

## GSV-4BT LD



### Highlights

- Long Distance Bluetooth interface
- 4 channels
- Inputs for DMS / 0 - 5 V / PT1000
- Measuring ranges 2 mV / V / 10 mV / V
- DMS quarter- / half- / full bridges
- 4 digital inputs / outputs
- Data rate 0 Hz - 900 Hz
- Range up to 1000m

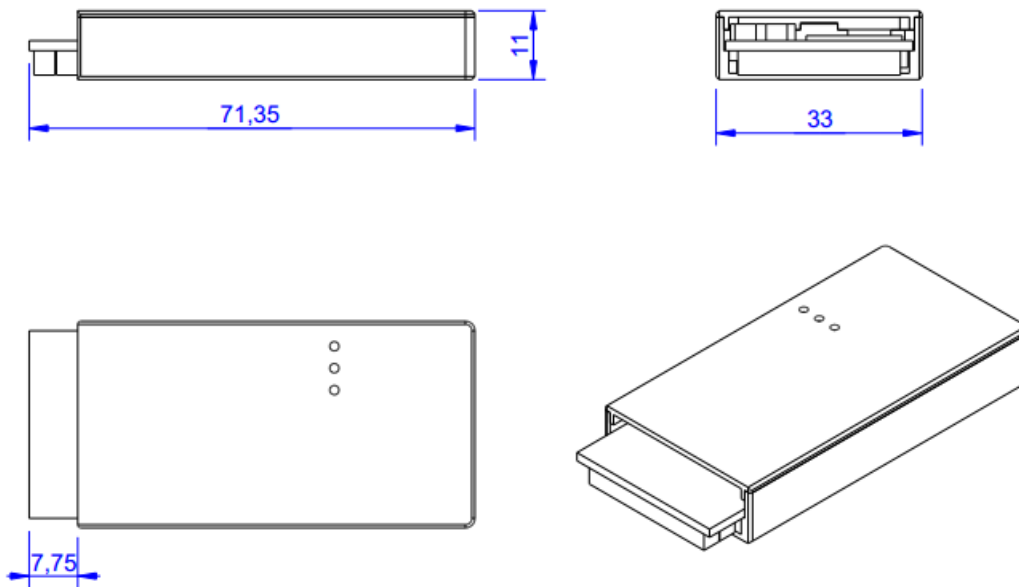


## Description

The measuring amplifier GSV-4BT is equipped with 4 independent channels for sensors with strain gauges, such as Force sensors, torque sensors, acceleration sensors or strain sensors.

Data rates from 0.6 Hz to 900 Hz are possible < br> The power consumption is less than 150mA. At rest, the power consumption is less than 10mA.

## Dimensions



## Technical Data

### Input analog

Input sensitivity-steps	2.0   10	mV/V
Input resistance strain-gauge-full-bridge	89 ... 5000	Ohm
Input resistance strain-gauge-half- /quarter-bridge	120   350   1000	Ohm
Input voltage f	0 ... 10	V
Input resistance-voltage	10	kOhm

### Measuring frequency

Data frequency f	0 ... 500	Hz
Sampling frequency	1.92	MHz
Limit frequency (analog)	450	Hz

### Supply

Supply voltage f	3.3 ... 4.2	V
Current consumption from	100	mA
Strain gauge bridge supply	2.5	V

### Interface

Type of the interface	bluetooth
Quantity of the interface	1
Version of the interface	Bluetooth 2.0+EDR

### Zero adjustment

Type	digital   software
Tolerance	0.01 %
Time period	1 ms
Debouncing time	4 ms
Trigger level f	3.4 ... 4.2 V
Trigger edge	Level

### Temperature

Rated temperature range f	-10 ... 65 °C
Operating temperature range f	-40 ... 85 °C
Environmental protection	IP64

### Basis Data

Housing	Grouting
Connection	Solder connection
Number of channels	4-Kanal

### Precision

Accuracy class	0,05%
Relative linearity error	0.02 %FS

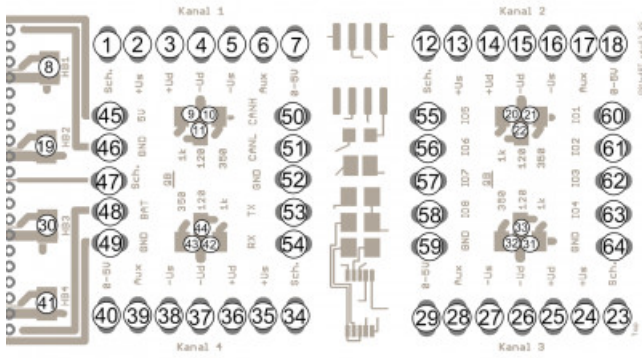


Temperature effect on the zero point	0.05	%FS/10°C
Temperature effect on the measuring sensitivity	0.01	%RD/10°C
Resolution	16	Bit

