



More Precision

optoCONTROL CLS1000 // Fiber optic sensor for industrial applications



Sheath T

Please determine the sheath and the bonding of the optical fiber based on the prevailing environmental conditions and mechanical stress.
Please contact us for high-temperature applications or use under extreme mechanical stress.

Silicone-metal sheath

Metal spiral hose with glass-fiber braiding and silicone rubber sheath ¹⁾

Characteristics:

- Very flexible, ideal for frequent bends
- Highly resistant to folding, tension and torsion;
- Temperature-stable from -60 °C to +180 °C
- Liquid-tight

T



VA stainless-steel sheath

Flexible stainless steel spiral hose ¹⁾

Characteristics:

- Flexible
- Protection against mechanical stress
- Temperature-stable to 400 °C
- Stainless

E



Metal sheath

Flexible brass spiral hose, chrome-plated ¹⁾

Characteristics:

- Flexible
- Protection against mechanical stress
- Temperature-stable to 300 °C

M



PVC metal sheath

Flexible brass spiral-reinforced hose coated with PVC sheath ¹⁾

Characteristics:

- Flexible
- Protection against mechanical stress such as pressure and tension
- Temperature-stable from -20 °C to +80 °C

Z



PVC special sheath

Plastic hose ²⁾

Characteristics:

- For rigid installation
- Small sheath diameter
- Temperature-stable to 80 °C

P



BOA special sheath

Corrugated tube with stainless steel braiding ³⁾

Characteristics:

- Protection against mechanical stress
- Ideal for drag-chain applications
- Temperature-stable from -50 °C to +600 °C

BOA



¹⁾ Bending radius corresponds to three times the outer diameter of the sheath.

²⁾ Bending radius corresponds to twice the outer diameter of the sheath.

³⁾ Bending radius corresponds to at least 80 - 100 mm, depending on the outer diameter of the sheath.

Details about sheath diameters can be found in section 2.

Fiber bundle 2.5

Range Transmission mode (typ.)		90 mm	200 mm	500 mm	1700 mm	2000 mm
Min. object size (typ.)		0.05 mm	0.1 mm	0.1 mm	0.2 mm	0.3 mm
Range Reflex mode (typ.) *	Copper	35 mm	76 mm	217 mm	820 mm	>1200 mm
	Raw aluminum	24 mm	61 mm	164 mm	514 mm	457 mm
	Stainless steel	21 mm	50 mm	135 mm	412 mm	415 mm
	White, rough plastics	13 mm	33 mm	84 mm	260 mm	260 mm
	Mat black cardboard	6 mm	16 mm	44 mm	130 mm	135 mm
Required fiber bundle øF		0.6 mm	1 mm	1.5 mm	2.5 mm	3 mm

*Analog output 5 V and maximum amplification

Total length **1200**



Standard lengths are: 600*, 1200*, 1800 and 2400 mm.

* Bearing types

For CLS1000-xx also > 2400 mm possible.

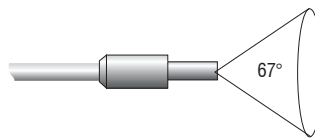
Length tolerance typ.: $\pm 4\%$

Cable lengths from 200 mm are available on request.

Recommended maximum cable length:

CLS up to max. 10,000 mm

Aperture angle **67°**



The standard aperture angle is 67°.

Other opening angles are also available on request, when physical feasibility is provided.

Maximum temperature range **T2000**

The glass fibers can be bonded in several stages for high temperature ranges. Standard bonding is suitable for temperatures up to 80 °C.

With special adhesives, temperatures of up to 250 °C can be reached in the first stage and up to 400 °C in the second stage. Special versions with temperature ranges up to 2000 °C (temperature at the sensor) are also available.

Vibration protection **VS**








For mechanical stresses such as impacts, accelerations and movements, the fiber optics can be manufactured with increased vibration protection. This special treatment reduces the friction between the fibers and absorbs shocks. The fibers are embedded in a gel cushion.

Suitability for drag chains **D**

For use in machines with moving parts, the internal structure of the fiber optic cables has been modified so that even when the minimum permissible bending radius is reached, the individual fibers are not damaged and error-free operation is achieved.

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



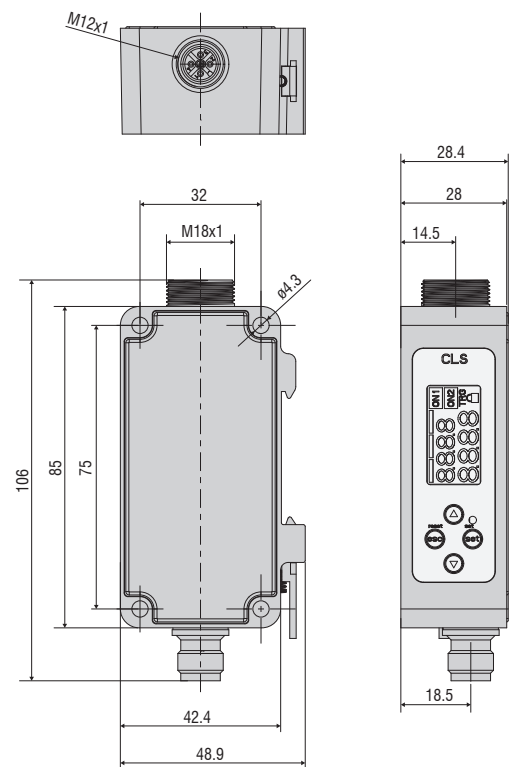
Reliable presence detection and position control

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)