

MSA-01 Mountable strain array sensor

Basic characteristic

- ▲ MSA-01 is a strain array sensor with variable number of FBG sensors (min = 1, max = custom) and various gauge lengths.



Benefits

- ▲ **INSTALLATION:** Embeddable or Surface-mountable.
- ▲ Effectively replacing numbers of individual sensors with multiple gauges in one-cable-array design.
- ▲ Fully customizable in number of gauges and their individual lengths.

Applications

- ▲ Strain profile in concrete and metal structures
- ▲ Borehole deformation

Performance properties

Strain range	±2500µε
Accuracy (guaranteed) ¹⁾	<0.5% FS ³⁾
Accuracy (typical) ¹⁾	<0.23% FS ³⁾
Precision (guaranteed) ²⁾	<0.25% FS ³⁾
Precision (typical) ²⁾	<0.15% FS ³⁾
Temperature compensation	External
Operating Temperature range	-20°C to +60°C
Ingress Protection rating	IP 67

¹⁾ Accuracy is established for each individual sensor under laboratory conditions and it includes hysteresis, non-linearity and repeatability of the sensor.

²⁾ Precision is established on a batch basis and it includes hysteresis, non-linearity, repeatability and reproducibility of the sensor.

³⁾ FS: full scale range

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Physical properties

Housing material	Stainless steel SS316 and PE
Anchoring distance	Adjustable parameter
Number of measuring sections	Up to 10
Dimensions (without cable) ¹⁾	Ø12 mm x L mm [Washer Ø24 mm]
Weight (without cable)	83g
Cable type	3mm Dyneema reinforced cable
Cable length ²⁾	1mtr
Cable Bend Radius (dynamic)	40mm
Cable Bend Radius (static)	30mm
Connector type ³⁾	FC/APC
Installation method	Mounting brackets

¹⁾ For further dimensions details see the product drawing

²⁾ Cable length is extendable on request

³⁾ Other connector types available on request

Packaging

Cardboard box

Quality statement

All sensors are 100% tested and calibrated at SYLEX
 Sensor is manufactured according to ISO 9001:2008 and ISO 14001:2004
 Sensor is compliant with IEC 61757-1-1:2016/Ed1.0 and IEC 61757:2018MSA-01

Optional accessories

- ▲ **MBS-01 Mounting brackets** – used for sensor mounting to the measured object. Brackets can be screwed, glued or welded to the surface.
- ▲ **WCP-01 Watertight connector protection** – used for FC/APC connector protection during the installation against dust and water – IP67 rated.
- ▲ **LCP-03 Longer cable pigtails** – used to extend the cable lengths from 1mtr up to 20mtr.

Application note

MSA-01 with 1mm OD needs approximately 100N per 1000 $\mu\epsilon$ and since the strain transfer is generated directly from the anchor points, a wavelength shift of 1,2pm will result in 1 $\mu\epsilon$ (or 1,2nm in 1000 $\mu\epsilon$). The function of length change and wavelength shift is linear. However, we recommend using the dedicated equation with coefficients in the calibration sheet to return the actual strain as a function of wavelength change since it also incorporates the thermo-optical effect.

For more information contact our sales team at sales@sylex.sk

* Specifications are subject to change without notice