

PORTABLE PRESSURE INSTRUMENT SERIES WITH INTEGRATED PRESSURE SENSORS



HIGHLIGHTS:

- Integrated pressure sensor
- Stable metal connection pieces
- Tare function / zero point adjustment
- Execution with EX protection possible

ADDITIONAL FUNCTIONS OF GMH 3181 -...:



TECHNICAL DATA (TYPES):	GMH 3161 - ...	GMH 3181 - ...	GMH 3161 -..- EX	GMH 3181 -..- EX
Display:	2 x 4½-digit LCD	2 x 4½-digit LCD	2 x 4½-digit LCD	2 x 4½-digit LCD
Sensor:	Piezoresistive differential pressure sensor built into the measuring instrument. Suitable for air or non-aggressive gases. (Note: the sensor is not suitable for water!)			
Pressure connection:	2 universal pressure ports for 6 x 1 mm (4 mm inner tube diameter) or 8 x 1 mm (6 mm inner tube diameter) plastic tubes			
Output:	interface	Interface or AAG	Interface*	Interface or AAG *
Serial interface:	x	x	x	x
Analog output:	--	0.1 V, freely scalable (resolution 12 bit)	--	0.1 V, freely scalable (resolution 12 bit)
Power supply:	9 V battery, mains socket	9 V battery, mains socket	9 V battery, mains socket *	9 V battery, mains socket *
	Suitable 9 V battery, power supply socket for external 10.5..12 V DC voltage supply (e.g. GNG10/3000)			
Sensor adjustment:	digital offset and slope input	digital offset and slope input	digital offset and slope input	digital offset and slope input
Peak value memory:	--	≥1 ms	--	≥1 ms
Measuring cycle:	"Slow" 4 measurements/s	4 measurements/s	4 measurements/s	4 measurements/s
	"Fast" (with filtering) --	≥1000 measurements/s	--	≥1000 measurements/s
	"Peak-detect" -- (Peak value memory)	≥1000 measurements/s unfiltered pressure peaks ≥1 ms are recorded in the min/max value memory.	--	≥1000 measurements/s unfiltered pressure peaks ≥1 ms are recorded in the min/max value memory.
Averaging calculation:	--	x	--	x
Battery life:	approx. 500 h	approx. 500 h (slow mode) approx. 120 h (almost = 1000 Hz)	approx. 500 h	approx. 500 h (slow mode) approx. 120 h (almost = 1000 Hz)
Working conditions:	-25 .. + 50 °C, 0.95 % RH (not condensing)		-10 .. + 50 °C, 0.95 % RH (non-condensing)	
Housing:	142 x 71 x 26 mm (H x W x D) (without sensor connector, connector protruding approx. 16 mm on the front side), made of impact-resistant ABS, membrane keyboard, transparent panel, integrated pop-up clip			
Weight:	approx. 165 g	approx. 170 g	approx. 205 g (including bag)	approx. 210 g (including bag)
Scope of delivery:	device, battery, test report, operating instructions	device, battery, test report, operating instructions	device, battery, operating instructions	device, battery, operating instructions

\* Observe the note on Ex versions

ADDITIONAL FUNCTIONS:

**Serial interface:** Can be connected directly to the RS232 or USB interface of a PC via galvanically isolated interface converter GRS 3100 or GRS 3105 or USB 3100 N (accessory).

for GMH 3181:

**Low power logger mode:** (only in the "slow" measuring cycle) A measurement is only carried out at the end of the set logger cycle time. This significantly extends the battery life. For long-term recordings (e.g. leak test).

**Averaging:** The measured values are integrated over an adjustable time and the averaged display value is output.

**Control function:** Using the GAM3000 switching module (optionally available), external devices can be controlled (switched on/off) or monitored for alarms (see accessories)

**Logger functions:**

- manual: 99 data records

- cyclical: 10000 data records (max. 64 recording series), adjustable cycle time: 1..3600 s

Note on the pressure unit setting (valid for all GMH 31xx):

The selection of different pressure units is only possible if the entire measuring range of this unit can also be shown on the display and the sensor also supports this resolution.

