

Operating Instructions
for
Digitalmanometer

Model: PDC

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1. Foreword

Thank you for the confidence that you have shown in **Kobold** by purchasing the PDC digital manometer.

Like all other **Kobold** products, PDC digital manometers are a combination of customer requirements, state-of-the-art technology, modern manufacturing and stringent quality control.

The **Kobold** digital manometer described in the operating instructions is designed and produced in line with the most recent developments. All components are subject to the strictest quality criteria during production.

These operating instructions have been compiled with care. However, it is impossible to take every possible usage case into consideration. For this reason, if you feel that instructions for your particular usage case are missing, please contact **Kobold**, and we would be pleased to provide assistance. Please observe the relevant national safety regulations during the installation, start-up and operation of this temperature switch (e.g.: VDE 0100).

Scope

These instructions apply to the PDC series of digital manometers. Distinctions are drawn between the PDC-1 and PDC-2 models in the individual sections.

The state of technology at the time of delivery always applies. **Kobold** reserve the right to make technical changes without notice.

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All rights to these operating instructions are reserved. These operating instructions, including extracts thereof, must not be copied or translated into other languages without written permission.

Safety instructions and warnings

Please read these instructions before installing and starting up the digital manometer.

Failure to follow the instructions will make all guarantee, warranty and compensation claims null and void.

- Please ensure that the digital manometer is suitable for your application.
- Please check that the materials that come into contact with the medium are compatible with the media that are going to be measured.
- Perfect function and operating reliability of the device can only be guaranteed for the values specified in the technical data sheet.
- Only qualified persons are permitted to install the equipment and make the electrical connection, and the correct tools must always be used.
- Damaged devices must not be started up. If damage occurs during operation, suitable measures must be taken to prevent persons or property from being put at risk by the damaged digital manometer.
- The manometer must only be repaired by **Kobold**.

The accepted technical regulations and all national regulations must always be observed and complied with.

Warning

When screw-fitting the gauges the force required for this must not be applied through the case or terminal box but just through the spanner flats (with suitable tool) provided for this purpose.

For assembly the following moments may not be exceeded:

G 1/8 = max. 20Nm - G 1/4 = max. 25Nm - G 1/2 = max. 50Nm

Exclusion of liability

Kobold guarantees that the digital manometer is in perfect working condition when it is delivered. The basis consists of the technical data in the data sheet and these operating instructions.

Liability cannot be accepted for the suitability of the digital manometer.

Usage for any other purpose than the ones that are mentioned in „Correct purpose of use“ is not permitted.

Claims for compensation will only be entertained by **Kobold** in the event of intent or gross negligence. Responsibility for damage to equipment, systems or the surroundings of the digital manometer will not be accepted.

No liability is accepted for damage caused by incorrect operation. The haulage contractor is responsible for damage that occurs in transit.

2. Digital manometer description

The digital manometer is available in two versions PDC-1 and PDC-2 for most varied areas of use.

The digital manometer offers the user numerous measuring units (bar, psi and MPa). Additional functions such as MIN/MAX memory, tare adjustment plus bar graph with trailing pointer function round off the digital manometer's profile. The programmable parameters are adjusted by means of user-friendly keys on the front.

Correct purpose of use

The equipment is only authorised for proper use for its correct purpose. Failure to do this will invalidate all warranties and release the manufacturer from all responsibility!

The equipment is constructed in compliance with IP65 and should be protected from excessive amounts of water and dust.

The equipment must be installed so that it is protected from external damage.

It must be ensured that the manometer is correctly installed and has the relevant IP protection.

The limits specified in the data sheet must be complied with.

3. Commissioning

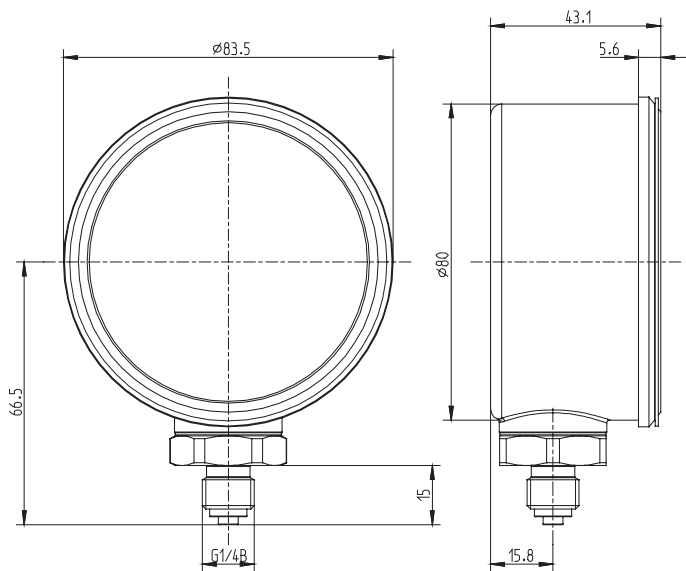
Installation

The digital manometer must be connected to the pressure tapping point in a suitable manner using your own tools. In this case there must be no occurrence of pressure which exceed the device's maximum pressure values. Pressures which exceed the digital manometer's maximum range can lead to permanent damage to the measuring device.

