

GSV-1A4 M12/2 M12/2



Highlights

- Input sensitivity: 2mV/V;
- 4mV/V, 2 mV/V, 1mV/V, 0.5mV/V configurable via jumpers
- Output signals $\pm 10V$ AND 12mA+8mA on 15 pin Sub-D
- Integrated half and quarter bridge completion for 350 ohm strain gauge
- Tare function individually via control cables and together via control cables and switches

Description

The measuring amplifier GSV-1A4 is a measuring amplifier with 4 independent channels for sensors with strain gauges such as force sensors, torque sensors, acceleration sensors or extension sensors.

This measuring amplifier is also suitable for connecting strain gauge full and half bridges from 87.5 ohm to 5000 ohm and strain gauge quarter bridges with 350 ohm.

The measuring amplifier GSV-1A4 is supplied with a plug-in 18V power supply and SUB-D mating plugs.

The voltage and current outputs are at the 15-pin Sub-D socket and one ground for each analogue output. Both outputs have been calibrated and can be used at the same time.

The sensor inputs, bridge completions and the inputs for automatic zero adjustment of the individual channels are at the 37-pin Sub-D socket.

The bridge completion resistance with 0.1% tolerance for 350 ohm strain gauge is maintained. The quarter or half bridge mode can be set by the customer at the 37-pin Sub-D socket (see wiring diagram for 37-pin Sub-D socket).

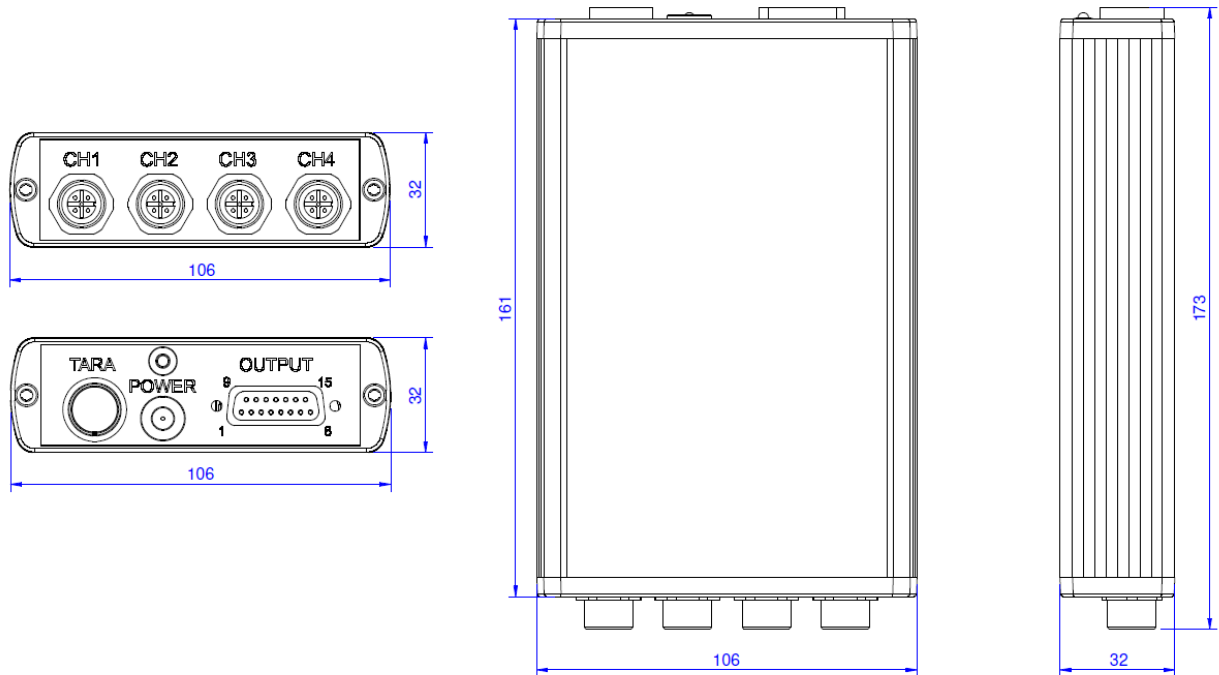
As an option, it is possible to use the 6-wire technology of GSV-1L. The use of 6-wire technology must be configured to the circuit board.

