Operating Instructions
Bedienungsanleitung
Mode d’emploi
Gebruiksaanwijzing
Istruzioni per l’uso
Instrucciónes para el manejo

WEBTEC

HPM110

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ENGLISH

1 Introduction

The HPM110 is a digital manometer featuring a Min/Max display function. Full scale (FS) accuracy is ± 0.5% based on the upper limit of the measurement range.
Dynamic pressure peaks are measured at a scanning rate of 10ms (100 measurement values/second). The MIN/Max memory is continuously updated and rewritten.

1.1 Notes on safety / product selection

The correct functioning of the HPM110 can only be guaranteed when the specifications detailed in these operation instructions are adhered to. In particular, specifications relating to the permitted upper limit of the measurement range as well as the permissible temperature range must be observed.

Serious malfunctions leading to personal injury or damage to property can result from using the chosen product in applications that do not comply with the specifications or from disregarding the operating instructions. In particular, incorrect mounting of the manometer and the corresponding adapter can cause the manometer to be torn out of the assembly.

For repairs or calibration of the measurement instruments, please contact a Webtec sales branch.

1.2 Device versions and range of delivery

Device versions / range of delivery			
Basic setting to unit ‘bar’ **Pressure connection, male thread** **thread G1/4**		**Basic setting to unit ‘PSI’** **Pressure connection, male** **UNF 7/16-20**	
Delivery with adapter M16x2		**Delivery without adapter**	
Measurement range	**Order No.**	**Measurement range**	**Order No.**
0…100.0	**SR-HPM-110-MT-100**	**0…1500**	**SR-HPM-110-UN-1500**
0…600.0	**SR-HPM-110-MT-600**	**0…8700**	**SR-HPM-110-UN-8700**

