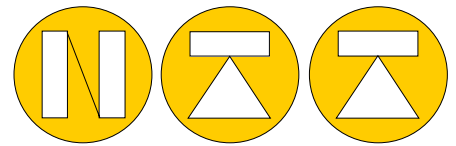


# SEIKA SB2i-B



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## SB2i-B1 /B2 & B3 DC Acceleration



### Description

**SB2i-B1, B2 & B3** is capacitive spring mass accelerometers with integrated sensor electronics. Resonant peaks are minimised by means of a special gas-dynamic damping in the primary transformer.

The SB2i accelerometer can be supplied in a variety of models from very high sensitive units with a very small working range down to  $\pm 0.5g = 4-20mA$  output and a sensitivity at  $16.0000mA$  per G

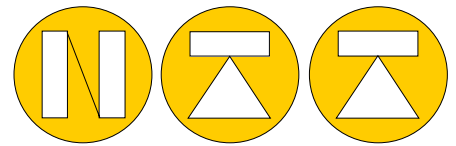
The sensor electronics requires only very low power consumption and is characterised by a high degree of long-term stability. They can be ordered with a selection of Low Pass filtering fitting to the job.

### Application

The acceleration sensors **B1, B2, B3** are typically used where high overloading occurs, in applications which require high long-term stability, measurements at a very low frequency or of static signals, very short rise-times, and/or small power consumption is required.

#### Typical applications are:

- Measurement on vehicles, machines, buildings, Wind mills
- In process control systems as well as in safety installations
- Seismic measurements
- Inclination measurements
- Dynamic measurements
- Machine vibration measurement
- Dynamic rate determination



## Technical Data

Termination	max.: 2 x 1,5 mm <sup>2</sup>
Cable gland	PG M12 Size in metric metal mode
Measuring ranges	In accordance with the actual SEIKA-Sensor
Protection degree	IP65
Mounting	Any direction
Working planes sensor (B1 - B3 Sensor)	3 directions of mounting
Measuring directions (B1 - B3 Sensor)	in X,Y,Z-co-ordinate 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 area's via pot.-meters	Signal-zero (12mA), Span
Max. Load impedance	500 Ohm (at 24 Volt loop supply)
Working temperature	-40 ... +85°C

### Type Sensor mounted: B1

### B2

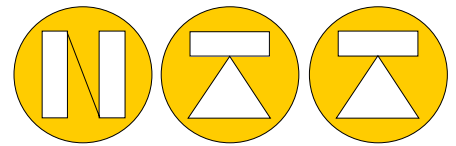
### B3

	B1	B2	B3
Measuring range	±3g (app.±30m/s <sup>2</sup> )	±10g (app.±100m/s <sup>2</sup> )	±50g (app.±500m/s <sup>2</sup> )
Resolution	<10 <sup>-3</sup> g	<5*10 <sup>-3</sup> g	<2*10 <sup>-2</sup> g
Frequency range	0...160Hz	0...350Hz	0...550Hz
Non-linearity		<0.2% F.S.	
Cross axis sensitivity		<1%	
Sensitivity	App.2.666mA/g	app. 0.800mA /g	app. 0.160mA/g
B1 special range down to	app. 16.000mA/g ( +/-0.5G range as minimum)		
Temperature drift on			
Sensitivity		<0,05% / °C	
Temperature drift on zero		<0,05mA/°C	
Mechanical overloading in measuring direction		10 000 g (app. 100 000 m/s <sup>2</sup> )	
Nominal power supply		U <sub>BN</sub> = 24 Volt (se page 3)	
Permissible range of power supply		10-30Volt (se page 3)	
Protection degree		IP65 ( Optional IP67)	
Working temperature		-40°C to +85°C (optional 125°C)	
Storage temperature		-45°C to +90°C (optional 125°C)	
Weight (Metal housing without cable)		364 Gram	
Electrical standard connection		PG7 size on metric model (PG9 as optional)	
Alternative electrical connections		IP67 connector and special cables	