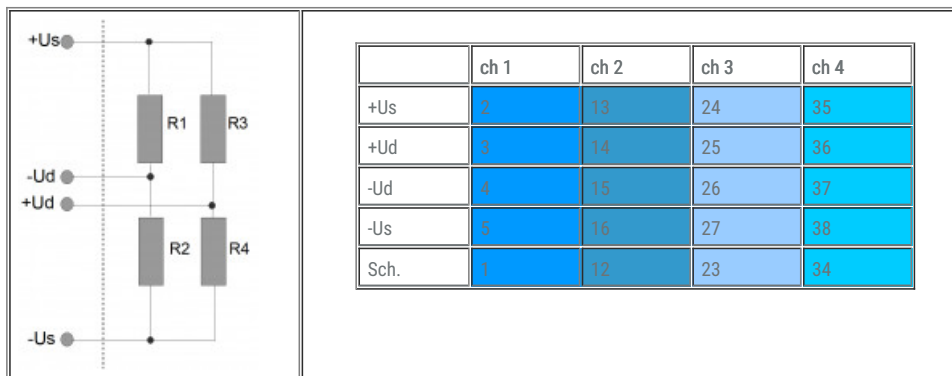
## Mounting

### Connection plan

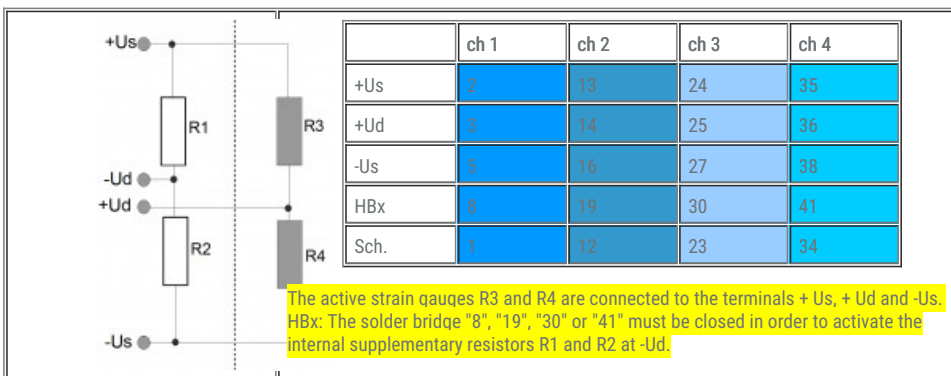
Connection PCB "Adapter GSV-4BT"



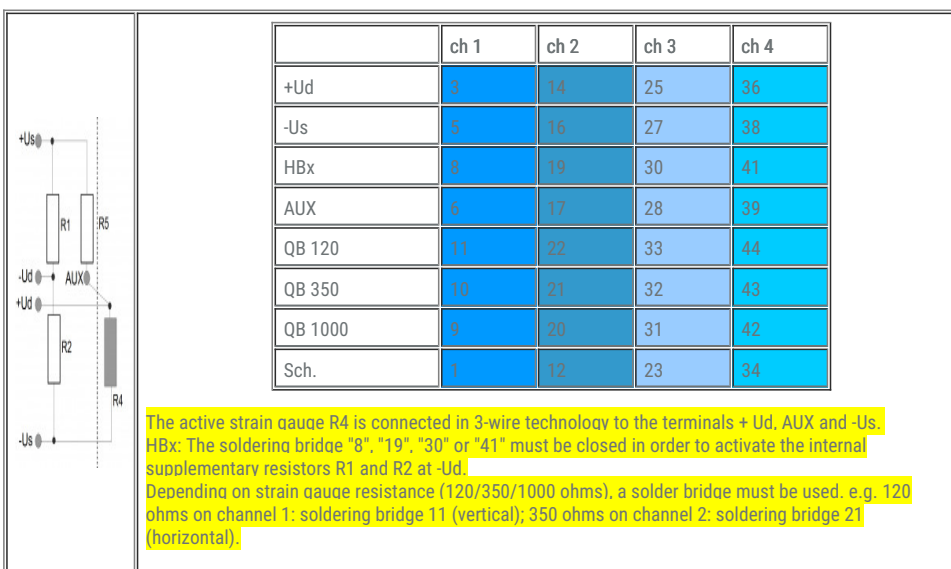
### Strain gauge full bridge



### Strain gauge half bridge



Strain gauge quarter bridge



PT-1000

	ch 1	ch 2	ch 3	ch 4
AUX	6	17	28	39
Ue "0-5V"	7	18	29	40
-Us	5	16	27	38
QB 1000	9	20	31	42
HBx	8	19	30	41
Sch.	1	12	23	34

The PT1000 is connected in 3-wire technology to terminals Ue "0-5V", AUX and -Us.  
 HBx: The soldering bridge "8", "19", "30" or "41" must be closed in order to activate the internal supplementary resistors R1 and R2 at -Ud.  
 The soldering bridge "9", "20", "31" or "42" (horizontal) must be closed.

