

PRESSURE



| | GMH 5130 GMH 5150 GMH 5155 | GMH 3111 GMH 3151 GMH 3156 | GMH 3161-12 GMH 3181-12 | GMH 3161-002 / -01 / -07 ... / -13 | GMH 3181-002 / -01 / -07 ... / -13 | GDH 200-07 GDH 200-13 | GDH 200-14 | GPB 3300 GTD 1100 GDH 200-11 | GDSB 1000 |
|--|----------------------------------|----------------------------------|----------------------------|---------------------------------------|---------------------------------------|--------------------------|------------|------------------------------------|-----------|
| APPLICATION: | | | | | | | | | |
| Relative pressure meas. (over, under- and pressure difference) | • • • | • • • | | • | • | • • | | | • |
| Absolute pressure measuring | • • • | • • • | • • | | | | • | • • • | • |
| Heating, ventilation, climate | • • • | • • • | • • | • | • | • • | • | • • • | • |
| Measuring in liquids | • • • | • • • | | | | | | | • |
| Vacuum measuring | • • • | • • • | • • | | | | • | • • • | • |
| Meteorology | | | • • | | | | • | • • | |
| Altitude measuring (sports) | | | | | | | | • | |
| Water-proof application | • • • | | | | | | | | |
| Ex-protection | | • • • | • • | • | • | | | | |
| EQUIPMENT: | | | | | | | | | |
| Plug-in probe | 1 1 2 | 1 1 2 | | | | | | | 1 |
| Min/Max, Zero | • • • | • • • | • • | • | • | • • | • | • • • | • |
| Alarm / Data logger / Analog output | • • | • • | • | | • | | | | |
| DEVICE INFORMATION: | | | | | | | | | |
| Catalogue page | Page 83 | Page 84 / 85 | Page 92 | Page 91 - 93 | Page 91 - 93 | Page 93 | Page 94 | Page 95 | Page 87 |

WATER-PROOF HANDHELD DEVICE FOR PRESSURE MEASUREMENT WITH EXTERNAL CHANGEABLE PROBES



ISO

AUTO OFF

HOLD

MIN MAX

TARA

O/S-CORR

WATER-PROOF DEVICE AND
PLUG-IN CONNECTIONS

GMH 5130 / 50



GMH 5155

HIGHLIGHTS:

- Peak value detection (1000 measurements / s)
- Large double display with background illumination
- Calibrated and fully interchangeable pressure probes
- incl. calibration protocol

ADDITIONAL FUNCTIONS GMH 5150 AND 5155:



ADDITIONAL FUNCTIONS GMH 5155:

- 2 GMSD/MSD-probes connectable.
- Difference measurement of two probes

SUITABLE PRESSURE PROBES
P. R. T. PAGE 88 / 89

GMH 5130

Art. no. 600027

Waterproof handheld device for pressure measurement with 1 sensor connection, without sensor

GMH 5150

Art. no. 600031

Waterproof handheld device for pressure measurement with 1 sensor connection, analog output and data logger, without sensor

GMH 5155

Art. no. 600033

Waterproof handheld device for pressure measurement with 2 sensor connections, analog output and data logger, without sensors

General:

This handheld instrument is a valuable tool for demanding pressure measurements. Extremely robust plug connections, the silicone protection cover, backlight and a water-proof design allow its usage in harsh industrial and field environments.

Application:

- Industry and craft, HVAC: heating, ventilation, air-conditioning
- Leakage test / pressure test
- Chimney draft measurement: under pressure, leakage test at buildings (i.e. 4 Pascal test)
- Measurements of gas and oil firings
- Automobile trade, hydraulic analysis (peak pressure)

| Specifications: | GMH 5130 |
|----------------------------------|--|
| Sensor connections: | 1 |
| Suitable probes: | GMSD / MSD sensors, available ranges (resolutions) from -1.999 ... 2.500 mbar (0.001 mbar) to 0 ... 1000 bar (1 bar) |
| Display range max.: | -19999 ... +19999 digit |
| Display unit: * | depends on measuring range selection and sensor: mbar, bar, Pa, kPa, MPa, mmHg, inHg, PSI, mH ₂ O |
| Measuring frequency: | 4 measurements / s or 1000 measurements / s with peak value memory |
| Average filter: | adjustable: 1 ... 120 s |
| Accuracy: | ±0.1 % FS ±1 digit |
| Connections | |
| Sensor: | 1 x 7-pole bayonet connector |
| Output / external supply: | 4-pole bayonet connector for serial interface, supply (with accessories: USB adapter USB 5100) |
| Display: | 4 ½ digit 7-segment, illuminated (white) |
| Operating conditions: | -25 ... +50 °C, 0 ... 95 % RH (non-condensing) |
| Storage temperature: | -25 ... +70 °C |
| Power supply: | 2 x AAA-battery, battery life 500 h (without illumination, 4 measurings / s) |
| Housing: | impact resistant ABS housing with pop-up clip |
| Protection class: | IP65 / IP67 |
| Dimensions: | 160 x 86 x 37 mm (H x W x D) incl. silicone protection cover (red) |
| Weight: | approx. 250 g incl. battery and protection cover |
| Scope of supply: | Device, battery, calibration protocol, manual |

