OCTOGON

MANUAL

PMKB

DIGITAL PRESSURE SWITCH, STAINLESS STEEL

Operating instructions



Document	Version	Date	Applies to
Operating instructions	V00x	11/2026	PMKB, housing Ø 60 and Ø 80, all ranges

This manual describes the PMKB digital pressure switch: safety, technical data, dimensions, wire assignment and the operation of the Ø 60 version (one relay) and of the Ø 80 version (two relays or controller), maintenance and removal.

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1 About this manual

Read this manual before installing and commissioning the device and keep it available for later use. Device data in this manual refer to the PMKB data sheet.

1.1 Signal words

Safety instructions protect users from dangerous situations and/or prevent material damage. The severity of the potential risk is indicated by the following signal words:

Signal word	Meaning
Danger	Imminent danger to the user. Failure to comply may result in fatal injury.
Warning	Identifiable hazard. Failure to comply may result in fatal injury and in damage to equipment or plant parts.
Caution	Danger. Failure to comply may result in minor injury and in material damage to the sensor (switch) and/or the plant.
Important	Information that is important to the user.

1.2 Versions covered

Feature	Versions
Gauge pressure	0 ... 50 / 100 / 350 / 600 mbar · 0 ... 1 / 2 / 6 / 10 / 25 / 60 / 100 / 160 / 250 / 400 / 600 / 1000 bar
Absolute pressure	0 ... 50 / 100 / 350 / 600 mbar · 0 ... 1 / 2 / 6 / 10 / 25 bar
Compound pressure	–10 ... 10 · –50 ... 50 · –100 ... 100 · –100 ... 0 · –100 ... 500 · –100 ... 900 kPa
Housing and mounting	Ø 60 or Ø 80 mm · radial or axial
Output	one relay (5 wires) · two relays (8 wires, Ø 80 only) · controller (5 wires, Ø 80 only)
Process connection	M20 × 1.5 (standard), G1/4, G1/2, R1/4, R3/8, NPT1/4, NPT1/2, M14 × 1.5 · male or female thread
Accuracy	0.5 % (standard) or 0.25 %
Basic type	PS480 (Ø 60: -60, Ø 80: -80)

The measuring range of the individual device is stated on the product label. Chapter 6 applies to the Ø 60 version, chapter 7 to the Ø 80 version.

2 Safety

2.1 Intended use

The PMKB displays the pressure and switches via one or two relays or as a controller with upper and lower limit. It measures water, air, oil and hydraulic oil as well as other media that do not attack stainless steel. Typical uses are equipment supply, pressure protection, constant pressure control and other pressure monitoring and protection tasks.

Danger Use the device only within the specified application range. The temperature must be within the permissible range. Do not exceed the rated pressure and the rated electrical load. Installation, commissioning and operation must be carried out in accordance with the applicable national and local safety regulations.

2.2 Disposal

Sensors (switches) must be handled correctly in accordance with national or local regulations for electrical and electronic equipment. Sensors (switches) must not be disposed of with household waste.

3 Product description

3.1 Working principle

A high-precision diffused silicon measuring core with fully electronic design measures the pressure in real time with high accuracy and good long-term stability. The housing and the connection are made of stainless steel 304 and offer good structural stability and shock resistance.

3.2 Features

- Bright LED real-time pressure display.
- Design with high resistance to overpressure, protecting the instrument against overpressure damage.
- Switchable international pressure units.

3.3 Front panel

Element	Function
4-digit LED display	measured value; menu items and settings
Unit indicator lights	pressure unit of the display
Lamps below the display (from left)	power signal lamp · upper limit signal light · lower limit signal light · running light
SET	set key
▲ / ▼	change values, scroll through menus
ON/OFF	run key: switches the running state (measurement) on and off

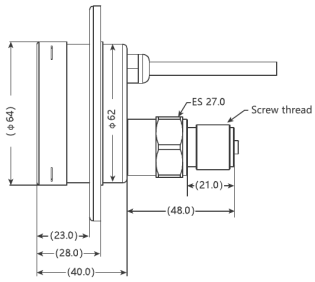
3.4 Technical data

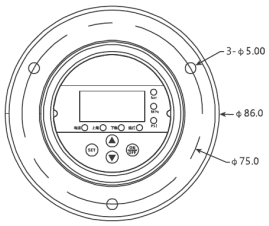
Item	Value
Measuring range	–100 kPa ... 0 · 0 ... 5 kPa to 0 ... 100 MPa
Pressure type	gauge pressure (default), absolute pressure, negative pressure
Measuring principle	diffused silicon sensor
Accuracy level	0.5 % (default), 0.25 %
Long-term stability	± 0.2 % F.S. / year
Sampling interval	10 ms
Operating temperature	–20 ... +70 °C
Shell and joint	stainless steel 304
Isolation diaphragm	stainless steel 316L
Dial diameter	Ø 60 / Ø 80 mm
Power supply	24 V DC, 220 V AC optional
Output	one relay · two relays (Ø 80 only) · controller with upper and lower limit (Ø 80 only)
Cable	5 wires (one relay, controller) · 8 wires (two relays)
Display mode	4-digit LED
Display range	–1999 ... 9999
Units	international pressure units switchable

