ME-Meßsysteme GmbH
Eduard-Maurer-Str. 9
DE-16761 Hennigsdorf

Tel +49 (0)3302 8982 4 10
Fax +49 (0)3302 8982 4 69

Mail info@me-systeme.de
Web www.me-systeme.de

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

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Description

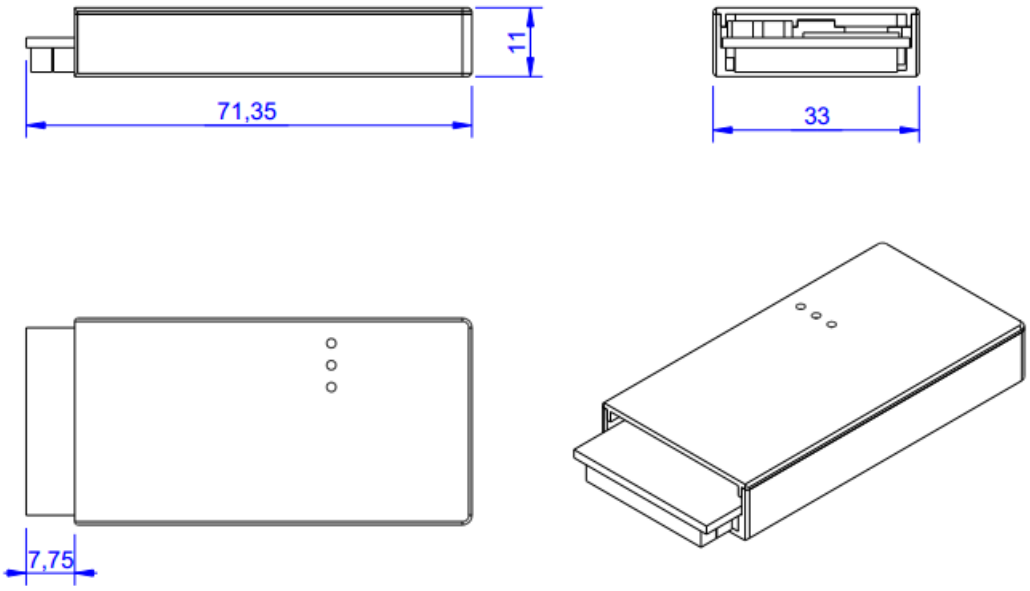
The measuring amplifier GSV-4BT is equipped with 4 independent channels for sensors with strain gauges, such as Force sensors, torque sensors, acceleration sensors or strain sensors.
Data rates from 0.6 Hz to 900 Hz are possible < br> The power consumption is less than 150mA. At rest, the power consumption is less than 10mA.

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Dimensions



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Technical Data

Input analog		
Input sensitivity-steps	2.0 | 10	mV/V
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	

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

Basic Data		
Housing	Grouting	
Connection	Solder connection	
Number of channels	4-Kanal	

Precision data		
Accuracy class	0,05%	
Relative linearity error	0.02	%FS
Temperature effect on the zero point	0.05	%FS/10°C

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

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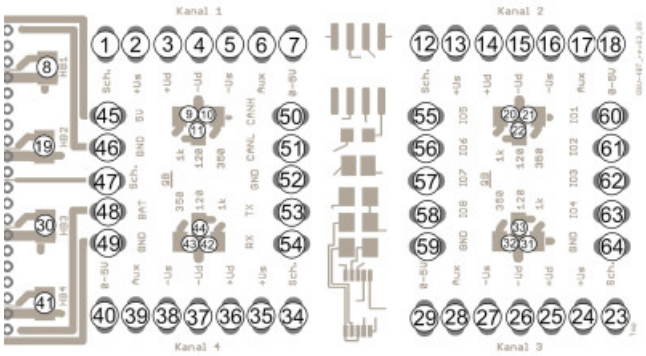
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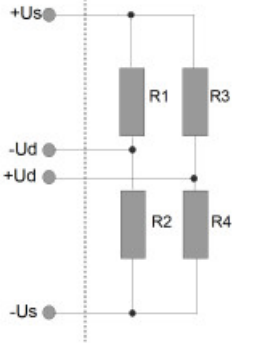
Mounting

Connection plan

Connection PCB "Adapter GSV-4BT"



Strain gauge full bridge



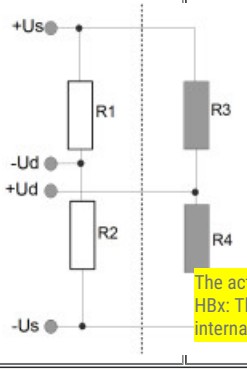
	ch 1	ch 2	ch 3	ch 4
+Us	2	13	24	35
+Ud	3	14	25	36
-Ud	4	15	26	37
-Us	5	16	27	38
Sch.	1	12	23	34

Strain gauge half bridge

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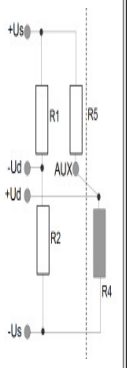
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	ch 1	ch 2	ch 3	ch 4
+Us	2	13	24	35
+Ud	3	14	25	36
-Us	5	16	27	38
HBx	8	19	30	41
Sch.	1	12	23	34

The active strain gauges R3 and R4 are connected to the terminals + Us, + Ud and -Us.
HBx: The solder bridge "8", "19", "30" or "41" must be closed in order to activate the internal supplementary resistors R1 and R2 at -Ud.

