SIKA gegr. 1901
Dr. Siebert & Kühn GmbH & Co. KG

User manual
Digital Manometer
Reference Type E2(0.5)
Reference Type D2(0.1)

Contents

1 Introduction

The references E2 and D2 are digital manometers featuring a Min/Max display function.
Full scale (FS) accuracy of type E2 is +/- 0.5%, tha accuracy of type D2 is +/- 0.1%, based on the upper limit of the measurement range. Dynamic pressure peaks are measured at a scanning rate of 10 ms (100 measurement values/second). The MIN/Max memory is continuously updated and rewritten.

1.1 Notes on safety / production selection

The correct functioning of the digital manoneters 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.

Caution!

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 SIKA.

1.2 Device versions and range of delivery

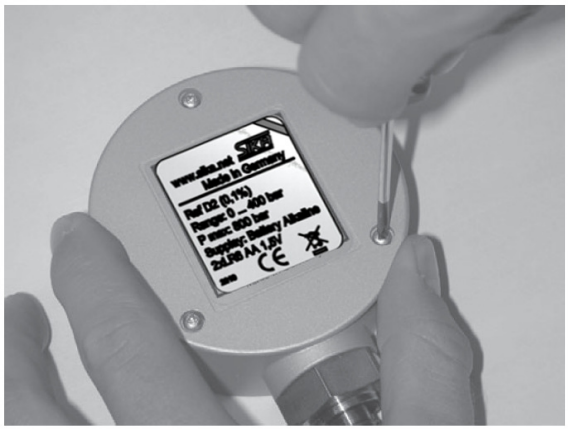
Basic setting to unit ‘bar’ Pressure connection, male thread G1/4		
Measuring range	**Reference E2(0.5)**	**Reference D2(0.1)**
-1…3 bar	0.5%FS	0.1%FS
-1…40 bar	0.5%FS	0.1%FS
-1…60 bar	0.5%FS	0.1%FS
0…400 bar	0.5%FS	0.1%FS
0…700 bar	0.5%FS	0.1%FS
0…1000 bar	0.5%FS	0.1%FS

2 Commissioning

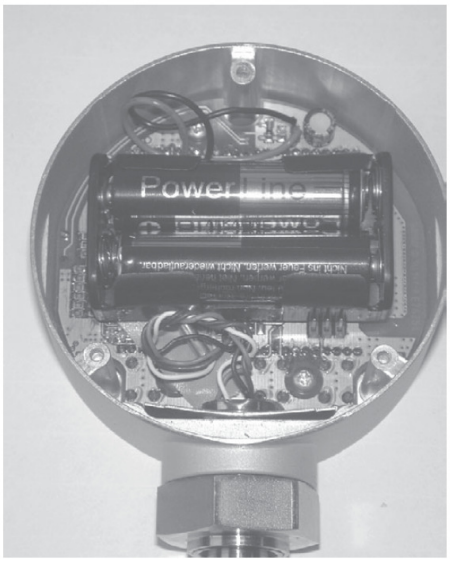
The digital Manometer is supplied with batteries fitted. The device is operational as soon as it is turned on.

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

3.1 Display

- 4 ½ digit LCD with backlight
- Displays measurement values and menu functions
- Bargraph with Peak & Hold function
- Actual value display (15 mm)
- MIN/MAX or Full Scale (8 mm)
- Battery status

3.2 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. 400 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.

3.3 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.