Thermo cable Typ K

	ch 1	ch 2	ch 3	ch 4
+Ud	3	14	25	36
-Ud	4	15	26	37
-Us	5	-	-	-
QB 1000	9	-	-	-
Ue "0-5V"	7	-	-	-
HBx	8	19	30	41
Sch.	1	12	23	34
AUX	6	17	28	39

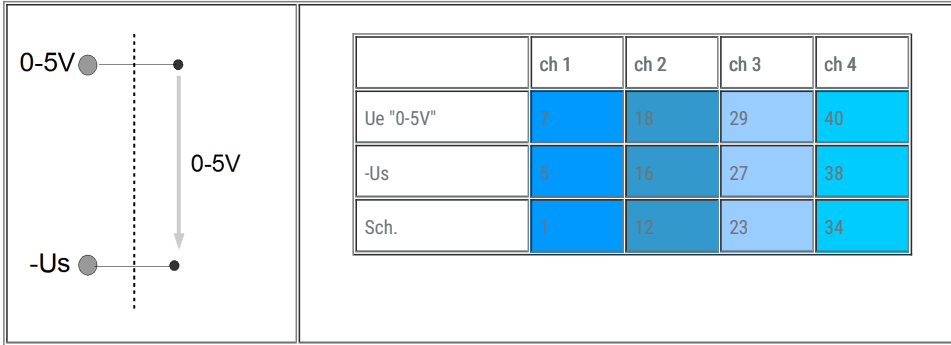
A reference sensor PT1000 must be connected to channel 1, terminal Ue "0-5V", AUX and -Us.  
 The thermocable is connected to the terminals + Ud and -Ud.

voltage input 0 – 5 V

	ch 1	ch 2	ch 3	ch 4
Ue "0-5V"	7	18	29	40
-Us	5	16	27	38
Sch.	1	12	23	34



voltage input 0 – 10 V



Switch configuration GSV-4BT M12


Input	1 brown	2 red	3 orange	4 yellow	5 green	6 blue	7 purple	8 grey
Straingage	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
PT1000	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
Voltage	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
Thermo cabel + on channel 1 - PT1000	OFF	OFF	OFF	OFF	ON	ON	ON	OFF
	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
Half bridge	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
Quarter bridge 1000 Ohm	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
Quarter bridge 120 Ohm	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
Quarter bridge 350 Ohm	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
Displacement sensor	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF

Pin assignment for external power supply M8, 4-pin

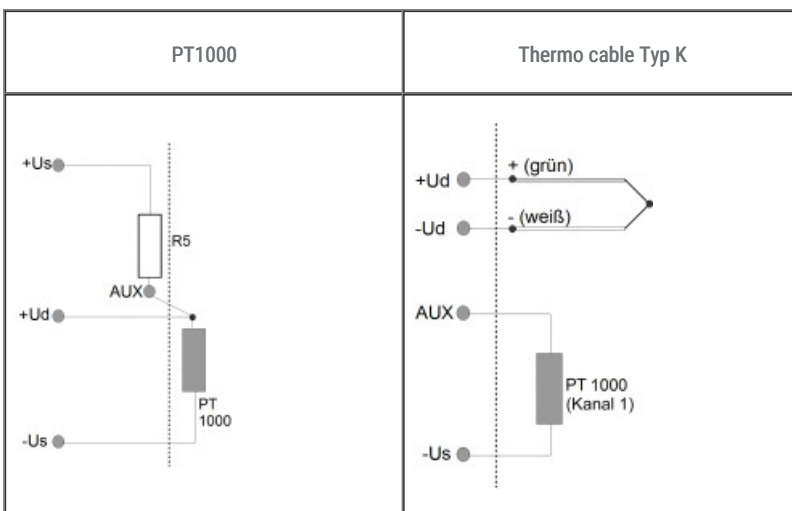
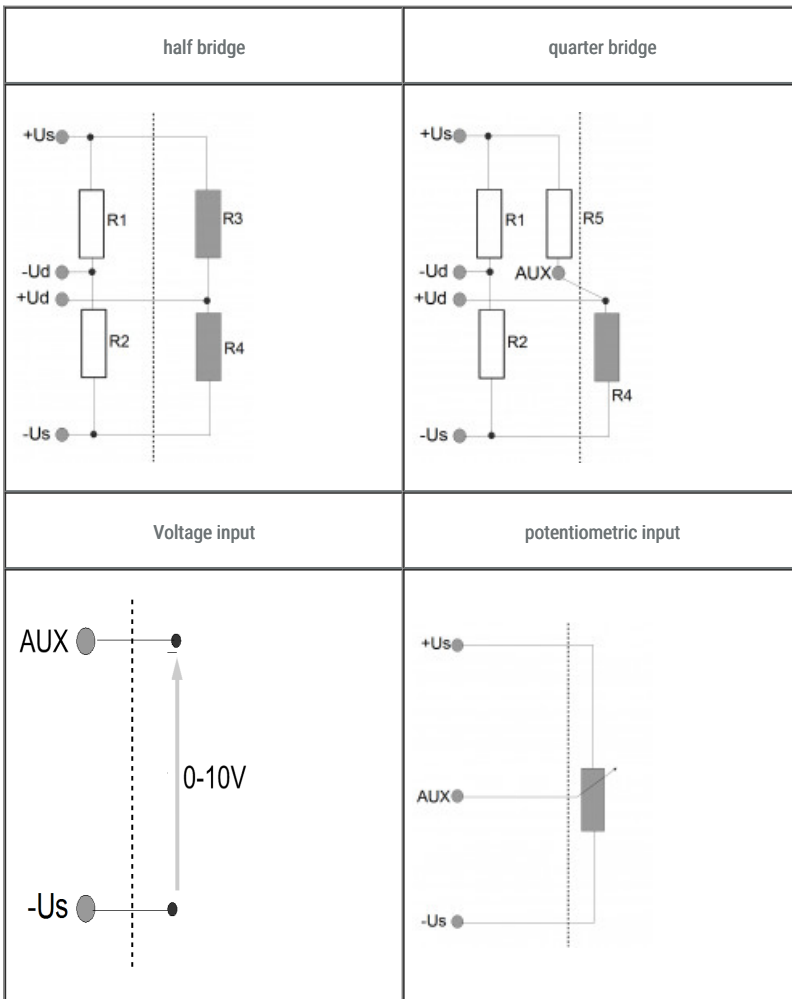
An external power supply can be connected via the 4-pin circular connector M8.

