

INSTRUCTIONS FOR USE OF DIGITAL PRESSURE METERS

DMU – D x/JB

DMU – P x/JB



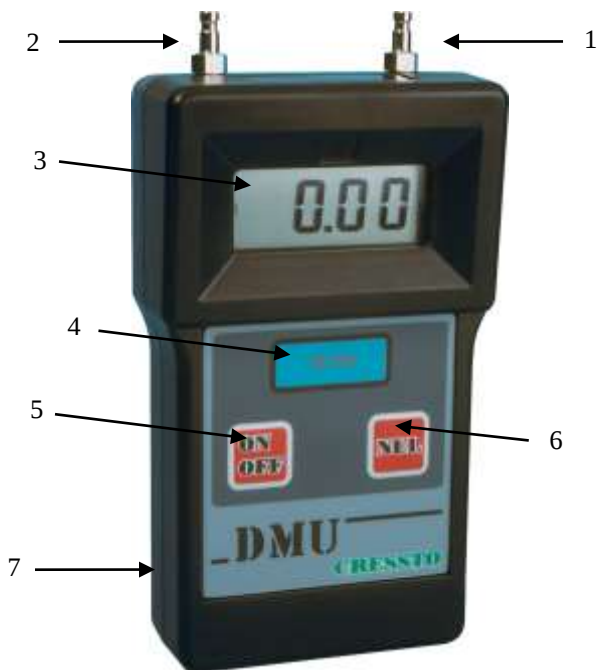
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DESCRIPTION

The digital pressure gauge and manometer DMU-JB is a battery-operated handheld service and workshop instrument, intended for wide use in industry, power engineering, heating and combustion technology, air-conditioning, ventilation, laboratories, etc. Its qualities especially come out compared with liquid column manometers (*U-tubes*). The DMU-D instrument is used for measuring pressure differences at corresponding pressure which is comparable with the nominal range. It is not possible to measure pressure differences at high corresponding pressure, eg. on flow plates in gas pressure distribution systems. For these measuring is intended the DMU-P instrument, which enables measuring of pressure differences on the static pressure up to 100 times higher than the nominal differential pressure, but max. 1MPa. When one of the pressure inputs is not connected, the instruments measure relative overpressure or underpressure against the atmospheric pressure. The measured medium can only be non-aggressive gas, eg. air, nitrogen, etc. The DMU gauges, version JB are spark secure types marked I M1 Ex ia I Ma, which can be used in mines with occurrence of methane and/or flammable dust or marked II 2G Ex ia IIA T4 Gb, which can be used in areas with explosive gas atmosphere (*Zone 1*).

The instrument is mounted into a plastic casing from ABS. An inseparable part of the spark secure version is a leather case. The instrument is controlled by means of buttons on a folio keyboard which enable switching on/off the instrument, possible zero correction and switching on the time filter, which enables reading the mean value at the pulsating pressure on the input. Inlets with the external diameter 5 mm are used for connecting the pressure of the medium. Digital data about the measured pressure are displayed on a 3.5-figure LCD display in Pa or kPa with differentiability 0.1% from the nominal range. A positive value corresponds with overpressure, a negative one to underpressure, at differential measuring a positive value corresponds with higher pressure on the positive pressure input. The instrument can be used for measuring pressure up to 200% of the nominal pressure range. Based on an agreement, it is possible to supply DMU instruments calibrated also in other pressure units.



Legend :

1. positive pressure input
2. negative pressure input
3. LCD display
4. nominal pressure range sign
5. on/off button
6. zeroing button
7. battery space cover
8. leather case (no picture)

INSTRUCTION FOR USE

It is forbidden in environments where explosive atmospheres or methane and/or combustible dusts are present:

- remove the DMU from its protective leather case !
- replace or otherwise tamper with the battery !

Only approved battery types may be used, namely Panasonic XTREME POWER 9V, 6LR61 alkaline batteries.