GSV-1A4 M12 socket variant

The GSV-1A4 is optionally equipped with round connectors for the sensor connection.

The mating plugs must be ordered separately or are a component of the sensor.

Dimensions



Technical Data

Basis Data

| | |
|--------------------|-----------|
| Housing | Aluminium |
| Connection | Connector |
| Connection type | M12 |
| Number of channels | 4-Kanal |

Eingang analog

| | | |
|-------------------------------------------------|-----------------|------|
| Input sensitivity-steps | 2.0 1.0 0.5 | mV/V |
| Input resistance strain-gauge-full-/half-bridge | 87 ... 5000 | Ohm |

Precision

| | | |
|-------------------------------------------------|------|----------|
| Accuracy class | 0,1% | |
| Relative linearity error | 0.02 | %FS |
| Temperature effect on the zero point | 0.2 | %FS/10°C |
| Temperature effect on the measuring sensitivity | 0.1 | %RD/10°C |

Supply

| | | |
|----------------------------|-----------|---|
| Supply voltage f | 11 ... 30 | V |
| Strain gauge bridge supply | 5 | V |

Zero adjustment

| | | |
|-----------------|------------|----|
| Type | Button | |
| Tolerance | 5 | mV |
| Time period | 90 | ms |
| Debouncing time | 4 | ms |
| Trigger level f | 3.5 ... 30 | V |
| Trigger edge | falling | |

Temperature

| | | |
|-------------------------------|------------|----|
| Rated temperature range f | -10 ... 65 | °C |
| Operating temperature range f | -40 ... 85 | °C |
| Environmental protection | IP40 | |

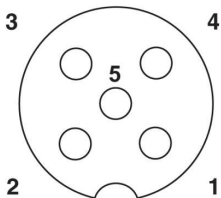
Measuring frequency

| | | |
|--------------------------|-----|-----|
| Sampling frequency | 200 | kHz |
| Limit frequency (analog) | 250 | Hz |

Mounting

Wiring diagram for 5-pin socket M12x1, type 763

| Symbol | Description | Color | Color | PIN |
|--------|-----------------------------------------|--------|-------|-----|
| $-U_S$ | negative bridge power supply | white | white | 2 |
| $+U_S$ | positive bridge power supply | brown | brown | 1 |
| $+U_D$ | positive differential input | green | blue | 3 |
| $-U_D$ | negative differential input | yellow | black | 4 |
| QB | AUX connected to quarter bridge 350 ohm | grey | grey | 5 |



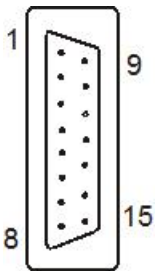
Six-wire technology is not possible for M12 socket variant.

In quarter bridge and half bridge mode, the internal half bridge completion must be activated via the solder bridge on the circuit board (also possible in the factory as a free order option).

