Strain transducer X-118 for harsh environmental conditions (IP 68 housing)

Models

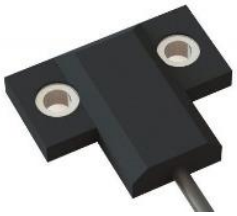
X-118 Dual Axis

With two axes for temperature compensation

60 x 60 x 16 mm
3x M8
10 ... 1000 µm/m
+ 1.5 mV/V

X-118 Single Axis

Compact and robust design



76 x 64 x 16 mm
2x M10
10 ... 1000 µm/m
+ 1.5 mV/V

Features

- Robust design in IP68
- Easy and space-saving installation directly on the construction's surface
- Thanks to two axes with temperature compensation
- Load monitoring on heavy vehicle axles / heavy duty
- Suitable for filling measurements and force monitoring in vehicles, structures, tanks and silos

Application

The strain transducer X-118 is characterized by its extremely robust design (IP68) and the high measuring range of up to 1500 µm/m. Thus, the sensor is ideal for static measurements and monitoring tasks even under harsh environmental conditions.

Thanks to the 2-axis principle, the X-118 Dual Axis measures the forces occurring in two axes. Thus, on the one hand the process forces can be measured, while at the same time temperature-induced expansions are compensated. Thus, even with temperature fluctuations accurate measurement results can be achieved.

Applications:
- Axle load monitoring in heavy vehicles
- Weight monitoring of silos and vehicles
- Load monitoring in cranes

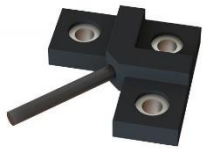
The strain transducers reliably measure even small strains on the surface of even structures. The measured values are comparable to glued strain gauges, whereby their disadvantages are avoided.

Ordering code

Description	Measuring range	Resistor DMS-full bridge	Output	Specification
X-118 Dual Axis	10 ... 1000 µm/m	350 ohms	+ 1.5 mV/V	Page 3
X-118 Single Axis	10 ... 1000 µm/m	350 ohms	+ 1.5 mV/V	Page 4

Strain sensor X-118 Dual Axis

60 x 60 x 16 mm, 3x M8,
0 ... 1000 µm/m,+1.5 mV/V



Specifications

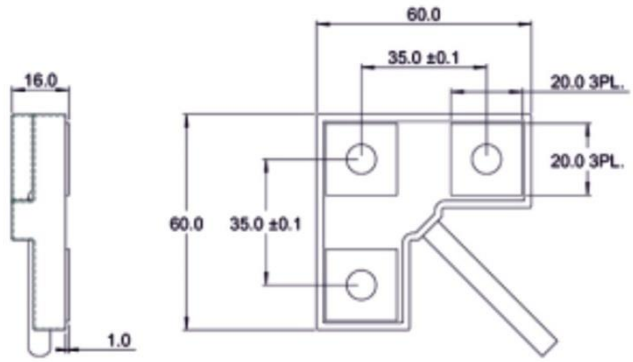
Performance	
Measuring range	10 ... 1000 µm/m
Sensitivity related to full scale	+ 1.5 mV/V
Linearity and repeatability	≤ 0.1 % from full-scale
Hysteresis	≤ 0.1 % from full-scale

Electrical data	
Power supply	10 ... 15 VDC
Output signal at full scale	+ 1.5 mV/V
Bridge resistance	350 ohms

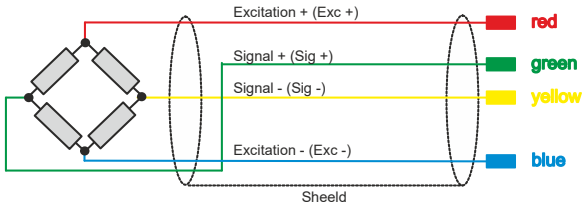
Mechanical data	
Overload	1500 µm/m
Cable length	3 m, shielded
Connector-type	Open leads, connector plug on request

Environmental data	
Ambient temperature	- 20 ... 80 °C
Protection rate	IP 68

Mechanical dimensions



Wiring



Ordering information

This strain sensor is delivered without mounting screws.

For detailed ordering information, please see page 2.

Strain sensor X-118 Single Axis

76 x 64 x 16 mm, 2x M10,
10 ... 1000 µm/m,+1.5 mV/V

Specifications

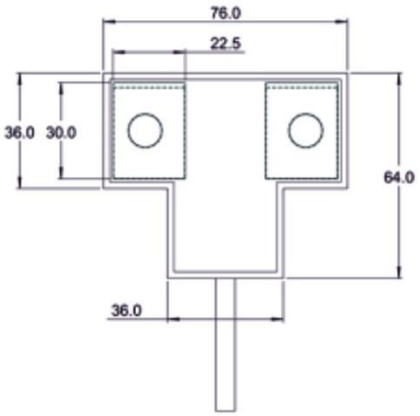
Performance	
Measuring range	10 ... 1000 µm/m
Sensitivity related to full scale	+ 1.5 mV/V
Linearity and repeatability	≤ 0.1 % from full-scale
Hysteresis	≤ 0.1 % from full-scale

Electrical data	
Power supply	10 ... 15 VDC
Output signal at full scale	+ 1.5 mV/V
Bridge resistance	350 ohms

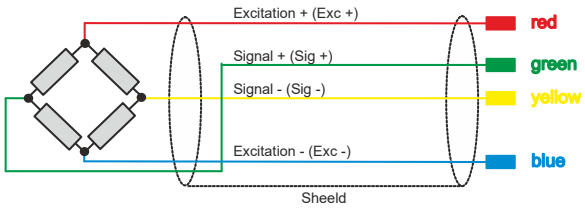
Mechanical data	
Overload	1500 µm/m
Cable length	3 m, shielded
Connector-type	Open leads, connector plug on request

Environmental data	
Ambient temperature	- 20 ... 80 °C
Protection rate	IP 68

Mechanical dimensions



Wiring



Ordering code

This strain sensor is delivered without mounting screws.

For detailed ordering information, please see page 2.

Zero point adjustment

The zero point adjustment for the strain transducers with a mV/V-output signal takes place in the following measuring amplifiers. For X-Sensors there are two options available. For quick and easy adaptation of the zero point there is a control input to trigger the zero point adjustment from external PLC. 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 done.

Further information on the zero point adjustment can be found in the measuring amplifiers listed in the accessories.

Mounting instructions

The strain gauges should be mounted on a flat surface with a surface roughness between 0.5 µm and 1.6 µm. Tighten the screws gradually to 30 Nm. Also check the maximum permissible tightening torques of the screws used. During the assembly process, the sensor and the support surface should have the same temperature.

Follow these steps to get the best fit:

1. Make hole pattern as per installation drawing.
2. Remove any existing color layers.
3. Use tilting movements to check whether the contact surface is flat.
4. In the case of noticeable tilting movements, grind the support surfaces until the sensor rests smoothly.
5. Now tighten the sensor firmly by tightening the screws step by step over the cross.
6. Tighten the screws with the specified tightening torques.

The sensor can also be attached 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.