

DC Voltage Measuring Amplifier with Data Logger GM80



Performance Features

- Data logger up to 15000 measured values
- Trigger input for external control
- For active or passive sensors
- Fast measurement up to 1000/s
- Mains, battery and accumulator operations
- Display of the physical unit
- 10 sensor parameter sets
- RS232 interface
- Min./max. storage
- USB interface

Application

- Research and development
- Process measuring and control technology
- Automotive engineering
- Energy and environmental technology
- Mechanical engineering

Description

The measuring amplifier can process sensor strain gauge (SG) signals of $\pm 3.3 \text{ mV/V}$ and active signals of $\pm 10 \text{ V}$ and $0/4 \dots 20 \text{ mA}$.

The measuring amplifier can be used mobile by battery or accumulator operation, but can also be supplied with an external main adapter.

A high measuring accuracy combined with fast measuring rates is ensured by the employment of highly precise amplifiers and components, 16 bit A/D converters and a fast microcontroller.

A versatile configurable data logger stores a series of measurements with date and up to 15288 measured values.

Measured values or logging values can be expelled to a computer or printer via the USB or RS232 interface.

Ten parameter sets are available for sensors. Therein, in each case, the calibration data, the sensor designation and physical unit are deposited.

Functions such as tare, fetch min./max. and delete min./max. are available during the measurement.

The data logger or the interface can be controlled externally via an additional trigger input.

At low measuring rates, the strain gauge supply is clocked power-saving. If the GM80 is not in measuring mode, the device shuts off after three minutes.

Technical Data

DC Voltage Measuring Amplifier with Data Logger GM80

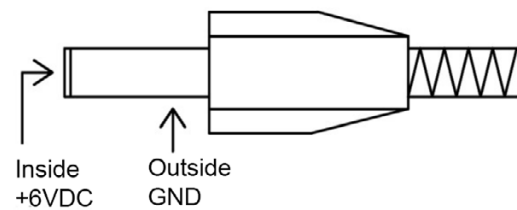
| | |
|--|--|
| Type | GM80 |
| Article-No. | 106781 |
| Measurement accuracy | 0.1 % full scale ± 1 digit |
| Measuring rate adjustable | 1; 10; 100; 1000/s |
| Display rate | 5/s |
| Display range | ± 9999 +3 digits for unit |
| Zero point adjustment | automatically / manually |
| Sensor parameter sets | 10 |
| Logger mode | window, diagram, hand, auto |
| Memory values | max. 15288 |
| Transfer RS232 | 2400, 4800, 9600, 19200, 38400, 115200 Baud |
| USB | USB 2 |
| Bridge resistance of strain gauge | 350 ... 2000 Ω |
| Input sensitivity passive | ± 3.3 mV/V |
| Input sensitivity active | ± 10 V |
| Input sensitivity current | 0/4 ... 20 mA on 75 Ω burden |
| Current connection | 2 or 3 wire technique |
| Excitation voltage passive | 5V, 20 mA |
| Supply voltage active | ± 12 V, each 100 mA (± 12 V combined max. 120 mA) |
| Operating time at 50 % duty ratio with accumulator for passive sensors | >20 h |
| Operating time at 50 % duty ratio with accumulator for active sensors | >8 h |
| Electrical connection | D-SUB socket, high density, 15-pin USB: USB-B socket RS232 socket for jack connector 3.5 mm, 3-pin 6VDC power supply socket for coaxial connector 2.1 mm Trigger socket for jack connector 2.5 mm, 2-pin |
| Rated temperature range | 15 ... 35 °C |
| Service temperature range | 5 ... 45 °C |
| Storage temperature range | -10 ... 70 °C |
| Dimensions (L x W x H) | 200 x 100 x 40 mm |
| Weight | 500 g |
| Level of protection | IP40 |

Pin Assignment

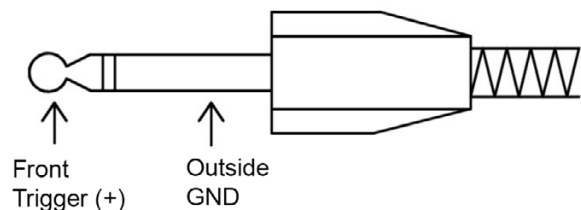
| 15-pin | | | |
|--------|--|--|--|
| Pin 1 | Ground (supply 5V and 12V) | 0V | |
| Pin 2 | +12V (supply for active sensors) | 12VDC | |
| Pin 3 | -12V (supply for active sensors) | -12VDC | |
| Pin 4 | NC | - | |
| Pin 5 | NC | - | |
| Pin 6 | Ground | 0V | |
| Pin 7 | NC | - | |
| Pin 8 | Supply | 5VDC | |
| Pin 9 | NC | - | |
| Pin 10 | Control signal | L <2.0V; H >3.5V | |
| Pin 11 | Signal (+) (active or passive sensors) | mV/V; $\pm 5V$; $\pm 10V$; 0/4 ... 20 mA | |
| Pin 12 | Signal (-) (connect to ground when active sensors) | 0V | |
| Pin 13 | Shielding | shield | |
| Pin 14 | NC | - | |
| Pin 15 | NC | - | |

Attention: Do not use pins that are not used! These are used factory-side!

