

PM 111 Digital manometer

- 4-digit LED display or 6-digit LCD display with backlighting
- selectable pressure units (LCD)
- analog output signal
- memory of the MIN / MAX value
- relay output
1 to 4 independently adjustable relays (together with LED signaling)
- accuracy 0,5% FS and better
- high overloading capacity and long-term stability

Options:

- accuracy 0,1% of reading $\pm 0,05\%$ FS
- digital output RS 232, RS 485
- integrated data logger
- explosion-proof design (ATEX)
- pressure difference measurement (with the use of an external sensor)
- powered from a built-in accumulator
- display with color backlighting

The basic structural element of the instrument is a piezoresistive pressure sensor with a stainless-steel isolating diaphragm. The use of a high-quality sensor is a prerequisite for high accuracy, overloading capacity and long-term stability of the instrument. The output signal of the sensor is processed by a microprocessor. The status of the relay is indicated on the panel with four LED's.

The front panel of polycarbonate foil contains four buttons that are used to program parameters of the pressure gauge and switching functions; e.g.:

- a beginning and an end of the measuring range;
- offset (tara);
- output signal;
- levels of switching points and functions of individual relays (switching on / off, switching differential, position of relays in case of a failure, etc.);
- number of decimal places.

In the basic version the instrument is delivered without the analog output and the switching relays; on request it can be equipped with an analog output and 1 to 4 relays.

Main applications

- Measurement and control of pressure and pressure differences
- Liquid level measurement in tanks
- Recording the course of pressure tests
- Pressure standard used for the calibration and checking of other pressure gauges



Measurement types: gauge pressure, vacuum, absolute pressure, gauge-pressure and vacuum combination, level measurement

Oxygen design

If requested, the PM 111 digital pressure gauge can be produced with a ceramic sensor and can be used for oxygen as well.

Data logger

The instrument can be programmed to record values of the measured pressure with the sampling interval from 5 s to 24 hours. The capacity of the data logger memory is 13 thousand to 216 thousand records (depending on the size of the installed memory).

Battery power supply

In the LCD version the pressure gauge can be supplied from a built-in rechargeable battery; the battery is recharged with a controlled charger.

Version with a diaphragm chemical seal

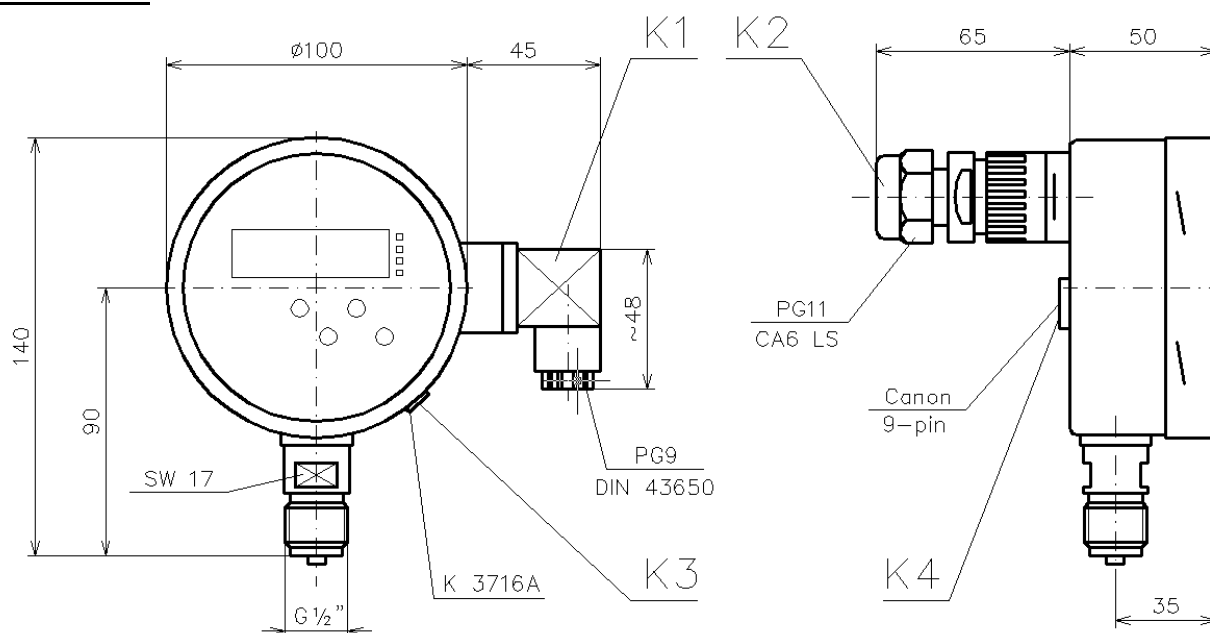
For demanding applications in the food-processing or chemical industry the instrument is produced as a compact set with a diaphragm chemical seal - see PM 111-M.

The sensor is also produced in an explosion-proof (intrinsic safe) design with an ATEX certificate.

