



**Sensor box containing one highly sensitive servo inclinometer and one signal conditioner with  $\pm 5V$  output**

## Features

- large, robust pressure die cast aluminium housing (IP67)
- small measuring range of max.  $\pm 1^\circ$  with extremely high resolution through use of a SEIKA servo inclinometer
- integrated signal conditioner with symmetrical  $\pm 5V$  output for long transmission lines and minimal interference susceptibility
- robust pressure die cast aluminium housing (IP67) with saltwater proof coating
- 12V or 24V supply voltage
- output signal calibration to customer's specifications
- sensor and signal conditioner electrically isolated from housing
- extensive EMC protection
- highly stable sensor voltage supply
- either connection polarity
- high mechanical overload resistance
- low pass filter with optional choice of cut-off frequency for suppression of interference frequencies

## Description

The SBS1U is a pressure die cast aluminium sensor housing (IP67) with an integrated sensor for highly sensitive, uniaxial acceleration or inclination measurements.

As well as the sensor, the housing contains a signal conditioner with 0...5V output and a separate, highly stable voltage supply. Furthermore, the signal conditioner includes active low pass filters for suppression of interference signals and transient suppression for EMC guarantee. Interference signals caused by unwanted ground currents are eliminated by electrically isolating sensor and signal conditioner from the housing. The terminals provide either two mutually inverse asymmetric 0...5V or one symmetrical  $\pm 5V$  output voltages.

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

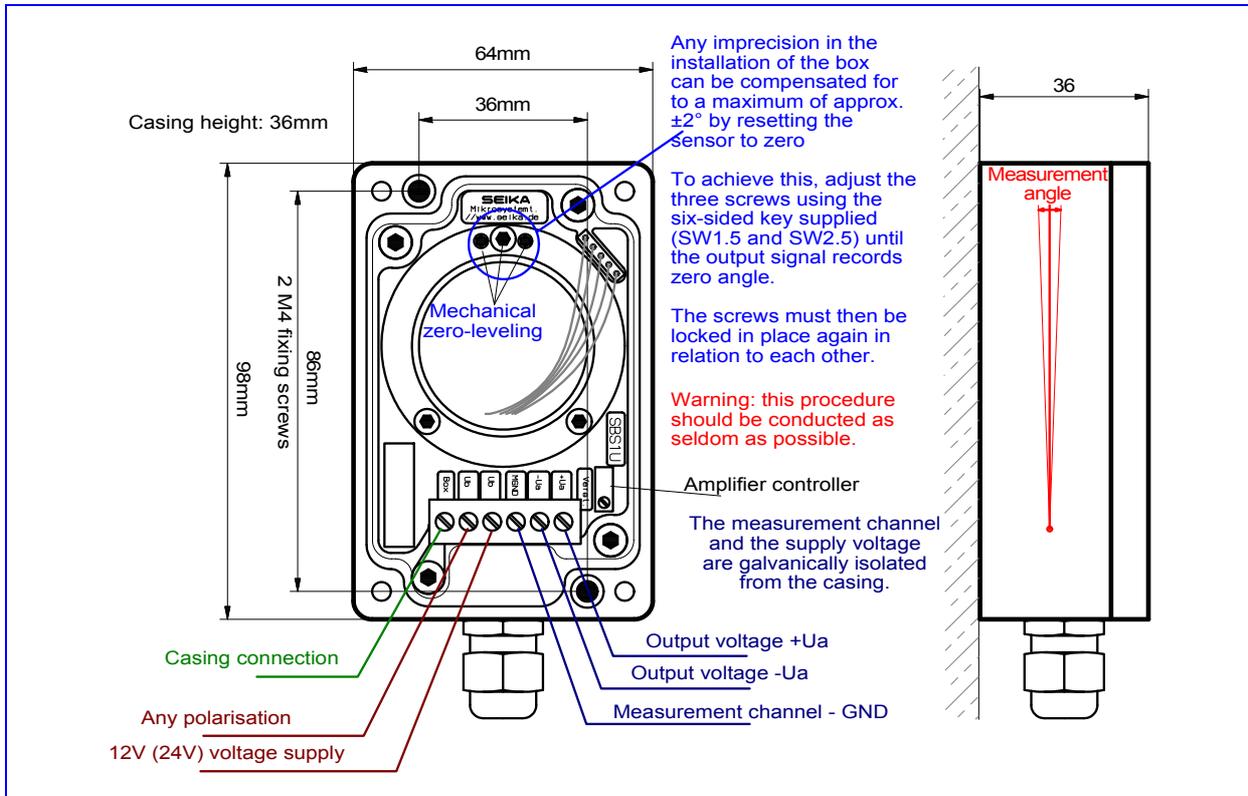
The SBS1U is suitable for applications requiring extremely precise inclination or acceleration measurements under harsh circumstances and returning of an analog signal output. Typical areas of successful application include stability monitoring of buildings and machinery and inclination monitoring on bridges, dams, towers, tunnels, slopes and structures in danger of collapse or earthquakes.

## Technical Specifications

|  |   |
|--|---|
| Terminals  | 6 x 1,5mm <sup>2</sup>  |
| Cable fixing   | PG9, clamping range 6.5mm ... 9.5mm   |
| Measuring range  | max. ±1degree , smaller ranges optional   |
| Resolution   | 0.01arc seconds = 48µm/km!  |
| Degree of protection   | IP67  |
| Mounting orientation   | see drawing   |
| Supply voltage optional  | 12Volt oder 24Volt (±10%)   |
| Operating current  | ca. 100mA   |
| Normalized asymmetric output voltage range (GND -> Ua+)                    | 0.5V ... 4.5V   |
| Normalized asymmetric output voltage range (GND -> Ua-)                    | 4.5V ... 0.5V   |
| Normalized symmetric output voltage range (Ua- -> Ua+)                     | -4V ... +4V   |
| Asymmetric zero output voltage (GND -> Ua+)                                | 2.5Volt   |
| Asymmetric zero output voltage (GND -> Ua-)                                | 2.5Volt   |
| Symmetric zero output voltage (Ua- -> Ua+)                                 | 0 Volt  |
| Output impedance   | Approx. 100 Ohm   |
| Recommended cable  | see drawing   |
| Cable length taking voltage drop due to the operating current into account | any (e.g. 500m for 12V or 1km for 15V voltage supply and using the recommended or equivalent cable) |
| Capacitive output loading capacity   | any   |
| Resistive output loading capacity  | greater than 100 kOhm   |
| Output driver  | operational amplifier TLC2274   |
| Adjustable variable  | amplification   |
| Signal rise time (to 98% of step input)                                    | approx. 2 seconds   |
| Step input response  | PT2   |
| Operating temperature  | -40°C ... +85°C   |
| Mechanical angle adjustment range  | ±2° (angle)   |

Options: special measuring ranges, calibration record, partial silicon encapsulation, custom wiring

Dimensions (in mm) and Connections



Cable connections