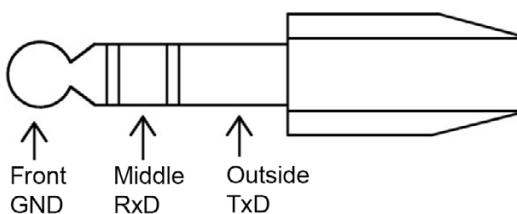
Supply connector 2.1 mm



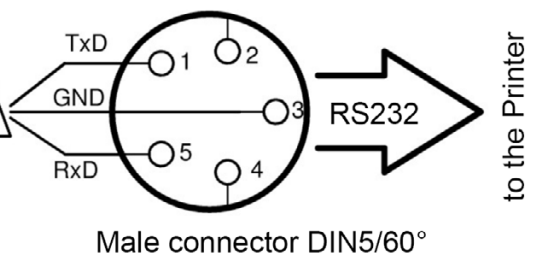
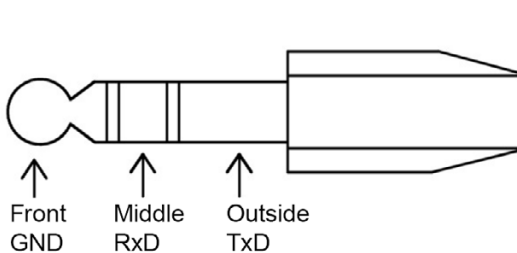
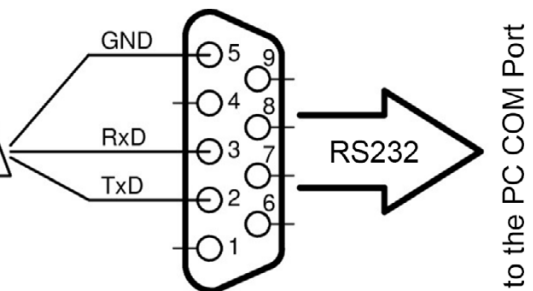
Trigger jack connector 2-pin, 2.5 mm



RS232 jack connector 3-pin, 3.5 mm



D-SUB socket, 9-pin



Options / Equipment

| Article-No. | Description | Type |
|-------------|---|----------------------------------|
| 115134 | Adjustment measuring amplifier with simulator | mV/V / ± 10 V / 0/4 ... 20mA |
| 106782 | Accumulator set 4 x AA, 1.2V, 1900 mAh | GM80/AK |
| 106864 | Desktop power supply for mains operation and accumulator charging | GM77/80/NT |
| 106984 | Trigger cable, 1 m, with 2.5 mm mono plug and free strands | GM80/TR |
| 106985 | RS232 interface cable, 1.5 m, with 3.5 mm stereo plug and 9 pin D-SUB socket | GM80/SCI |
| 113259 | RS232 D-SUB extension, 1:1, 1.8 m, with 9 pin plug and socket | GM80/D-SUB |
| 113273 | USB interface cable, 3 m, with A-plug and B-plug | GM80/USB |
| 106986 | Complete set of mating connectors | GM80/KIT |
| 10477 | Connection cable for passive sensors, 3 m, with 5-pin female cable connector and 15-pin D-SUB male cable connector | KDM5/A-KSSH15/A-3m/PVC |
| 10365 | Connection cable for passive sensors, 3 m, with 7-pin female cable connector and 15-pin D-SUB male cable connector | KDM7/A-KSSH15/A-3m/PVC |
| 10269 | Connection cable for passive sensors, 3 m, with 6-pin female cable connector and 15-pin D-SUB male cable connector | KD6/A-KSSH15/A-3m/PVC |
| 10621 | Connection cable for passive sensors, 3 m, with 12-pin female cable connector and 15-pin D-SUB male cable connector | KD12/A-KSSH15/A-3m/PVC |
| 118093 | Connection cable for active sensors, 3 m, with 8-pin female cable connector and 15-pin D-SUB male cable connector | KDM8/A-KSSH15/A-3m/PVC |
| 10622 | Connection cable for active sensors, 3 m, with 12-pin female cable connector and 15-pin D-SUB male cable connector | KD12/B-KSSH15/A-3m/PVC |

