



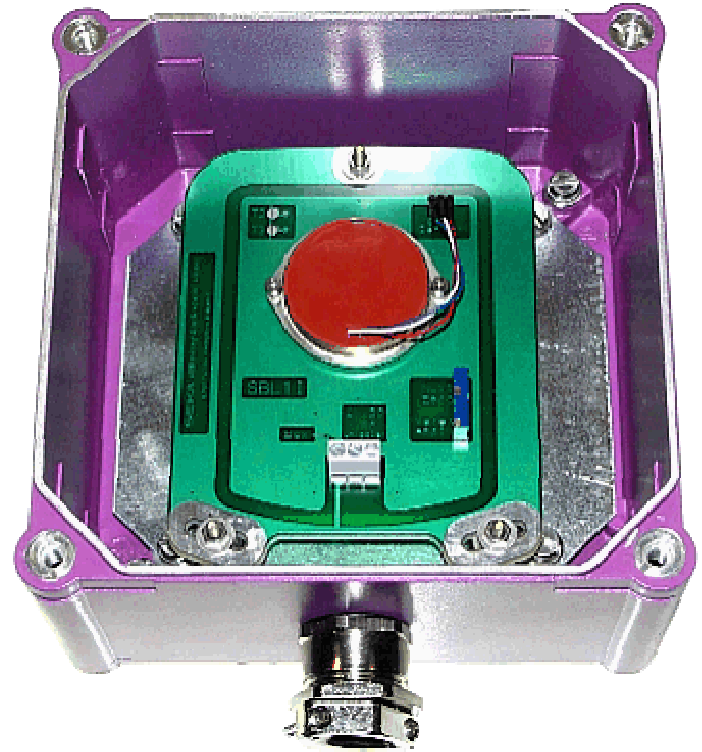
RIEKER[®]
INCORPORATED

SBL1i (4-20mA)

Single Axis Inclinometer Sensor Package

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The SBL1i is a rugged, environmentally sealed sensor package with an integrated inclinometer & signal amplifier for a 2-wire Analog Current 4...20mA output



Features

- Large, robust pressure die cast aluminum housing (IP65)
- Angular adjustable, vibration damped 3-point fastening of rigid, 3.2mm thick base PCB
- Integrated signal conditioner with 4...20mA, 2-wire output
- Temperature drift compensation
- No separate supply voltage necessary
- Output signal calibrated to customer's specifications
- Sensor and signal conditioner electrically isolated from housing
- Extensive EMC protection
- Highly stable sensor supply voltage
- 10...30VDC terminal voltage
- Loop current limitation
- Mechanical overload resistance
- Either connection polarity
- Low pass filter with optional choice of cut-off frequency for suppression of interference frequencies

Description

The SBL1 sensor box is packaged in a solid die-cast aluminum housing with an integrated sensor for single axis inclination measurements.

Within the box are 2 sections: An amplifier with a 4...20mA current-loop output proportional with the working range of the integrated sensor and a separate highly stable power supply for the sensor, which obtains its power from the 8...30VDC box supply. Both sensor and amplifier are galvanically isolated from the housing - further reducing susceptibility to outside noise. A custom low-pass filter and a suppression filter combine to eliminate interference coming into the system.

The NG-type sensor is integrated into the SBL1 box, which considerably reduces temperature drift over the entire temperature range, for a high degree of accuracy.

Applications

Recommended for use where precise inclination measurements must be taken under harsh environments where an added level of vibration damping is needed. Areas such as construction, mining (especially large open pit mining machinery), agricultural machinery, transportation and conveyor systems, civil engineering (bridge applications), operation and automation technology.

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34 MOUNT PLEASANT ROAD • ASTON • PA • 19014 • USA

610-500-2000

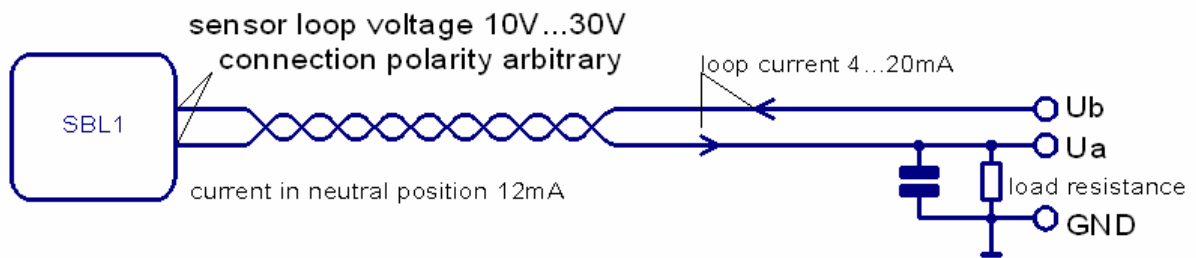
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TECHNICAL DATA	
Termination/Cable Diameter	max.: 3 x 1.5 mm ² / Ø 5 ... Ø7 mm
Cable Fixing	PG21 (Metal with integrated stress relief)
Measuring Ranges	In accordance with the actual sensor
Protection Degree	IP65 (with RTV fill IP67)
Mounting	Any direction
Inclinometer Measuring Plane	N Series: 3 directions of mounting
	NG Series: Parallel to the base of housing
Accelerometer Measuring Directions	B, BD Series: Place in X, Y, Z co-ordinates to the housing
Supply voltage to the box	+8 ... +30 Volt
Minimum loop current	3mA
Maximum loop current	Approx.24mA
Output current loop signal	4...20mA (12mA as zero point)
Adjustable parameters via potentiometers	Signal-zero (12mA), Span
Max. Load impedance	500 Ohm (at 24 Volt loop supply)
Operating temperature	-40 ... +85°C
OPTIONS	
Special measuring ranges, test report, silicone filled housing, custom wiring	
<p>The SB1i Sensor Box is extremely versatile, allowing various configurations with other Rieker sensors. If you have an application that requires alternative specifications, one of our engineers will be happy to discuss how to customize the box for your inclination or acceleration needs.</p>	