PRECISION MANOMETER / MANOMETER FOR OVER / UNDER AND DIFFERENTIAL PRESSURE



**-500.0 .. + 500.0 PA (± 500.0 PA \*2)**

**GMH 3161-002**

Item No. 600469

Portable pressure instrument with integr. sensor

**GMH 3181-002**

Item No. 600470

Portable pressure instrument with integr. sensor and data logger

**GMH 3161-002-EX**

Item No. 606685

Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-002-EX**

Item No. 609063

Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**TECHNICAL SPECIFICATIONS:**

Measuring range:	-500.0 .. + 500.0 Pa (-5,000 .. + 5,000 mbar)
Overload:	max. 250 hPa (mbar)
Resolution:	0.1 Pa (0.001 mbar)
additional pressure units:	kPa, PSI, mmHg, mH <sub>2</sub> O
Accuracy: (typ. values)	
Hysteresis and linearity:	0.3 % FS
Temperature influence from 0 - 50 °C:	0.4 % FS
Option higher accuracy possible:	No
Pressure connections:	2

**-100..+2500 PA (± 2500 PA \*1)**

**GMH 3161-01**

Item No. 600397

Portable pressure instrument with integr. sensor

**GMH 3181-01**

Item No. 600411

Portable pressure instrument with integr. sensor and data logger

**GMH 3161-01-EX**

Item No. 607458

Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-01-EX**

Item No. 600796

Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**-1.00..+70.00 MBAR (± 70.00 MBAR \*1)**

**GMH 3161-07H**

Item No. 600405

Portable pressure instrument with integr. sensor

**GMH 3181-07H**

Item No. 600417

Portable pressure instrument with integr. sensor and data logger

**GMH 3161-07H-EX**

Item No. 610042

Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-07H-EX**

Item No. 604074

Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



TECHNICAL SPECIFICATIONS:	... - 01	... - 07H
Measuring range:	-100 .. + 2500 Pa (-1.00 ... +25.00 mbar)	-1.00 .. + 70.00 mbar
Overload:	max. 100 mbar	max. 1000 mbar
Resolution:	1 Pa (0.01 mbar)	0.01 mbar
additional pressure units:	bar, kPa, PSI, mmHg, mH <sub>2</sub> O	bar, Pa, kPa, PSI, mmHg, mH <sub>2</sub> O
Accuracy (typ. values)		
Hysteresis and linearity:	± 0.3 % FS	± 0.1 % FS
Temperature influence from 0 - 50 °C:	± 0.4 % FS	± 0.4 % FS
Option higher accuracy possible:	No	already integrated
Pressure connections:	2	

\*1 Measuring range can be obtained by reconnecting the pressure port

\*2 without changing the pressure connection

\*3 with option "higher sensor accuracy"

**PRECISION MANOMETER / MANOMETER FOR OVER / UNDER AND DIFFERENTIAL PRESSURE**



**MANOMETER FOR POSITIVE / NEGATIVE AND DIFFERENTIAL PRESSURE**



**-10.0..+350.0 MBAR (± 350.0 MBAR \* 1)**

**GMH 3161-07**

Item No. 600400  
Portable pressure instrument with integr. sensor

**GMH 3181-07**

Item No. 600413  
Portable pressure instrument with integr. sensor and data logger

**GMH 3161-07-EX**

Item No. 604435  
Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-07-EX**

Item No. 601386  
Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**-10.0..+420.0 MBAR (-7.5..+315.0 MMHG)**

**GMH 3161-07B**

Item No. 600402  
Portable pressure instrument with integr. sensor

**GMH 3181-07B**

Item No. 600415  
Portable pressure instrument with integr. sensor and data logger

**GMH 3161-07B-EX**

Item No. 609064  
Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-07B-EX**

Item No. 604724  
Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



TECHNICAL SPECIFICATIONS:	... - 07	... - 07B
Measuring range:	-10.0.. +350.0 mbar	-10.0... +420.0 mbar (-7.5 ... 315.0 mmHg)
Overload:	max. 1 bar	max. 1 bar
Resolution:	0.1 mbar	0.1 mbar (0.1 mmHg)
additional pressure units:	bar, kPa, MPa, PSI, mmHg, mH <sub>2</sub> O	bar, kPa, MPa, PSI, mH <sub>2</sub> O
Accuracy: (typ. values)		
Hysteresis and linearity:	± 0.2 % FS (± 0.1 % FS) <sup>3</sup>	± 0.1 % FS
Temperature influence from 0 - 50 °C:	± 0.4 % FS	± 0.4 % FS
Option higher accuracy possible:	Yes	already integrated
Pressure connections:	2	

**-100.. +2000 MBAR (± 2000 MBAR \*1)**

**GMH 3161-13**

Item No. 600409  
Portable pressure instrument with integr. sensor

**GMH 3181-13**

Item No. 600421  
Portable pressure instrument with integr. sensor and data logger

