

Optical Strand

in a spiral steel hose

Description

The optical Strand is an innovative device for measuring changes in geometric shape and position over long measurement paths. This fiber-optic sensor is usually between one and ten meters long.

The sensor is available in a variety of configurations. As an optical strand in a spiral steel hose, the sensor is meant for monitoring concrete components, in which it is installed together with the protective spiral hose, a terminating splice box and an optical connection cable.



Optical Strand in a reinforcing cage.

Applications



Optical Strand during concrete pouring.



Optical Strand post-installed in mortar.



Optical Strand in injected bores.

Technical specifications

Measuring range

Sensor length:	2 m / 5 m / 10 m
Measuring path:	10 mm / 25 mm / 50 mm
Resolution:	0.001 mm
Measuring accuracy:	Type ± 0.002 mm during dynamic monitoring; 2% of final value during long-term monitoring
Measuring frequency:	Up to 100 Hz
Repeating accuracy:	1%
Response speed:	Infinite (dead time = zero)
Temperature range:	-20 °C to +60 °C, operating range -30 °C to +60 °C, storage
Temperature sensitivity:	0.6×10^{-6} m/K
Stability, fatigue behaviour:	> 150 million measuring cycles without drift
Electromagnetic compatibility:	Insensitive and neutral
Service life:	> 20 years
Connection:	Customizable fiber-optic cable with a length of up to 1 kilometer to the OSMOS monitoring station
<i>Without intermediate amplification:</i>	<i>Sheathed optical cable with protective hose and plug connection</i>

Housing

Housing dimensions [L x W x D]:	[118 x 48 x 16] mm
Weight:	2 x 466 g and ST fiber/m = 92 g
Material:	Terminal box: Fe/Zn 8C, galvanized, blue, chromated in GG70 Protective sheath: Steel spiral with PVC enclosure of the optical Strand Cover: Galvanized steel, blue, chromated
Protection class:	IP65

Test

Vibration test:	55 hours at 20 Hz, ± 1 mm -> no drift No contact with the concrete vibrator
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Accessories

Attachment plates	On request
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Order

Please fill out the spaces below. Select an underscored letter or value for each of the option fields provided.

Quantity:

Sensor type:

Sensor length: 2 m / 5 m / 10 m

Connection length: Standard: 30 m
Optical cable (m)

Operating mode:

Example:

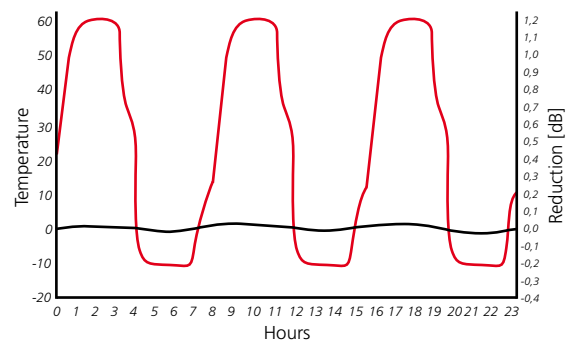
Quantity:

Sensor type:

Sensor length:

Connection length:
Optical cable (m)

Operating mode:



Temperature response of the optical Strand.

CAD drawing