Wiring diagram for output socket 15-pin Sub-D socket

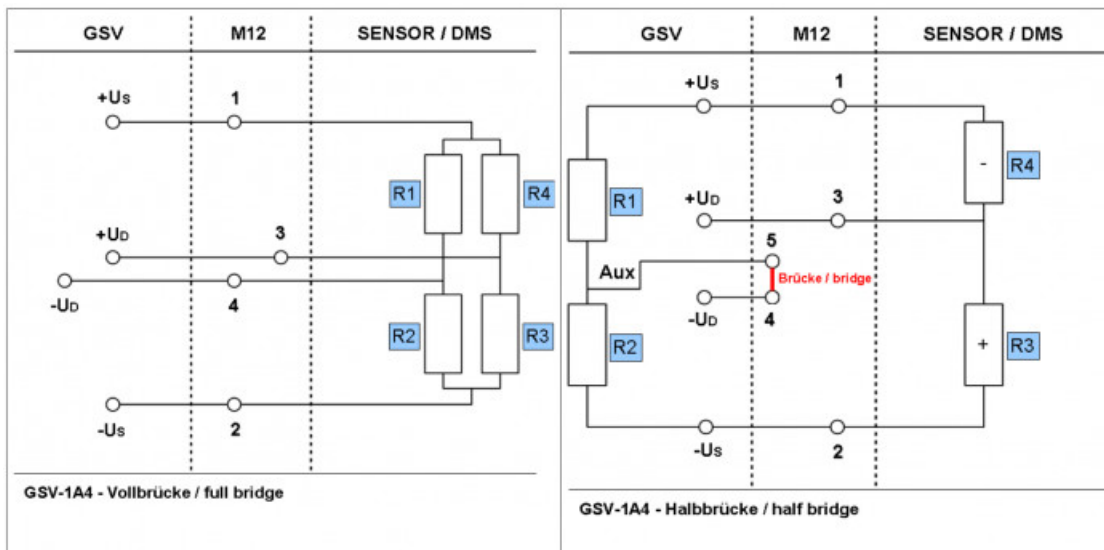
| Description | Channel 1 Color/PIN | Channel 2 Color/PIN | Channel 3 Color/PIN | Channel 4 Color/PIN |
|----------------|------------------------|------------------------|------------------------|------------------------|
| Output voltage | brown 2 | yellow 5 | red-white 15 | light green 12 |
| Output current | red 3 | dark green 6 | brown-white 14 | pink 11 |
| | orange | blue | black-white | white |

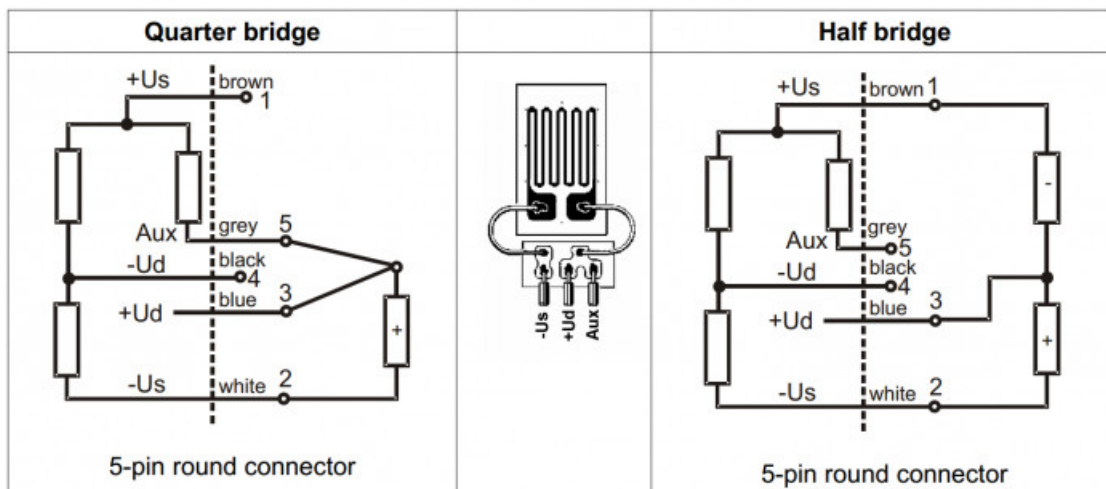
| Ground | 4 | 7 | 13 | 10 |
|-------------------------------|-----------|-----------|-----------|-------------|
| | Channel 1 | Channel 2 | Channel 3 | Channel 4 |
| Description | Color/PIN | Color/PIN | Color/PIN | Color/PIN |
| GND for shielding | | | | black 1 |
| Zero-point adjustment (joint) | | | | purple 8 |
| Supply Voltage | | | | grey 9 |



The colors correspond to the core colors of the supplied 3 m cable with 15-pin connector SubD15.