Specification

Pressure ranges:	0 ... 6 kPa through to 0 ... 700 bar
Measurement type:	Pressure gauge, absolute pressure, level measurement
Accuracy:	0,5% FS standard Option: accuracy 0,25%; 0,2%; 0,15% FS (for pressure range from 25 kPa) Option: accuracy 0,1% of reading \pm 0,05% FS
Long-term stability:	better than 0,15 % FS per a year
Supply voltage:	15 - 36 V DC (3-wire configuration, LED or LCD display) 8 - 28 V DC (2-wire configuration, only with LCD display)
Output signal:	2-wire: 4 ... 20 mA (only with LCD display) 3-wire: 4 ... 20 mA, 0 ... 20 mA, 0 ... 1 (5; 10) V .. etc. (alternative on request) RS 232, RS 485
Load driving capability:	2-wire configuration: $R_z = (U_{sup} - 8V) / I_{out}$ 3-wire configuration: $R_z = (U_{sup} - 3V) / I_{out}$ R_z – load resistance [k Ω], U_{sup} - power supply voltage [V], I_{out} - output current [mA] RS 485: 9600 Bd
Relay output	1 to 4 relay (The setpoints are free programmable by means of buttons on the front panel, including hysteresis. The status of the relay is indicated by LED light.) Rating: 5 A / 250 V AC 5 A / 30 V DC, max. 150 V / 1 A
Trends	Increasing or degreasing of pressure is indicated by LED light (option)
Operating temperature range:	Ambient: -20 to +70°C Medium: -20 to +125°C storage 5 to 40°C
Electrical connection:	K1 - mating socket with screw terminal connections to DIN 43650 (supply, analog output) K2 - Amphenol CA 6 (relays) K3 - socket for recharging (built-in accumulator) K4 - Canon 9-pin (digital output)
Process connection:	1/2" BSP (EN 837)
Sealing:	NBR (Viton® on request)
Seal rating:	IP 65
Wetted parts material:	SS 316L, NBR (Viton®)
Material of housing:	SS 304, polycarbonate, NBR seal
Weight:	Approx. 0,5 kg

Dimensions:



Note: connectors (option): K1 (supply, output), K2 (relay), K3 (battery recharge), K4 (RS232 or RS485)

PM 111

Order code table – PM 111

code			
PM111			
code	display		
L	LED display, (not for battery operation, not 2-wire output)		
Z	LCD display, yellow-green backlighting		
M	LCD display, blue backlighting	(on request only)	
code	range	Level measurement	overloading
0250	0 ... 2,5 kPa	0 ... 0,25 m H ₂ O	50 kPa
0600	0 ... 6 kPa	0 ... 0,6 m H ₂ O	50 kPa
1000	0 ... 10 kPa	0 ... 1,0 m H ₂ O	50 kPa
1600	0 ... 16 kPa	0 ... 1,6 m H ₂ O	1 bar
2500	0 ... 25 kPa	0 ... 2,5 m H ₂ O	1 bar
4000	0 ... 40 kPa	0 ... 4,0 m H ₂ O	1 bar
6000	0 ... 60 kPa	0 ... 6,0 m H ₂ O	3 bar
1001	0 ... 1 bar	0 ... 10 m H ₂ O	3 bar
1201	0 ... 1,2 bar	0 ... 12 m H ₂ O	3 bar
1601	0 ... 1,6 bar	0 ... 16 m H ₂ O	6 bar
2501	0 ... 2,5 bar	0 ... 25 m H ₂ O	6 bar
4001	0 ... 4 bar	0 ... 40 m H ₂ O	20 bar
5001	0 ... 5 bar	0 ... 50 m H ₂ O	20 bar
6001	0 ... 6 bar	0 ... 60 m H ₂ O	20 bar
1002	0 ... 10 bar	0 ... 100 m H ₂ O	34 bar
1602	0 ... 16 bar		34 bar
2002	0 ... 20 bar		60 bar
2502	0 ... 25 bar		60 bar
4002	0 ... 40 bar		100 bar
6002	0 ... 60 bar		140 bar
1003	0 ... 100 bar		340 bar
1603	0 ... 160 bar		340 bar
2503	0 ... 250 bar		700 bar
4003	0 ... 400 bar		700 bar
6003	0 ... 600 bar		700 bar
XXXX	other		
code	Measurement type		
A	absolute pressure		
G	gauge pressure		
H	Level measurement (m H ₂ O)		
P	vacuum, vacuum + gauge pressure		
code	Design		
S	Standard		
N	Ex (only with LCD display, 4 ... 20 mA 2-wire, without relay)		
B	battery operation, (only with LCD display, without outputs)		
D	battery operation + DATALOGGER (only with LCD display, without outputs)		
code	Output		
Q0	Without		
20	4 ... 20 mA 2-wire (only with LCD display, without relay)		
00	0 ... 20 mA 3-wire		
43	4 ... 20 mA 3-wire		
01	0 ... 1 V 3-wire		
05	0 ... 5 V 3-wire		
10	0 ... 10 V 3-wire		
80	RS 232		
82	RS 485 (Modbus RTU)		
99	Other		

Code	Connection – thread		
G	G1/2" EN 837		
M	M20x1,5 EN 837		
F	G1/4" EN 837		
X	Other		
code	Operating temperature range		
0	-5 ... +50°C, ref. 22°C		
1	-20 ... +70°C, ref. 22°C		
2	Customer temperature range, ref. 22°C		
3	Customer temperature range, customer ref.		
code	Relay output (not for 2-wire), connector CA 6		
QR	Without relay		
R1	1x relay		
R2	2x relay		
R3	3x relay		
R4	4x relay		
T1	function "Trend" - without relay		
T2	function "Trend" and 2x relay		
code	Accuracy		
S	0.5% FS (Pn < 0,25 bar)		
Z	0.35% FS (Pn > 0,25 bar) (standard)		
V	0.25% FS (0.25 bar < Pn < 600 bar)		
A	0.2% FS (0.25 bar < Pn < 600 bar)		
B	0.15% FS (0.25 bar < Pn < 600 bar)		
E	Excellent: 0.1% MV + 0,05% FS (on request)		
code	Option		
Q0	standard		
13	For oxygen use (with ceramic sensor, Pn>0,25 bar)		
QN	ATEX with certificate		
XX	other		