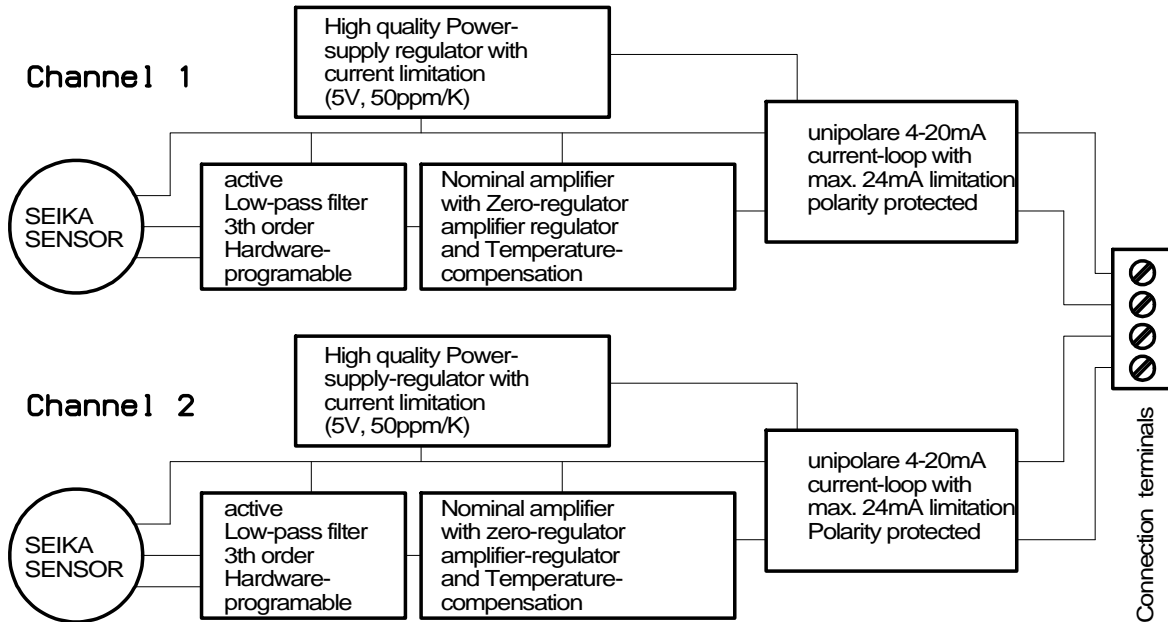
At order a special Low Pass filter can be ordered

Where dynamic acceleration is a demand then please look at BDK sensor at separate BDK brochure !!

