

SWA-01 Spot-weldable strain array sensor

Basic characteristic

- ▲ SWA-01 is a spot-weldable strain array sensor with a variable number of FBG sensors (min = 1, max = custom) and a flexible body simply adaptable to any surface curvature. The shortest length for a 1xFBG configuration is 55mm, max length is 700mm.
- ▲ [Optional] Integrated temperature compensation.



Benefits

- ▲ One-body design for both strain and temperature measurement.
- ▲ Surface-mountable using spot-welding or direct gluing to the surface.
- ▲ No need for adjusting pre-strain during installation.

Applications

- ▲ Strain changes detection
- ▲ Steel deformations, etc...
- ▲ Can be mounted on different surfaces including pipelines, walls, etc.
- ▲ Any curved objects.

Performance properties

Strain range	±1500με
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 (optional)	Integrated ⁴⁾
Temperature accuracy ¹⁾	<1°C
Temperature precision ²⁾	±0.3°C
Temperature sensitivity (for temp. compensated version)	28pm/°C
Strain sensitivity	1.2pm/με
Operating Temperature range	-20°C to +60°C

¹⁾ Accuracy is established for each 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

⁴⁾ Optional feature. The temperature sensor will be embedded next to the strain FBG.

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Physical properties

Housing material	0.2mm thick SS304 – 1.4301
Anchoring distance	n/a
Dimensions (without cable) ¹⁾	Variable length (min 55mm) x 15 x 3.2 mm
Weight (without cable)	Around 50g per FBG
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
Mounting method	Spot welding or glue

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 with dimensions: 370x290x45mm¹⁾

Quality statement

SWA-01 sensor is manufactured and compliant with IEC 61757-1-1:2020, IEC 61757:2018, and IEC 61757-2-1:2021 ⁽⁴⁾.

All sensors are 100% tested and calibrated at SYLEX.

Sensor is manufactured according to ISO 9001:2015 and ISO 14001:2015.

⁴⁾ Optional feature. The temperature sensor will be embedded next to the strain FBG.

Optional accessories

- ▲ **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.

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

* Specifications are subject to change without notice