| Specifications: | GMH 5150 and GMH 5155 |
|----------------------------------|--|
| Sensor connections: | 1, GMH 5155: 2 |
| Suitable probes: | GMSD / MSD sensors, available ranges (resolutions) from -1.999 ... 2.500 mbar (0.001 mbar) to 0 ... 1000 bar (1 bar) |
| Display range max.: | -19999 ... +19999 digit |
| Display unit: | depends on measuring range selection and sensor: mbar, bar, Pa, kPa, MPa, mmHg, inHg, PSI, mH ₂ O, user |
| Measuring frequency: | 4 measurements / s or 1000 measurements / s with peak value memory |
| Average filter: | adjustable: 1 ... 120 s |
| Accuracy: | ±0.1 % FS ±1 digit |
| Connections | |
| Sensor: | 1 x 7-pole bayonet connector GMH 5155 only: 2 x 7-pole bayonet connector |
| Output / external supply: | 4-pole bayonet connector for serial interface, supply (with accessories: USB adapter USB 5100) |
| Analog output: | 0 ... 1 V, freely adjustable, connection with 4-pole bayonet connector, resolution 12 bit |
| Display: | 4 ½ digit 7-segment, illuminated (white) |
| Operating conditions: | -25 ... +50 °C, 0 ... 95 % RH (non-condensing) |
| Storage temperature: | -25 ... +70 °C |
| Power supply: | 2 x AAA-battery, battery life 500 h (without illumination, 4 measurings / s) |
| Housing: | impact resistant ABS housing with pop-up clip |
| Protection class: | IP65 / IP67 |
| Dimensions: | 160 x 86 x 37 mm (H x W x D) incl. silicone protection cover (red) |
| Weight: | approx. 250 g incl. battery and protection cover |
| Scope of supply: | Device, battery, calibration protocol, manual |

Additional functions:

Additional Display for Battery: Bar graph display**Background Illumination:** duration adjustable (off, 5 s ... 2 min.)**Adjustment:** offset / slope adjustable in menu**User-defined displayed unit: (user, GMH 5150/55)**
conversion to any unit with help of linear factor**Leakage test function (GMH 5150/55):**
leak rate display, leak rate alarm (/s, /min, /h)**Air velocity / flow volume (GMH 5150/55):**
Pitot tube measurement (accessories)**peak-detect (Peak value memory):**
The min- / max- value memory stored unfiltered pressure peaks ≥ 1 ms**Logger function:**
with measuring point input, adjustable cycle time: 1 s ... 1 h, recording time: 416 days at intervall 1 h, data logger: cyclic: 10.000 data sets (GMH 5150), 8.000 data sets (GMH 5155); manual: 1.000 data sets (with measuring point input, 40 adjustable measuring point texts or measuring point numbers)*** = Note to the pressure unit selection:**

The choice of a specific pressure unit is possible, if its whole measuring range is displayable within the display of the device and the sensor is supporting these resolution.

ACCESSORIES

Accessories and spare parts:

GMSD ... - K51

pressure sensors (p.r.t. page 87) Application field: non-aggressive gases for over / under pressure and difference pressure meas. or absolute pressure meas.

MSD ...

pressure sensors / stainless steel (p.r.t. page 88) Application field: air, aggressive gases for over / under pressure and relative pressure meas. or absolute pressure meas.

MSD-K51

Art. no. 603809

Connecting cable for MSD sensor to GHM 51xx, 1 m

Prandtl-Staurohr

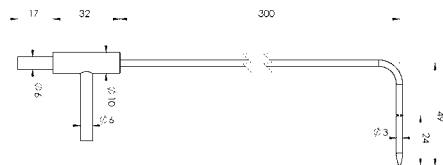
Art. no. 604150

(made of stainless steel)

for air velocity / flow volume measurement

Ø = 3 mm, NL = 300 mm, max. 600 °C

GMSD 2,5 MR-K51 or GMSD 25 MR-K51 are required

**GDZ-01**

Art. no. 601541

PVC tube 6/4 (6 mm outer Ø, 4 mm inner Ø) (5 bar at 23 °C)

**GDZ-30**

Art. no. 601601

Adapter G1/2" inner to tube 6/4

EBS 20M

Art. no. 601158

Measuring data acquisition software for EASYBus & GMH (p.r.t. page 109)

GSOFT 3050

Art. no. 601336

Windows software for GMH 3000 and GMH 5000 with logger for operation of logger devices (p.r.t. page 110)

USB 5100

Art. no. 601095

Interface converter GMH 5xxx <=> PC

GNG 5 / 5000

Art. no. 602287

Plug in power supply for devices of the series GMH 5XXX (p.r.t. page 115)

