

GSV-4BT SD



Highlights

- 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 100m

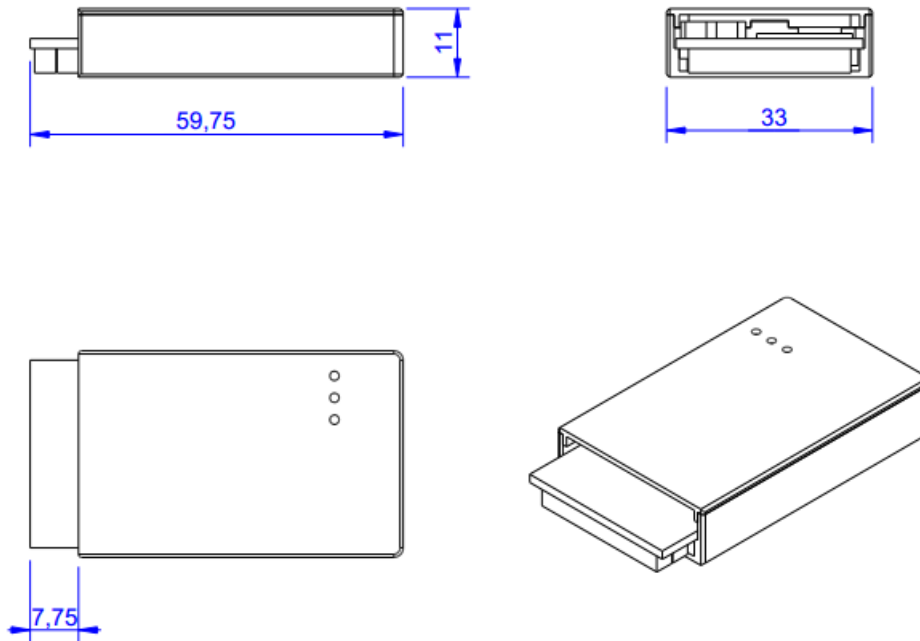


Description

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 500 Hz are possible < br> The power consumption is less than 150mA. At rest, the power consumption is less than 10mA. The supply is, for example, a lithium-polymer battery.

Dimensions



Technical Data

Input analog

Input sensitivity-steps	2.0 10	mV/V
Input resistance strain-gauge-full-/half-bridge	89 ... 5000	Ohm
Input resistance strain-gauge-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

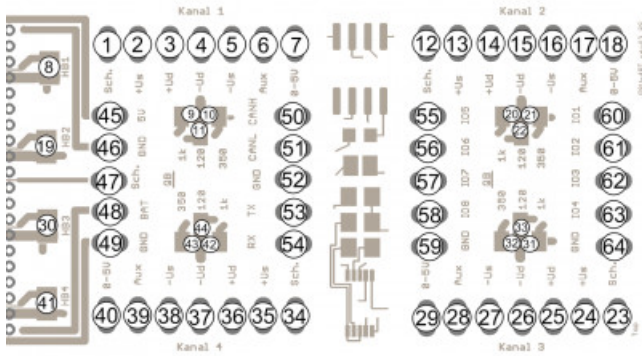


Temperature effect on the zero point	0.05	%FS/10°C
Temperature effect on the measuring sensitivity	0.01	%RD/10°C
Resolution	16	Bit