**GMH 3161-13-EX**

Item No. 600647  
Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-13-EX**

Item No. 602263  
Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**TECHNICAL SPECIFICATIONS:**

Measuring range: -100 ... + 2000 mbar (optional: -1000 ... + 2000 mbar)

Overload: max. 4 bar

Resolution: 1 mbar

additional pressure units: bar, kPa, MPa, PSI, mmHg, mH<sub>2</sub>O

Accuracy: (typ. values)

Hysteresis and linearity: ± 0.2 % FS; (± 0.1 % FS)<sup>3</sup>

Temperature influence from 0..50 °C: ± 0.4 % FS

Option higher accuracy possible: Yes

Pressure connections: 2

**VARIANTS: MEASURING RANGE -1000..+2000 MBAR \*2**

**GMH 3161-13-00-MB**

Item No. 600527  
Portable pressure instrument with integr. sensor,

**GMH 3161-13-EX-MB**

Item No. 607243  
Portable pressure instrument with integr. sensor

**GMH 3181-13-00-MB**

Item No. 600529  
Portable pressure instrument with integr. sensor and data logger

**GMH 3181-13-MB-00-EX**

Item No. 432507  
Portable pressure instrument with integr. sensor and data logger

\*1 Measuring range can be reached by repositioning the pressure connection

\*2 without changing the pressure connection

\*3 with option "higher sensor accuracy"

VACUUMMETER OR BAROMETER



HIGHLIGHTS:

- o can be operated completely in a vacuum

FOR ABSOLUTE PRESSURE MEASUREMENT



0..1300 MBAR ABS.

**GMH 3161-12**

Item No. 600407

Portable pressure instrument with integr. sensor

**GMH 3181-12**

Item No. 600419

Portable pressure instrument with integr. sensor and data logger

**GMH 3161-12-EX**

Item No. 610043

Portable pressure instrument with integr. sensor, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



**GMH 3181-12-EX**

Item No. 610044

Portable pressure instrument with integr. sensor and data logger, explosion protection (Ex II 2 G Ex ib IIC T4 Gb)



TECHNICAL SPECIFICATIONS:

Measuring range:	0..1300 mbar abs.
Overload:	max. 4 bar abs.
Resolution:	1 mbar
Pressure units:	mbar, bar, kPa, MPa, PSI, mmHg, mH <sub>2</sub> O
Accuracy: (typ. values)	
Hysteresis and linearity:	± 0.2 % FS; (± 0.1 % FS)* <sup>3</sup>
Temperature influence from 0..50 °C:	± 0.4 % FS
Option higher accuracy possible:	Yes
Pressure connections:	1

SPECIAL FUNCTION:

Sea level adjustment:

The barometric air pressure can also be displayed in relation to sea level "zero". (The air pressure is corrected by entering the altitude above "zero" in meters)

\*3 with option "higher sensor accuracy"

COMPLETE PACKAGES



**GMH 3161-07-WPD5**

Item No. 602684

Complete package with ISO calibration certificate ISO-WPD5 (5 points each rising and falling) and case GKK 3000.

**GMH 3161-12-WPD5**

Item No. 602685

Complete package with ISO calibration certificate ISO-WPD5 (5 points each rising and falling) and case GKK 3000.

**GMH 3161-13-WPD5**

Item No. 602686

Complete package with ISO calibration certificate ISO-WPD5 (5 points each rising and falling) and case GKK 3000.

ACCESSORIES

OPTIONS:

Higher sensor accuracy

by multi-point calibration Note: not available for all device versions!

ACCESSORIES OR SPARE PARTS:

ISO-WPD5

Item No. 602514

ISO calibration certificate: Factory calibration pressure, 5 points rising and falling, max 600 bar

ISO-WPD10

Item No. 602565

ISO calibration certificate: Factory calibration pressure, 10 points rising and falling, max 600bar

GNG 10/3000

Item No. 600273

Plug power supply for GMH 3XXX series

GRS 3100

Item No. 601097

Interface converter GMH3xxx <=> PC, RS232

USB 3100 N

Item No. 601092

Interface converter GMH3xxx <=> PC, USB

GDZ-01

Item No. 601541

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



GDZ-08

Item No. 601555

Double socket for tube 6/4 on tube 6/4



GDZ-18

Item No. 601576

Tube clamp for tube 6/4



GDZ-21

Item No. 601582

T-piece for tubes 6/4



GKK 3000

Item No. 601048

Device case with soft cutout for 1x GMH 3000, 275 x 229 x 83 mm (W x H x D)