Acceleration Transducer AccTRANS4

Railway safety

GENERAL CHARACTERISTICS

Derailment protection by vibration analysis with electronics conform to railway safety standards in an **extremly robust housing.** A micro mechanical spring-mass-system continuously measures acceleration and converts the measured value to a standard 4-20mA analog current output. Vibration sensor according to railway safety standards DIN EN 50155 and ready to use with the voltage supply directly from the trainset. The sensor is designed for applications outside the vehicle or directly at the bogie. The extremely robust housing and special cable withstands harsh environments like impacts of stones, dust or weather and guarantees high reliability throughout its life time.

- *Measurement range ±4g**
- *Current output 4-20mA*
- *Sensitivity 2.0mA/g*
- *Frequency range 0.5-15Hz**
- *Resistant stainless steel housing*
- *Protection class IP68*
- *Compliant to DIN EN 50155*
- *Operating temperature -40°C ... +70°C*
- *Wide supply voltage range*

* customizable

MICRO-SENSOR

TECHNICAL PARAMETERS

Physical parameters	
Axes	1 y-direction (2 axes optional)
Measurement range	±4g*
Sensitivity	2mA/g
Sensitivity error	±2%
Noise	0,1% RMS of full scale
Frequency range (-3dB)	0.5Hz ... 15Hz*
Current output	4 ... 20mA
Zero signal	12mA
Max. error	±5,925%
Output impedance	120Ω ±70Ω
Housing	Stainless steel
Standards	DIN EN 50155
Connector	4-wire cable*
Cable bushing	Pflitsch, M12x1.5 KAD 9.5-6.5mm No.: 21250dB 9
Bogie cable	Special SABIX A 884 Ö 4x0,75mm diameter 8,3mm length 2,9m stone impact proof

* customizable

Environmental conditions	
Operating temperature range	-40°C ... +70°C
Seal	IP68
Vibration- & shock-test	DIN EN 61373:2011 Cat. 2

Electrical parameters	Min.	Typ.	Max.	Unit
Supply voltage	70	110	160	V
Supply current		0.02		A
Consumption	1	2	3	W
Insulation		>200M		Ω

All specifications at +25°C, unless otherwise defined.

MICRO-SENSOR

CURRENT OUTPUT

Parameter			
Acceleration (vibration amplitude)	-4g	0g	+4g
Output current	4mA	12mA	20mA

