

A series of hand-held measuring devices with integrated sensor

Handheld instrument

Display / Controller

Logger / EASYBus

Transmitter

Temperature probe

Alarm / Protection



- integrated pressure sensor
- sturdy metal connection pin
- tara function / zero point offset
- model with - protection available

Additional features for GMH 3181:

- peak value memory (>1 ms)
- 2 logger functions
- analog output 0 - 1 V
- min-/max- alarm
- integrated horn



DIGITAL-VACUUM- / BAROMETER for measuring of absolute pressure.

GMH 3161-12 (device ready for operation)

GMH 3181-12 (device ready for operation)

0 ... 1300 mbar abs.

Version specific data: ... - 12

Measuring range:	0 ... 1300 mbar absolute
Overload:	max. 4 bar absolute
Resolution:	1 mbar
Pressure units:	mbar, bar, kPa, MPa, PSI, mmHg, m - freely select able
Accuracy: (typ. values)	
hysteresis and linearity	± 0,2 % FS
temperature-influence from 0-50°C	± 0,4 % FS
Option higher accuracy available	yes
Sensor:	integrated piezo-resistive absolute pressure sensor. <i>Suitable for air and non-corrosive, non-ionising gases.</i> <i>(Note: sensor is not suitable for water!)</i>
Pressure connection:	1 metal connection pin, made of brass, nickel plated, pressure tubes 6x1 mm (4 mm inside-Ø) can be connected

For type specific data please refer to page 25

Special function:

SeaLevel-correction: The barometric air pressure can also be related to sea level "zero".
(Correction of air pressure is achieved by entering m above "zero")

Options (upcharges)

Higher sensor accuracy
by multi point calibration
Note: not possible for all device types!

Certificate of calibration WPD5
(f. ISO9000 ff.) incl. several calibration points of sensor (stored in device memory), Certificate of calibration: 5 points increase, 5 points decrease.

Certificate of calibration WPD10
(f. ISO9000 ff.) incl. several calibration points of sensor (stored in device memory), Certificate of calibration: 10 points increase, 10 points decrease.

Special design type (upcharges)

Ex-protection (II 2 G Ex ib IIC T4)
device type with Ex-protection
(please refer to notes at page 20)



Accessories:

- GNG 10/3000** plug-in power supply
- GKK 3000** case (275 x 229 x 83 mm) with cut-outs for GMH3xxx
- GRS 3100** interface converter, RS232, electrically isolated
- USB 3100** interface converter, USB, electrically isolated
- GDZ-01** PVC-tube (5bar) 6/4 (6mm outside-Ø, 4mm inside-Ø)
- GDZ-08** Double adapter for 6/4 tube to 6/4 tube
- GDZ-18** tube clamp for 6/4 tube
- GDZ-21** T-piece for 6/4 tubes

for miscellaneous accessories
p.r.t. pages 22 - 23, 41 - 43

General function description:

- Tare function:** display value and the min./max values memorized can be set to zero.
- Hold function:** by pressing a button the current meas. value will be memorized.
- Min./Max. value memory:** memorizing of max. and min. values.
- Serial interface:** direct connection to RS232 or USB interface of a PC via electrically isolated interface adapter GRS3100, GRS3105 or USB3100.
- Power-Off-function:** device will be automatically switched off if no operating takes place for the time of the power-off delay. Selectable values: off, 1 ... 120 min.
- Peak value memory (peak-detect):** In the min-/max-value memory will be detected not filtered pressure peaks $\geq 1\text{msec}$.
- Logger operation:** Logger start and stop via the keyboard or interface. Comfortable read-out and display software (GSOFT3050) available as additional equipment.
- Low power logger mode:** (only in measuring cycle "slow") Only one measurement carried out at the end of the respective logger cycle. The battery life is considerably prolonged. For long-term recordings (eg. tightness).
- Averaging function:** integrates the meas. values during a selectable period of time and then calculates the average display value.
- Min-/Max-alarm:** the measuring value is constantly monitored if they remain within the min./max. limits set (deactivateable)
- **Alarm:** 3 different alarm settings
 - "off" - alarm function deactivated
 - "on" - visual alarm via display, interface alarm, alarm sounded via integrated horn.
 - "no.So." - visual alarm via display and interface alarm
- **Controlling function:** with the help of the switching module GAM3000 (optionally) electric equipment can be switched on/off or alarm monitored (p.r.t. page 43)

DIGITAL-FINE MANOMETER / MANOMETER for over/under pressure and pressure difference.