Pin	Function	Sensor actuator cable M8
1	supply voltage 9...28 V DC	brown
2	Akku 4,2V	white
3	GND supply voltage	blue
4	Akku GND	black

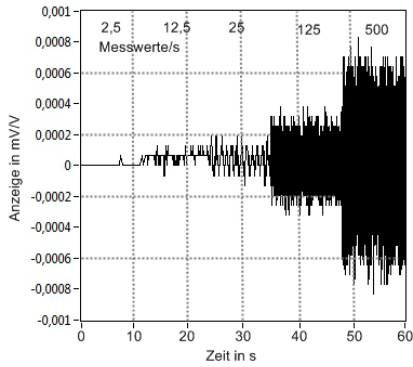
### Pin assignment GSV-4BT M12

Female side	5-pol.	Description	Colour
	2	-U <sub>S</sub> negative bridge supply	white
	1	+U <sub>S</sub> positive bridge supply	brown
	3	+U <sub>D</sub> positive differential input	blue
	4	-U <sub>D</sub> negative differential input	black
	5	AUX in configurable input	gray

### Connection plan for GSV-4BT M12



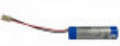




## Measurement resolution



The achievable signal / noise ratio depends on the ambient conditions (cable length, shielding) and on the set data rate.  
The graphic shows the resolution with 1m connection cable, measuring range  $\pm 2\text{mV/V}$  and 350 ohm strain gauge simulator on channel 1.

## accessories

	Description	Description
	Bluetooth USB-Dongle UD100	Bluetooth USB-Dongle for extended range
	Ladekabel 0,50 m rot/schwarz mit Steckern	Recharger cable 0,5m, 4mm plug to connect with akku charger, Molex plug to connect the accumulator 2,6Ah or 500mAh;
	Li-Ion 1S/1P/2600mAh	Capacity: 2600 mAh, Voltage: 3,7 V, Minimum discharge Voltage: 2,75V, Charge current (max): 0,28A (1C), Charge voltage (max.): 4,2V (4,2V +- 0,03V), Weight 47,0 g, Dimensions: 65mm x 18,40mm;
	Charger Ultramat 14 plus	Charging sockets 4mm, Power supply 230VAC or 12V DC, 1-14 NiMh cells, 1-5 Li-ion cells, 1-5 Li-Po cells, 1-6 Pb cells, charging current 0.1A-5A, Trickle Charge, Dimensions : 148mm x 146mm x 54mm
	Adapter-GSV-4BT	Adapter-BCM with soldering lands to contact sensors



## Order options

Type	Description
GSV-4BT	
Li-Ion 1S/1P/2.6Ah	
Adapter-GSV-4BT	
Adapter-GSV-4BT MSTB	
Bluetooth-USB-Adapter	
GSV-4BT M12	
GSV-4BT LD	
Bluetooth USB-Dongle UD100	