Voltage supply

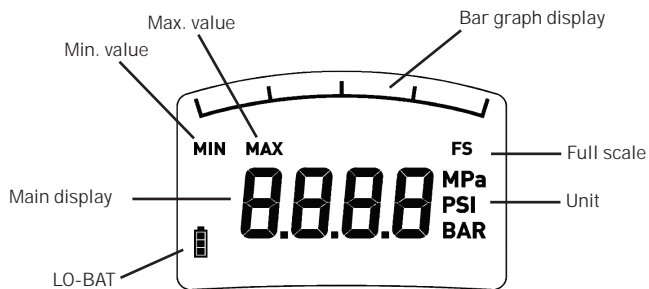
The digital manometer is operated with 2 Mignon AA batteries. A flashing battery symbol appears on the display screen if the battery charge is low and the batteries should then be replaced as soon as possible. Open the battery compartment lid on the back of the digital manometer. Replace the batteries with 2 new Mignon cells. Replace the battery compartment lid.

4. Pressure Connection

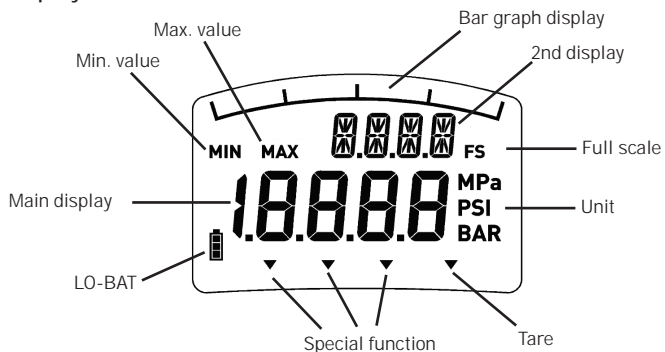


5. Description of Parameters








Display screen PDC-1



Display screen PDC-2



Function in normal mode

Key	Function/Action
	<ul style="list-style-type: none"> - switches the device on - switches the device off (only display mode) - changes to programming mode if pressed for longer than 3 secs
	- Display indicated max. value as long as key is pressed
	- Display indicates min. value as long as key is pressed
 + 	- Resets max. value to " 0 "
 + 	- Resets min. value to " 0 "

Min/Max Memory

The min/max memory is updated with the current measured value in every measuring cycle.

The min. value is displayed by pressing the min. key.

The max. value is displayed by pressing the max. key.

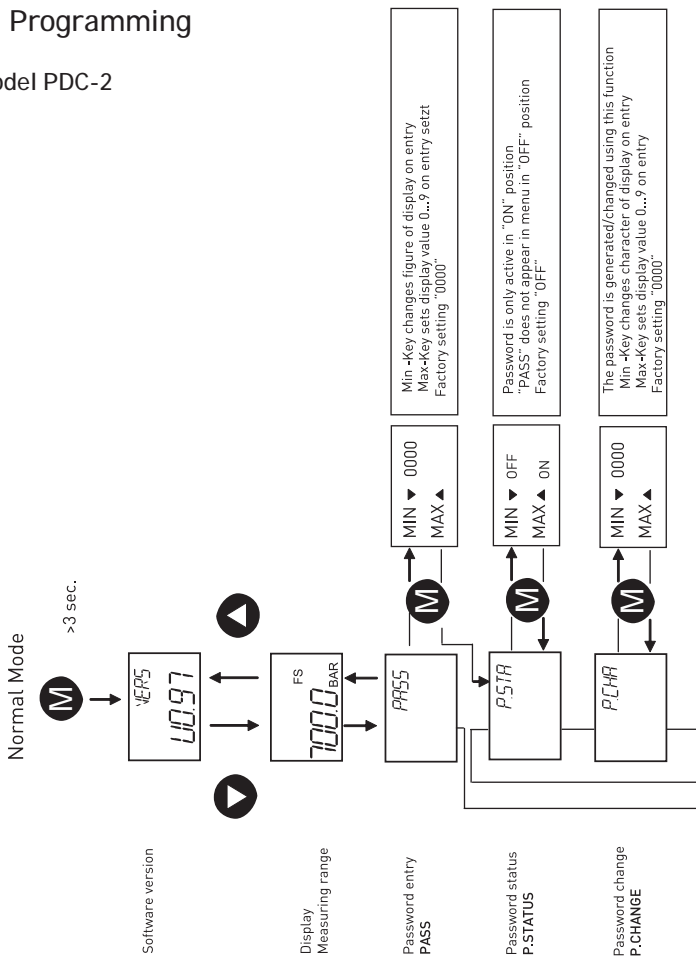
Pressing and holding the appropriate key (min. or max.) and quickly pressing the menu key at the same time resets the device to the current measured value.

