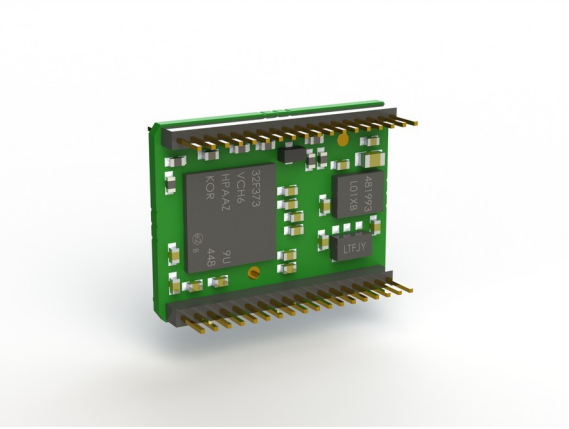
Measuring amplifier GSV-6CPU

Item number: 5837



GSV-6 product line provides signal processing for strain gauges on the smallest area.
The centerpiece of the GSV-6 is a printed circuit board in the dimensions of 19 x 14 mm.
This "GSV 6CPU" provides all necessary functions for the construction of a 1-6 channel of measurement amplifier is ready.
Two 18-pole pin strips in PCM 1.0 are connecting fields and functions supplements for other applications: UART to Bluetooth, CAN bus driver, GPRS modem etc.

- Strain gauge bridge supply 3V, Max 60mA
- Strain gauge bridge input at channel 1
- Analog output 0. 2.5V for channel 1
- LED output
- TEDS input
- Digital inputs for the functions "Tare" and "Scale"
- 5 x analog input 0.. 3V
- Interfaces UART (3.3 V), CAN
- 3.6 v to 5 .5V supply voltage
- 3 x threshold-giver 4mA
- 3, 3V voltage output 10mA
- 2.5V reference 100µA

The amplifier module GSV-6CPU is used for integration into devices with 1 to 6 channels.
The integration of the GSV-6CPU is preferably via UART or CAN interface (without CANbus-transceiver).

With the TEDS interface electronic data sheets are processed.

The GSV-6 CPU provides 6 input channels (without an additional extension).

Channel 1 is directly suitable for measuring with straingauge sensors, there is a bridge excitation for strain gauge (3V) and an analog output signal 0 ... 2.5V.

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Stand: 21.06.2024

With channels 2 to 5 voltages can be measured in the range from 0 up to 3V.

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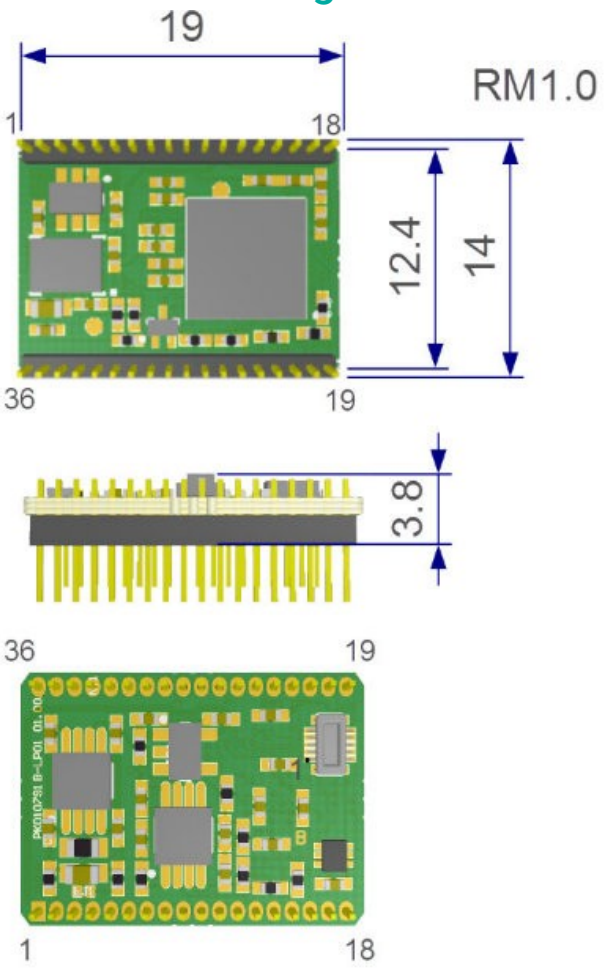
Technical Drawing



Technical Data

Basic Data		Unit
Dimensions	19 mm x 14 mm x 4 mm	
Housing	Leiterplatte	
Connection	Pin header	
Number of channels	6-channel	