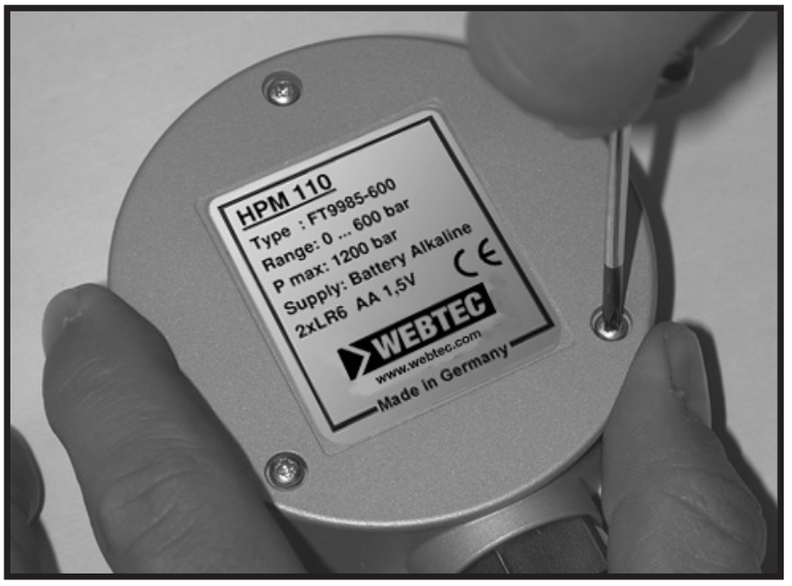
Adapter

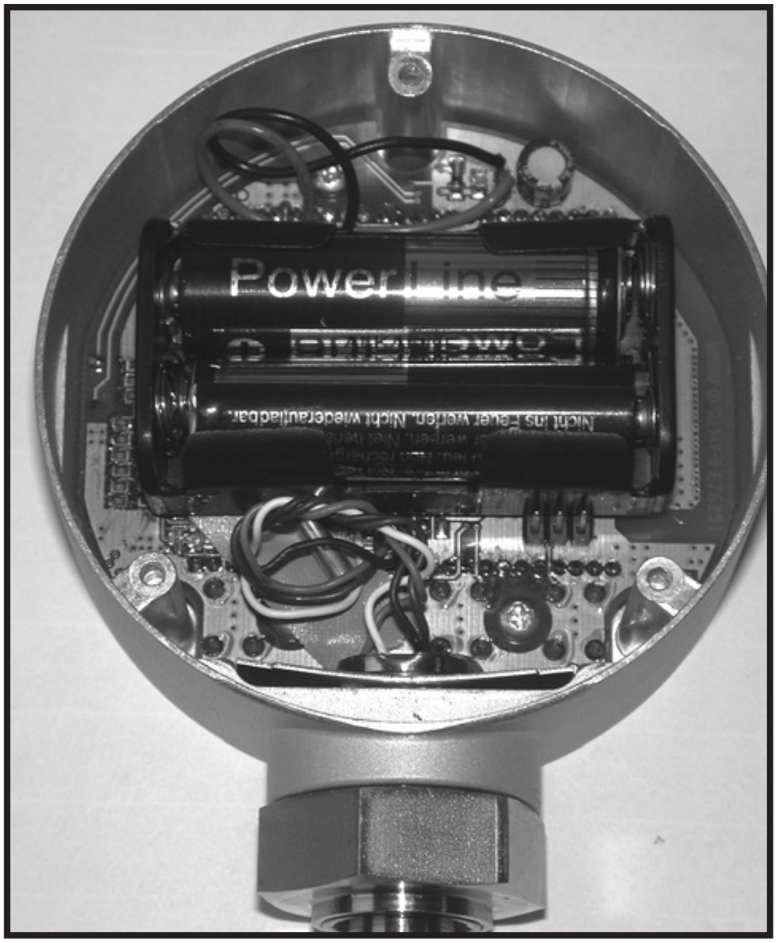
2 Commissioning

The HPM110 is supplied with batteries fitted. The device is operational as soon as it is turned on.

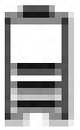
2.1 Replacing the batteries

Caution!
Turn off the device before replacing the batteries. Open the battery compartment. Insert the new batteries as depicted. Ensure correct polarity of the batteries.
Batteries: 2 x 1.5 V (LR6 - AA)





When in continuous operation (without light), the service life of the batteries is 1,500 hours.



A battery symbol permanently displays the actual battery status.

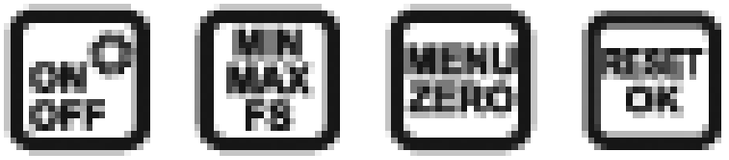
3 Functions and keys

Display

- 4½ digit LCD with backlight
- Displays measurement values and menu functions

① Bar graph with Peak & Hold function
② Actual value display (15mm)
③ MIN/MAX or Full Scale
④ (8mm) Battery status

Keys

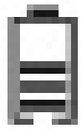


Key	Function	
	ON/OFF ☼	Turns the device on / off. Press for 2 seconds. Turns on the backlight (stays on for 20 seconds).
	MIN MAX FS	Selects display unit: MIN, MAX or FS Minimum value Pressure peak Displays the upper limit of the scale (e.g. 600 bar)
	MENU ZERO	Press for 2 seconds. Changes the unit. Auto Power Off – on/off. Zero point calibration.
	RESET OK	Erases MIN and MAX values from the memory. Confirms the MENU functions.

3.1 Display mode

The actual pressure (ACT) is indicated in the display mode. The ACT measured value is displayed in the corresponding unit. The MIN, MAX or FS values is indicated in the lower part of the display.

Display	Description
Bar graph	Graphic indication of the actual pressure. A pressure peak is indicated by means of a pixel (graduation mark). The indicated value is refreshed at intervals of 50 ms (20 measurements/s).
ACT	Indicates the actual pressure. The indicated value is refreshed at intervals of 300 ms (3 times/s).
MIN/MAX	Indicates the MIN, MAX or FS value according to setting. The indicated value is refreshed at intervals of300 ms (3 times/s).
FS	Upper limit of the scale (e.g. 600 bar).
Units	Indicates the chosen unit.