GKK 3500

Art. no. 601052

Device case soft lining e.g. for 2x GMH 3000 or 5000 (394 x 294 x 106 mm)

HAND-HELD PRESSURE MEASURING DEVICE



ISO

AUTO OFF

HOLD

MIN MAX

O/S-CORR

TARA

**GMH 3111**

Art. no. 600374

Hand-held pressure measuring device with 1 sensor input, without sensor

GMH 3111-EX

Art. no. 600380

Hand-held pressure measuring device with 1 sensor input, without sensor, Ex

Specifications:

| | |
|------------------------------|---|
| Max. display range: | -19999 ... +19999 digit |
| Measuring range: | corresponding to used probe |
| Überlast: | corresponding to used probe |
| Resolution: | corresponding to used probe |
| Accuracy: (device) | ±0.1 % FS ±1 digit (at nominal temperature = 25 °C) |
| Pressure units: * | mbar, bar, Pa, kPa, MPa, mmHg, PSI, mH ₂ O, can be selected |
| Probe connection: | 1 sensor socket 6-pin lockable Mini-DIN-socket(s) for GMSD/MSD-sensors. Automatic probe detection and setting of measuring range upon plugging in of probe. |
| Display: | 2 x 4½ digit LCD |
| Output: | Interface |
| serial interface: | direct connection to RS232 or USB interface of a PC via electrically isolated interface converter GRS 3100, GRS 3105 or USB 3100 N. |
| Power supply: | 9 V battery, d.c. connector for external 10.5 ... 12 V direct voltage supply. (suitable power supply: GNG10/3000) |
| Sensor adjustment: | digital offset and scale input |
| Measuring cycle: | 4 measurements / s |
| Battery life: | approx. 120 h |
| Operating conditions: | -25 ... +50 °C, 0 ... 95 % RH, GMH 3111-EX: -10 ... +50 °C, 0 ... 95 % RH |
| Housing: | impact-resistant ABS plastic housing, foil keypad, clear viewing pane; GMH 3111 only: integrated pop-up clip for table top or suspended use. |
| Dimensions: | 142 x 71 x 26 mm (H x B x D) |
| Weight: | approx. 150 g, GMH3111-EX: approx. 190 g (incl. leather case) |
| Scope of supply: | Device, battery, calibration protocol, manual |

HIGHLIGHTS:

- One device for any measuring range (2.500 mbar ... 1000 bar)
- Calibrated and fully interchangeable pressure probes

SUITABLE PRESSURE PROBES
P.R.T. PAGE 88 / 89

**Note to Ex-design types:**

Technical changes compared to standard instrument (valid for all GMH31xx-EX)

Ex qualification Ex II 2 G Ex ib IIC T4 Gb

Ref. document: EPS 09 ATEX 1 227 X

Standards:

The device meets the standards for electric resources in explosion endangered areas according to EN 60079-0 : 2012, EN 60079-11 : 2012

Sensor:

(GMH 3111-EX, GMH 3151-EX, GMH 3156-EX)
All GMSD sensors with option „Ex type“ can be used.

Interface:

suitable interface adapter are USB 3100 N, GRS 3100 and GRS 3105

Please note: The operation of the interface is not allowed within the Ex area!

Working temperature: -10 ... +50 °C

Power supply: 9 V battery, d.c. connector

Please note: the use of d.c. connector is not allowed within the Ex area! Just d.c. connectors of type GNG10/3000 can be used.

Alarm function:

(GMH 3151-EX, GMH 3156-EX, GMH 3181-EX)
The device is without a horn, in the alarm settings are only the parameter „no.so“ and „off“ adjustable.

Scope of supply:

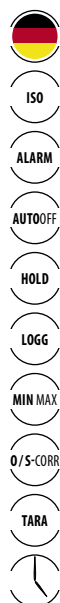
device with associated leather case



*** Note to the pressure unit selection:**
(information for all GMH 31xx)

The choice of a specific pressure unit is possible, if its whole measuring range is displayable within the display of the device and the sensor is supporting these resolution.

PRESSURE MEASURING DEVICE WITH LOGGER



LOGGER FUNCTION



GMH 3151



GMH 3156

HIGHLIGHTS:

- 4½-digit display, probes with higher resolution up on request
- Peak value memory 1000 measurements / s
- Analog output 0 ... 1 V
- Digital adjustable
- Integrated horn

ADDITIONAL FUNCTIONS GMH 3156:

- 2 GMSD/MSD-probes connectable.
- Difference measurement of two probes

SUITABLE PRESSURE PROBES
P.R.T. PAGE 88 / 89

GMH 3151

Art. no. 600381

Hand-held pressure measuring device with 1 sensor input, logger, without sensor

GMH 3156

Art. no. 600386

Hand-held pressure measuring device with 2 sensor inputs, logger, without sensor

GMH 3151-EX

Art. no. 600383

Hand-held pressure measuring device with 1 sensor input, logger, without sensor, Ex (see previous page for information on Ex versions)

