MICRO-EPSILON

More Precision

optoCONTROL CLS1000 // Fiber optic sensor for industrial applications

Controller
optoCONTROL CLS1000

- Large detection and operating ranges
- Numerous teach-in modes for fast sensor adjustment
- Detection of the finest structures
- Extremely high resistance to ambient light up to 50,000 lx
- LCD display for quick and easy configuration
- Extremely robust and compact
- Switchable NPN; PNP; PP

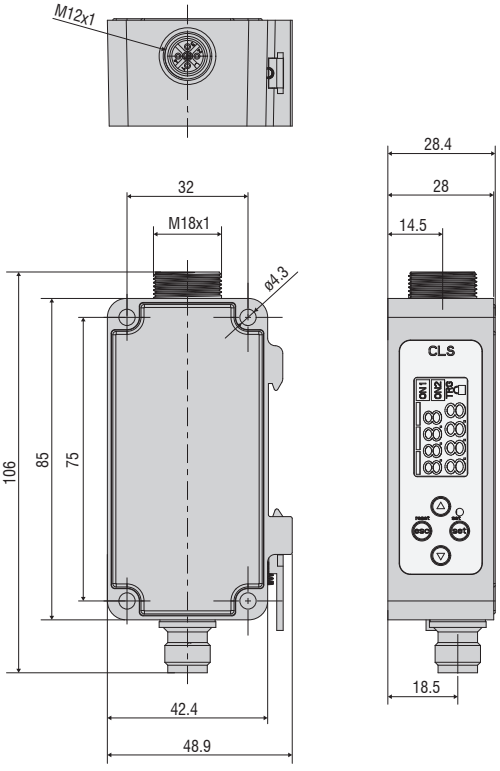
Reliable presence detection and position control

The fiber optic sensor comprises a CFS sensor and a CLS1000 controller. The wide detection and operating ranges of up to 2000 mm make the fiber optic sensor ideal for the detection of components even at great distances.

The optoCONTROL CLS1000 optoelectronic fiber optic sensor is suitable for use in automation thanks to its variable switching outputs. The fiber optic sensor is used, for example, in position control and for position and presence detection.

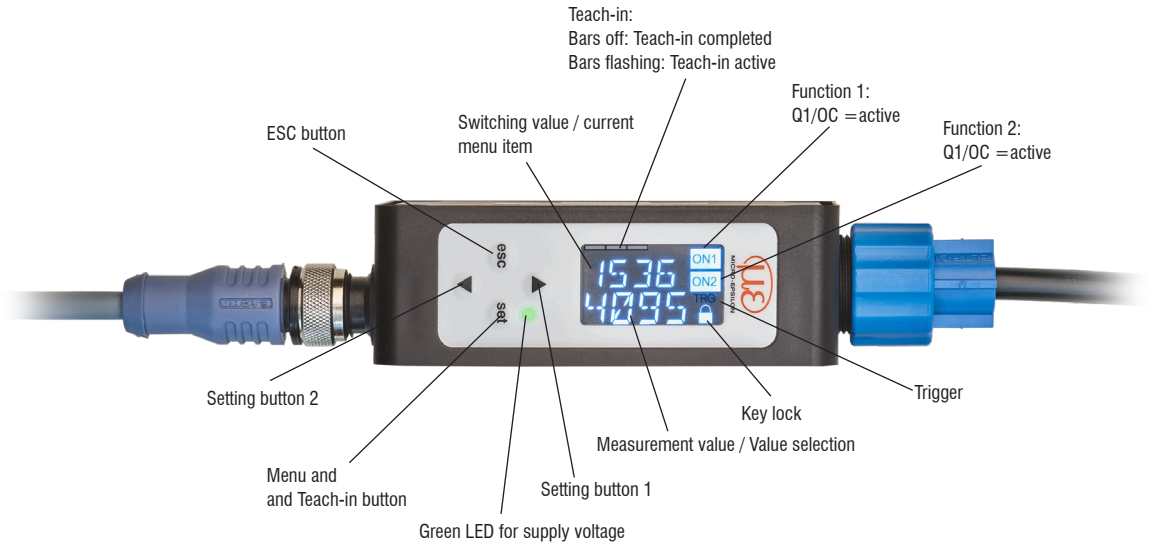
The CLS1000 controller is available in five different versions: CLS1000-QN with antivalence function (normally open/normally closed), CLS1000-2Q with two switching outputs, CLS1000-OC with optocoupler, CLS1000-AU with voltage output and CLS1000-AI with current output. Each model is available in NPN, PNP or push-pull versions, each with or without trigger.