	**Indicates the battery status (5 segments).**
x10	**Indicated value (actual indication and MIN/MAX indication) x10.7**

3.2 Menu functions

The following settings can be made in the MENU function:

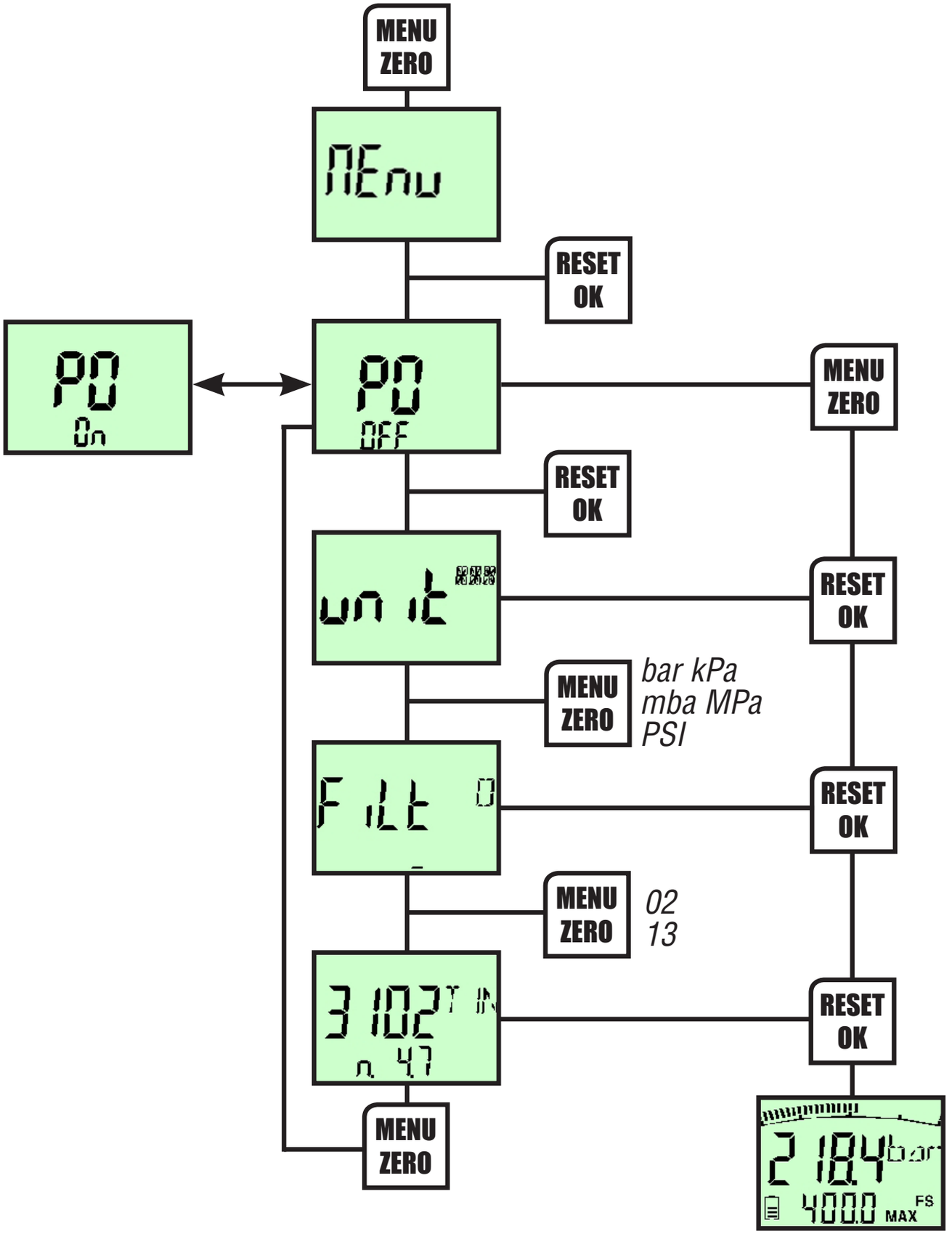
- **Auto Power Off – on or off**
- **Unit selection (bar, mbar, PSI, kPa, Mpa)**

Press the MENU key for 2 seconds to activate the functions menu.

Press the MENU key again to select the next function.

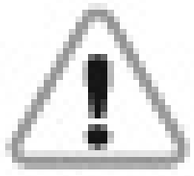
Press the OK key to save the function setting.

The device then switches to the display mode.