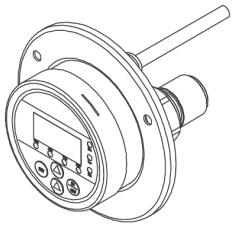
4 Dimensions

Dimensions in mm. ES = width across flats.

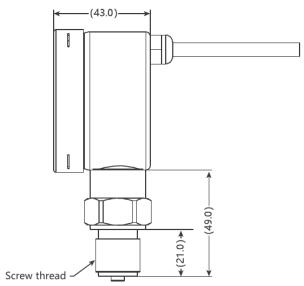
4.1 Ø 60, axial mounting

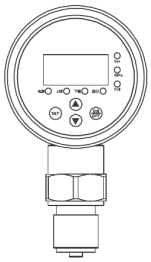


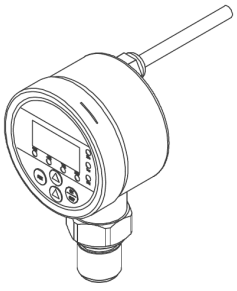




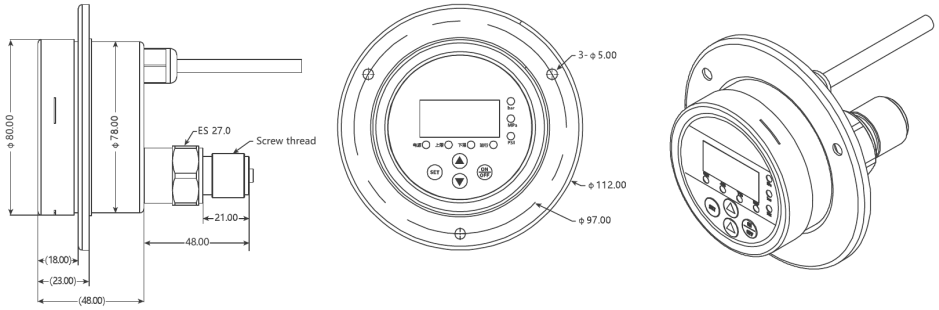
4.2 Ø 60, radial mounting



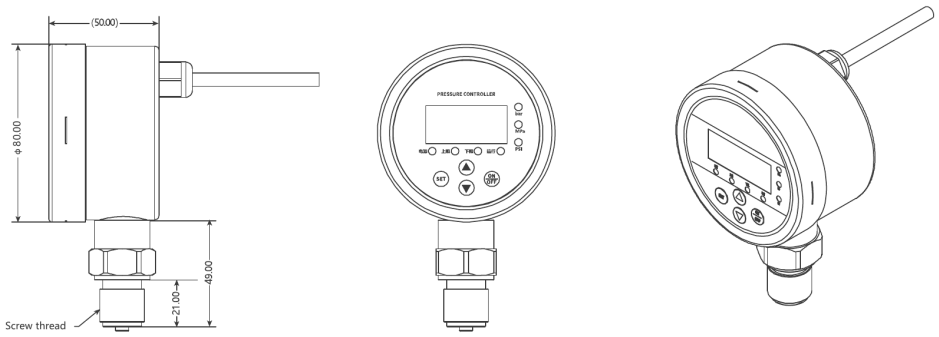




4.3 Ø 80, axial mounting



4.4 Ø 80, radial mounting



5 Wire assignment

The device is connected via a fixed cable. Wire colours: RD red, BK black, WH white, YE yellow, GN green, OG orange, BU blue, BN brown.

5.1 Ø 80, two relays (8 wires)

Wire	Function
RD	+ supply
YG	NC1
GN	COM1
WH	NO1
OG	NC2
BU	COM2
BN	NO2
BK	– supply

Relay 1 (NC1/COM1/NO1) is switched by the AL setting, relay 2 (NC2/COM2/NO2) by the AH setting (chapter 7).

