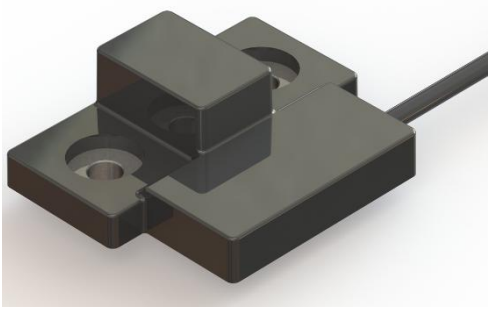
Strain transducer X-117 for harsh environmental conditions



X-117 Single Axis

Compact construction with robust design

85 x 63 x 25 mm
2x M8 ≥ 10.9
0…2000 µm/m, + 2.0 mV/V

Features

- Robust design in IP68
- Simple and space-saving mounting directly on the construction surface
- Use of the sensor in almost any environment, in any weather and even under water if required
- Suitable for filling measurements and force monitoring in vehicles, structures, tanks, silos and ship hulls

Applications

The strain transducer X-117 is characterized by its extremely robust design (IP68) and the high measuring range of up to 2000 µm/m. This makes the sensor ideal for static measurements and monitoring tasks even under harsh environmental conditions.

Applications:
- Load monitoring (heavy duty)
- Weight monitoring of silos and vehicles
- Filling measurements and force monitoring of vehicles and ship hulls

The strain transducer reliably measures even small strains on the surface of flat structures. The measured values are comparable to bonded strain gauges, while avoiding their disadvantages.

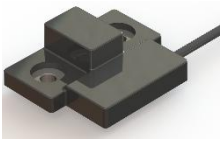
Ordering code

Description	Measuring range	Output signal	Resistance strain gauge full bridge	Assembly	Specifi-cationen
X-117 Single Axis	0…2000 µm/m	+ 2.0 mV/V	1000 Ohm	2x M8 ≥ 10.9	Seite 2

Strain transducer X-117 Single Axis

85 x 63 x 25 mm, 2x M8

0…2000 µm/m, + 2.0 mV/V



Specification

Performance	
Measuring range	0…2.000 µm/m
Standard output	1.0 mV/V for 1.000 µm/m
Linearity and repeatability	≤ 0.1 % FS
Hysteresis	≤ 0.1 % FS
Temperature influence on final value	0.005 of nominal load
Temperature influence on zero point	0.005 of nominal load

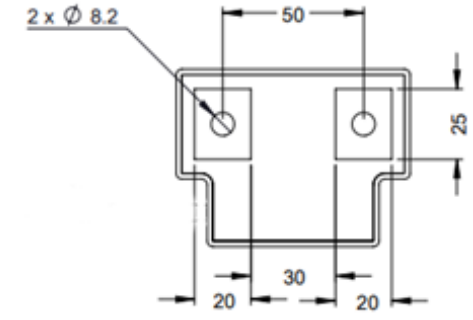
Electrical data	
Output signal referred to final value	+ 2.0 mV/V
Bridge resistance / sensor element strain gauge full bridge	1000 Ohm
Supply voltage	10 - 15 VDC

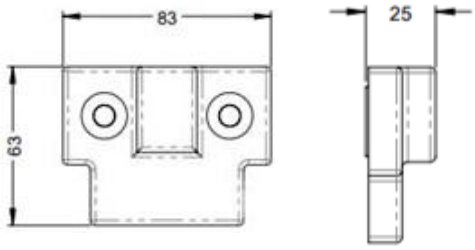
Materials	
Sensor base body	Steel
Cable	PVC

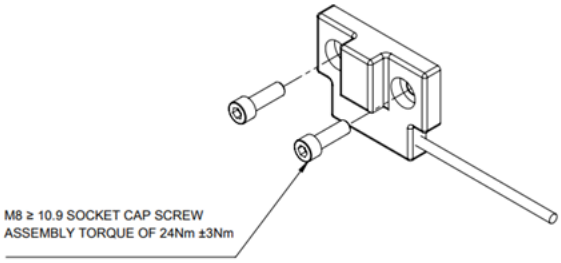
Mechanical data	
Electrical connection	Connection cable
Cable length	3 m
Plug type	Open stranded wires, connectors available on request

Environmental data	
Ambient temperature	-40… +100 °C
Compensated temperature range	-40… +100 °C
Humidity	0%...100%

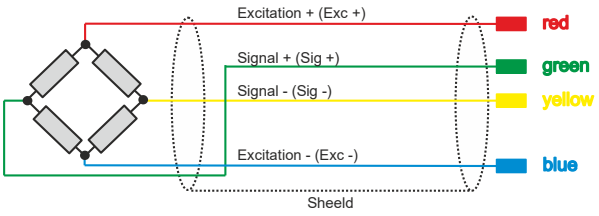
Mechanical dimensions







Wiring



Ordering code

The extensometer is supplied without mounting screws.

For detailed ordering information, see page 2.

Zero adjustment

The zero point adjustment for strain transducers with an mV/V output signal is performed in the subsequent measuring amplifiers. Two options are available for X-sensors. For fast and convenient adjustment of the zero point, there is a control input to trigger the zero point adjustment externally. If such a signal is not available, there is a version with DIP switches and potentiometer, by means of which the coarse and fine adjustment of the zero point can be made.

Mounting information

The extensometer should be mounted on a flat surface with a surface roughness between 0.5 µm and 0.9 µm. For the tightening torque, tighten the screws step by step up to 24 Nm ±3 Nm. For this purpose, also check the maximum permissible tightening torques of the screws used. During the mounting process, the sensor and the supporting surface should have the same temperature.

Follow the steps below for optimum mounting:

1. Create hole pattern according to dimensions.
2. Remove any existing layers of paint.
3. Use tilting movements to check whether the contact surface is flat.
4. If tilting movements are clearly noticeable, grind the contact surfaces until the sensor is practically free of play.
5. Attach the sensor to the structure and tighten the screws by hand. Tighten them alternately for a uniform torque of the screws.
6. Then tighten the screws with the defined tightening torques.

The sensor can additionally be fixed with an adhesive. The adhesive reduces the long-term movement of the sensor relative to the structure. As a result, increased long-term stability can be achieved. When using an adhesive, the surface must be carefully cleaned of dirt, grease and other contaminants.