

digital pressure meter

CPMU

- **suitable for pressure differences**
- **measuring in liquid media**
- **simple handling**
- **overpressure endurance**
- **robust design**
- **battery supply**
- **signal damping**
- **analogue output**
- **low consumption**



Digital pressure gauge series CPMU is a battery portable service and shop device with a broad utilization in the industry, power engineering, heat technology, sanitary technology, air conditioning technology, laboratories, etc. Its assets become apparent namely in comparison with the liquid pressure gauges (U-pipes). This device is manufactured in several variants with regard to a method of the pressure measurements:

1. **CPMU-R-** relative for underpressure and overpressure measurement
2. **CPMU-A-** absolute, especially for barometric pressure
3. **CPMU-D-** differential
4. **CPMU-P-** differential on high static pressure
5. **CPMU-T-** same as **P** with built-in three-way valve
6. **CPMU-S-** for connecting exchangeable pressure transmitters

In all cases, it is permitted to measure both gaseous and liquid non-aggressive media, but the devices for a range 100 Pa allow measuring the non-aggressive gases only. This device is installed into a plastic ABS case. It is controlled by means of the push buttons placed on the foil keyboard. They switch on/off the device, start the possible zero correction up and switch the time filter on, which enables to read a mean value of the input pulsating pressure. Outlets for the quick couplings serve for connection of the media pressure. When measuring pressures less than 100 kPa, it is possible to connect the measurement hoses with the inside diameter 5 mm directly to these outlets. The device back side is fitted with a magnetic foil for its fixing on a ferromagnetic flat surface.

Digital value of the pressure being measured is shown on the 3.5digit LCD display. This value is displayed in kPa with resolution 0.1 % of the nominal range. The positive value corresponds to a positive pressure and the negative value to a negative pressure. As for the difference measurement, the positive value corresponds to a higher pressure in the positive pressure inlet. This device is capable to measure the pressure up to 200 % of the nominal pressure range. To a special

order, it is possible to fit the device with an analogue output with a nominal range 1 V. While measuring with an external pressure probe, the decimal point position is set up automatically according to the connected probe range.

It is also possible to agree a delivery of the CPMU devices calibrated in the different pressure units.

You put the device into operation by pressing the pushbutton „ON-OFF“. In the event of the insufficient battery voltage, there will occur a symbol „LO BAT“ on the display. The battery shall be replaced in this moment because the measured results might be skewed. After replacement of the battery, always switch on and off the device by pressing the pushbutton „ON OFF“. After a short stabilization of the measurement circuits, it is possible to reset the value display in case of need. After replacement of the measurement probe in the CPMU-S device and after the battery replacement, we recommend resetting always the value. If a zero pressure in the inlet is assured, start a reset routine by pressing the pushbutton „NUL“. This operation takes several seconds and its running is indicated by flickering of all decimal points. Never start the reset during your measurement.

If you need to switch on a time filtration of the signal being measured, you shall hold the pushbutton „NUL“ pressed with the device switched off and then to switch on the device by pressing the pushbutton „ON-OFF“. Functioning of the filter is signaled by flickering of the colon between the second and third digit on the display. You can cancel this function by repeated switching on and off the device, but without holding the pushbutton „NUL“ pressed.

If the CPMU device is fitted with the analogue output, you can connect the data register or recorder to this output, or to connect it to the computer converter card. Input resistance of the follow-up equipment should be greater than 10 kohm. The output is resistant against the permanent short circuit.

Technical parameters:

Type	CPMU 01	CPMU 1	CPMU 10	CPMU 100	CPMU 1000
Nominal pressure range	100 Pa	1 kPa	10 kPa	100 kPa	1000 kPa
Measuring pressure range	±199,9 Pa	±1,999kPa	±19,99 kPa	±199,9 kPa	±1999 kPa
Analogue output range	±1,999 V	±1,999 V	±1,999 V	±1,999 V	±1,999 V
Overpressure max.	1 kPa	10 kPa	40 kPa	200 kPa	2000 kPa
Burst pressure	20 kPa	100 kPa	100 kPa	300 kPa	2000 kPa
Error	max.1% ±2Pa	max.1%	max.1%	max.1%	max. 1%
Display *	100.0	1.000	10.00	100.0	1000
Static pressure for P and T	max. 20 kPa	max. 100 kPa	max. 1 MPa	max. 1 MPa	max. 1 MPa
Common mode pressure error	max. 1%	max. 1%	max. 1%	max. 1%	max. 1%
Damping time constant	cca 5s				
Ambient temperature range	0 ÷ 50°C				
Storage temperature	-5 ÷ 55°C				
Protection	IP41				
Supply	battery 9V				
Current consumption	max.4mA				
Battery life	min. 50 hours of operation				
Outside dimensions	145 x 85 x 35 mm				
Weight (with battery)	290g, type T 500g				

* valid for equipments calibrated in Pa or in kPa

CE EMC – according to ČSN EN 61326-1

Based on customer request we can provide measurement of accredited test sensors centre and calibration services.

Operating instructions:

Before connection of the gauge into the pressure circuit, it is necessary to see that the device or external pressure probe range might correspond to the pressure being measured. As for the difference gauge, the user shall assure that a pressure that is higher than the allowed non-destructive pressure corresponding to the nominal range should not unilaterally overload the measurement diaphragm.

This is the reason why a variant of the CPMU-T gauge is manufactured, which is fitted with an integrated three-way apparatus with a ball valve. This valve will be opened during manipulation and connection of the pressure hoses (wing is parallel with the valve) and so the pressure difference will be minimized. After the high-pressure media delivery and stabilization, the gauge will be closed and there will be made measurements of the needed pressure differences. After completion of the measurement, the valve will be open again and afterwards the hoses will be disconnected from the pressure circuit. Negligence of this procedure may cause destruction of the measurement sensor!

It is also necessary to verify whether the measured medium does not attack the materials used, i.e. silicon, duralumin, brass, plastic material polyetherimide and fluorsilicone seal (the same is valid for the external probe as well). These requirements are met for air, nitrogen, water, ethylalcohol, oil, etc.

Warning:

If the measured medium is water, avoid the possible freezing of its residues in the gauge measuring system!!! If you do not, the diaphragm will be in danger of destruction, especially for the lower pressure ranges.

How to order this device:

Such an order shall include type of the measuring device, pressure range, method of the pressure measurement, analogue output outfit, respectively requirement for a metrological verification. It is further possible to order a plastic suitcase or an artificial leather bag, quick couplings, pressure or low-pressure silicone or polyethylene hose. As for the external probes, it is necessary to specify their number and pressure range.

Legend:

CPMU - R 1

measurement type	
relative	R
absolute	A
differential	D
differential on high static pressure	P
differential with three-way valve	T
for connection external transmitter	S
pressure range	
100 Pa	01
1 kPa	1
10kPa	10
100 kPa	100
1000 kPa	1000

External pressure probes are manufactured with the same pressure ranges but in the relative version only.

Service:

Manufacturer provides both guarantee and post-guarantee service for these devices. The routine maintenance includes the periodic battery inspection and their possible exchange. It is recommended to keep the device in cleanness, to prevent high temperature impact, excessive humidity and mechanical damage.

Note:

This basic version of the device is not designed for measurement in the environment with danger of explosion of the flammable vapors and gases.