GMH 3156-EX

Art. no. 600394

Hand-held pressure measuring device with 2 sensor inputs, logger, without sensor, Ex (see previous page for information on Ex versions)

| Specifications: | |
|--------------------------------|---|
| Max. display range: | -19999 ... +19999 digit |
| Measuring range: | corresponding to used probe |
| Overload: | corresponding to used probe |
| Resolution: | corresponding to used probe |
| Accuracy (device): | ±0.1 % FS ±1 digit (at nominal temperature = 25 °C) |
| Pressure units*: | mbar, bar, Pa, kPa, MPa, mmHg, PSI, mH ₂ O, can be selected. |
| Probe connection: | 1, GMH 3156/-EX: 2 6-pin screened lockable Mini-DIN-socket(s) for GMSD/MSD-sensors. Automatic probe detection and setting of measuring range upon plugging in of probe. |
| Display: | 2 x 4½ digit LCD |
| Output: | serial interface or AAG |
| Serial interface: | direct connection to RS232 or USB interface of a PC via electrically isolated interface converter GRS 3100, GRS 3105 or USB 3100 N. |
| Analog output: | 0 ... 1 V, freely adjustable (resolution 12 bit) |
| Power supply: | 9 V-battery, d.c. connector * for external 10.5 ... 12 V direct voltage supply. (i. e. GNG10/3000) |
| Sensor adjustment: | digital offset and scale input |
| Measuring cycle: „slow“ | 4 measurements / s |
| „fast“ / „peak-detect“ | ≥1000 measurements / s |
| peak-detect: | The min- / max- value memory stored unfiltered pressure peaks ≥1 m |

Logger functions

| | |
|-------------------------------|---|
| manually data sets: | 99 data sets |
| cycle data sets: | 10000 GMH 3156/-EX: 4000 (max. 64 recording sequences) |
| adjustable cycle time: | 1 ... 3600 s |
| Averaging function: | x |
| Battery life: | approx. 180 h (4 measurements / s) approx. 40 h (1000 measurements / s) |
| Operating conditions: | -25 ... +50 °C, 0 ... +95 % RH (non-condensing), GMH 315x-EX: -10 ... +50 °C, 0 ... 95 % RH (non-condensing) |
| Housing: | impact-resistant ABS plastic housing, foil keypad, clear viewing pane GMH315x-EX only: pop-up clip for table top or suspended use. |
| Dimensions: | 142 x 71 x 26 mm (H x W x D) |
| Weight: | approx. 150 g, GMH 315x-EX: approx. 190 g (incl. case) |
| Scope of supply: | Device, battery, calibration protocol, manual |

Additional functions:

Averaging function: integrates the meas. values during a selectable period of time and then calculates the average display value.

Sea-Level-correction: when connecting an abs. pressure probe the barom. air pressure can also be displayed corrected to sea level „zero“. (Air pressure compensation achieved by entering the meters above sea level „zero“)

Logger Functions:

- manual: 99 data sets

- cyclic: 10000 data sets (GMH 3151)

4000 data sets (GMH 3156)

(max. 64 Aufzeichnungsreihen), adjustable cycle time: 1 ... 3600 s; The logger is started or stopped by keypad or interface. The software GSOFT3050 (see accessories) is available for comfortable read-out of logger data.

* Note to the pressure unit selection: (information for all GMH 31xx)

The choice of a specific pressure unit is possible, if its whole measuring range is displayable within the display of the device and the sensor is supporting these resolution.

TUBE, TUBE CLIPS, ADAPTER, COUPLINGS, ETC.



for GMH31xx, GMSD, MSD, GDHs and pressure measuring transducers

GDZ-01

Art. no. 601541

PVC-tube 6/4 (6 mm outside-Ø, 4 mm inside-Ø) (5 bar @ 23 °C)

GDZ-02

Art. no. 601543

PE (polyethylene) 6/4 (6 mm outside-Ø, 4 mm inside-Ø) (10 bar @ 23 °C)

GDZ-03

Art. no. 601545

PUR (polyurethane) 6/4 (6 mm outside-Ø, 4 mm inside-Ø) (9 bar @ 23 °C)

GDZ-04

Art. no. 601547

PA (polyamide) 6/4 (6 mm outside-Ø, 4 mm inside-Ø) (25 bar @ 23 °C)

GDZ-05

Art. no. 601549

Screw-type glanding for 6/4 tube with outside thread G1/8"

GDZ-06

Art. no. 601551

Increaser glanding for 6/4 tube with inside thread G1/8"

GDZ-08

Art. no. 601555

Double adapter for 6/4 tube to 6/4 tube

GDZ-09

Art. no. 601557

Coupling adapter (NW5) made of brass with inside thread G1/4" (suitable for GDZ-12)

GDZ-10

Art. no. 601559

Coupling adapter (NW5) made of brass for tube with 6 mm inside-Ø (suitable for GDZ-12)

GDZ-11

Art. no. 601561

Coupling adapter (NW5) made of brass with outside thread G1/4" (suitable for GDZ-12)