MENU
ZERO
nEnu
RESET
OK
P0
On
P0
OFF
MENU
ZERO
RESET
OK
unit
RESET
OK
MENU
ZERO
bar kPa
mba MPa
PSI
FiLt 0
RESET
OK
MENU
ZERO
02
13
3102 IN
n. 47
RESET
OK
MENU
ZERO
218.4 bar
400.0 FS
MAX

4 Connection to the hydraulics

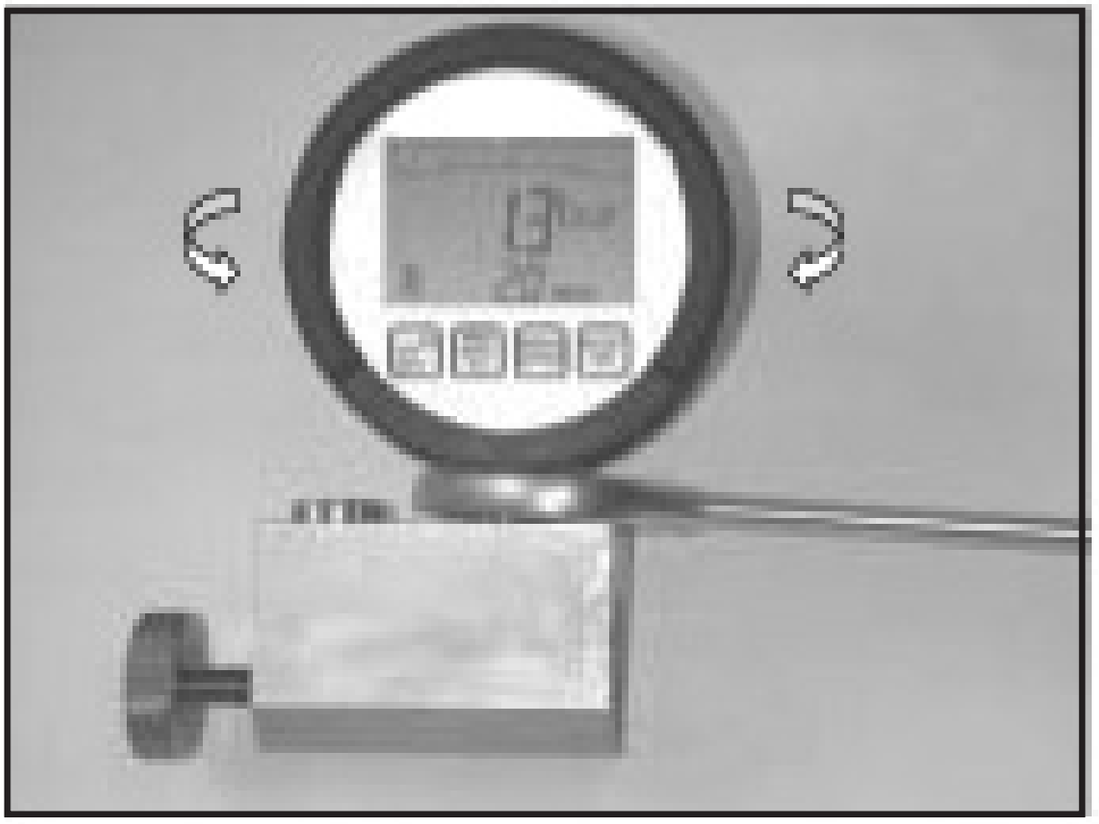
The HPM110 is available with male thread G1/4 (BSPP) or 7/16-20 UNF for the corresponding versions (bar/PSI).



Observe specified torques when fitting the HPM110

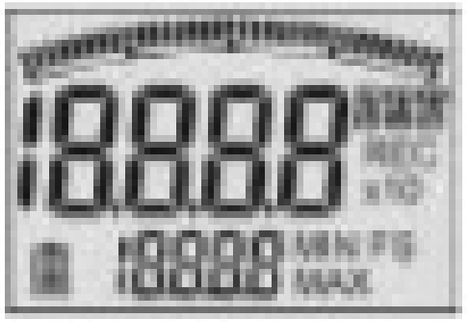
The spanner size of the pressure connection is 27 mm	
Pressure connection	**Torque**
7/16-20 UNF	**35 Nm**
1/4 BSPP	**25 Nm**

When fitting directly, please ensure the HPM110 can be rotated freely.