- The instrument is started up by a short pressing of the "ON-OFF" button. In case of insufficient voltage of the battery, the sign "LO BAT" will appear on the display. In such a situation the battery must be changed because it could cause distortion of the measured results. After the battery is changed, always switch on and off the instrument using the "ON-OFF" button. After a short setting of the measuring circuits, it is possible to carry out resetting the data if necessary. After transition into a medium with significantly different temperature, it is necessary to avoid dewiness of the instrument and let it thermally stabilize for a longer time. We recommend carrying out resetting always when the battery is changed. When zero pressure difference on the inputs is secured – by disconnecting all tubes and in the area without distinctive flow of the surrounding air – the resetting routine is started up by a short pressing of the "NUL" button, position 6. This process lasts for a few seconds and its course is indicated by flashing of all decimal points. Never start up resetting during measuring!
- If you need to switch on time filtration of the measured signal, you must hold the "NUL" button with the instrument switched off and switch of the instrument by pressing the "ON-OFF" button. The operation of the filter is signaled by a flashing colon between the second and third figure on the display. Cancelling of this function is made by repeated switching off and on of the instrument without holding the "NUL" button. The time constant of the filter is fixed and cannot be changed.
- While measuring at the range 100Pa, we recommend to measure at the defined position of the gauge where resetting has been made to eliminate the position error which can reach up to 1% of the nominal range. At higher ranges, this error is insignificant.
- Before the gauge is connected to the pressure circuit, it is necessary to check whether the measured medium does not attack the used materials, ie. silicon, duralumin, brass, plastic material polyetherimid and fluorine-silicon sealing. Air, nitrogen, etc. are convenient to these requirements without any problems. Avoid penetration of liquid to the measuring system of the instrument! Though there is not a danger of immediate damage conversely, especially measuring of low pressures is slow, distorted and showing significant hysteresis thanks to the effects of capillary forces. If liquid penetrates to the measuring input, avoid its freezing inside the measuring system. Let the instrument dry at normal temperature for several days or send it to the producer for repair. Never try to clean the pressure input by means of wire or any other sharp object! There is a danger of destroying the measuring membrane!
- It is also necessary to check whether the pressure range of the instrument, stated on the label, position 4, corresponds with the measured pressure. At such an overload of the instrument up to the Maximum overload overpressure, stated in the Technical data chart, the producer secures maintaining of measuring accuracy. When this level is exceeded up to the Nedestr. pressure value, the producer guarantees that the measuring sensor will not be destroyed, but it is recommended to carry out a checking calibration.

TECHNICAL INFORMATION

Type	DMU01	DMU1	DMU10	DMU100	DMU1000
Nominal pressure range	100 Pa	1 kPa	10 kPa	100 kPa	1000 kPa
Measuring pressure range	±199,9 Pa	±1,999 kPa	±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	max. 20 kPa	max. 100 kPa	max. 1 MPa	max. 1 MPa	max. 1 MPa
Damping time constant	cca 5s				
Ambient temperature range	-20 ÷ +40°C				
Storage temperature	-20 ÷ 55°C				
Protection	IP 4x				
Supply	battery 9V – PANASONIC Extreme Power 6LR61X/1BP				
Current consumption	max. 4mA				
Battery life	min. 50 hours of operation				
Outside dimensions	145 x 85 x 35 mm				
Weight(with battery)	cca 250g				
Marking	I M1 Ex ia I Ma , II2G Ex ia IIA T4 Gb certificate nr. FTZÚ 08 ATEX 0161X				

* valid for devices calibrated in Pa or kPa.

At the customer’s wish it is possible to secure a metrological verification of the pressure meters at an accredited Calibration Service Centre.

DMU - x x/JB

nominal pressure range		
01	-	100 Pa
1	-	1 kPa
10	-	10 kPa
100	-	100 kPa
1000	-	1000 kPa
measurement type		
D	-	differential
P	-	differential on high static pressure

MAINTENANCE

- The manufacturer provides complete warranty and post-warranty service of these devices. It is recommended to keep the instrument clean, avoid exposure to high temperatures, excessive humidity and mechanical damage. Routine maintenance consists of periodically checking the battery and replacing it if necessary. In doing so, the screws at the corners of the type plate on the back of the instrument must be unscrewed to release the outer leather case. After replacing the battery, the reverse procedure is used to secure the instrument against falling out.
- It is strictly forbidden replace or otherwise manipulate with the battery in explosive atmosphere or at the presence of methane and / or combustible dust!
- **The manufacturer is not responsible for damages caused by incorrect using of the product!**