



Sensorbox containing one sensor, one signal conditioner with 0.5 ... 4.5 Volt output and two open-collector output switches

Features

- robust pressure die cast aluminium housing (IP67) with saltwater proof coating
- twist free 4-point fastening of rigid, 3.2mm thick base PCB
- integrated signal conditioner with 0.5 ... 4.5 Volt output
- temperature drift compensation of the sensitivity
- 9 ... 30 Volt supply voltage
- all SEIKA sensors fit the housing and can be installed in different directions of operation
- the output signal of the sensor is calibrated to customer's specifications in the required direction of operation
- sensor and signal conditioner electrically isolated from housing
- EMC certified
- highly stable sensor supply voltage
- programmable dynamic response
- either connection polarity
- high overload resistance
- low pass filter with optional choice of cut-off frequency for suppression of interference frequencies
- two separate, individually adjustable open-collector output switches
- switching status indication via two red LEDs

Description

The SB1S is a pressure die cast aluminium sensor housing (IP67) with an integrated sensor for measuring uniaxial acceleration or inclination.

As well as the sensor, the box contains a signal conditioner with a 0.5 ... 4.5 Volt output and a separate, highly stable supply voltage that can be used externally as a reference point. Furthermore, the signal conditioner includes an active low pass filter, whole upper cut-off frequency / settling time can be tailored to suit the measurement task, and a noise voltage filter to guarantee the EMC. Interference signals caused by unwanted ground currents are eliminated by electrically isolating sensor and signal conditioner from the housing. In addition to the voltage output, the SB1S has two open-collector output switches. Two helical trim-potentiometers enable the adjusting of two trigger thresholds within the measuring range, the exceeding of which causes the corresponding output switch to trigger. Optionally, the state transition can be set to be either off to on or on to off. The switching hysteresis can be adapted to the measuring task. Unlike the SB2..., the SB1S can accommodate larger inclinometers, such as the NG-series, that have a higher measuring accuracy. Electronic temperature compensation largely compensates for the temperature drift of the implemented sensor's sensitivity. Optionally, the temperature drift of both offset and sensitivity can be reduced significantly through individual compensation.

The compact metal cable gland and small housing size in combination with the max. 6-wire connection enable the use of this high quality measuring system in harsh operating conditions.

Application

The SB1S is suitable for applications requiring precise inclination or acceleration measurements under harsh circumstances, returning of a 0.5 ... 4.5 Volt output signal and the availability of output switches. Areas of successful implementation include construction, mining, agricultural machinery, transportation and conveyor systems, ships, operation and automation technology as well as general mechanical engineering. The output switches have their application in safety surveillance systems and direct process control.