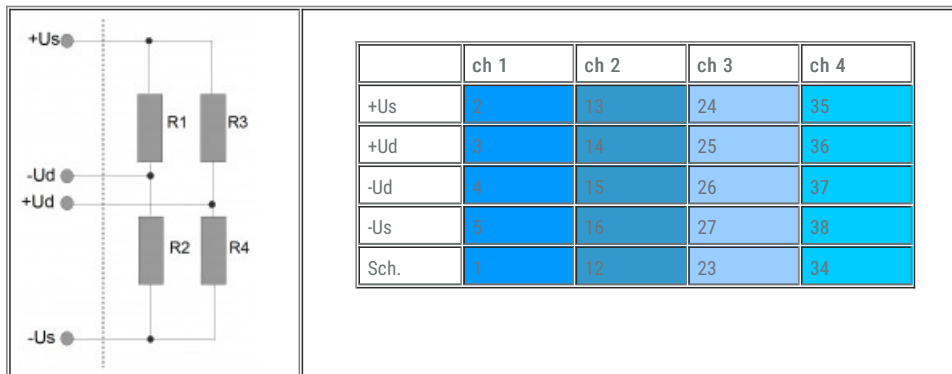
Mounting

Connection plan

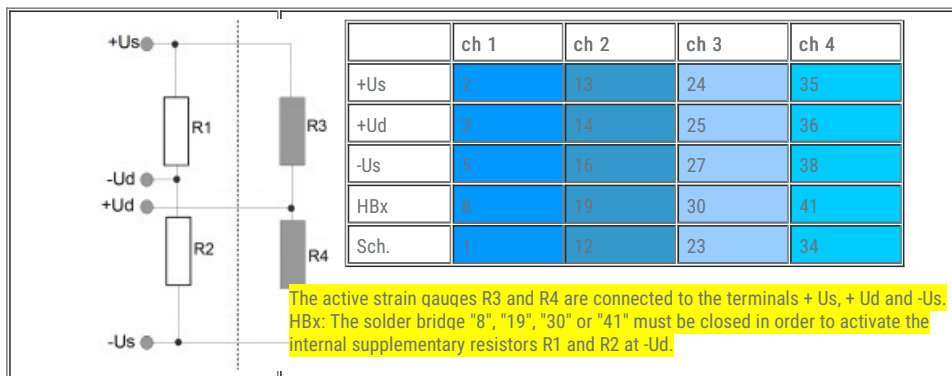
Connection PCB "Adapter GSV-4BT"



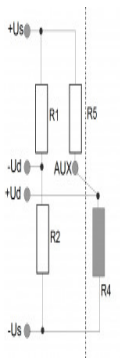
Strain gauge full bridge



Strain gauge half bridge



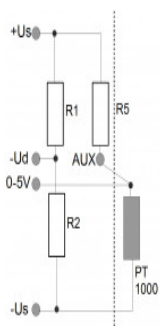
Strain gauge quarter bridge



	ch 1	ch 2	ch 3	ch 4
+Ud	3	14	25	36
-Us	5	16	27	38
HBx	8	19	30	41
AUX	6	17	28	39
QB 120	11	22	33	44
QB 350	10	21	32	43
QB 1000	9	20	31	42
Sch.	1	12	23	34

The active strain gauge R4 is connected in 3-wire technology to the terminals +Ud, 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.
 Depending on strain gauge resistance (120/350/1000 ohms), a solder bridge must be used. e.g. 120 ohms on channel 1: soldering bridge 11 (vertical); 350 ohms on channel 2: soldering bridge 21 (horizontal).