Calibrations mV/V¹

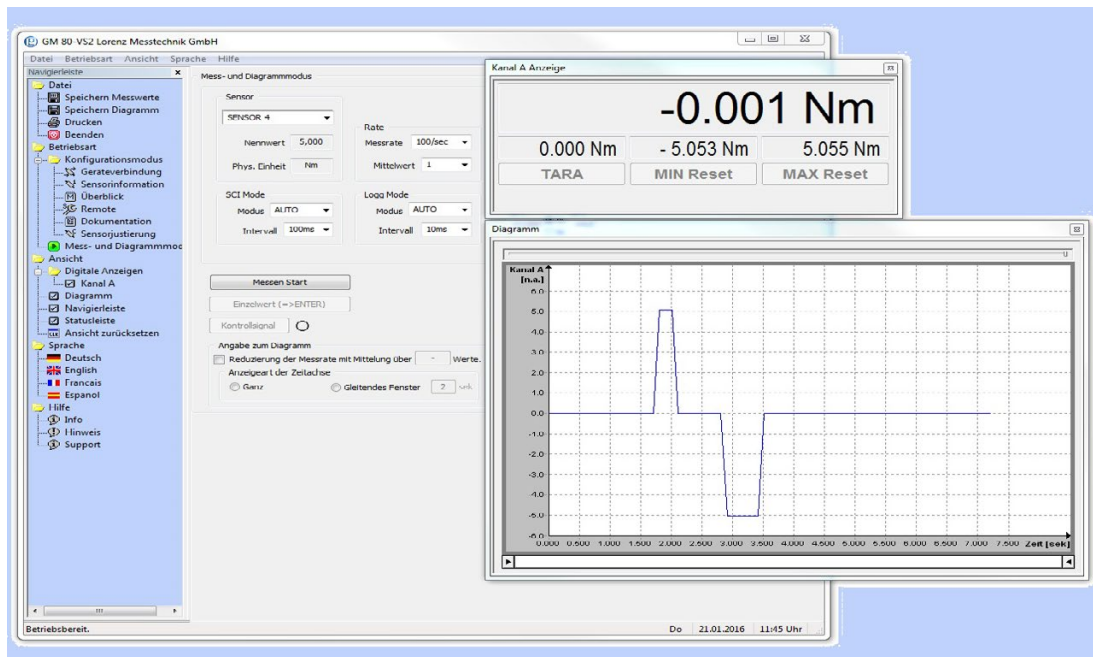
| Article-No. | Description | |
|-------------|---|----------|
| 401010 | Proprietary calibration acc. to ISO 10012 | 10 steps |
| 401011 | Proprietary calibration acc. to ISO 10012 | 20 steps |

¹ Lorenz-Standard:

- Supply voltage 5V, calibration range ± 1 mV/V in 10 steps, calibration range ± 2 mV/V in 10 or 20 steps
- Language of the Certificate: German and English
- Calibration at DC: Normal K3608, if so display above Keithley 2000 or Lorenz VS3 (Lorenz amplifier with USB interface)
- Calibration at 225 Hz: Normal K3608, if so display above HBM MGCplus + ML38
- Calibration at 225 Hz: Normal BN100A, if so display above HBM DMP40

Configuration and Evaluation Software GM80-VS2

- Convenient configuration and evaluation software
- Graphical representation
- Automatic scaling of the Y-axis
- Read data logger
- Automatic saving of measured values as CSV or BMP file



The configuration and evaluation software serves for easy evaluation and graphical visualisation of the evaluated data on a PC.

The software allows direct read-in of measurement data into a text file in CSV format through the serial port of a PC. This enables further analyses with a commercially available spreadsheet program at any time.

Technical Data

| | |
|---------------------|--|
| Type | GM80-VS2 ² |
| Interface | RS232 / USB |
| Protocol | ASCII based |
| System requirements | Windows® 7 - 10 32/64 Bit ³ Dual-Core from 1.8 GHz (with diagram) |

² Software/driver download:

³ Windows® is a registered trademark of Microsoft Corporation in the USA and other countries.

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Highlights at a glance

| | |
|--|-------------------------|
| Conversion in physical values | Supported in the device |
| Graphical representation of the measured quantities | ✓ |
| Automated or manual saving to CSV or BMP file | ✓ |
| Print from chart with date and definable headline | ✓ |
| Scaling of the input variable to any display value with unit | ✓ |
| Resettable minimum value memory for each measured quantity | ✓ |
| Resettable maximum value memory for each measured quantity | ✓ |
| Moving averaging | Supported in the device |
| Tare for each measured size | ✓ |