FIGURE 1: Cable Connections



minimum loop current: 2,5mA ...3,5mA maximum loop current: 22mA ... 26mA

$U_{bmin} = 10V + \text{voltage drop along cable} + \text{voltage drop across load at 20mA}$

$U_{bmin} = 10V + (20mA \cdot R(\text{cable})) + (20mA \cdot R(\text{load}))$

e.g.: (100m transmission wire 2x0,14mm² :)0,6V + (100 Ohm load :)2V + 10V = $U_{bmin} = 12,6V$

e.g.: (2km transmission cable 2x0,5mm² :)3,2V + (500 Ohm load :)10V + 10V = $U_{bmin} = 23,2V$

Since the supply voltage of the SBL1 feeds off the loop current (the SBL1 requires 3mA at the most), a voltage of 9V across the SBL1 terminals must be guaranteed to ensure correct functionality even for the maximum loop current of 24mA (maximum voltage drop across transmission line and load resistor).

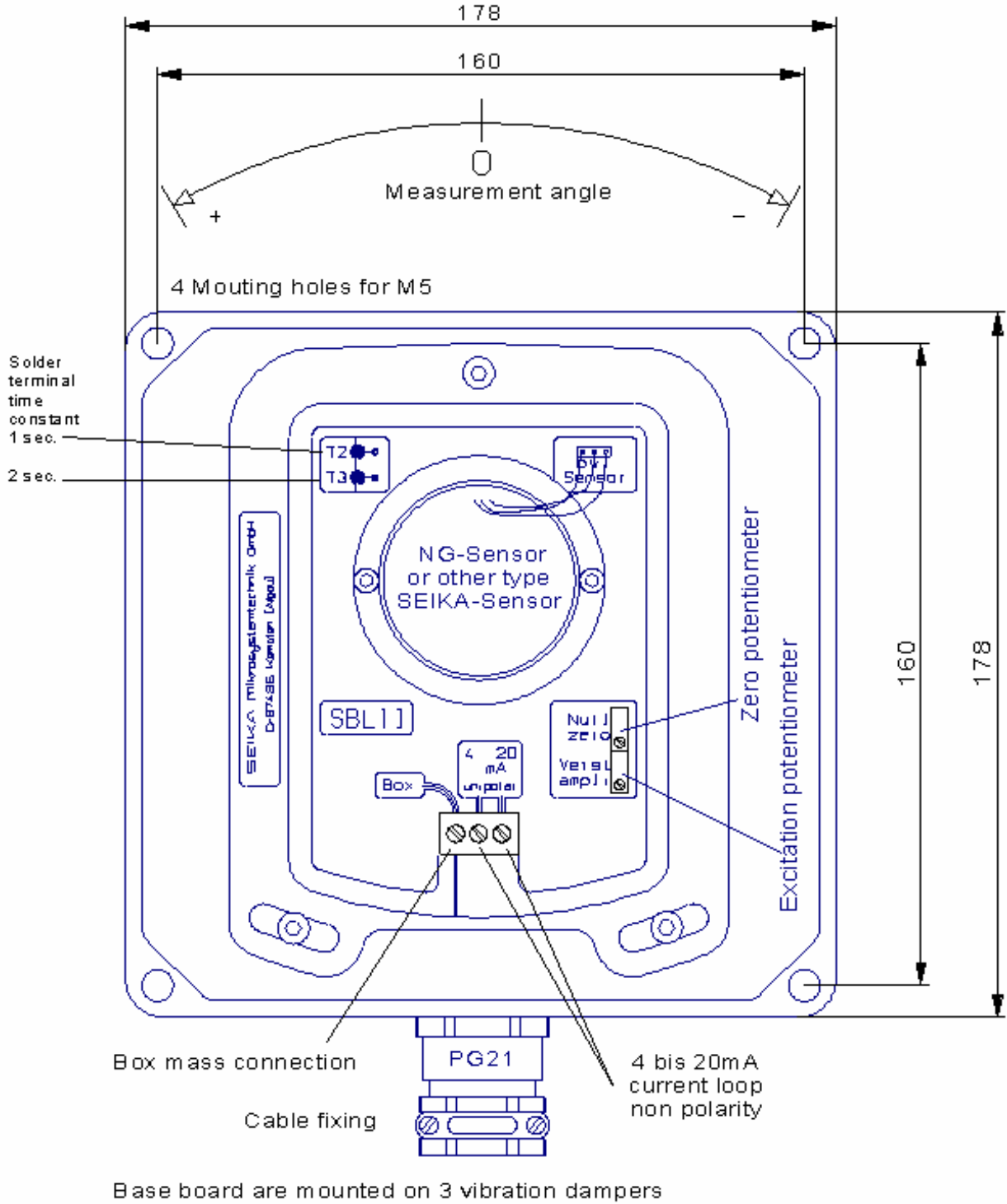


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FIGURE2: Mounting Position, Dimensions in [mm]



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