Due to the high resistance to ambient light and the possibility to adapt the controller in OEM applications, the CLS1000 can be used in almost all environments, regardless of high temperatures or confined installation spaces.



(dimensions in mm, not to scale)

LCD Display / Control Panel



Controller variants

Controller with two switching outputs optoCONTROL CLS1000-2Q
- Two independently adjustable switching outputs
- Two individual switching thresholds

Controller with optocoupler optoCONTROL CLS1000-OC
- Optocoupler output for potential-free switching
- Galvanic isolation of the output circuitry

Controller with voltage output optoCONTROL CLS1000-AU
- Freely scalable analog output Voltage from 0 ... 10 V
- Analog output as intensity output
- Analog output and switching output

Controller with antivalence function optoCONTROL CLS1000-QN
- Two antivalent switching outputs: Q and QN
- Wire breakage protection thanks to antivalent switching output

Controller with current output optoCONTROL CLS1000-AI
- Freely scalable analog output Current from 0 ... 20 mA or 4 ... 20 mA
- Analog output as intensity output
- Analog output and switching output

Controller with current output
optoCONTROL CLS1000-AI

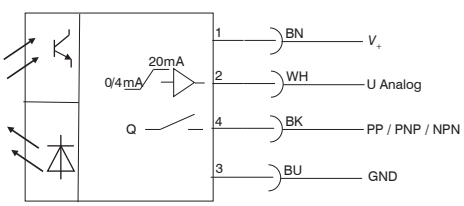
- Freely scalable analog output current from 0 ... 20 or 4 ... 20 mA
- Analog output as intensity output
- Analog output and switching output

Model	CLS1000-AI-NPN	CLS1000-AI-PNP	CLS1000-AI-PP	CLS1000-AI-NPN-T	CLS1000-AI-PNP-T	CLS1000-AI-PP-T
Article number	10085121	10085122	10085123	10085124	10085125	10085126
Operating range	max. 2000 mm (depending on transmission sensor)					
Detection range	max. 1200 mm (depending on reflex sensor)					
Response time	100 µs					
Switching frequency	2.5 kHz (depending on pulse/pause ratio)					
Frequency response (-3dB)	10 kHz					
Temperature stability	≤ 0.1 % FSO / K					
Light source	infrared LED 870 nm					
Permissible ambient light	50,000 lx					
Supply voltage [1]	12 … 30 VDC					
Max. current consumption	50 mA					
Analog output	switchable 0 … 20 mA or 4 … 20 mA					
Switching output	NPN	PNP	PP	NPN	PNP	PP
Switching type	light/dark switching (switchable)					
Signal input	-			Trigger In		
Connection – Optical	FA socket M18x1 for screwable optical fiber (length 0.3 m ... 15 m, min. bending radius 18 mm)					
Connection – Electrical	4-pin M12 socket for power supply and signals (connection cable see accessories)			5-pin M12 socket for power supply and signals (connection cable see accessories)		
Mounting	DIN rail, DIN rail mounting (see accessories), mounting holes					
Temperature range – Storage	-10 … +70 °C					
Temperature range – Operation	-5 ... +55 °C					
Shock (DIN EN 60068-2-27)	20 g / 11 ms in 3 axes, two directions and 1000 shocks each					
Vibration (DIN EN 60068-2-6)	15 g / 10 … 1000 Hz in 3 axes, 10 cycles each					
Protection class (DIN EN 60529)	IP67					
Material	Plastic housing (polycarbonate)					
Weight	200 g					
Compatibility	with all CFS sensors (FAR, FAD, FAZ and FAS)					
Control and indicator elements	Parameterization/operation via membrane keypad and LCD display on controller; LED for power on					
Special features	up to 9 teach-in modes; adjustable switching output functions on-delay and off-delay as well as pulse output adjustable hysteresis 2 … 25%			up to 9 teach-in modes; adjustable switching output functions on-delay and off-delay as well as pulse output adjustable hysteresis 2 ... 25%; variety of trigger types		