Specifications

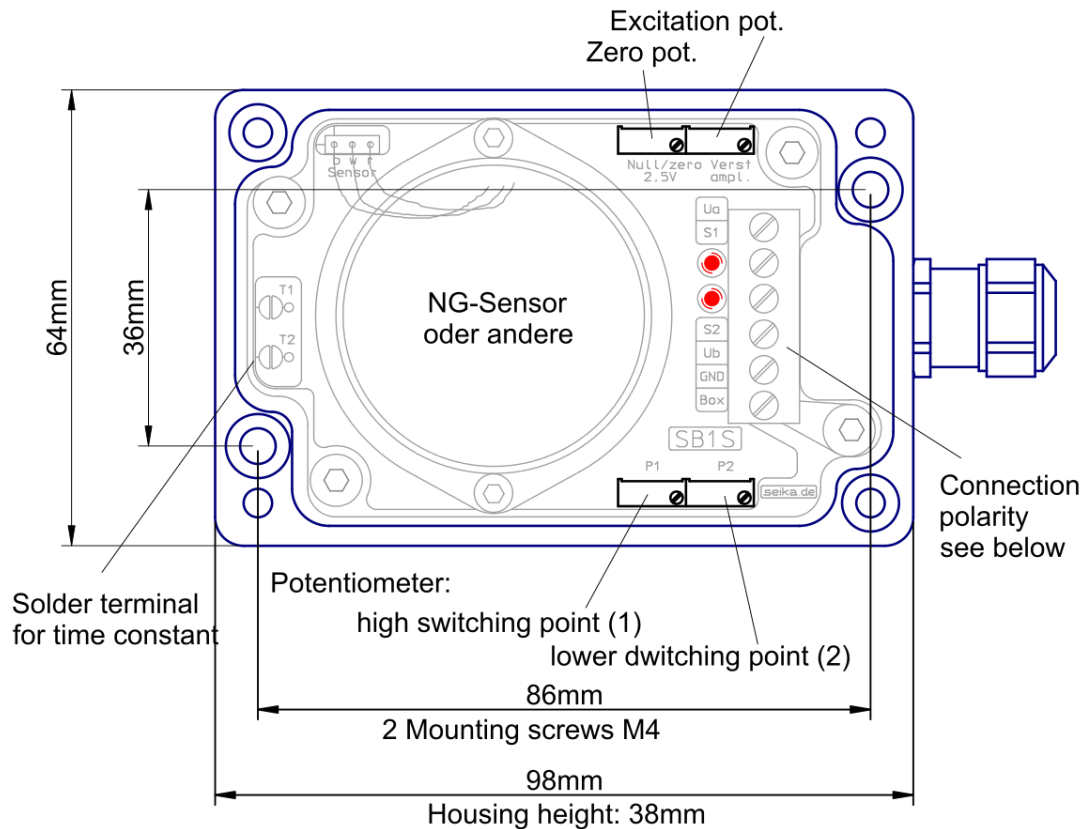
Terminals	6 x 1.5mm ²
Cable gland	M12 x 1.5, metal cable gland with integrated strain relief, clamping range 6mm ... 7.5mm
Measuring range, Resolution, etc.	dependent on implemented SEIKA sensor
Degree of protection	IP67
Mounting orientation	any (standard: wall mounting, cable on the right)
Measuring planes (N.. sensor)	3 main housing planes
Measuring plane (NG.. sensor)	parallel to bottom of housing
Measuring direction (B.., BD.. sensor)	X,Y,Z coordinates of housing
Torque housing lid	1.5Nm
Supply voltage	9V ... 30V
Operating current	approx. 15mA
Normalized output voltage range	0.5V ... 4.5V
Output zero point	2.5 Volt
Maximum output voltage range	0.05V ... 4.95V
Output resistance	100 Ohm
Capacitive output loading capacity	any, taking dynamic requirements into account
Switching transistors	BCX56
Output switch loading capacity	50 Volt, 0.3 Ampere
Adjustable variables	zero point (2.5V), amplification, lower and upper trigger threshold
Low pass filter	active, 5th order, minimal ripple
Operating temperature	-40 ... +85°C
Weight	approx. 320g

• The box is delivered with an individual calibration record that includes the precise offset and sensitivity values, the static characteristic curve and the linearity deviation curve.

Options:

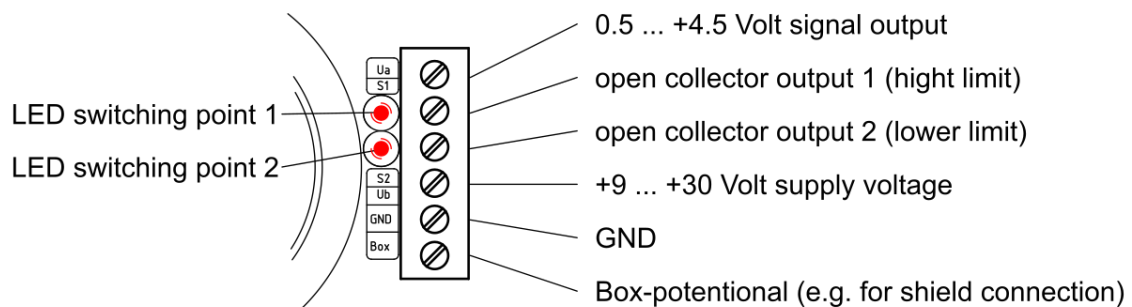
- custom switching hysteresis • switching state transition: LOW to HIGH or HIGH to LOW
- special measuring ranges • silicon encapsulation • custom wiring
- individual temperature drift compensation of the offset and the sensitivity

Dimensions (in mm) and Connections



all SEIKA-Sensors
can be used in the
SB1S

measuring channel
galvanically separated
from housing



Attention! Do not short circuit the supply voltage with one of the outputs.

Diodes protect the open-collector outputs against voltage spikes when switching inductive loads. Optionally, the open-collector outputs can be manufactured as: "conducting when exceeding trigger threshold": version SB1S/L or: "non-conducting when exceeding trigger threshold": version SB1S/N.

Version L offers the possibility of connecting both open-collector outputs to one line (wired OR), thereby activating the control signal (e.g. siren) if either of the trigger thresholds is traversed.

Version N offers greater security in the activation of an alarm, since an transmission line break or a supply voltage failure causes a traversing of the trigger threshold (principle of quiescent current).