GDZ-12

Art. no. 601564

Coupler socket (NW5) made of brass (single-hand use) with inside thread G1/4"

GDZ-13

Art. no. 601566

Increaser/reducer made of brass with G1/2" outside thread and G1/8" inside thread

GDZ-14

Art. no. 601567

Screw-in nozzle for 6/4 tube with outside thread G1/8"

GDZ-15

Art. no. 601570

Screw-in nozzle for tube with 6 mm inside-Ø with outside thread G1/4"

GDZ-16

Art. no. 601572

Screw-in nozzle for 6/4 tube with outside thread G1/4"

GDZ-17

Art. no. 601574

Screw-in connection for 6/4 tube with outside thread G1/4"

GDZ-18

Art. no. 601576

Tube clamp for 6/4 tube

GDZ-19

Art. no. 601578

Tube clamp for 8/6 tube (8 mm outside-Ø and 6 mm inside-Ø)

GDZ-20

Art. no. 601580

Screw-on connection made of brass for 6/4 tube with inside thread G1/4"

GDZ-21

Art. no. 601582

T-piece for 6/4 tubes

GDZ-22

Art. no. 601584

Coupling adapter (NW5) made of brass with tube connection 6/4 (suitable for GDZ-12)

GDZ-23

Art. no. 601586

G1/2" female to G1/4" male adapter, brass

GDZ-27

Art. no. 601594

Manometer profile gasket (thickness 3 mm, Cu)

GDZ-28

Art. no. 601597

Flat gasket (thickness 5 mm, Cu) for thread G1/2"

GDZ-29

Art. no. 601599

Filter-Membrane incl. Luer-Locks (GDZ-32 and GDZ-33)

GDZ-30

Art. no. 601601

Adapter G1/2" inside thread to tube 6/4

GDZ-31

Art. no. 606070

Silicone tube 8/5 (8 mm outer / 5 mm inner) (2 bar at 23 °C) temperature-resistant up to 200 °C, very flexible

GDZ-32

Art. no. 607951

Luer-lock male to hose 6/4

GDZ-33

Art. no. 607952

Luer-lock female to hose 6/4

GWA 1214

Art. no. 603979

Adapter G1/4" inside thread to G1/2" outside thread

GOG-N

Art. no. 603047

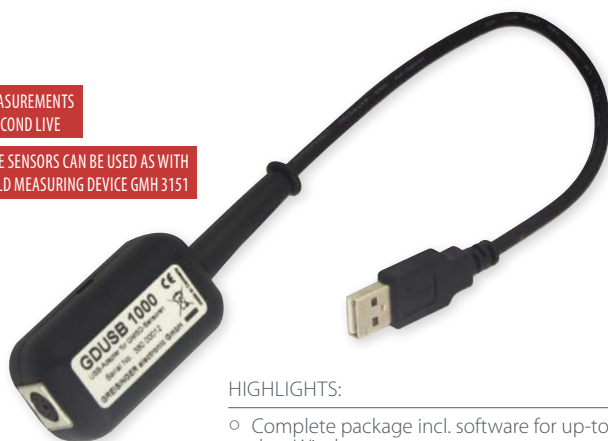
needle, Ø 0.9 mm - suitable to Luer-Lock male (5 pieces) (without picture)

UNIVERSAL PRESSURE MEASUREMENT SYSTEM



1000 MEASUREMENTS
PER SECOND LIVE

THE SAME SENSORS CAN BE USED AS WITH
HANDHELD MEASURING DEVICE GMH 3151



SUITABLE PRESSURE PROBES
P.R.T. PAGE 88 / 89

HIGHLIGHTS:

- Complete package incl. software for up-to-date Windows systems
- Live display before and live diagram display

GDUSB 1000

Art. no. 600271

Complete package for higspeed live data aquisition for GMSD/MSD sensors incl. software for high-speed live measurement data logging GDUSB FastView

General:

The GDUSB 1000 adapter allows to connect a standard pressure sensor of type GMSD / MSD directly to the USB interface of a PC. It provides 4 channels, i.e. currently measured value, average value, max and min value. There are two operation modes:

Fast mode:

Up to 1000 measured values per second. The provided software displays the data and records for later usage. The software can be configured to start or stop the recording with several selectable trigger conditions

Standard mode:

Up to 32 measurements per second. A GDUSB 1000 in standard mode can be responded similarly to GMH handheld devices or EASYBus modules. Then a long term recording can be archived with the software EBS 20M / EBS 60M (2 measurements per second).