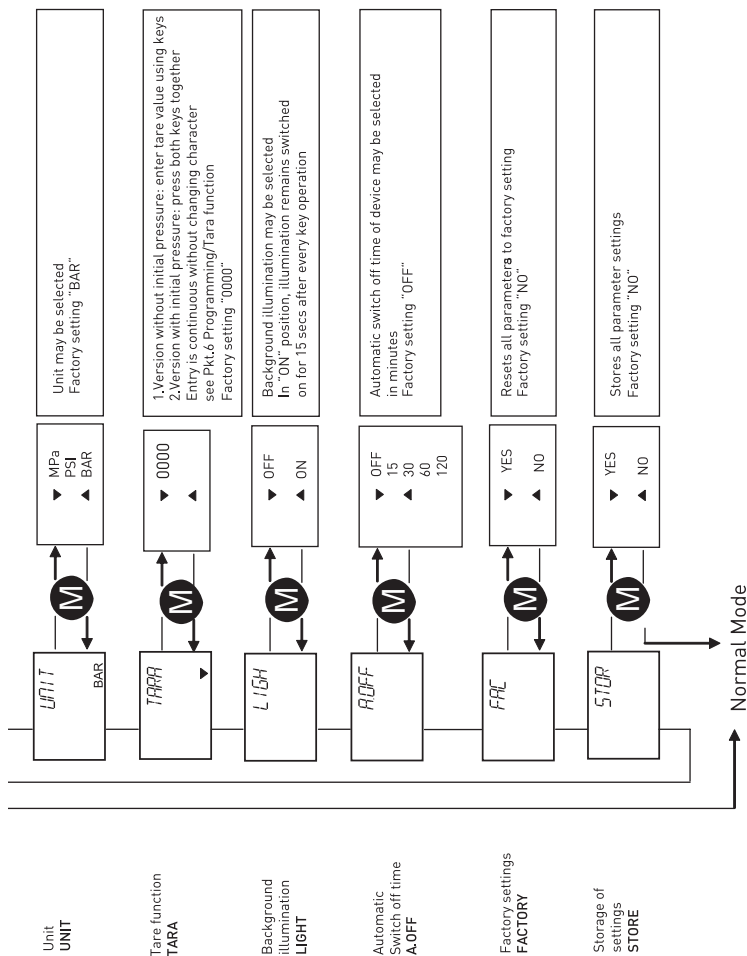
Bar Graph with Trailing Pointer Function

The integrated bar graph display with trailing pointer function additionally indicated on the display shows the trend in current working pressure directly regardless of the digital display. With the help of the trailing pointer function, the max. stored value is also indicated in the bar graph display in addition to the digital display in the form of a bar segment. This bar segment is also updated to the current measure value when the min./max. value is reset.