Input analog		Unit
Number of analog inputs	6	
input sensitivity-stepsless from	0.1	mV/V
input sensitivity-stepsless to	8	mV/V
Input resistance strain-gauge-half- /quarter-bridge	1000	
Input voltage from	0	V
Input voltage to	3	V

Output analog		Unit
Number of analog outputs	1	
Voltage output from	0.1	V
Voltage output to	2.5	V
Output resistance - voltage output	47	Ohm
Zero adjustment to	1.25	V

Accuracy data		Unit
Accuracy class	0,1%	
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

Measuring frequency		Unit
Data frequency from	1	Hz
Data frequency to	800	Hz
Sampling frequency	16.7	kHz

Supply		Unit
Supply voltage from	3.6	V
Supply voltage to	5.5	V
Current consumption from	33	mA
Strain gauge bridge supply	3	V

Interface		Unit
Type of the interface	TEDS | UART | CAN	
Quantity of the interface	5	

Zero Adjustment		Unit
Trigger level from	0.8	V
Trigger level to	3.3	V
Trigger edge	rising	

Environmental Data		Unit
Rated temperature range from	-10	°C
Rated temperature range to	85	°C
Operating temperature range from	-40	°C
Operating temperature range to	125	°C
Environmental protection	IP00	

The information on data frequency and sampling frequency refer to the use of 6 channels. By using fewer channels, the data frequency can be set higher than 800/s.Zero adjustment: internal pullup resistor 10kOhm at tare input available;

Operating instructions

Note on the bridge circuit: The allowable range for + Ud and -Ud is 1.32V to 1.68V. The maximum, unbalanced series resistor (one-sided series resistance in + Us or -Us) must not exceed 26% of the bridge resistance.

The table lists the maximum possible series resistors, which may be unilaterally connected in + Us or -Us.

Strain Gauge bridge circuit	Max. Series resistor unbalanced
350 Ohms	91 Ohms
700 Ohms	182 Ohms
1000 Ohms	260 Ohms
1400 Ohms	364 Ohms

Mounting

The GSV-6 CPU module can be configured via an UART interface.

There is also scope to configure the most important settings using the Tare and Scale cables.

Terminal assignment

Figure 2: Terminal assignment GSV-6CPU

Configuration interface

A UART interface for testing and development is available via a "BM10B" connector.

Figure 3: Terminal assignment of the configuration interface

Strain gauges

PIN	Pin strip	Designation	Function	Comment
1	x1	Us+ (V_DMS)	positive bridge supply 3 V	60 mA, short-circuit proof
2	x1	Ud-	negative bridge output	
3	x1	Ud+	positive bridge output	
4	x1	Us- (AGND)	negative bridge supply (AGND)	

Voltage supply

PIN	Pin strip	Designation	Function	Comment
14	x2	Vcc_IN	voltage supply	3,6 V ...5,5 V
15	x2	GND	ground voltage supply	
13	x2	Supply_Warn	For shutting	to connect

		ing	down external hardware	with Vcc_IN

Inputs/outputs

PIN	Pin strip	Designation	Function	Com
18	x1	Tare	Tare >1s in actual-value mode: Zero adjustment Tare > 100ms in maximum-value mode maximum-	

			value reset Tare > 2s in maximum-value mode: Zero adjustment and maximum-value reset Tare > 100ms in ClickRClackR menu: "Up", goes to next menu entry.	
17	x1	Scale	Scale > 2s: Scaling of the output signal to the currently effective signal at the input. Default: set at 100% of the output signal. The autoscale level can be configured to values other than 100% in the ClickRClackR menu and via the service interface. Scale > 5s when power switched on: Activate the ClickRClackR menu Scale > 100ms in ClickRClackR menu: "Enter", executes the current menu entry.	
16	x1	TEDS (Spitzenwert)	The connection for 1-wire-EEPROMs functions with 3.3V instead of 5V and	

			includes a 1.5 kR pull-up resistor of 3.3V. The EEPROMs (e.g. DS2433+, DS2430A, DS28EC20) of Maxim/Dallas are 3.3V compatible. The software supports TEDS sensors with the Bridge Sensor ID 33 and Strain-Gage ID 35 templates.	
	x1	LED	Status indicator, with signals including "TEDS read", "Parameter active", "Parameter set", "Gradient indicator".	max. 4mA, series resi
	x1	Temperaturesensor	Typ TMP102, -40°C ... +125°C, ±3°C;	