GMH 3161-01

GMH 3181-01

-100 ... 2500 Pa (± 2500 Pa ^{*1})

GMH 3161-07H

-1,00 ... 70,00 mbar ($\pm 70,00$ mbar ^{*1})



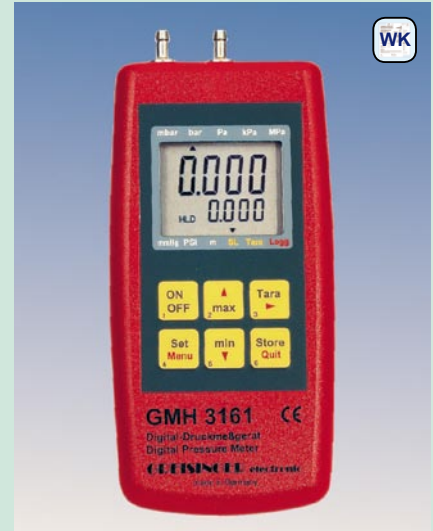
GMH 3161-07

GMH 3181-07

-10,0 ... 350,0 mbar ($\pm 350,0$ mbar ^{*1})

GMH 3161-07B

-10,0 ... 420,0 mbar (-7,5 ... 315,0 mmHg)



GMH 3161-13

GMH 3181-13

-100 ... 2000 mbar (± 2000 mbar ^{*1})

Option, upcharge:

MB -1...2 BAR

measuring range: -1000 ... 2000 mbar ^{*2}

Version specific data:	... - 01	... - 07H	... - 07	... - 07B	... - 13
Measuring range:	-100 ... 2500 Pa (-1,00 ... 25,00 mbar)	-1,00 ... +70,00 mbar	-10,0 ... +350,0 mbar	-10,0 ... +420,0 mbar (-7,5 ... 315,0 mmHg)	-100 ... 2000 mbar (optional: -1000 ... 2000 mbar)
Overload:	max. 100 mbar	max. 1000 mbar	max. 1 bar	max. 1 bar	max. 4 bar
Resolution:	1 Pa (0,01 mbar)	0,01 mbar	0,1 mbar	0,1 mbar (0,1 mmHg)	1 mbar
additional pressure units:	bar, kPa, PSI, mmHg, m	bar, Pa, kPa, PSI, mmHg, m	bar, kPa, MPa, PSI, mmHg, m	bar, kPa, MPa, PSI, m	bar, kPa, MPa, PSI, mmHg, m
Accuracy: (typ. values)					
hysteresis and linearity	$\pm 0,3$ % FS	$\pm 0,1$ % FS	$\pm 0,2$ % FS	$\pm 0,1$ % FS	$\pm 0,2$ % FS
temperature-influence from 0-50°C	$\pm 0,4$ % FS	$\pm 0,4$ % FS	$\pm 0,4$ % FS	$\pm 0,4$ % FS	$\pm 0,4$ % FS
Option higher accuracy available	no	already integrated	yes	already integrated	yes
Sensor:	integrated piezo-resistive absolute pressure sensor. <i>Suitable for air and non-corrosive, non-ionising gases. (Note: sensor is not suitable for water!)</i>				
Pressure connection:	2 metal connection pin, made of brass, nickel plated, pressure tubes 6x1 mm (4 mm inside-Ø) can be connected				

^{*1} measuring range possible by changing the pressure connection ports

^{*2} without changing the pressure connection ports

Type specific data:	GMH 3161 - ...	GMH 3181 - ...	GMH 3160 - ... - ex	GMH 3180 - ... - ex
Display:	2 x 4½-digit LCD	2 x 4½-digit LCD	2 x 4½-digit LCD	2 x 4½-digit LCD
Output:	interface	interface or AAG	interface*	interface or AAG*
- serial interface:	X	X	X	X
- analog output:	--	0 - 1V, freely adjustable (resolution 12 bit)	--	0 - 1V, freely adjustable (resolution 12 bit)
Power supply:	9V-battery, d.c. connector <i>suitable 9V-battery (type IEC 6F22) in scope of supply, d.c. connector for external 10.5-12V direct voltage supply. (suitable power supply: GNG10/3000)</i>	9V-battery, d.c. connector	9V-battery, d.c. connector*	9V-battery, d.c. connector*
Sensor adjustment:	digital offset and scale input	digital offset and scale input	digital offset and scale input	digital offset and scale input
Tare, hold, min/max value:	X	X	X	X
Peak value memory:	--	≥ 1 ms	--	≥ 1 ms
Measuring cycle: "slow"	4 measurements / s	4 measurements / s	4 measurements / s	4 measurements / s
"fast" (with filter)	--	≥ 1000 meas. / s	--	≥ 1000 meas. / s
"peak-detect"	--	≥ 1000 meas. / s	--	≥ 1000 meas. / s
Logger functions:	--	X	--	X
-manually:		99 data sets		99 data sets
-cycle:		10000 data sets (max. 64 recording sequen.)		10000 data sets (max. 64 recording sequences)
-adjustable cycle time:		1 ... 3600 seconds		1 ... 3600 seconds
Averaging function:	--	X	--	X
Min-/max-alarm:	--	X	--	X*
Real-time clock:	--	X	--	X
Power consumption:	approx. 0.6 mA	approx. 0.6 mA (slow mode) max. 2.5 mA (fast = 1000Hz)	max. 0.6 mA	max. 0.6 mA (slow mode) max. 2.5 mA (fast = 100Hz)
Working condition:	-25 to +50 °C, 0 to +95 %RH (non-condensing)		-10 to 50 °C, 0 to 95 %RH (non-condensing)	
Housing dimensions:	142 x 71 x 26 mm (without pressure connection pin - pin approx. 11 mm protruding at front side of device), impact-resistant ABS plastic housing. Front side IP65 integrated pop-up clip for table top or suspended use.		--	
Weight:	approx. 165 g	approx. 170 g	approx. 205 g (incl. case)	approx. 210 g (incl. case)

* Please refer to note to Ex-design types at page 20