6. Programming





Model PDC-2





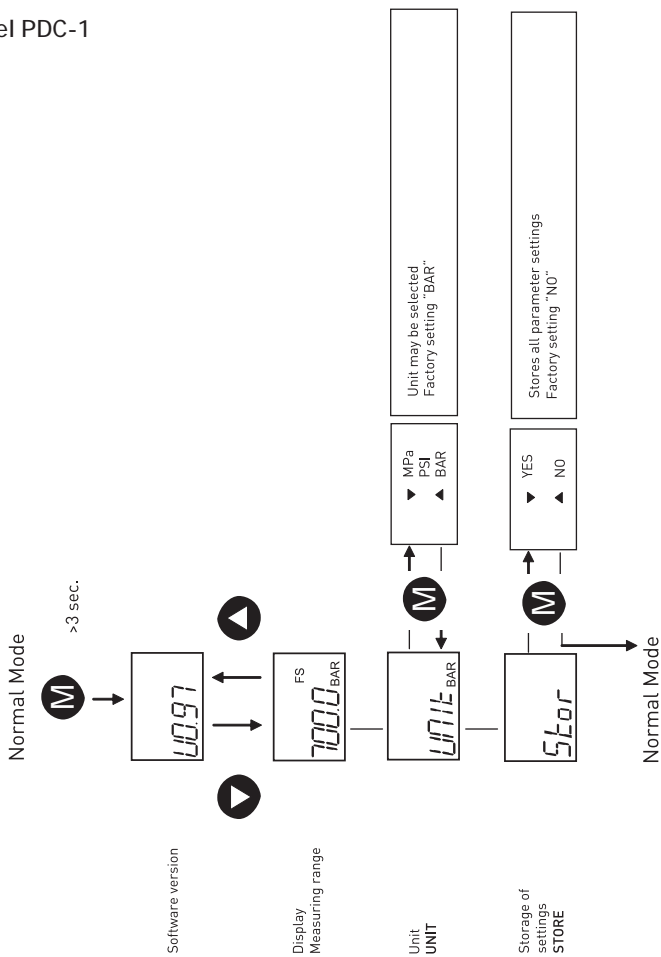
Tare Function PDC-2

In this mode the positive deviation of the measured value from the tared value (max. 20% of the measuring range) is constantly indicated by the main display. The untared pressure value is always shown on the bar graph display. Thus the digital manometer's actual working load can be read off even if the tare function is active. When the tare function is active, a function indicator ▼ appears on the display. There are 2 possible ways of activating this mode:

- 1) Select the tare function and set the value to be tared using the keys  . When set, the measured value to be tared is backed up as tare. The main display and the auxiliary display then show the value "0000" in the unpressurised state. Example: If a value to be tared is set as 2 bar, the main display indicates 0 bar in the unpressurised state.
- 2) Load the digital manometer with the pressure to be tared. The current measured value appears in the main display field of the main display. Select the tare function and then operate both keys simultaneously  . The current measured value will be backed up as tare. The main display and the auxiliary display are set to (0000).

Setting the tare value to (0000) resets the tare function in both models.

Model PDC-1



7. Technical Data

Models	PDC-1 with 9999 digit, 7 segment PDC-2 with 19999 digit, 7/14 segment, second display
Display • Accuracy • Conversion rate	11 mm high, bar graph display 0,5 % o.F.S. \pm 1 digit ¹⁾ 5 /sec
Measuring ranges to EN	0...2 bar to 0...700 bar, others on request
Type of pressure	Positive overpressure, negative overpressure
Overload limit	Twofold max.1000 bar for meas. range C6 (600 bar) and CA (700 bar)
Parts in contact with material measured	Measuring ranges \leq 50 bar stainless steel; Al_2O_3 : NBR, Measuring cell ceramic Measuring ranges \geq 100 bar only stainless steel, measuring cell thin-film technology
Pressure connector	G 1/4 B, 1/4 NPT, other connectors on request
Stability per year	$\leq \pm 0,2$ % o.F.S. under reference conditions
Memory	MIN/MAX (not volatile even when changing batteries)
Programming mode Parameters • Password • Tare • Automatic switch off time • Measuring unit	PDC-1: without, PDC-2: settable PDC-1: without, PDC-2: ≤ 20 % of F.S. settable PDC-1: without, option factory set: 15, 30, 60, 120 min PDC-2: settable bar, PSI MPa selectable
Illumination of display	PDC-1: without PDC-2: with
Voltage supply • Operating life	2 x 1.5V Mignon cell AA 4000h (AA 2000 mAh)

¹⁾ Measuring deviation to IEC 61298-2, including non-linearity, hysteresis, deviation of zero point and upper range value

Temperature comp. range	0.... 60°C
Temperature effect • Zero point • Measuring range	$\leq \pm 0,15 \% / 10 \text{ K}$ $\leq \pm 0,15 \% / 10 \text{ K}$
Degree of protection • permissible rel. humidity	IP 65 to EN 60529/IEC 529 < 90%, non-condensing
Emitted interference ²⁾	acc. to EN 61326
Noise immunity ²⁾	acc. to EN 61326
Temperature ranges • Storage • Mat. measured • Environment	-20 70 °C -30 85 °C (-30 ... 100°C for measuring range $\geq 100 \text{ bar}$) -10 60 °C
Housing	Stainless steel, Optional black protective cap
Weight	Approx. 0.4 kg

²⁾ Conformity declaration on request

8. CE – conformity

The manometer complies with all requirements of EN 61 326 with regard to interference emission and immunity for use in industrial areas.

cable routing must be carried out correctly in order to maintain the effective protection from electromagnetic interference.

9. Maintenance

The digital manometer that are described in this document are maintenance free. The equipment will also operate in a stable state for long periods, meaning that regular adjustment or the like is not required.

10. Troubleshooting

No modifications must be made to the equipment. Only the manufacturer is allowed to repair the device.

11. Cleaning

The exterior of the PDC digital manometer can be cleaned using a soft, moistened cloth. Heavy soiling can be removed using a mild cleaning agent.

The switch must not be opened for cleaning!
Aggressive chemicals or hard scrubbing can damage the surface, particularly the display film.

12. Disposal

The packaging and used parts must be disposed of in accordance with the regulations of the country in which the device is installed.