5 Operating the HPM110

5.1 Turning on (ON)



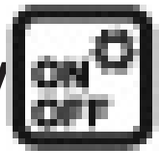
A self-test procedure is carried out

The measuring range is indicated (FS)
Unit (bar) SR-HPM-110-MT-XXX
Unit (PSI) SR-HPM-110-UN-XXXX

Auto Power Off function is active. Power off activates automatically after 5 minutes. This function can be altered in MENU.

Display mode:
ACT value displayed

5.2 Turn off (OFF)

Press once (briefly 

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5.3 Turn on backlight

Press 

for 2 seconds.

The backlight goes out automatically after 20 seconds.

5.4 MIN/MAX indication

Use this key to toggle the required value.
The key function is sequential; the values are indicated in the display in sequence.
The MIN/MAX function is used to measure pressure peaks. The respective lowest (MIN) and highest (MAX) measured values are stored in the MIN/MAX memory. Values in the MIN/MAX memory are erased when the device is turned off. If different pressure tests are to be carried out in succession, the MIN/MAX memory must be erased after each measurement.

MIN/MAX/FS value is indicated in the display.

5.5 FS Full Scale display

Displaying the upper limit of the scale (FS) is designed to increase readability of the bar graph function.
The upper limit of the measurement range is indicated numerically.
FS is indicated in sequence after MIN and MAX.

FS is displayed.

5.6 Erasing the MIN/MAX values

Erases MIN/MAX values.

5.7 OFL Display

This indicates that the applied pressure is outside given full scale range.
If the message remains displayed when the HPM110 is disconected from the pressure source, please consult a Webtec Sales Office.

5.8 Zero point correction (ZERO)

The zero point can be corrected manually should undesired deviations occur when no system pressure is being applied (atmospheric pressure).

Caution!

The zero point correction sets the current ACT value to zero. In order exclude erroneous measurements, ensure no system pressure is being applied when carrying out this function.

MENU ZERO

RESET OK

This initiates the zero point correction. The ACT (actual) value is indicated in the display as 0.0 bar. The correction remains active until the device is turned off.

OFL/ZEro is displayed for 3 seconds if the measured pressure (0 bar) is greater than 5% of the measurement range.

Zero point correction cannot be carried out. Please ensure that no system pressure is being applied.

5.9 Resetting the zero point correction

Turn off the device. Zero point correction is no longer active when the device is turned off and on again.

5.10 Automatic power off

Press MENU ZERO for 2 seconds.

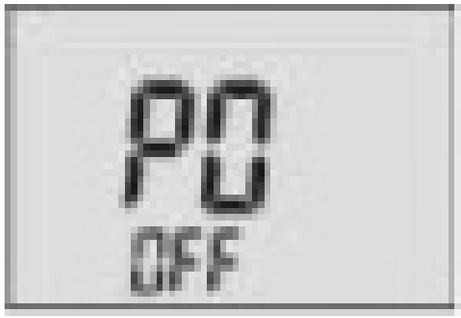
Depending on the device configuration, two different displays are possible:

Auto Power Off

PO On

Press . Auto Power Off is activated after 5 minutes.

Continuous operations



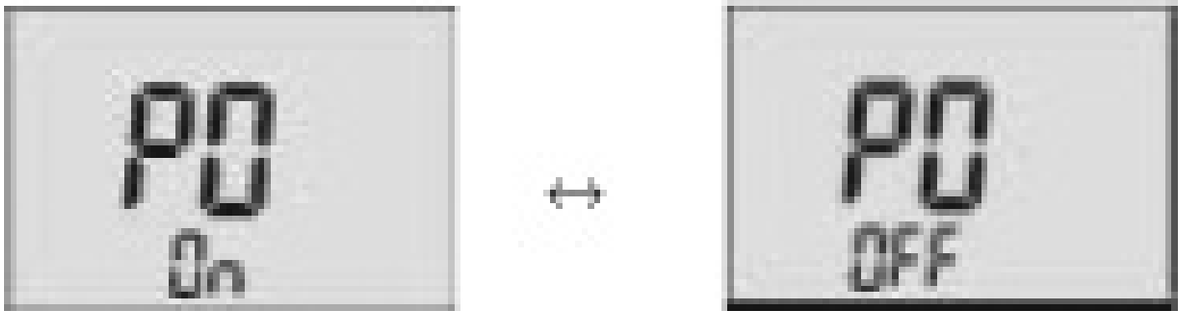
PO OFF

Press . The device must be turned off manually.