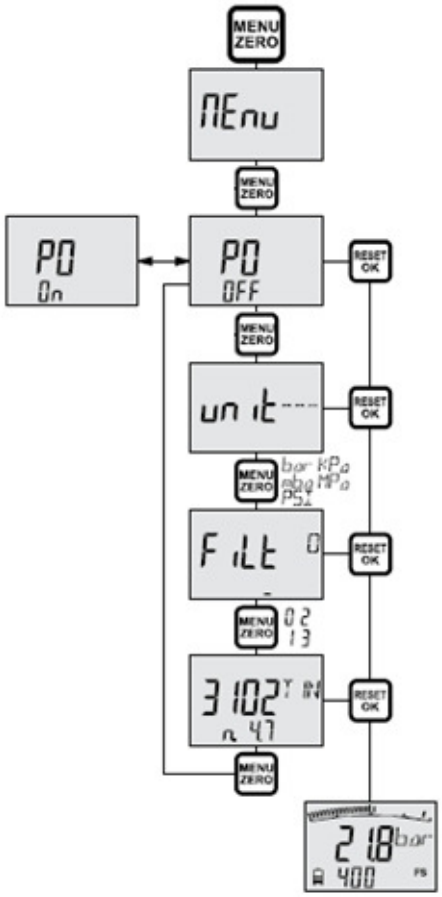
Display	Discription
Bargraph	Graphic indication of the actual pressure. A pressure peak is indicated by means of a pixel (graduation mark). The indicated value is refreshed at intervals of 50 ms (20 measurements/sec).
ACT	Indicates the actual pressure. The indicated value is refreshed at intervals of 300 ms (3 times/sec).
MIN/MAX	Indicates the MIN, MAX or FS value according to setting. The indicated value is refreshed at intervals of 300 ms (3 times/s).
FS	Upper limit of the scale (e.g. 400 bar).
Units	Indicates the chosen unit.
Battery	Indicates the battery status (5 segments).

3.4 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.



4 Connection

The digital manometers are delivere with male thread G1/4 (BSPP).
When fitting directly, please ensure the references can be rotated freely.

Caution!
Observe specified torques of 25 Nm when fitting the references. The spanner size of the pressure connection is 27 mm.

Caution!
Safety Instructions for using 1.000 bar operating range:
The connection adapter (hex size 27) is approved up to nominal pressure of 1,000 bar. Please pay attention to built in test points acc. to rated nominal pressure and specified safety factor.

5 Operating

5.1 Turning on (ON)

		A self-test procedure is carried out
		The measuring range is indicated (FS), Unit (**bar**)
		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)

5.3 Turn on backlight

	Press for 2 seconds. The backlight goes out automatically after 20 seconds.

5.4 MIN/MAX indication

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

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.

5.5 FS FullScale display

MIN MAX FS	FS is displayed

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.

5.6 Erasing MIN/MAX values

RESET OK	Erases MIN/MAX values.

5.7 OFL Display

		This indicates that the applied pressure is outside given full scale range.

If the message will remain displayed, while the reference is pressure less, please consult SIKA.

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

ON OFF	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

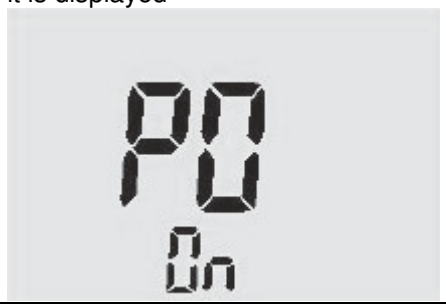
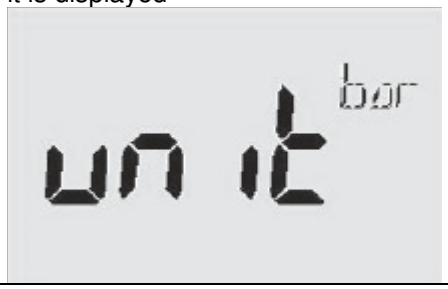
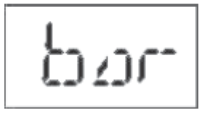
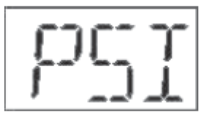
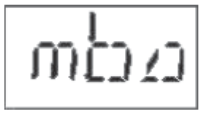
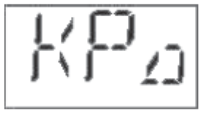
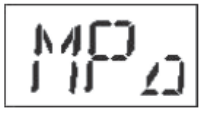
	Press for 2 seconds

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

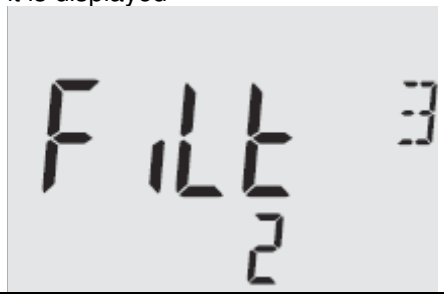
Auto Power Off	**Continuous operations**
	
PO On Press „RESET / OK“: Auto Power Off is activated after 5 minutes.	**PO OFF** Press „RESET / OK“: The device must be turned off manually.

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

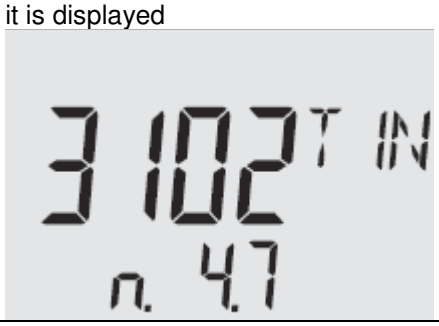
5.11 Changing the unit

MENU ZERO	Press for 2 seconds.	
	it is displayed 	or 
MENU ZERO	Press	
	it is displayed 	
MENU ZERO	Press once (briefly)	
	The next unit is indicated	    
RESET OK	Confirm unit selection.	

5.12 Filter settings

MENU ZERO	Press for 2 seconds.	
	it is displayed 	or 
MENU ZERO	Press	
	it is displayed 	
MENU ZERO	Press	
	it is displayed 	
MENU ZERO	Press once (briefly)	
	The next filter selection is indicated	0 1 2 3
RESET OK	Confirm filter configuration	

5.13 Display serial number

MENU ZERO	Press	
	it is displayed 	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 • Bargraph display 33 segments (with peak and hold function) • 4 ½ digit LC display (15 mm) with back light illumination (50 x 34 mm • switchable units bar, mbar, kPa, Mpa • ZERO function
Input	• Piezzo resistive pressure zell -1…3 bar • DMS pressure cell -1…40/60 bar and 0…/400/700/1000 bar • sampling rate 10 msec.
Pressure connection	• Pressure port stainless steel 1.4404 • 1/4 " BSPP (ISO 1179-2) • Standard NBR sealed
Accuracy (25°C)	• internal resolution ADC 12 bit = 4.096 steps • Model E2: 0.5%FS +/- 1 digit • Model D2: 0.1%FS +/- 1 digit • temperature influence 0.05%FS / 10 K
Housing	• Ø = 79 mm, D = 33 mm • Zinc Die Cast • Rubber Protection TPE
Weight	• 540 g
Ambiant conditions	• Operating temperature: 0…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 / 10…500 Hz / 5 g • Shock: IEC 60068-2-29 / 11 msec. / 25 g
Power supply	• Battery 2 x1.5 VDC (LR6 –AA) Alkaline (Mignon) • Battery powered with low power electronic system • programmable Auto-power OFF with battery status indication • Life time cycle 1,500 h (No back light function)

Measuring range	Display resolution				
	bar	PSI	mbar	kPa	MPa
-1…3 bar	-,999….3,000	-15,0…45,0	-999…3000	-100,0…300,0	-
-1…40 bar	-1,00….40,00	-15…580	-	-100…4000	-0,10…4,00
-1…60 bar	-1,00….60,00	-15…870	-	-100…6000	-0,10…6,00
0…400 bar	0,0…..400,0	0…5800	-	0…4000(x10)	0,00…40,00
0…700 bar	0,0…..700,0	0…10000	-	0…7000(x10)	0,00…70,00
0…1000 bar	0,0…1000,0	0…14500	-	-	0,0…100,0

Measuring range	Overload	Burst pressure
-1…3 bar	17 bar	20 bar
-1…40 bar	80 bar	400 bar
-1…60 bar	120 bar	550 bar
0…400 bar	800 bar	1700 bar
0…700 bar	1200 bar	2500 bar
0…1000 bar	1500 bar	2500 bar

Caution!
Exceeding the maximum overload values (Pmax) can lead to malfunctions and result in the digital manometer being destroyed.

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

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

Technical subject to change October 2011