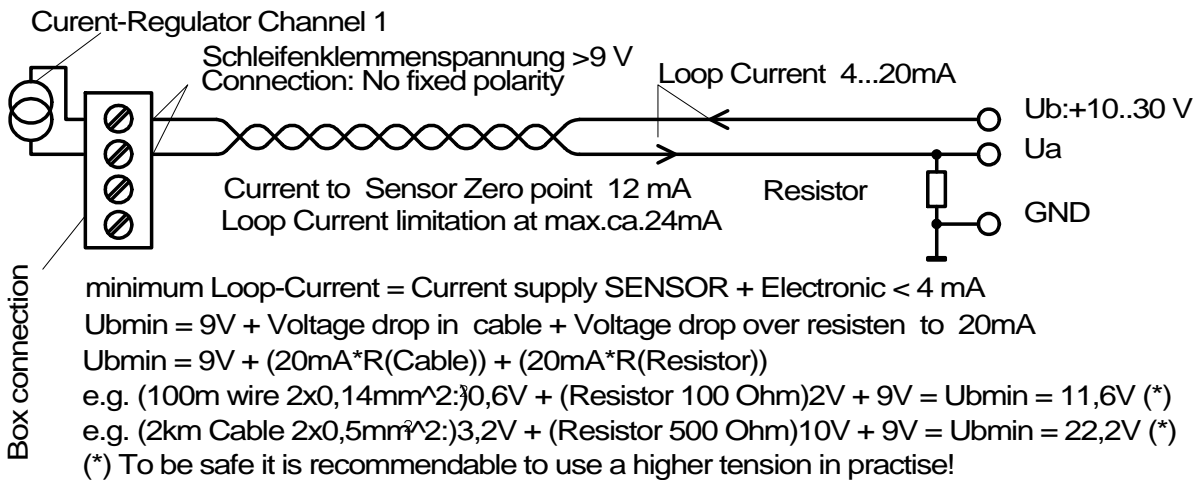




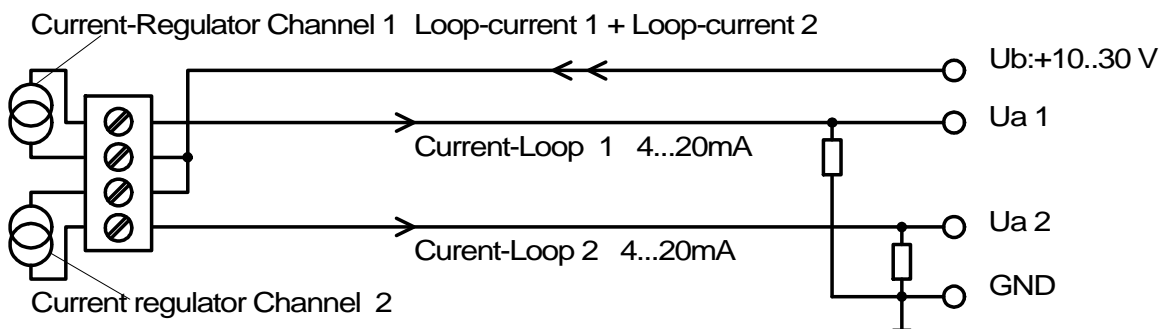
## Block diagram



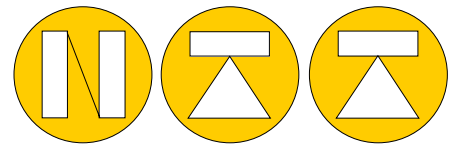
## Current-Loop diagram



## Two Current-loop's with 3 connections

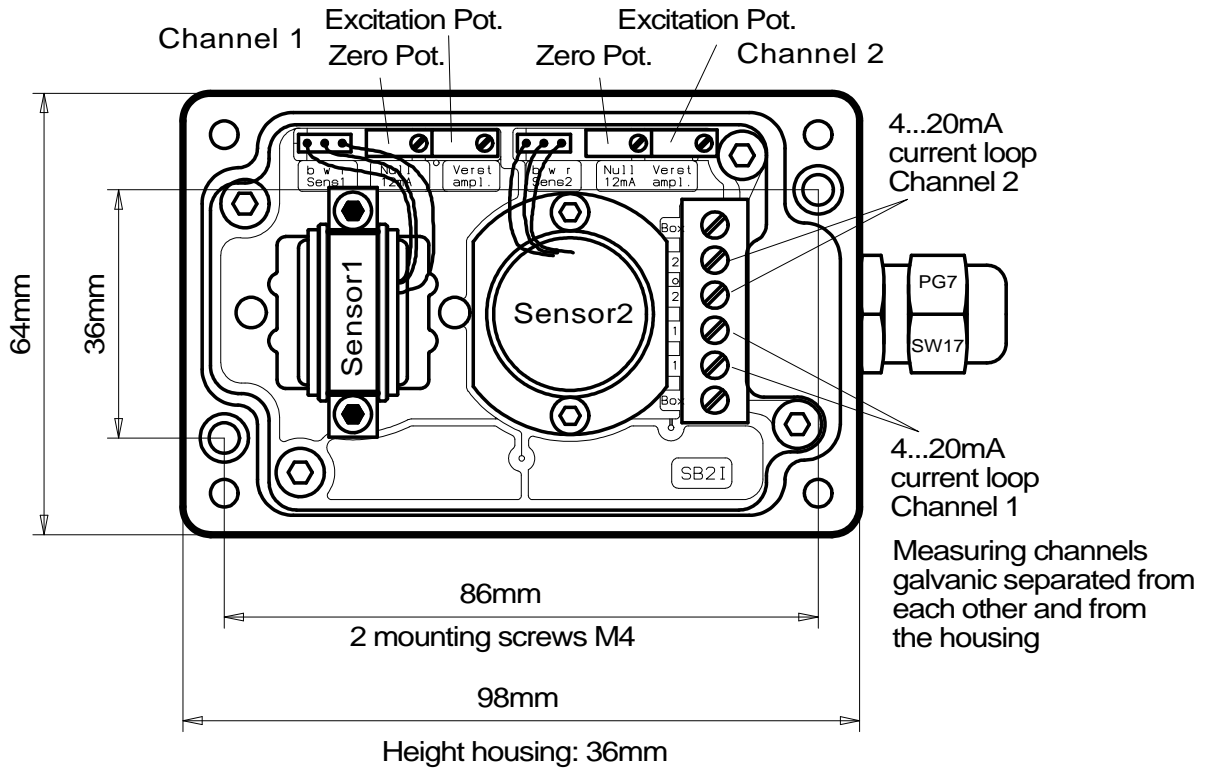


# SEIKA SB2i-B

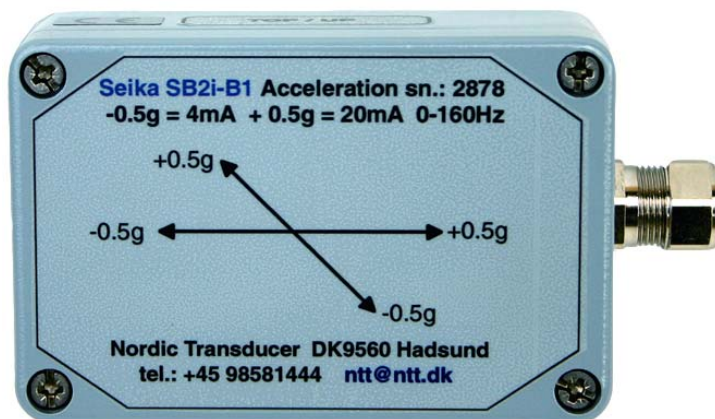


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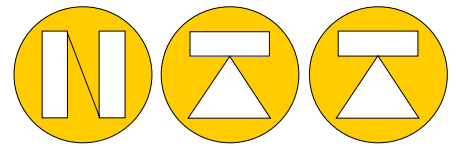
**Dimensions in mm**



*Most standard way of mounting*



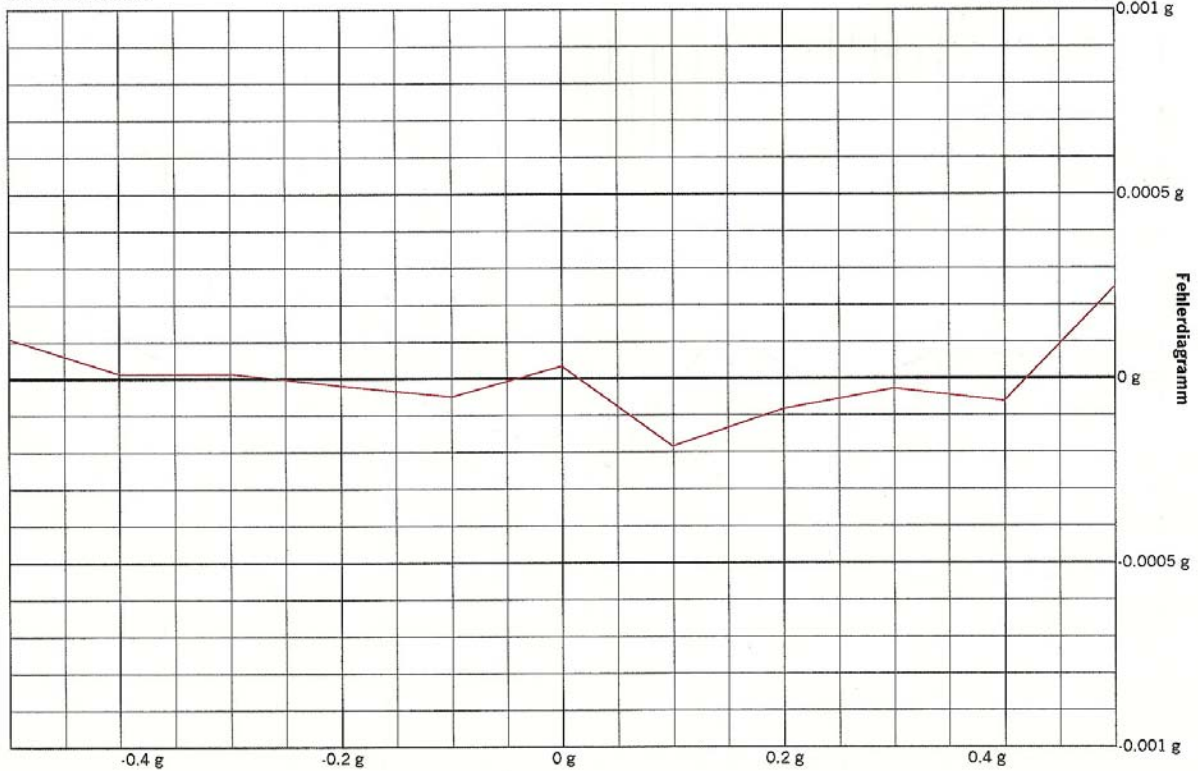
**SB2i-B1-SUR-XY**



Sensor (Ch01): SB2i 2878/1  
 Messbereich: -0.5g bis +0.5g Mittenstrom: 11.9994 mA Empfindlichkeit: 15.997 mA/g  
 Schrittweite: 0.1g

Nordic Transducer  
<http://www.ntt.dk>  
 tel. +45 98581444 ntt@ntt.dk

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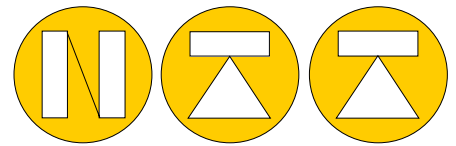
The SB2i-Bx sensor boxes can be supplied with accurate test data as shown here up to +/-1g

**XB2**



As option a special XB2 very strong stainless steel housing can also be supplied for the SB2i, please look at XB2 brochure for more information.





## Measuring Directions

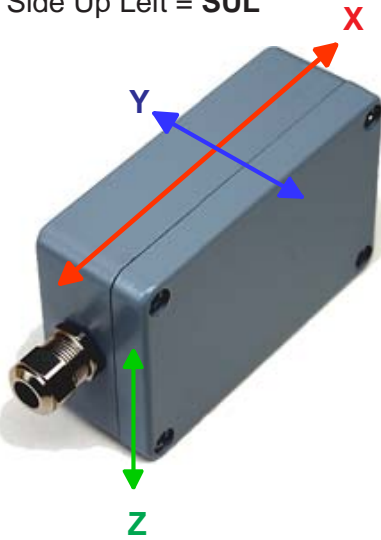
As shown here there is 5 different ways of mounting the SB2i box and each of these can be with the 2 sensors in 2 of the 3 shown directions, please notice when using Z direction the zero point will then be 1G.

The SB2i box must be fixed rigid in a level position for both X and Y axis as the zero point will be influenced by tilting, a DC accelerometer do in principle also measure inclination so it is important to level it correct.

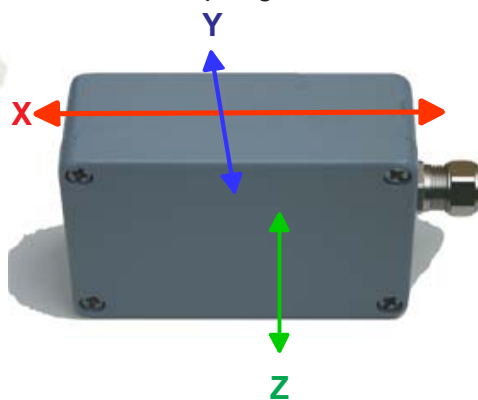
If this is a problem then BDK sensors can be implemented, but notice that these do only go down to 1 Hz, they can be situated as you wish without changing the zero point.