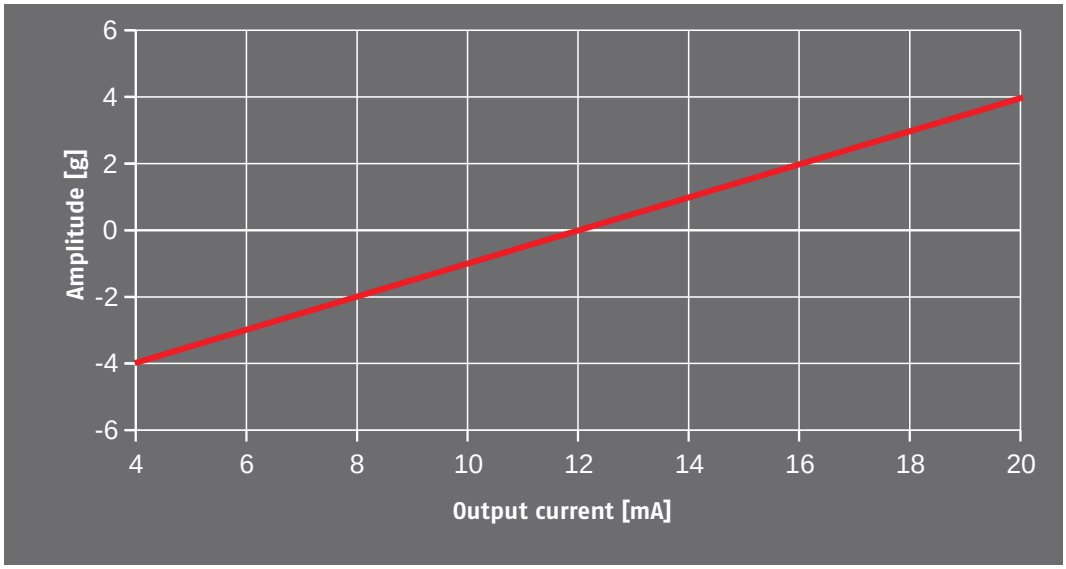

Figure 1: Output current

FILTER

Parameter	
Type and frequency range	bandpass 0.5 ... 15Hz
Gradient	≥24dB/octave

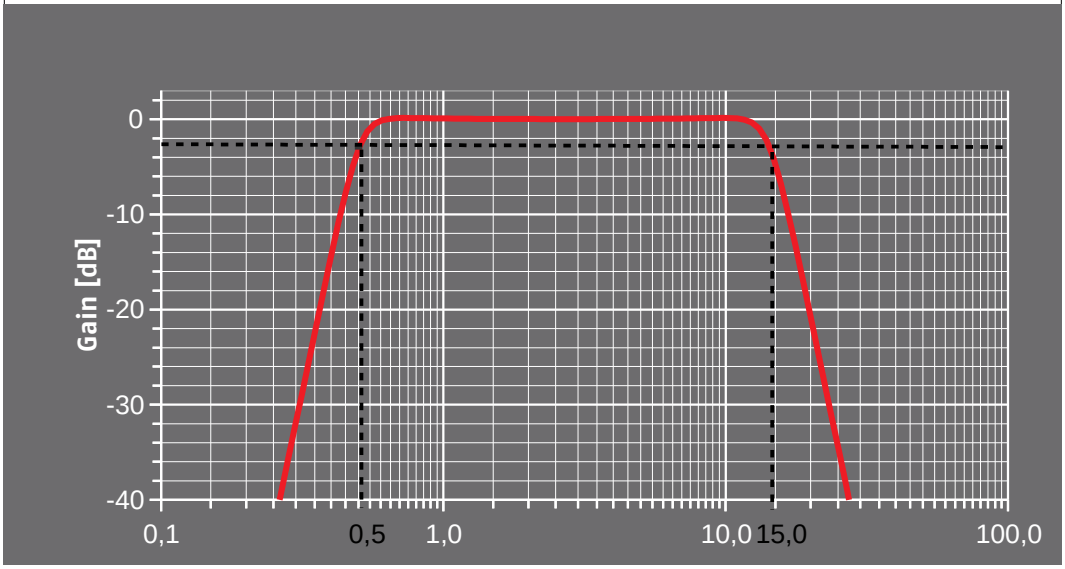

Figure 2: Band pass filter characteristics

MECHANICAL DIMENSIONS

Weight of cable and connector: ~ 1,3Kg

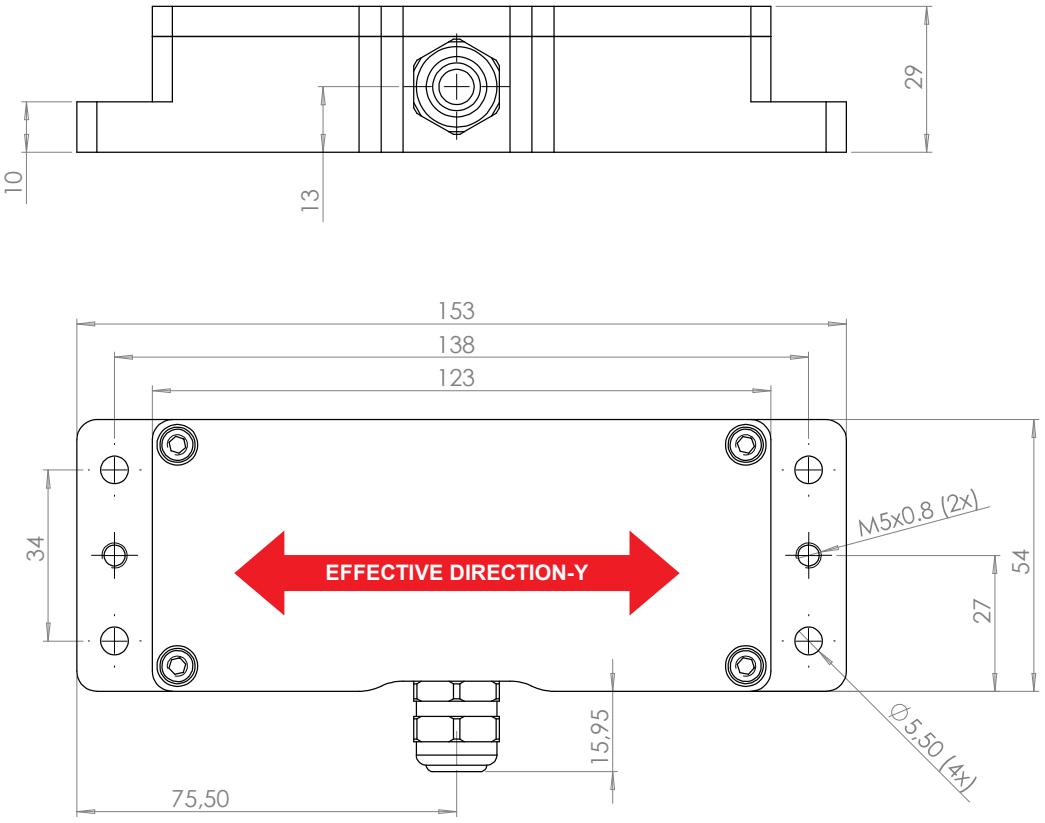

Figure 3: Mechanical dimensons [mm]

PINOUT

PIN	Signal
1	Supply voltage
2	Supply ground
3	Signal output y-axis
