable is easy to assemble and can therefore also be used for installation in machines and systems.

Special features

- 5-core interface cable without outer shield
- Conversion from RS422 to USB
- Easy sensor connection via USB
- Supports baud rates from 9.6 kBaud to 1 MBaud

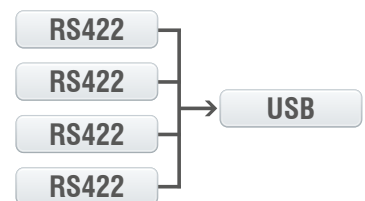


IF2004/USB: 4-channel converter from RS422 to USB

The RS422/USB converter is used for transforming digital signals from up to four precision micrometers into USB data signals. The converter has four trigger inputs and a trigger output for connecting additional converters. Data is output via an USB interface. The connected sensors and the converter can be programmed through software. The COM interfaces can be used individually and can be switched.

Special features

- 4x digital signals via RS422
- 4x trigger inputs, 1x trigger output
- Synchronous data acquisition
- Data output via USB



IF2008/ETH

IF2008/ETH Interface module for Ethernet connection with up to 8 sensors

The IF2008/ETH integrates up to eight sensors and/or encoders with an RS422 interface into an Ethernet network. Four programmable switching in-/outputs (TTL and HTL logic) are available.

Ten indicator LEDs directly on the module show both the channel and the device status. In addition, acquisition and output of data via Ethernet is in addition performed at high speeds up to 200 kHz. Parameter setting of the interface module can be easily done via the web interface.



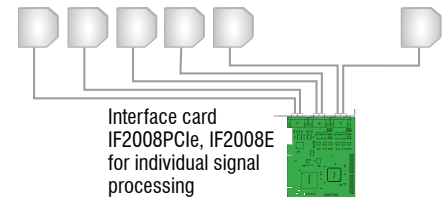
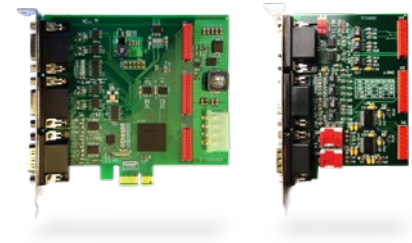
IF2008PCle/IF2008E

Interface card for synchronous data acquisition

Absolute synchronous data acquisition is a decisive factor for the deflection or straightness measurement using several micrometers. The IF2008PCle interface card is designed for installation in PCs and enables the synchronous capture of four digital sensor signals and two encoders. The data is stored in a FIFO memory in order to enable resource-saving processing in blocks in the PC. The IF2008E expansion board enables to detect in addition two digital sensor signals, two analog sensor signals and eight I/O signals.

Special features

- IF2008PCle - Basic printed circuit board: 4 digital signals and 2 encoders
- IF2008E - Expansion board: 2x digital signals, 2x analog signals and 8x I/O signals

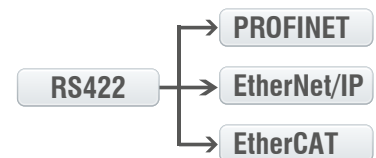


IF2035

Interface module for Industrial Ethernet connection

The IF2035 interface modules are designed for easy connection of Micro-Epsilon sensors to Ethernet-based fieldbuses. The IF2035 is compatible with sensors that output data via an RS422 or RS485 interface and supports the common Industrial Ethernet protocols EtherCAT, PROFINET and EtherNet/IP.

These modules operate on the sensor side with up to 4 MBd and have two network connections for different network topologies. In addition, the IF2035-EtherCAT offers a 4-fold oversampling function, which enables faster measurements than the bus cycle allows, if required. Installation in control cabinets is via a DIN rail.



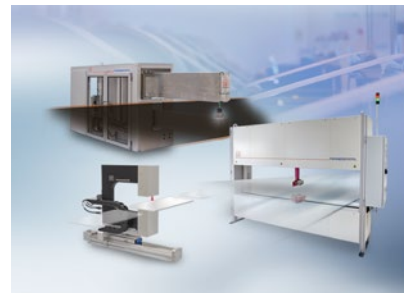
Sensors and Systems from Micro-Epsilon



Sensors and systems for displacement, distance and position



Sensors and measurement devices for non-contact temperature measurement



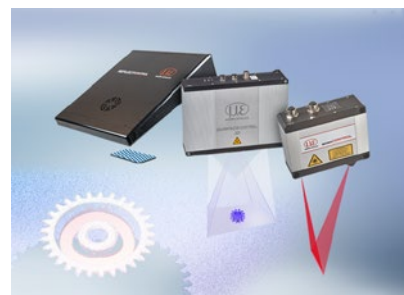
Measuring and inspection systems for metal strips, plastics and rubber



Optical micrometers and fiber optics, measuring and test amplifiers



Color recognition sensors, LED analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection