

OWNER'S MANUAL

MANOMETER WITH DIGITAL DISPLAY

MCD Series



WARSZAWA 2013

TABLE OF CONTENTS

1	Technical description	
1.1	Applications.....	3
1.2	Construction and principle of working.....	3
1.3	Technical data.....	3
1.4	Dimensions	4
1.5	Ordering – identification of a product.....	4
2	Installation	
2.1	Basic requirements.....	6
2.2	Place of installation.....	6
2.3	Mounting and mechanical connection	6
2.4	Electrical connection.....	7
3	Start of use.....	6
4	Terms and conditions of use.....	6
5	Packing and transport.....	7
6	Guarantee.....	7
7	Additional information.....	7

1. Technical description.

1.1 Application.

Manometer with digital display MCD series is a differential pressure transducer to measure pressure of liquids, vapours and gases both neutral and chemical aggressive in range from 1 to 1000 bars and can work instead of pointer manometer.

1.2 Construction and principle of working.

Manometer with digital display MCD series consists of two main parts: pressure head and electronic section. The main element of pressure head is a high quality piezoresistive sensor which is a silicon chip built as a Wheatstone's bridge. The measure head is placed in enclosure built from stainless steel. The electronic section is divided into two parts, one with battery and the second with electronic board. The pressure is put to the two diaphragms and through them and silicon oil is put to the sensor. The result of the process is change of the bridge's resistance. The change is converted into voltage. Electronic board supplies the sensor and amplifies the sensor's voltage which is very small (not more than 100 mV). The output signal is not lead out but only displayed on the LCD indicator. Units of the display are on customer request. To save battery energy manometer is equipped in a module to save energy, it allows the manometer to be ON only during a short time after pressing the key „MEASURE” placed in the front panel of the manometer.

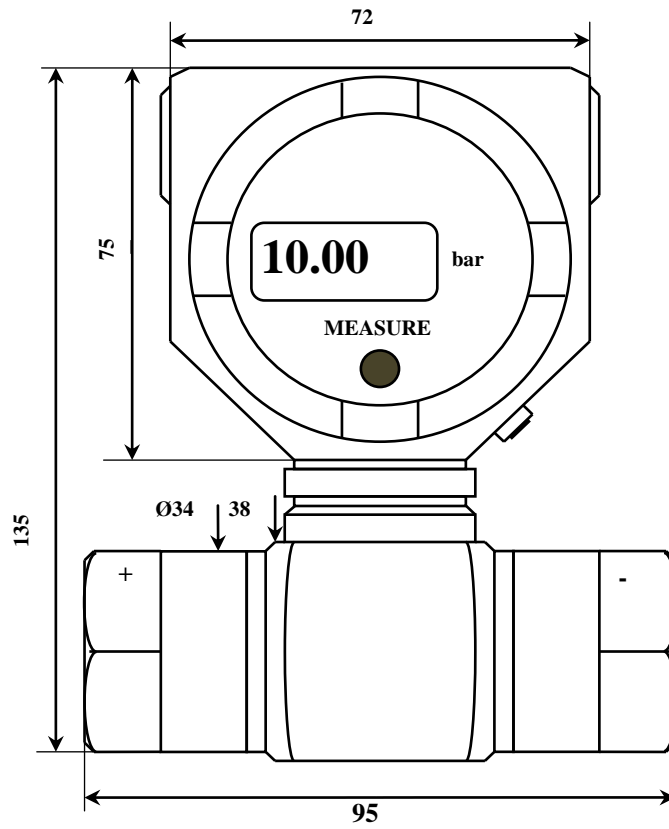
1.3 Technical data.

Pressure range $\Delta p = p^+ - p^-$	[bar]	0,1	0,2	0,5	1	2	5	10	20
Overpressure (p^+)	[bar]	2,5	2,5	2,5	3	4	7	15	30
Overpressure (p^-)	[bar]	1	1	1	1	2	3	5	10
Maximal static pressure	[bar]	8	8	8	8	8	20	40	80

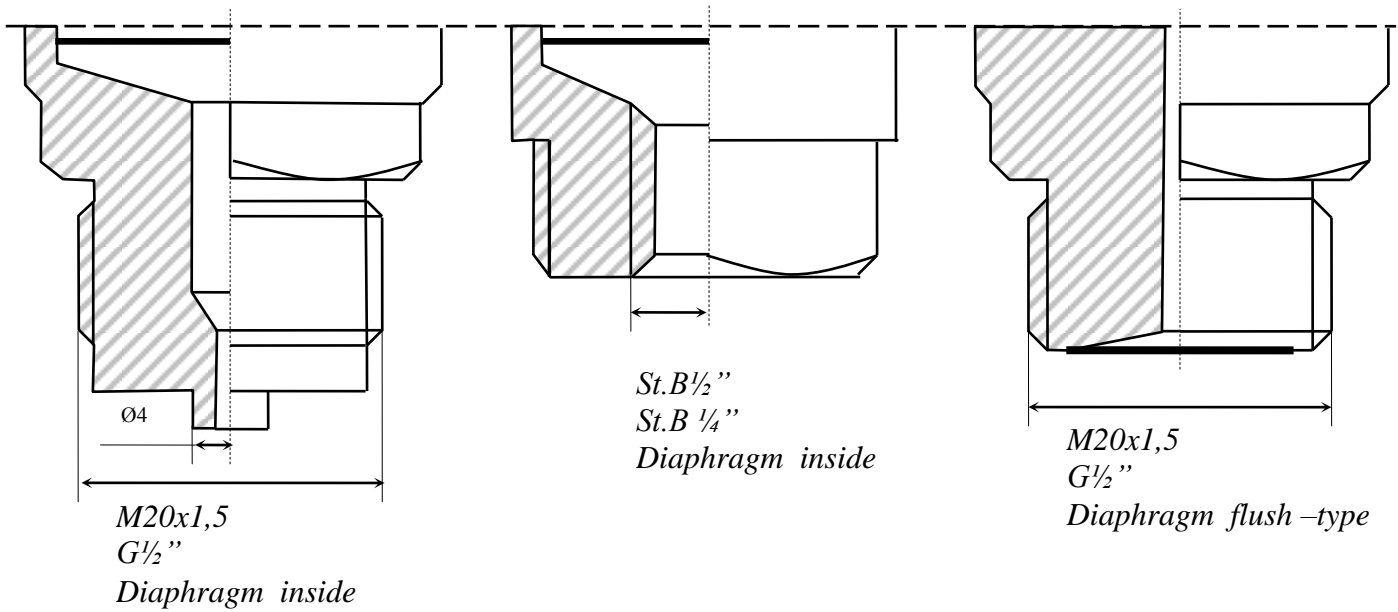
Pressure range $\Delta p = p^- - p^+$	[bar]	-0,1	-0,2	-0,5	-1
Overpressure	[bar]	-1÷2	1÷2	1÷2	1÷2

1.	Power supply	alkaline battery 9VDC 6LF22 (enough for 20000 measurements)
2.	Battery exhaustion signal	mark „←” appears in the left-up corner
3.	Over-range	the first digit „1” is seen only
4.	Opposite direction pressure signal	mark „-”
5.	Measurement period	from 1 to 2 seconds
6.	Accuracy	$\pm 0,5\%$ (MR)
7.	Working temperature	0÷+50°C
8.	Medium temperature	0÷+ 70°C; option -20÷+70°C
9.	Compensation temperature range – CTR	0÷+ 70°C; option -20÷+70°C
10.	Temperature accuracy within CTR	zero $\pm 0,25\%$ MR /10°C range $\pm 0,25\%$ MR /10°C
11.	Position change influence	for ranges ≤ 1 bar to neglect for ranges < 1 bar to calibrate in working position
12.	Indicator	3½ digit, LCD 8mm
13.	Maximal number display	1999
14.	Units	bar; others on customer wishes
15.	Mass	1,0 kg
16.	Ingress protection enclosure rate	IP50
17.	Pressure connectors	M20x1,5 or others
18.	Materials:	- diaphragm - 316Lss; option Hastelloy or Monel - measure head enclosure - 1H18N9T - electronic section enclosure - Al. alloy

1.4 Dimensions

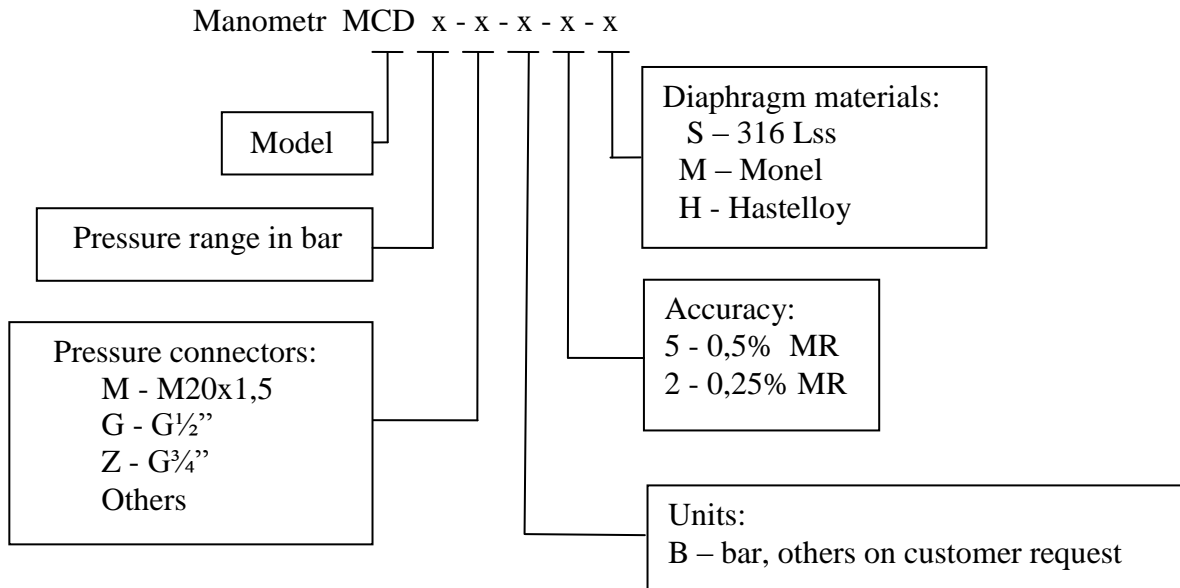


Pic. 1 – Manometer's view.



Pic 2 – Examples of pressure connectors.

1.5 How to order / Product identification.



Example: MCD 10-M-B-5-S

MCD – differential manometer MCD series,
10 - range 0÷10 bar,
M – pressure connector M20x1,5
B – unit bar
5 - accuracy 0,5%,
S - diaphragm stal 316Lss.

Notice!

1. There are other possibilities for MCD to make, for example oxygen or chlorine applications.
2. Customers should indicate additionally: medium, medium temperature and working temperature.

The manometer's identification label is as below.

PELIRON	POLAND, 05-462 Wiązowna ul. Turystyczna 4 tel. +48 (22) 615-63-56 fax. +48 (22) 615-70-78		
	DIFFERENTIAL DIGITAL MANOMETER MCD 0,5		
CE	RANGE: 0 ÷ 0,5 bar S/N: XXXXXX	Overpressure (+) : 2,5 bar Overpressure (-) : 1 bar	Supply: battery 9 V 6LR61

2. Installation.

2.1 Basic requirements.

The manometer's place of working should provide protection against water and humidity.

Customers should:

- Protect manometer against water and mechanical damages.
- Not put any mechanical hard elements into pressure connectors – there is danger to damage diaphragms.
- Protect manometers against vibration and shocks.

2.2 Place of installation.

It is possible for manometers to work both in the open and under the roof. Due to small mass manometers can be mounted directly on a pressure pipe. It is not recommended to install manometers in places vulnerable to vibrations and temperature changes. Working temperature is best in span from 20 do 70 [°C].

2.3 Mounting and mechanical connection.

Manometers MCD series have pressure connectors listed in the point 1.3 in the table. Pressure installation must provide suitable pressure ports for manometers. It is very important to pay attention to protect diaphragms against mechanical damages particularly for manometers with flush diaphragms. Before installation it is very important to check whether they are in proper places.

2.4 Electrical connection.

Because manometers has no external source of power the only power supply is its internal battery. The electrical connection is the one with its battery which sometimes must be replaced.

3. Start od use.

To launch a manometer's measure process a customer must press the „MEASURE” key. Manometers MCD series has no calibration elements available for customers. It is calibrated according to parameters listed in a customer order.

4. Terms od usage.

Manometers MCD series after connecting to a pressure installation are ready to work. Usually manometers are mounted in vertical position (pressure connectors in horizontal line). There is a possibility for them to work in inverse or side position. In this case a customer should turn the display about 90° or 180° to make readout easy and possible. To make it following steps are needed:

- screw off the yellow ring in the front part of a manometer,
- pull off the display module and turn it 90° or 180° according to need,
- push it back into the manometer's enclosure , (bolts setting the position make it possible) but attention must be payed not to turn the display to much because it may results in damaging the hook-up wires
- screw the ring holding simultaneously by hand the module not to turn.

If after turning on the manometer mark „←”, appear in the left-up corner it means that battery's voltage dropped below 7,5V and battery should be replaced. To make the replacement the back cover of the manometer should be screwed off.

- working and medium temperatures should not exceed the spans indicated in the data sheet.
- differential pressure level should not exceed the upper limit of the pressure range and must not exceed the upper limit of the overpressure
- diaphragms should be protected against any mechanical damages, cleaning of them is possible but only by dissolving the impurities.

- It is forbidden to put any hard elements inside the pressure connectors under the threat of expiration the guarantee.

The electronic part is protected against accidental wrong (inverse) connection of the battery. Mechanical damages caused by wrong use or dropping the manometer can not be repaired under the guarantee. Repairing a manometer by a not authorized by the manufacturer person results in expiration of the guarantee. Any damaged manometer should be delivered to the manufacturer together with warranty card and short description of damages.

5. Packing and transport.

Warehousing should take place in places free from aggressive elements in temperatures from 5 to 30⁰C and relative humidity to 80%. Manometers should be keep in manufacturer's package and protected against mechanical damages.

When many manometers are transported in the same package they should be placed in a big packet and protected against movement. Warning „Do not overturn” should be placed on the package.

Transport should be made by using any but covered transport vehicles in the way protecting manometers from shocks and mechanical damages

The content of each parcel is:

●	Manometers
●	Calibration Documents
●	Warranty card
●	invoice (if needed)

6. Guarantee.

Peltron gives guarantee for 12 month from the purchase date. Guarantee is under condition of conformity of transport, warehousing and installation of manometers with this instruction. During guarantee period all repairs made by not authorized by Peltron persons are forbidden. In the case of finding the manometers damaged, they should be sent to manufacturer to repair.

7. Additional information.

Customer after receiving the parcel from producent should check the state of the parcel and its conformity with his order. In the case of finding any failures and imperfections receiver should inform the producent about the fact. Damages during transport are responsibilities of delivery company.

WARRANTY CARD

..... **Manometer** **MCD**
..... **TYPE**..... **No**

1. Wytwórca udziela gwarancji na sprawne działanie w/w urządzenia, na okres jednego roku od daty zakupu, przy zachowaniu niżej podanych warunków gwarancji.
2. Warunki zachowania gwarancji:
 - Gwarancja handlowa obejmuje ukryte wady urządzenia powstałe w procesie produkcji, które prowadzą do powstania usterek zakupionego urządzenia.
3. Utrata gwarancji następuje w przypadku:
 - transportu, magazynowania i eksploatacji niezgodnie z warunkami podanymi w dokumentacji,
 - nie utrzymywania parametrów technicznych przez obiekt (ciśnienie, temperatura, wilgoć, wibracje, itp.),
 - wszelkich uszkodzeń mechanicznych,
 - wykonywania napraw przez osoby nieupoważnione przez producenta,
 - dokonywania jakichkolwiek zmian w urządzeniu.
4. Warunki prawidłowej reklamacji:
 - W przypadku reklamacji w okresie i zakresie objętym gwarancją do reklamowanego urządzenia należy dołączyć kartę gwarancyjną, metrykę i protokół reklamacyjny, w którym powinny być podane objawy usterki oraz ewentualne przyczyny jej powstania, a także dane o czasie i miejscu eksploatacji.
 - Reklamowane urządzenie należy zapakować w jego opakowanie fabryczne bądź odpowiednie inne opakowanie i wraz z dokumentacją wysłać do wytwórcy.

data zakupu

pieczętka

podpis sprzedawcy