Wiring diagram for a full bridge M12 variant

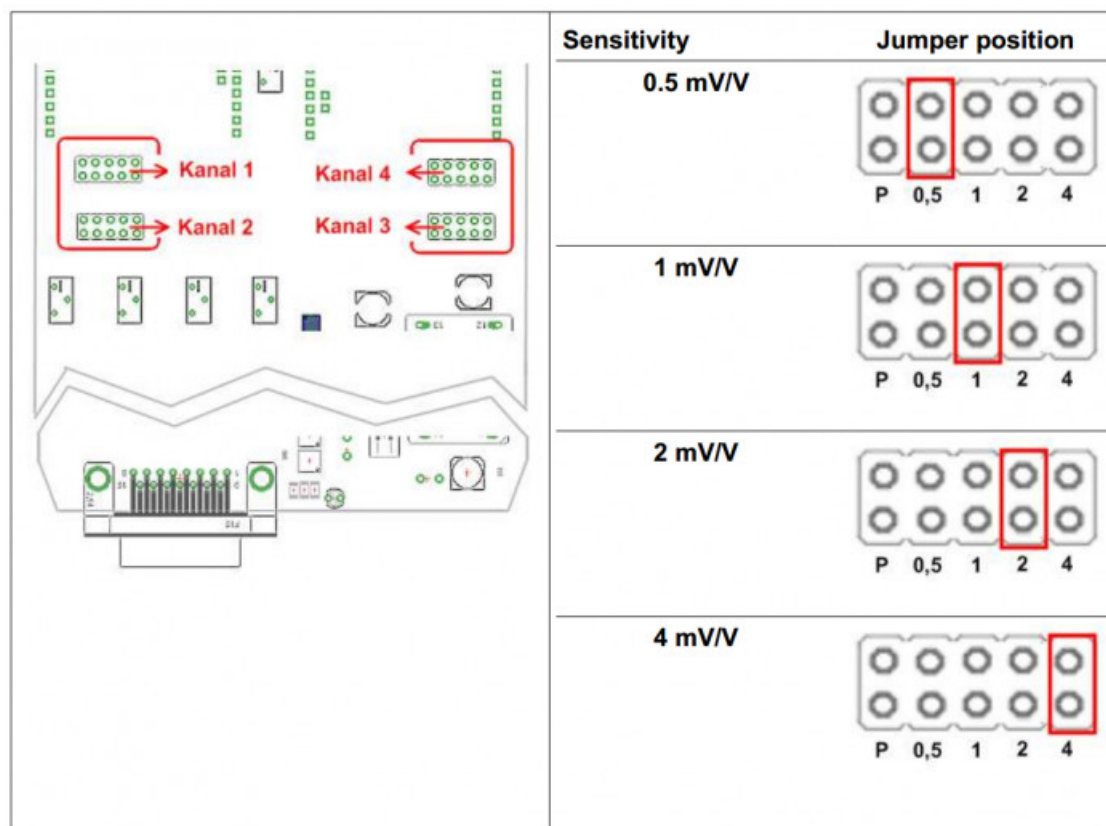




Note: Max. 2 channels can be operated with minimum sensor load of 87 ohm. The other 2 channels can be loaded with minimum 350 ohm. If the current outputs cannot be used, all channels with a minimum sensor load of 120 ohm can be operated. This limit is necessary for reasons of thermal stability.

Adjusting the sensitivity




The sensitivity of channels 1 to 4 can be adjusted. On the circuit board of the GSV-1A4, each channel has a jumper post field with 4 plug options in total.



Opening the device

1. All 4 screw covers and the fastening screws on each end cover should be removed.
2. The circuit board is unplugged from the side of the 15-pin Sub-D socket.
3. In the M12 socket version, the cover is pushed through the housing slightly slanted.

accessories

| Description | Description |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------|
|  | Connector Type Coninvers, 5 pin, socket (female), terminated on cable |
|  | Connector for the analog output of the measuring amplifier GSV-1A4 |
|  | Mounting plates for GSV-3USB / GSV-3USBx2 / GSV-1A4 / GSV-4USB |