

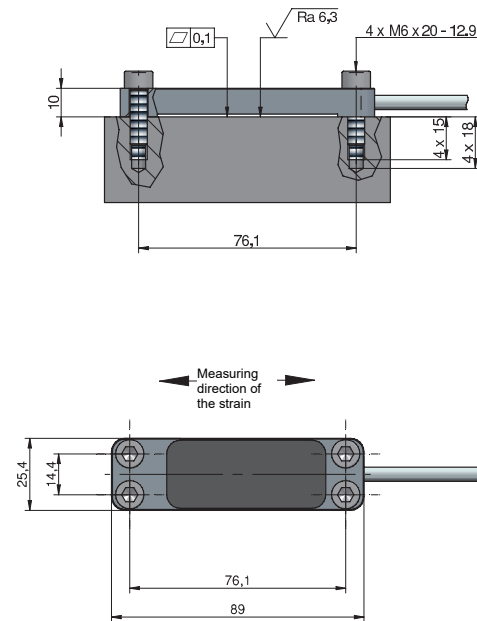
Quickstart



DST76-B500L

Strain sensor with IO-Link

Dimensional drawing



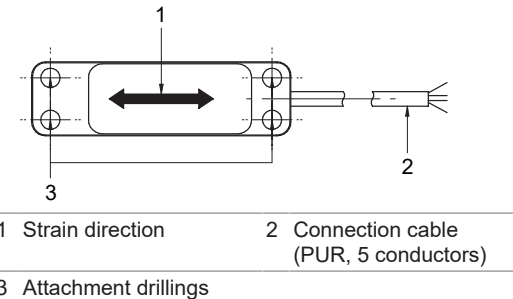
Applicable documents

- Download from www.baumer.com:
 - Operating manual
 - Data sheet
 - EU Declaration of Conformity
- Attached to product:
 - General information sheet (11042373)

Scope of delivery

- 1 x sensor
- 4 x screws M6x20, quality 12.9

Structure



- | | |
|------------------------|---|
| 1 Strain direction | 2 Connection cable
(PUR, 5 conductors) |
| 3 Attachment drillings | |

Functionality

The sensor is screwed to a machine element and measures its strain. Changes in the strain are measured with strain gauges and converted into an electrical signal. If the sensor experiences a tensile force, the signal is positive; if it experiences a compression, the signal is negative.

The signal output is a digital (IO-Link) signal. The sensor is parameterized via the integrated IO-Link interface.

FAQ

The sensor does not output a stable signal. What is the reason for this?

The sensor is not screwed on tightly. To obtain stable measurement results, the sensor must be firmly screwed onto a machine element.

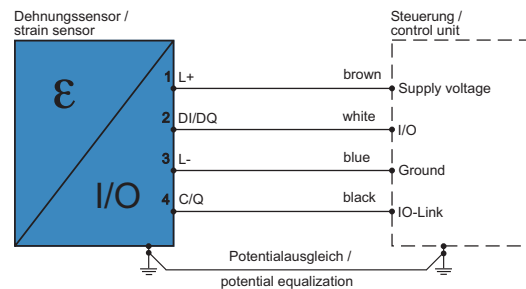
EN

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ID 18014398713316619



Output signal: IO-Link, parameterizable
Operating voltage range: +Vs = 18 to 30 VDC

Disconnect the system from power before connecting the device. Power supply according to UL 1310, Class 2 or external protection via a UL-approved or listed fuse with max. 100 W/Vp or max. 5 A below 20 V.
Note on electromagnetic compatibility: Shielded connection cable is recommended. Ground the cable shield on both sides over a large surface and ensure potential equalization.
Connection cable length max. 20 m.

Wire assignment

brown	L+
white	DI/DQ (SIO2)
blue	L-
black	C/Q (IO-Link / SIO1)

Factory settings (for standard type)

Output signal (at C/Q):	µm/m
SIO1:	Inactive
SIO2:	Inactive

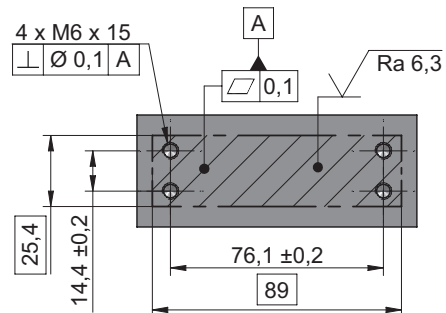
Preparing the mounting

NOTICE

The sensor supplies imprecise measurement results if the measuring surface is soiled or if the sensor is installed incorrectly.

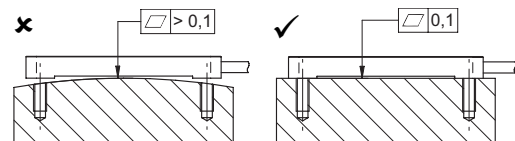
- Prevent soiling from grease and oil.
- Mount the sensor on a machined, flat surface.
- Observe the surface roughness.