### Ordering example: SB2i-B1-SUR-XY

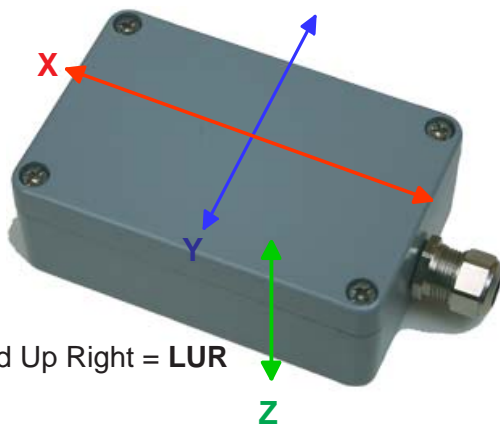
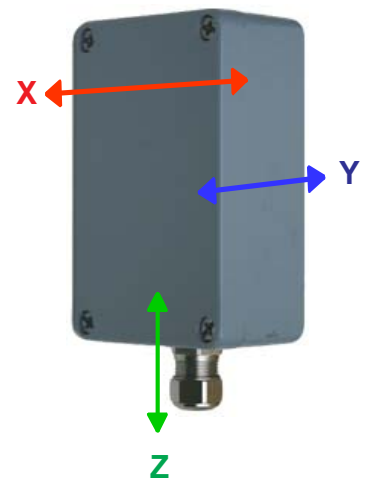
Side Up Left = **SUL**



Side Up Right = **SUR**

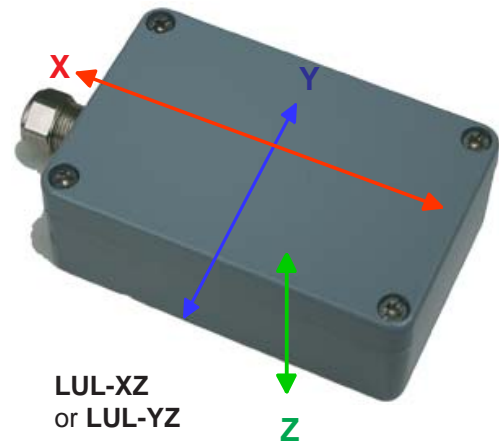


End Up = **EU**



Lid Up Right = **LUR**

Lid Up Left = **LUL**

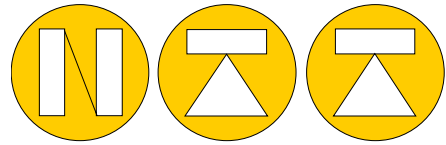


**LUL-XZ**  
or **LUL-YZ**

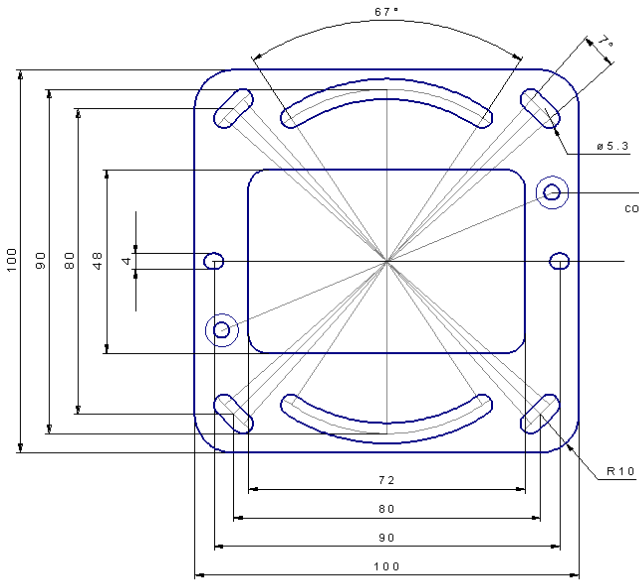
Please notice: Only possible with LID UP  
**LUR-XZ** or **LUR-YZ**

When using Z axis, 1g will be off-set which has to be deducted from sensor range, so a B1 sensor will then only have a range of +/-2g max. BDK3, BDK10 sensors will work on the full range.