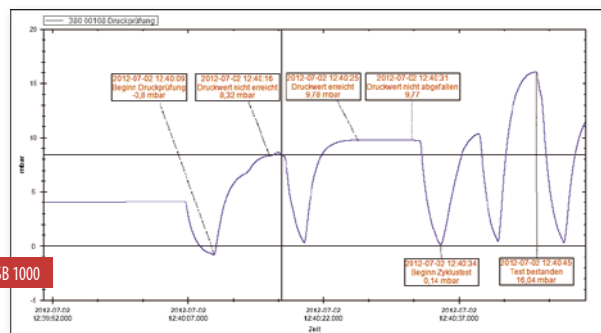
Application:

- Test rigs and laboratory experiments
- Detection of pressure peaks
- Monitoring system pressure curves e.g. for process technology, engineering, etc.
- Live displaying of measuring data of several GDUSB 1000
- Data evaluation and logging, for optimization of processes and other statistics
- Multi-channel measurements with high recoding rate
- Test setups or on-site recordings with GDUSB 1000

Specifications:

| | |
|----------------------------|--|
| Measuring range: | depends on connected sensor |
| Max. range: | -19999 ... +19999 digit |
| Pressure units: | mbar, bar, Pa, kPa, MPa, mmHg, PSI, mH ₂ O, selectable, depending on connected sensor |
| Measuring rate: | 1000 measurements / s (= 1 ms) |
| Accuracy: | ±0.2 % FS (at nominal temperature = 25 °C) |
| Recording interval: | 1 ms (FAST mode) ... 10 s, adjustable via software |
| Connections | |
| PC: | standard USB plug (type A) |
| GMSD / MSD: | 6-pole screened mini-DIN socket with locking |
| Power supply: | supplied by USB interface |
| Dimensions: | 56 x 31 x 24 mm |
| Cable length (USB): | approx. 20 cm |
| Weight: | 39 g (device only) |
| Scope of supply: | Device, manual, software- and driver-CD |

HIGH-SPEED LIVE MEASUREMENT



FOR GDUSB 1000

GDUSB FastView

Software for high-speed live measurement data logging of fast pressure measurements

Functions:

- Several GDUSB 1000 usable at one PC at the same time
- Measuring rates up to 1000 measurements per second
- Live display with current value and measurement diagram, even for highest measuring rates
- Different measuring rates for each sensor selectable
- Safe storage of measurement and sensor data in a SQL based data base
- Fast diagram display
- Comment function for measured values
- Data export as CSV file and as picture
- Multi-language software (German, English, French, Italian, Czech)
- 32-bit or 64-bit application

System requirements:

1GHz CPU, 1GB RAM, 100 MB HDD, 1 available USB Port
Microsoft Windows 7 SP1 (32 or 64 bit)
(not executable with Windows RT, ARM or Intel Itanium based Windows systems)

*This software uses open-source components under LGPL conditions.
The license terms of this software provide further information.*

PLASTIC PRESSURE SENSORS WITH TUBE CONNECTION



FOR AIR AND NON
AGGRESSIVE GASES

General:

for use with
GMH 31xx, GDUSB: Type GMSD ... -K31,
GMH 51xx: Type: GMSD ... -K51

Application:

air and non aggressive gases
Plastic pressure sensors are not suitable for water / liquids.

SENSORS FOR MEASURING PRESSURE DIFFERENCE GMSD...

for differential pressure measuring (both pressures are connected) as well as for relative pressure measuring (pressure / vacuum, one terminal is left open)

| | GMSD 2.5 MR .. | GMSD 25 MR .. | GMSD 350 MR .. | GMSD 2 BR .. | GMSD 10 BR .. |
|--|------------------------|------------------------|------------------------|----------------------|----------------------|
| Measuring range: | -1.999 ... +2.500 mbar | -19.99 ... +25.00 mbar | -199.9 ... +350.0 mbar | -1000 ... +2000 mbar | -1.00 ... +10.00 bar |
| Overload: | max. 200 mbar | max. 300 mbar | max. 1 bar | max. 4 bar | max. 10.34 bar |
| Resolution: | 0.001 mbar (0.1 Pa) | 0.01 mbar (1 Pa) | 0.1 mbar | 1 mbar | 10 mbar |
| Accuracy (typ.) | | | | | |
| Hysteresis / linearity: | ±0.2 % FS | ±0.2 % FS | ±0.2 % FS | ±0.2 % FS | ±0.2 % FS |
| Temperature influence (from 0 ... 50 °C): | ±1.0 % FS | ±0.5 % FS | ±0.4 % FS | ±0.4 % FS | ±0.4 % FS |
| OPTION higher probe accuracy: | | | ±0.1 % / ±0.2 % FS | ±0.1 % / ±0.2 % FS | ±0.1 % / ±0.2 % FS |
| GMSD ... - K31 | | | | | |
| Art. no. | 601039 | 601148 | 601154 | 601170 | 601183 |
| GMSD ... - K51 | | | | | |
| Art. no. | 601038 | 601149 | 601157 | 601171 | 601184 |

ABSOLUTE PRESSURE SENSORS GMSD...

