

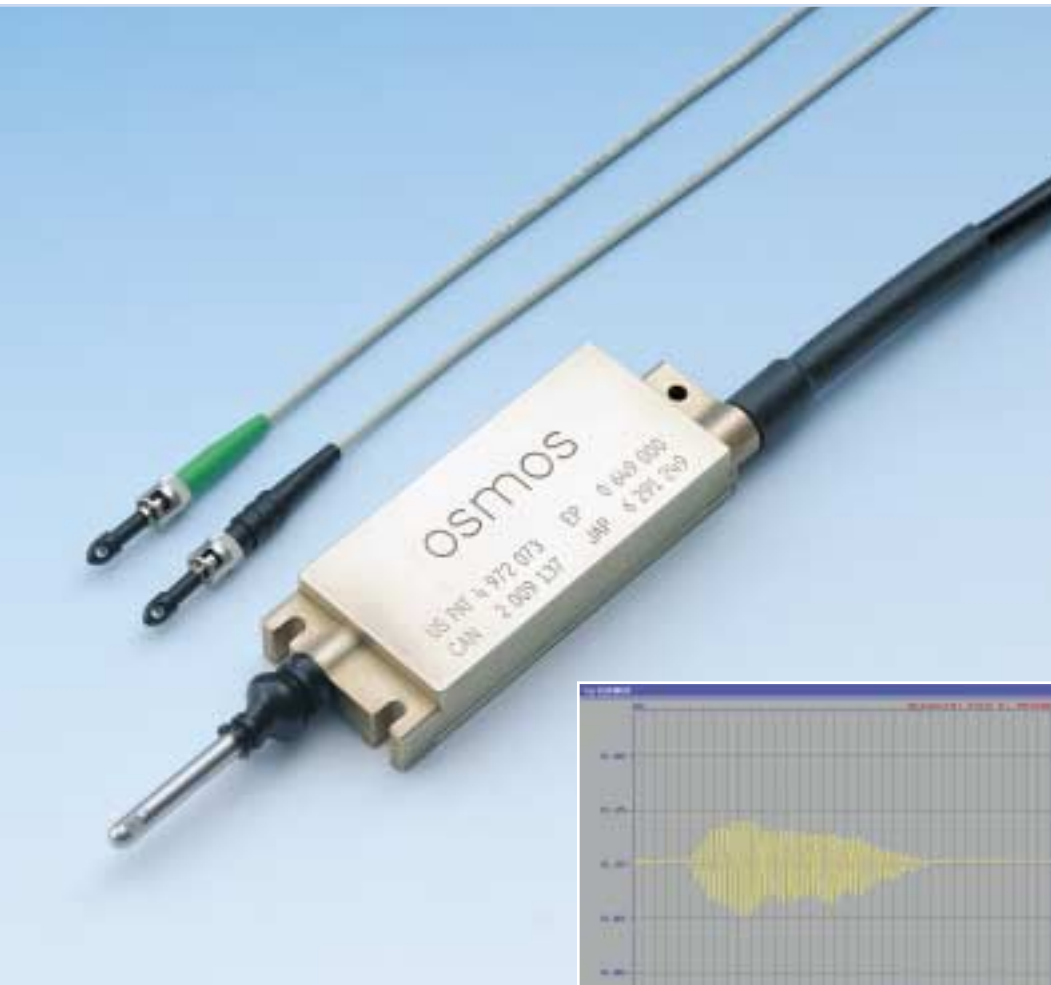
# Optical Extensometer

**osmos**

## Description

The optical Extensometer is a robust and extremely accurate fiber-optic displacement transducer. Its compact design allows it to measure a wide range of length changes and displacements of up to 5 mm.

The optical Extensometer registers these mechanical variables with a sensing head and converts them internally into optical signals. Conversion is performed in accordance with a patented microbending principle. The optical Extensometer is able to register static and dynamic measurement variables over periods ranging from brief to many years, in accordance with the user's requirements.



*Dynamic measurement curve.*

## Applications



*Extensometer on a wooden structure.*



*Extensometer as a fissure monitor.*



*Extensometer as a probe on a steel structure.*

# Technical specifications

## Measuring range

Measuring path:	5 mm
Measuring range:	0.1 m to 10 m
Resolution:	0.001 mm
Measuring accuracy:	Type $\pm 0.002$ 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:	-40 °C to +60 °C, operating range -40 °C to +60 °C, storage
Temperature sensitivity:	$0.6 \times 10^{-6}$ 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]:	[120 x 46 x 20] mm
Weight:	525 g
Sensing head:	High-grade steel, 50 mm long with hemisphere $\pm 6$ mm or adapter M5
Material:	Messing
Protection class:	IP65

## Accessories:

Sensing head:	50 mm, extensible to 10 m on request by means of a coupling or spring box
Special fastening material:	On request

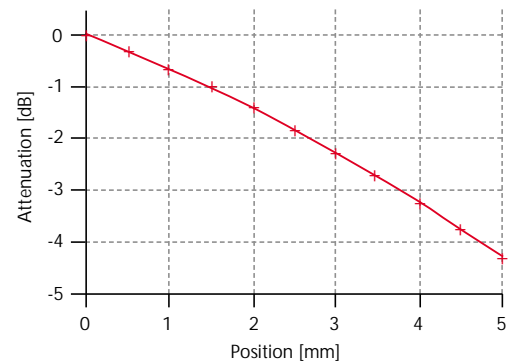
## Test

Vibration test:	55 hours at 20 Hz, $\pm 1$ mm -> no drift
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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:	<input type="text"/>	Example:	Quantity:	<input type="text" value="1"/>
Sensor type:	<input type="text" value="EX"/>	Sensor type:	<input type="text" value="EX"/>	
Application:	<input type="text"/> Probe / <u>S</u> ensor	Application:	<input type="text" value="S"/>	
Measuring base:	<input type="text"/> (0.1 to 10) m	Measuring base:	<input type="text" value="0.5"/>	
Connection length: Optical cable (m)	<input type="text"/> Standard: 30 m	Connection length: Optical cable (m)	<input type="text" value="40"/>	
Operating mode:	<input type="text"/> Permanent / <u>S</u> leeping	Operating mode:	<input type="text" value="P"/>	



Calibration curve of an extensometer.

# CAD drawing