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

	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

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

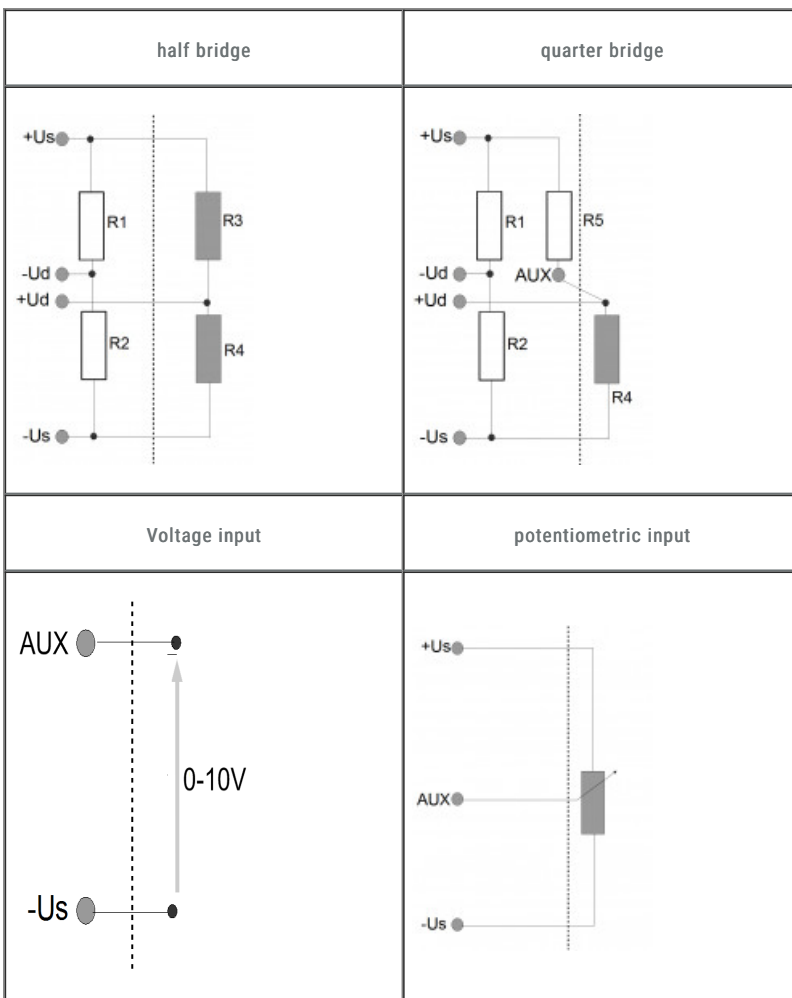
An external power supply can be connected via the 4-pin circular connector M8.

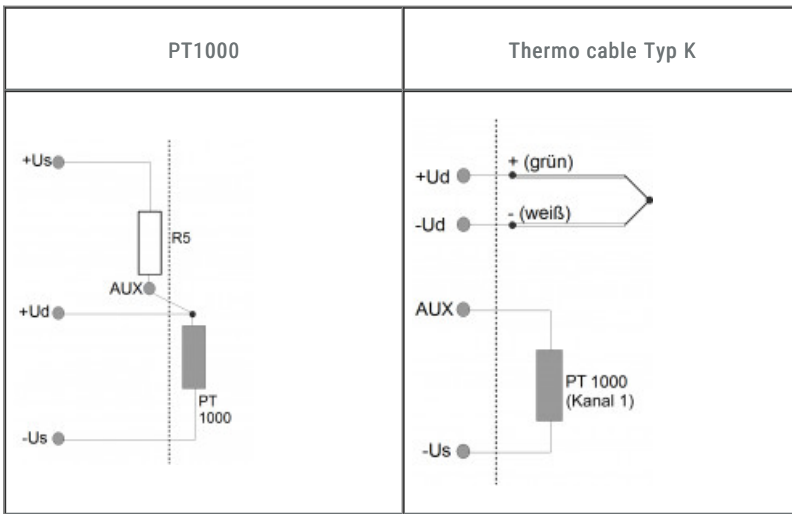
Pin	Function	Sensor actuator cable M8
1	supply voltage 9...28 V DC	brown
2	Akku 4,2V	white
3	GND supply voltage	blue
4	Akku GND	black

Pin assignment GSV-4BT M12

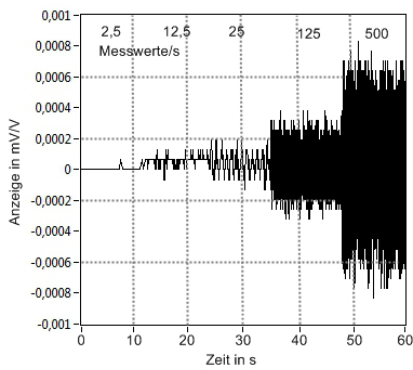
Female side	5-pol.	Description	Colour
	2	-U _S negative bridge supply	white
	1	+U _S positive bridge supply	brown
	3	+U _D positive differential input	blue
	4	-U _D negative differential input	black
	5	AUX in configurable input	gray

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-Adapter	Bluetooth 4.0 adapter, USB 2.0 Micro
 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
 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;



Orderoptions

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	