for absolute pressure measuring (one terminal is without functionality)

| | GMSD 1.3 BA .. | GMSD 2 BA .. | GMSD 7 BA .. |
|--|--|----------------------|------------------------|
| Measuring range: | 0 ... 1300 mbar abs. | 0 ... 2000 mbar abs. | 0.00 ... 7.00 bar abs. |
| Overload: | max. 4 bar abs. | max. 4 bar abs. | max. 10.34 bar abs. |
| Resolution: | 1 mbar | 1 mbar | 10 mbar |
| Accuracy (typ.) | | | |
| Hysteresis / linearity: | ±0.2 % FS | ±0.2 % FS | ±0.2 % FS |
| Temperature influence (from 0 ... 50 °C): | ±0.4 % FS | ±0.4 % FS | ±0.4 % FS |
| OPTION higher probe accuracy: | ±0.1 % FS (hysteresis, linearity); ±0.2 % FS (temperature influence 0 ... 50 °C) | | |
| GMSD ... - K31 | | | |
| Art. no. | 601192 | 601196 | 601200 |
| GMSD ... - K51 | | | |
| Art. no. | 601193 | 601197 | 601201 |

Specifications:

| | |
|-----------------------------|--|
| Sensor: | piezoresistive pressure sensor |
| Pressure connection: | 2 connection pins for tubes 6 x 1 mm (6 mm inside-Ø and 4 mm outside-Ø) |
| Electronics: | PC board with amplifier and data memory for sensor data (measuring range / calibration etc.) integrated in sensor housing |
| Working temperature: | 0 ... +50 °C |
| Relative humidity: | 0 ... +95 % RH (non-condensing) |
| Storage temperature: | -25 ... +70 °C |
| Housing: | ABS plastic with suspension eye, dimensions do not incl. connection pin: 68 x 32.5 x 15 mm (H x W x D), dimensions with connection pin: 68 x 32.5 x 27.5 mm. |
| Weight: | approx. 75 g (...K51: approx. 82 g) |
| Device connection | |
| GMSD ... - K31: | 1.2 m PVC connection cable, screened with integral 6-pin |
| GMSD ... - Ex: | Mini-DIN-plug, lockable |
| GMSD ... - K51: | 1 m PVC connection cable, screened with 7-pin bayonet plug |
| Scope of supply: | Device, calibration protocol, manual |

Options:**Ex-protection****Higher probe accuracy**

by multi point calibration
Additional individual linearisation points are stored in sensor memory.
(not possible for GMSD 2,5 MR and GMSD 25 MR!)

ISO-WPDS

Art. no. 602514

ISO certificates: 5 points ascending, 5 points descending

STAINLESS STEEL PRESSURE SENSORS G $\frac{1}{2}$ INCH

FOR AIR, AGGRESSIVE GASES
AND LIQUIDS

FOLLOW-ON TYPE FÜR GMSD-
STAINLESS-STEEL-SENSORS

MSD...

exchangeable handheld instruments pressure sensors st. steel G $\frac{1}{2}$ B
Connection cable MSD-K31 or MSD-K51 has to be ordered separately (accessories)

| General: | | | |
|---|---------------------------|--------------------|------------|
| for use with GMH31xx, GMH 51xx and GDUSB 1000 | | | |
| Application: | | | |
| Air, aggressive gases, aggressive liquids / water, etc. | | | |
| Abs. pressure | Measuring range | Overload | Resolution |
| MSD 1 BAE Art. no. 600583 | 0 ... 1000 mbar abs. | max. 5 bar abs. | 1 mbar |
| MSD 2.5 BAE Art. no. 600585 | 0 ... 2500 mbar abs. | max. 10 bar abs. | 1 mbar |
| MSD 4 BAE Art. no. 600587 | 0 ... 4000 mbar abs. | max. 17 bar abs. | 1 mbar |
| MSD 6 BAE Art. no. 600592 | 0 ... 6000 mbar abs. | max. 35 bar abs. | 1 mbar |
| MSD 10 BAE Art. no. 600594 | 0 ... 10,00 bar abs. | max. 35 bar abs. | 10 mbar |
| MSD 16 BAE Art. no. 600596 | 0 ... 16.00 bar abs. | max. 80 bar abs. | 10 mbar |
| MSD 25 BAE Art. no. 600598 | 0 ... 25.00 bar abs. | max. 50 bar abs. | 10 mbar |
| Rel. pressure | Measuring range | Overload | Resolution |
| MSD 100 MRE Art. no. 600600 | 0.0 ... 100.0 mbar rel. | max. 1 bar rel. | 0.1 mbar |
| MSD 250 MRE Art. no. 600604 | 0.0 ... 250.0 mbar rel. | max. 2 bar rel. | 0.1 mbar |
| MSD 400 MRE Art. no. 600606 | 0.0 ... 400.0 mbar rel. | max. 2 bar rel. | 0.1 mbar |
| MSD -1/1.5 BRE Art. no. 600608 | -1000 ... +1500 mbar rel. | max. 10 bar rel. | 1 mbar |
| MSD -1/3 BRE Art. no. 600610 | -1000 ... +3000 mbar rel. | max. 17 bar rel. | 1 mbar |
| MSD 1 BRE Art. no. 600612 | 0 ... 1000 mbar rel. | max. 5 bar rel. | 1 mbar |
| MSD 2,5 BRE Art. no. 600614 | 0 ... 2500 mbar rel. | max. 10 bar rel. | 1 mbar |
| MSD 4 BRE Art. no. 600616 | 0 ... 4000 mbar rel. | max. 17 bar rel. | 1 mbar |
| MSD 6 BRE Art. no. 600618 | 0 ... 6000 mbar rel. | max. 35 bar rel. | 1 mbar |
| MSD 10 BRE Art. no. 600620 | 0.00 ... 10.00 bar rel. | max. 35 bar rel. | 10 mbar |
| MSD 25 BRE Art. no. 600622 | 0.00 ... 25.00 bar rel. | max. 50 bar rel. | 10 mbar |
| MSD 40 BRE Art. no. 600624 | 0.00 ... 40.00 bar rel. | max. 80 bar rel. | 10 mbar |
| MSD 60 BRE Art. no. 600627 | 0.00 ... 60.00 bar rel. | max. 120 bar rel. | 10 mbar |
| MSD 100 BRE Art. no. 600629 | 0.0 ... 100.0 bar rel. | max. 200 bar rel. | 0.1 bar |
| MSD 160 BRE Art. no. 600631 | 0.0 ... 160.0 bar rel. | max. 320 bar rel. | 0.1 bar |
| MSD 250 BRE Art. no. 600639 | 0.0 ... 250.0 bar rel. | max. 500 bar rel. | 0.1 bar |
| MSD 400 BRE Art. no. 600633 | 0.0 ... 400.0 bar rel. | max. 800 bar rel. | 0.1 bar |
| MSD 600 BRE Art. no. 600635 | 0.0 ... 600.0 bar rel. | max. 1200 bar rel. | 0.1 bar |
| MSD 1000 BRE Art. no. 600637 | 0 ... 1000 bar rel. | max. 1500 bar rel. | 1 bar |