The settings Auto Power Off or Continuous operations remain stored and are active when the device is turned
off and on again.

5.11 Changing the unit

Press MENU ZERO **for 2 seconds.**



Press MENU ZERO **.**

Press once (briefly MENU ZERO **.**

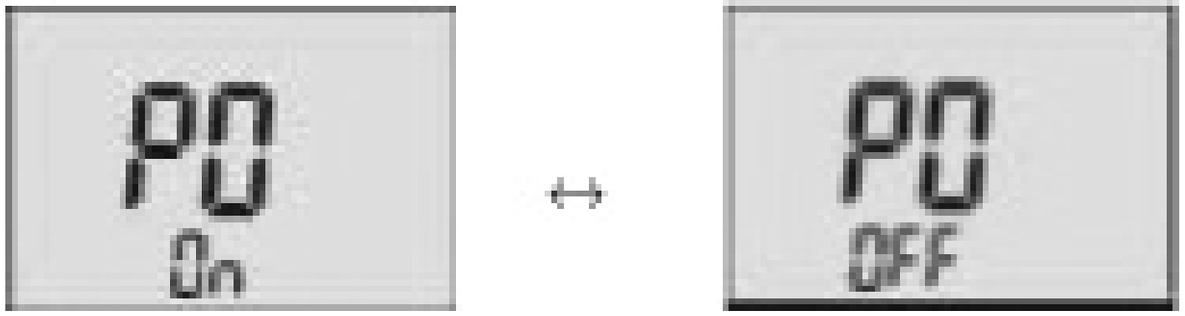
The next unit is indicate

RESET OK **Confirm unit selection.**

(Measurement range
16 bar/230 PSI)

5.12 Filter settings

Press MENU ZERO **for 2 seconds.**



Press MENU ZERO **.**

Press MENU ZERO **.**

Press once (briefly) MENU ZERO **.**

Filter selection is indicated.

RESET OK **Confirm filter configuration.**

5.13 Display serial number

Press MENU ZERO .

Display of serial number (1. line).
Display of software version (2. line).

RESET OK

6 Technical data

Version	– Digital pressure gauge with ACT - MIN and MAX Display – bar graph display 33 segments (with peak and hold function) – 41/2 digit LC display (15 mm) with back light illumination – Battery powered with low power electronic system – Life time cycle 1,500 h (No back light function) Pressure port stainless steel 1.4404
Input	– 1/4 “ BSPP (ISO 1179-2) or 7/16-20 UNF (ISO 11926-2/3) – Strain Gauge Cell 0…100/600 bar – Scan rate 10 ms – Resolution 12 bit = 4,096 steps
	– Accuracy ± 0.25 % FS typ. ± 0.5 % FS max.
Housing	Ø = 79 mm; T = 33 mm Zinc Die Cast with Rubber Protection TPE
Sealing	Standard NBR sealed Viton® (FKM); EPDM on request

Parts in contact with media	**Stainless Steel 1.4404, NBR**
Power supply	**Battery 2 x1,5 VDC (LR6 –AA) Alkaline (Mignon)**
Ambient conditions	**Operating temperature: -10…50 °C** **Fluid temperature : -20…80 °C** **Storage temperature: -20…60 °C** **Rel. humidity: < 85 %** **Protection: EN 60529 (IP 67)** **Vibration: IEC 60068-2-6 5 g** **Shock: IEC 60068-2-27 25 g** **Reliability Cycles (10^6): 100**

Digital Manometer HPM110

Range bar	Display bar	Display PSI	Display mbar
0…100	0...100.0	0...1500	-
0…600	0...600.0	0...8700	-

Range bar	Display kPa	Display MPa
0…100	0...10000	0...10.00
0…600	0...6000 (x10)	0...60.00

Meas. range (bar)	0…100	0…600
Overload P_{max} (bar)	200	1200
Burst pressure (bar)	800	2200

Exceeding the maximum overload values (Pmax) can lead to malfunctions and result in the HPM110 being destroyed.
Burst pressures are based on data without the M16x2 adapter.

The HPM110 meets the guidelines of the European Community (EU). It is confirmed that this product is approved acc. to following standards:

CE

DIN / EN 61000-6-2
DIN / EN 61000-6-3

Technical data subject to change. **February 2006**