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

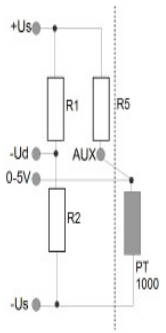
The active strain gauge R4 is connected in 3-wire technology to the terminals + Ud, AUX and -Us.
HBx: The soldering bridge "8", "19", "30" or "41" must be closed in order to activate the internal supplementary resistors R1 and R2 at -Ud.
Depending on strain gauge resistance (120/350/1000 ohms), a solder 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

ME-Meßsysteme GmbH
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DE-16761 Hennigsdorf

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Fax +49 (0)3302 8982 4 69

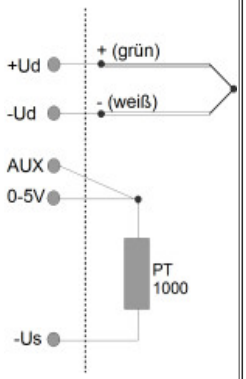
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	ch 1	ch 2	ch 3	ch 4
AUX	6	17	28	39
Ue "0-5V"	7	18	29	40
-Us	5	16	27	38
QB 1000	9	20	31	42
HBx	8	19	30	41
Sch.	1	12	23	34

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.

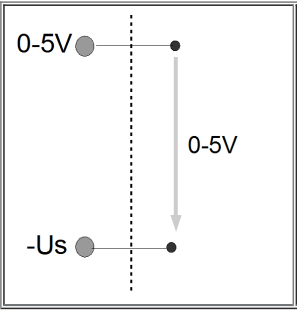
Thermo cable Typ K



	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



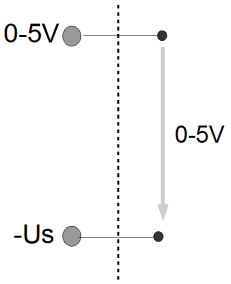
	ch 1	ch 2	ch 3	ch 4
Ue "0-5V"	7	18	29	40
-Us	5	16	27	38
Sch.	1	12	23	34

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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	OFF	OFF	OFF	OFF	ON	ON	ON	OFF
+ on channel 1 - PT1000	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

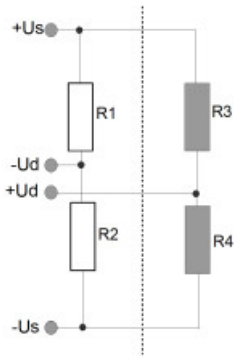
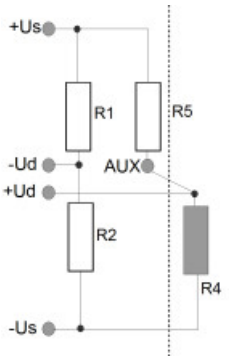
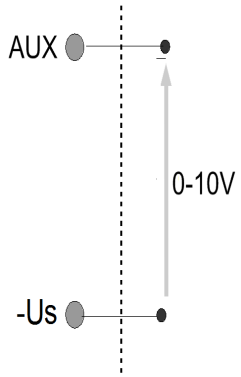
Female side	5-pol.	Description	Colour
	2	$-U_S$ negative bridge supply	white
	1	$+U_S$ positive bridge supply	brown
	3	$+U_D$ positive differential input	blue
	4	$-U_D$ negative differential input	black
	5	AUX in configurable input	gray

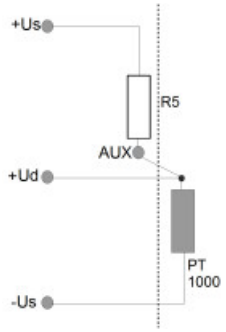
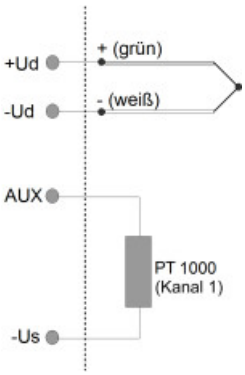
Connection plan for GSV-4BT M12

ME-Meßsysteme GmbH
Eduard-Maurer-Str. 9
DE-16761 Hennigsdorf

Tel +49 (0)3302 8982 4 10
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half bridge	quarter bridge
	
Voltage input	**potentiometric input**
	

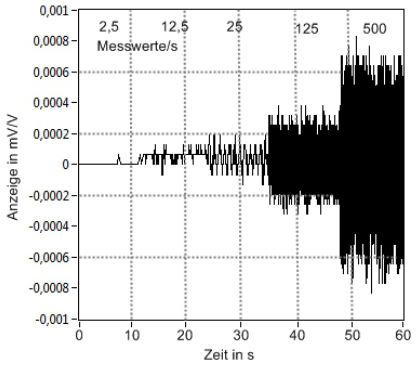
PT1000	Thermo cable Typ K
	

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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 ±2mV/V and 350 ohm strain gauge simulator on channel 1.

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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

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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	