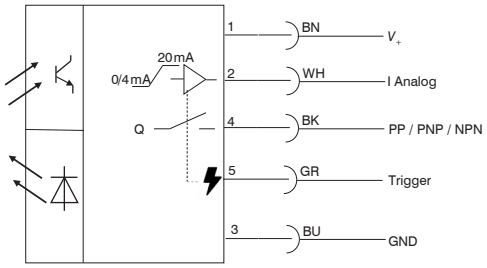
FSO = Full Scale Output
The specified data apply for a consistent room temperature of 22 °C, sensor is continuously in operation, open signal outputs.
[1] Residual ripple ≤ 10%

Connection diagram

CLS1000-AI-xx



CLS1000-AI-xx-T



Connection options & Accessories
optoCONTROL CLS1000

	CLS1000-AU / CLS1000-AI	CLS1000-OC / CLS1000-2Q / CLS1000-QN
Controller		

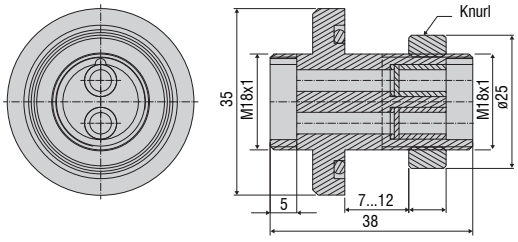
Connection possibilities and accessories	
Supply voltage connection PS2020 / PS2031	
Interface module for Ethernet connection IF1032/ETH	
Control / machine Analog output (current/voltage) Switching output	

Connection possibilities and accessories	
Supply voltage connection PS2020 / PS2031	
Interface module for Ethernet connection IF1032/ETH	
Control / machine Switching output (antivalent, optocoupler, or two switching outputs)	

Connection cables & Accessories

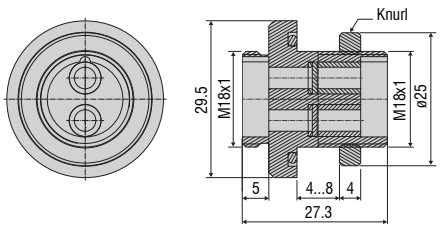
Art. no.	Model	Description
11245302	PC1000-2	Signal / supply cable, 2 m, 4-pin unshielded
11245303	PC1000-5	Signal / supply cable, 5 m, 4-pin unshielded
11245304	PC1000-10	Signal / supply cable, 10 m, 4-pin unshielded
11245551	PC1000-2-T	Signal / supply cable, 2 m, 5-pin unshielded
11245300	PC1000-5-T	Signal / supply cable, 5 m, 5-pin unshielded
11245301	PC1000-10-T	Signal / supply cable, 10 m, 5-pin unshielded
11245305	PC1000/90-2	Signal / supply cable, 2 m, 4-pin unshielded, 90° outlet
11245306	PC1000/90-5	Signal / supply cable, 5 m, 4-pin unshielded, 90° outlet
2420096	PS2031	Power supply unit universal 100 … 240 V / 24 V / 1 A
2420062	PS2020	PS2020 Power supply 24 V
2420066	IF1032/ETH	Interface module for Ethernet connection

10811916 Pressure-tight feedthrough for vacuum 7-12 mm



Aluminum (anodized black)
Tested up to a pressure difference of 10 bar

10812254 Pressure-tight feedthrough for vacuum 4-8 mm

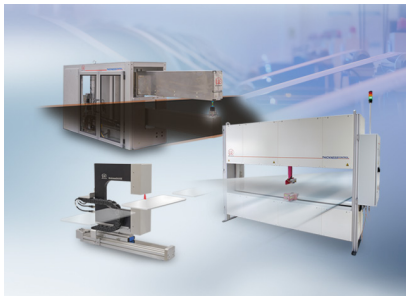


Aluminum (anodized black)
Tested up to a pressure difference of 10 bar

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

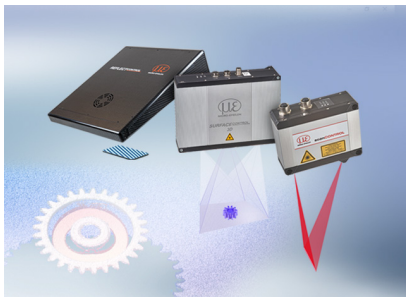
Sensors and measurement devices for non-contact temperature measurement



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

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