MSD 25 MRE**MSD -20/60 MRE**

not suited for aggressive media, water, etc., no Ex design and no option
„higher accuracy“ available

| Rel. pressure | Measuring range | Overload | Resolution |
|--|------------------------|---------------|------------|
| MSD 25 MRE Art. no. 606904 | 0.00 ... 25.00 mbar | max. 500 mbar | 0.01 mbar |
| MSD -20/60 MRE Art. no. 606765 | -20.00 ... +60.00 mbar | max. 500 mbar | 0.01 mbar |

Specifications:

| | |
|--------------------------------|---|
| Sensor: | stainless steel pressure sensor (parts coming into contact with media). Suitable for aggressive media, water, etc.. (does not apply to MSD 25 MRE and MSD -20/60 MRE) |
| Accuracy: (typ. values) | ±0.2 % FS (hysteresis and linearity) ±0.02 % FS / K (TC for zero or slope) |
| Electronics: | PC board with amplifier and data memory for sensor data (meas. range, etc.) integrated in sensor housing, sealed sensor electronic |
| Reaction time: | 1 ms |
| Medium temperature: | -25 ... +100 °C (compensated range: 0 ... 80 °C); -25 ... +80 °C at MSD 25 MRE and MSD -20/60 MRE |
| Working temperature: | -20 ... +80 °C |
| Storage temperature: | -40 ... +80 °C |
| Pressure connection: | connection thread G1/2B (other on request) |
| Cable connection: | M16 built-in plug |
| Housing: | CrNi-steel or elgiloy (parts coming into contact with media) length: 88.5 mm, Ø 27 mm, approx. 220 g |
| Protection rating: | IP 67 (Sensor) |
| Scope of supply: | pressure sensor, calibration protocol, manual; Note: Connection cable has to be ordered separately. |

Options:

Higher probe accuracy
by multi point calibration. Additional individual linearisation points are stored in sensor memory. (not available for MSD 25 MRE and MSD -20 / 60 MRE)

ISO-WPDS

Art. no. 602514

ISO certificates: 5 points ascending, 5 points descending

Accessories:**MSD-K31**

Art. no. 600657

Connecting cable for MSD sensor to GMH 31xx and GDUSB 1000
1.2 m PVC connection cable, screened with integral 6-pin Mini-DIN-plug and M16-socket (IP 54)

MSD-K51

Art. no. 603809

Connecting cable for MSD sensor to GMH 51xx
1 m PVC connection cable, screened with 7-pin bayonet plug cable and plug connection water proof acc. to IP 67 and M16-socket

MSD-K31-xx

Longer connection cable (as MSD-K31); Length 2 ... 10 m please specify

MSD-K51-xx

Longer connection cable (as MSD-K51); Length 2 ... 10 m please specify

Ex-Protection:

MSD ... - ex
Stainless steel pressure sensor (without cable) with Ex-protection

MSD-K31-Ex

Art. no. 600871

Connecting cable for MSD-Ex sensor to GMH 31xx-ex
Connection to GMH 31xx, 1 m connection cable, screened with integral 6-pin Mini-DIN-plug and M12-socket