

## 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  $\pm 3.3$  mV/V and active signals of  $\pm 10$ V and 0/4 ... 20 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.

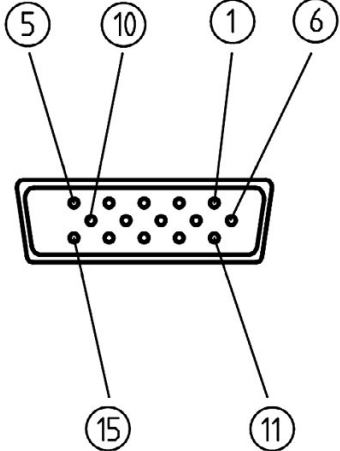
## Technical Data

### DC Voltage Measuring Amplifier with Data Logger GM80

Type	GM80
Article-No.	106781
Measurement accuracy	0.1 % full scale $\pm 1$ digit
Measuring rate adjustable	1; 10; 100; 1000/s
Display rate	5/s
Display range	$\pm 9999 + 3$ 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 $\Omega$
Input sensitivity passive	$\pm 3.3$ mV/V
Input sensitivity active	$\pm 10$ V
Input sensitivity current	0/4 ... 20 mA on 75 $\Omega$ burden
Current connection	2 or 3 wire technique
Excitation voltage passive	5V, 20 mA
Supply voltage active	$\pm 12$ V, each 100 mA ( $\pm 12$ 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 $^{\circ}$ C
Service temperature range	5 ... 45 $^{\circ}$ C
Storage temperature range	-10 ... 70 $^{\circ}$ C
Dimensions (L x W x H)	200 x 100 x 40 mm
Weight	500 g
Level of protection	IP40

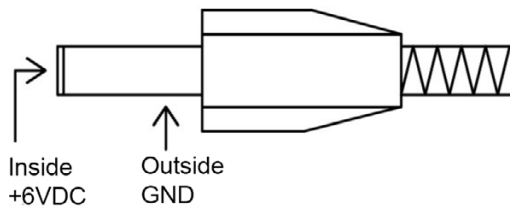
## Pin Assignment

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; ±5V; ±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	-

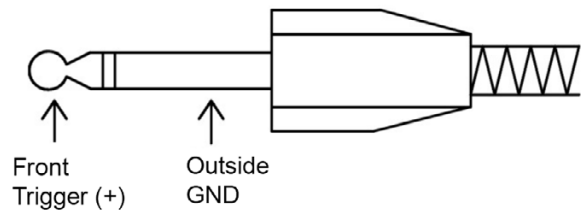


**Attention:** Do not use pins that are not used! These are used factory-side!

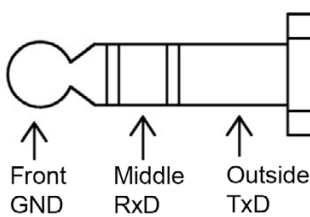
Supply connector 2.1 mm



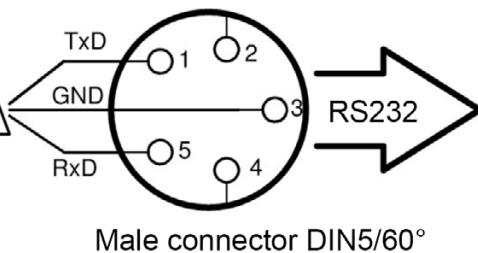
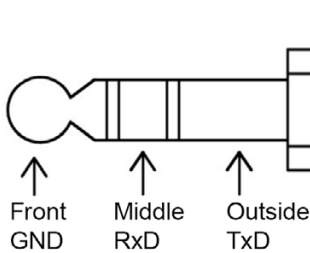
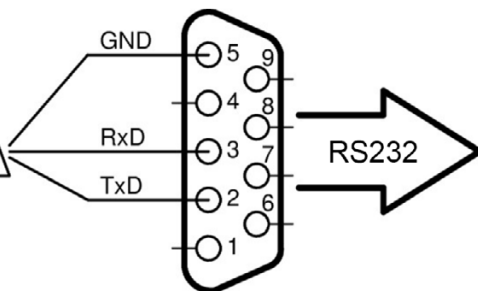
Trigger jack connector 2-pin, 2.5 mm



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 / $\pm 10V$ / 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/V<sup>1</sup>

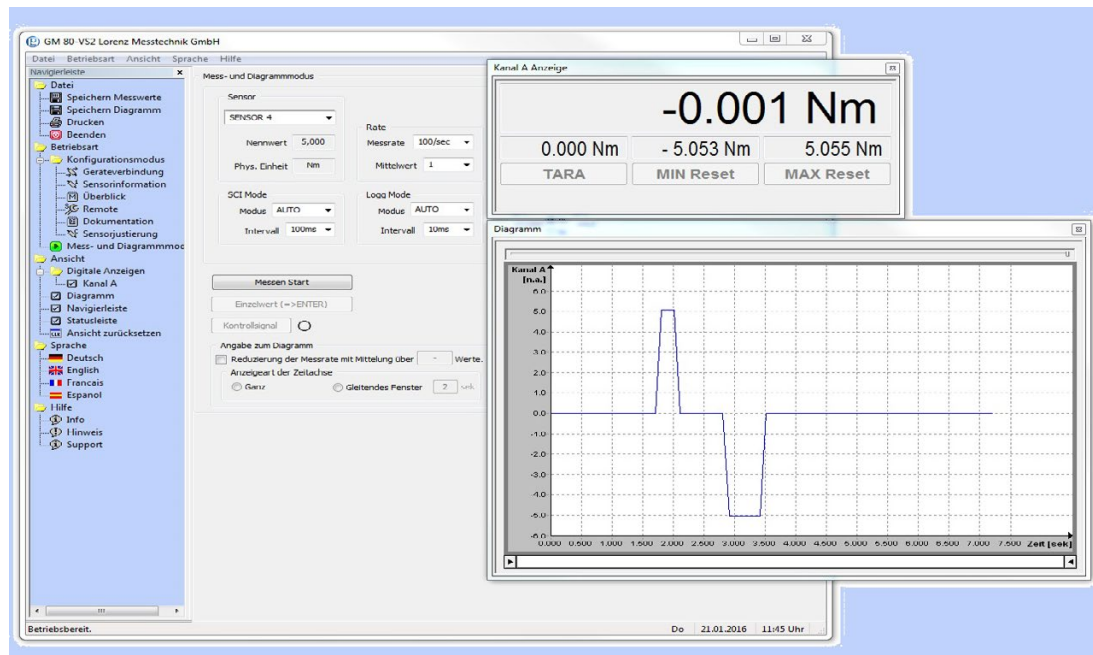
Article-No.	Description	
401010	Proprietary calibration acc. to ISO 10012	10 steps
401011	Proprietary calibration acc. to ISO 10012	20 steps

<sup>1</sup> Lorenz-Standard:

- Supply voltage 5V, calibration range  $\pm 1$  mV/V in 10 steps, calibration range  $\pm 2$  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 <sup>2</sup>
Interface	RS232 / USB
Protocol	ASCII based
System requirements	Windows® 7 - 10 32/64 Bit <sup>3</sup> Dual-Core from 1.8 GHz (with diagram)

<sup>2</sup> Software/driver download: [https://www.lorenz-messtechnik.de/phplogin/login\\_en/html/software.php](https://www.lorenz-messtechnik.de/phplogin/login_en/html/software.php)

<sup>3</sup> 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	✓