# Mounting plates for SB box made of stainless steel



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fixing holes for sensor box SB..  
counterbore for countersunk screw M4 for the SEIKA SB-sensor box  
reference line for dowel pins

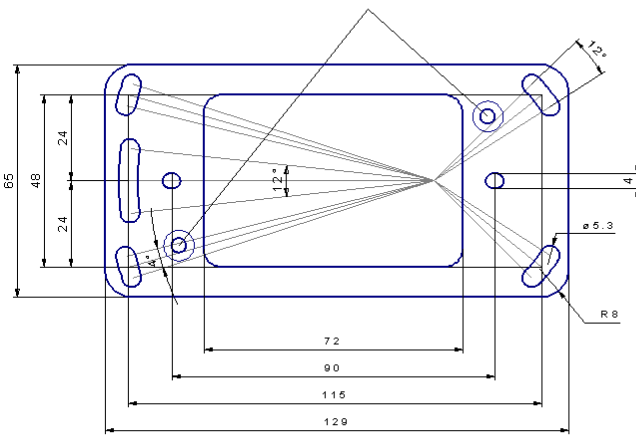
Recommended parts for mounting:  
hexagon socket-type (Allen) screw M5 stainless steel DIN 912  
spring washers stainless steel DIN 127  
washers, stainless steel outer diameter 9...10mm DIN 433 or DIN 125

**SBBB1**

Material: stainless steel, thickness 3mm

**SBBS1**

fixing holes for sensor box SB..  
counterbore for countersunk screw for the SEIKA SB-sensor box

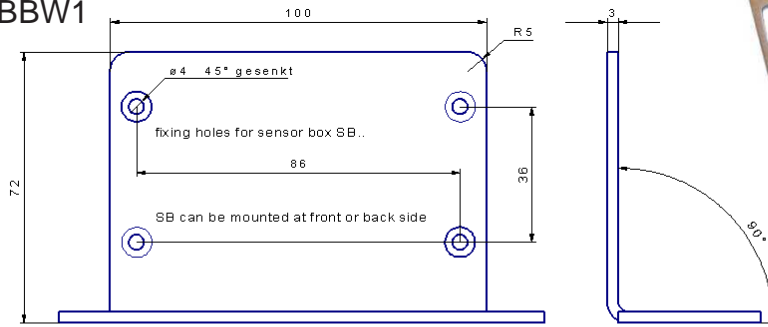


Recommended parts for mounting:  
hexagon socket-type (Allen) screw M5, stainless steel DIN 912  
spring washers stainless steel DIN 127  
washers, stainless steel outer diameter 9...10mm DIN 433 or DIN 125

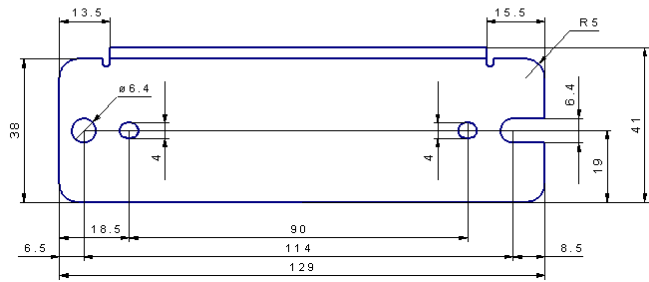
Material: stainless steel, thickness 3mm



**SBBW1**



Material: stainless steel, thickness 3mm



Recommended parts for mounting:  
hexagon socket-type (Allen) screw M6 stainless steel DIN 912  
spring washers stainless steel DIN 127  
washers, stainless steel DIN 433 or DIN 125