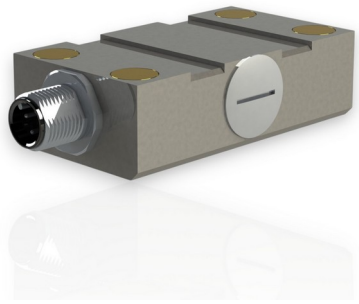
Strain Sensor DA68i 010/VA

Item number: 16740



The strain sensor DA68 is suitable for high-resolution detection of forces and deformation of structural works such as bridges, silo legs, offshore wind farms, railway lines, etc.

With these models in an anodised aluminium or stainless steel housing, the same performance features are achieved as when applying strain gauges (DMS) directly. These features include a high resolution, very low drift effects and the options for both static and dynamic measurement.

The strain sensor includes a completely wired DMS that is pressed onto the component by a specially formed pressing mechanism when mounting the strain sensor. An integrated seal provides an initial layer of protection against dust and damp. The strain sensor has two filler pipes for casting with cable resin after installation. Depending on the planned duration of use, additional measures to protect against damp, such as waterproofing the joints with silicone, encapsulation with additional surrounding hoods, etc. are applied after installation. Unlike strain sensors DA40 and DA54, the contact with the surface is generated by integrated high-performance magnets. Time-consuming drilling of threads is not required as a result. The housing of the strain sensor and the strain gage are glued with the surface in a common process. The strain sensor can also be used for stress analysis in offshore applications. The strain gauges are also evaluated as active quarter bridges and are supplemented with passive precision resistors within the strain sensor.

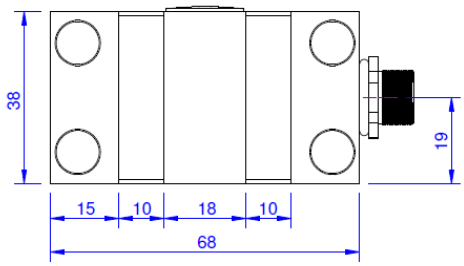
The strain sensors of the series DA68e contain an integrated measurement amplifier of type GSV-15L.

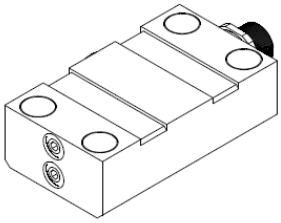
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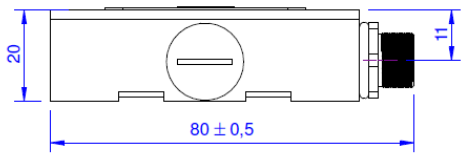
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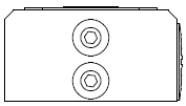
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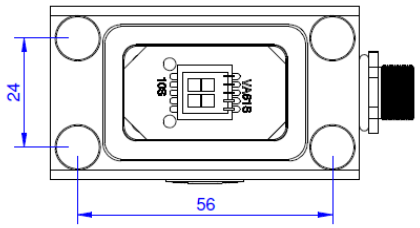
Technical Drawing

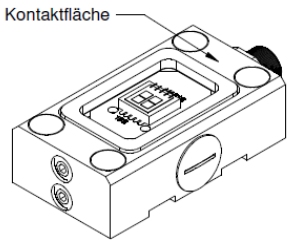












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Technical Data

Basic Data		Unit
Type	Dehnungsaufnehmer	
Nominal strain	1000	µm/m
Operating strain	150	%
Material	alluminum-alloy	
Dimensions	38 x 68 x 20	mm³

Electrical Data		Unit
Input resistance	350	Ohm
Tolerance input resistance	7	Ohm
Output resistance	350	Ohm
Tolerance output resistance	7	Ohm
Insulation resistance	5	GOhm

Accuracy Data		Unit
Temperature effect on zero signal	0.005	mV/V/10K
Temperature effect on characteristic value	1	%v.S./10K

Analog Output		Unit
Number of analog outputs	1	
Voltage output from	0	V
Voltage output to	10	V
Zero adjustment to	5	V

Strain gauge is used with k-factor = 2.

Pin assignment

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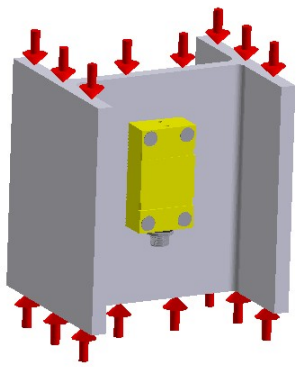
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Channel	Symbol	Description	Wire color	PIN
	GNDb	Ground Supply Voltage	white	1
	Ub	Supply Voltage (24V or 12V optionally)	brown	2
	Ua	Output signal 4..20mA or 0...10V	green	3
	Tara	Control input zero adjustment	yellow	4
	Scale	Control input scale function	grey	5
	SW	Threshold output	pink	6
	GNDa	Ground output signal	blue	7
	Shield	connected with housing		
		not connected	red	8

Mounting

Whith compressive strain in the longitudinal axis, a negative output signal results
The strain sensor may also be mounted transversely to the direction of the load. In this case, a positive output signal is obtained under compression.
By exchanging the lines + Ud and -Ud the sign of the output signal of the strain sensor can be inverted.



The full pressure strength of the magnets is only achieved on a flat surface. If there are small surface irregularities, air gaps occur between the magnet and the component meaning that the pressure strength is potentially insufficient to compress the strain gauge and the seal. Therefore please check whether the pressure strength of the integrated magnets is sufficient before applying the adhesive. For series DA68e, the following should be observed in particular:

- The strain gauge AND the housing bottom are coated with adhesive; it is only on the seal that no adhesive is applied.
- The same adhesive, “M-bond 30”, is recommended for the strain gauge AND housing bottom.

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- Alternatively, adhesive “M-bond 31” or Epoxy 1x-280 is recommended. This adhesive is characterised by a longer working life and a higher final strength.
- The extension sensor is put down with light pressure. Excessive adhesive is squeezed on the gap by means of a light, oscillating (±1mm) movement.
- Stop the oscillating movement when the metal surface of DA68 rubs noticeably on the surface of the component.
- It is recommended that an additional sealing gap with silicone TSE397C or similar silicone is laid around the housing.
- The sensor can also be attached to the designated pockets using stainless steel cable ties.
- After attaching, the sensor must be filled with casting compound (cable resin). Two M4 threaded holes (sealed with round-headed screws) are provided for filling and ventilation.
- The cable resin must be mixed thoroughly before being drawn into the syringe. In doing so, the centre bar must be removed. Both liquids must be mixed for approximately 3 minutes by kneading, moving and spreading out from the corners.
- Fill syringe and inject the cable resin with the syringe;
- the pot life of cable resin is approximately 10 minutes.

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