4	Signal ground y-axis

Connector customizable

CURRENT OUTPUT CONNECTION

Load resistance: 120Ω ± 70Ω
Connect a resistor to the signal output and signal ground as shown in figure 4.

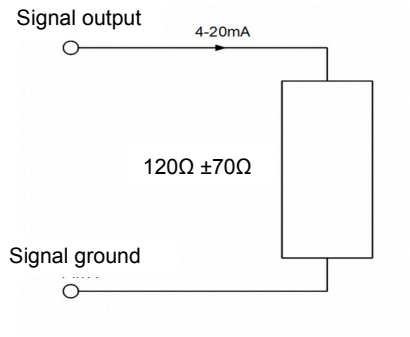

Figure 4: Current output connection

SHIELDING CONCEPT

The shield is not connected to the housing of the sensor. Connect the housing to train earth potential.

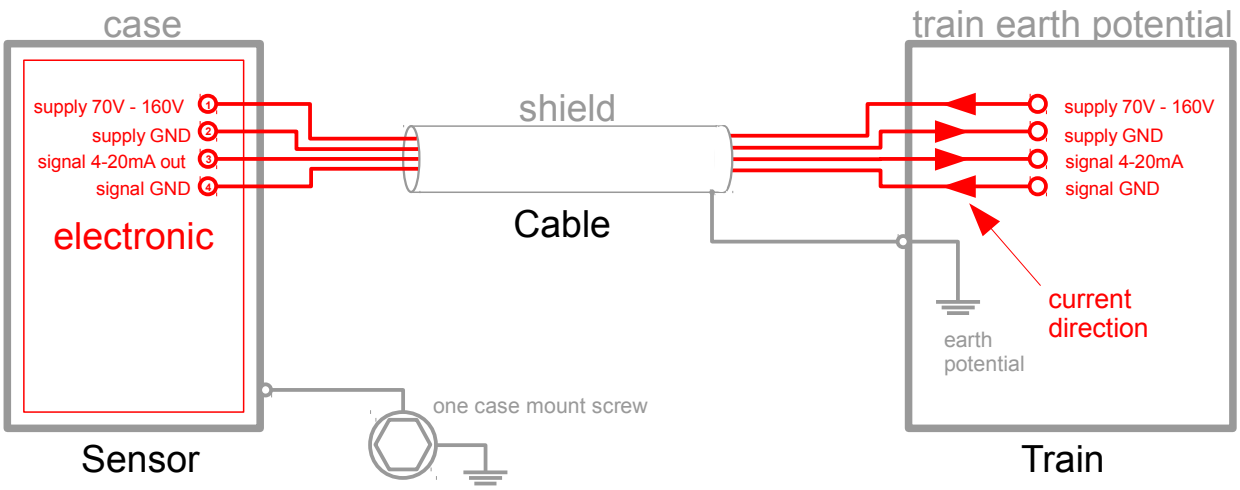

Figure 5: Shielding concept