Mounting surface to be machined:

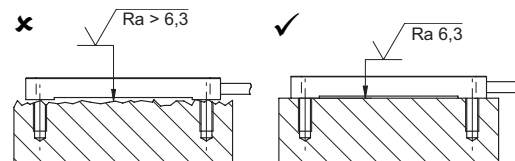


Instruction:

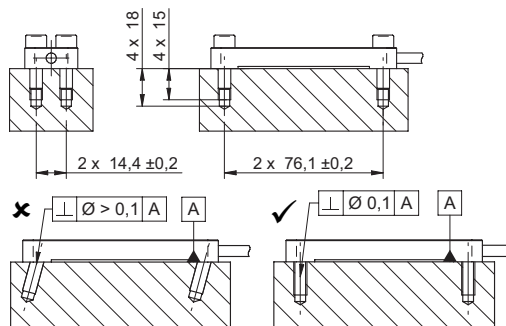
- Check the flatness tolerance.
Flatness tolerance ≤ 0.1 mm



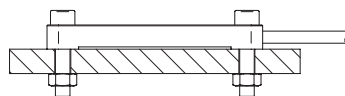
- Check the surface roughness.
Surface roughness ≤ 6.3 μm



- Drill 4 threads into the machine element. Make sure to drill the holes perpendicular to the contact surface of the sensor.
 - Drill hole spacing: 76.1 ± 0.2 mm; 14.4 ± 0.2 mm
 - Depth of drill holes: ≥ 18 mm
 - Depth of thread: ≥ 15 mm



Mounting option with through holes:



Mounting the sensor

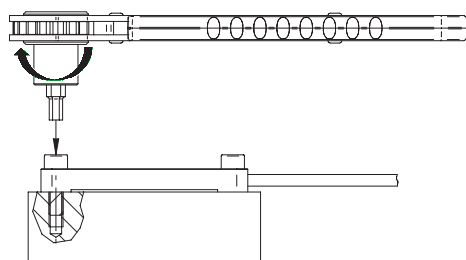
INFO

The included screws (M6×20) are designed for mounting on steel. Use longer screws (M6×25) for mounting on light or non-ferrous metals.

The following describes mounting on steel:

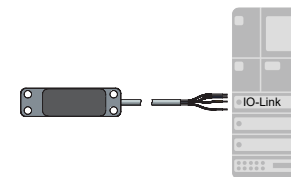
Instruction:

- Make sure that the machine element is not loaded.
- Screw in the screws hand-tight.
- Tighten the screws (hexagon socket SW5) cross-wise in 2 stages with a torque wrench to a tightening torque of 20 Nm.



Putting the sensor into operation for the first time

For commissioning, the sensor is connected directly to the controller. The output signal is a digital signal and is proportional to the strain.



Instruction:

- To minimize the effect of settlement, fully load the sensor 10 times, if possible.
- With the power on, allow the sensor to warm up for 5 minutes to stabilize the zero point.
- Tare the sensor at zero load to compensate for signal changes due to mounting.

Result:

- ✓ The sensor is ready for operation.

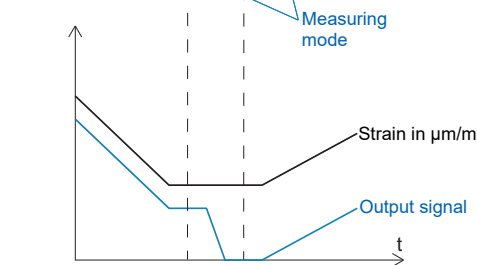
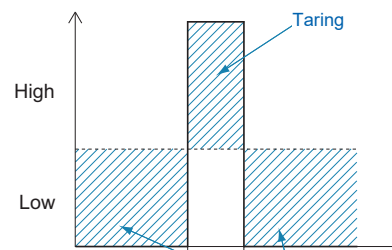
Operation

Taring the sensor

Tare the sensor cyclically in the unloaded state to compensate for zero drift or temperature influences.

Instruction:

- Make sure that the sensor does not experience any change in strain.
- Make sure that the machine element is at the correct zero position.
- Tare the sensor at zero load via IO-Link.



NOTICE

SIO1 and SIO2 with input function

IOs that are operated as input must not be floating, but must always be connected to a defined *High* or *Low* level.

Parameterization (optional)

To achieve even better measurement results, you have the option of parameterizing the sensor through the integrated amplifier electronics via the IO-Link interface to suit the application. For this purpose, the sensor is connected to an IO-Link master.



The operating manual, the IODD file for parameterizing the sensor, and information on accessories can be found at:

- www.baumer.com (-> product detail page) and
- ioddfinder.io-link.com

In the following, you will find a selection of the parameterizable functions of the sensor:

- Define the unit of the output process value (N, kN, $\mu\text{m/m}$, ...)
- Tare the sensor, e.g. after it has been mounted (distortion, *Teach-in offset*)
- Calibrate the sensor to a known force on the machine (*Teach-in by Reference*)
- Peak value memory for reliable maximum value recognition in real time
- Low-pass filter for optimized signal-to-noise ratio and smoothing in case of signal fluctuations
- Sample & hold for precise measured values at defined times for precise settings
- Configurable digital switching points
- Diagnostic data (detailed device status, operating hours counter, quality bit)
- Error detection (alarm bit for display of invalid measuring signals, freely configurable signal value at analog output for error detection)

Maintenance

The sensor is maintenance-free. No special preventive maintenance is required.