5.2 Ø 60, one relay (5 wires)

Wire	Function
RD	+ supply
WH	NO
YE	NC
GN	COM
BK	– supply

5.3 Ø 80, controller (5 wires)

Wire	Function
RD	+ supply
YE	upper limit
WH	lower limit
GN	COM
BK	– supply

6 Operation – Ø 60 version

6.1 Basic functions

Function	Operation
Running light	When the running light is on, the device is in the measuring state. Press **ON/OFF** to switch the running state off or on.
Unit switching	With the running state off, press and hold ▲ for about 1 second to switch the unit.
Pressure clearing	With the running state off, press and hold ▼ for about 2 seconds to set the pressure display to zero. Do this only with the device unpressurised.
Advanced menu	With the running state off, press and hold **SET** for about 2 seconds.

6.2 Setting the lower and upper limit

– Lower limit: with the running state off, press **SET** briefly. The display flashes and the lower limit signal light comes on. Set the lower limit with ▲ or ▼ and press **SET** briefly. The lower limit cannot be set above the upper limit.

– Upper limit: press **SET** briefly again. The display flashes and the upper limit signal light comes on. Set the upper limit with ▲ or ▼ and press **SET** briefly.

6.3 Advanced menu

With the running state off, press and hold **SET** for about 2 seconds. **SET** moves to the next menu item; ▲ or ▼ opens an item, shows the value set previously and changes it. **ON/OFF** returns to the display.

Menu	Function	Setting
P--1	Password lock of the keys. 0 = lock disabled. Change to a value other than 0 to enable the lock; the password is then the value set. If the password is forgotten, press ▼ to change the value; 9999 is the universal password.	–
dL-1	Lower limit delay: after being triggered, the relay waits for the time dL-1 before it closes.	0 ... 999 s, default 0 s
dL-2	Upper limit delay: after being triggered, the relay waits for the time dL-2 before it opens.	0 ... 999 s, default 0 s
t--1	Switching logic of the relay. **t--1**: start at low pressure, stop at high pressure; **t--0**: start at high pressure, stop at low pressure (reverse control: relay open at low pressure, closed at high pressure); **FNO**: window normally open; **HNC**: window normally closed.	default **t--1**
SL-1	Intelligent pressure detection (0 = off). **E--1**: the pressure exceeds the preset time but has not reached the upper limit - the relay opens and **E--1** is displayed. **LLLL**: the pressure exceeds the preset time and has not reached the lower protection value - the relay opens and **LLLL** is displayed. **HHHH**: the pressure exceeds the range of the device (also displayed if the sensor is damaged).	0 ... 999 s, default 0
dAP	Signal damping: the smaller the value, the faster the response.	0.01 ... 2.00, default 0.06
bit	Number of decimal places (actual number depends on the range).	0 ... 2
diS	Display refresh rate: **d1** 100 ms, **d2** 500 ms, **d3** 1000 ms.	default **d1**
ZERo	Zero cut-off: values below the set value are displayed as zero.	default 0.5 (% of range)
rESt	Restore factory settings: open the item and set the value to 0123 with ▲ or ▼; the factory settings are restored.	password 0123

7 Operation – Ø 80 version

7.1 Basic functions

Function	Operation
Running light	When the running light is on, the device is in the measuring state. Press **ON/OFF** to switch the running state off or on.
Unit switching	With the running state off, press and hold ▲ for about 1 second to switch the unit.
Pressure clearing	With the running state off, press and hold ▼ for about 2 seconds to set the pressure display to zero. Do this only with the device unpressurised.
Menu	With the running state off, press and hold **SET** for about 2 seconds to open the level 1 menu.

In the menus ▲ and ▼ move between the items; **SET** opens an item and confirms the value.

7.2 Level 1 menu

Menu	Function
AL	Low closure set value (first group of relays). Output state: closed at low pressure, open at high pressure; assigned to the lower limit indicator.
AH	High closure set value (second group of relays). Output state: closed at high pressure, open at low pressure; assigned to the upper limit indicator.
Ad1	AL return difference (hysteresis of the lower alarm).
Ad2	AH return difference (hysteresis of the upper alarm).
EF	Extended functions: **SET** opens the level 2 menu.

7.3 Level 2 menu

Menu	Function
rES	Factory data reset. After opening, press ▲ or ▼ until **----** appears - the reset was successful. Use with caution.
AL01	Mode of AL: **Fno** window normally open; **Fnc** window normally closed; **HH** normally open; **LL** normally closed (factory default).
AL02	Mode of AH: **Fno** window normally open; **Fnc** window normally closed; **HH** normally open (factory default); **LL** normally closed.
dL-1	AL action delay.
dL-2	AH action delay.
dH-1	AL reset delay.
dH-2	AH reset delay.
SL-1	Intelligent pressure detection (unit: seconds).
bit	Decimal places.
Lo	Historical minimum pressure; reset before use.
Ho	Historical maximum pressure; reset before use.
dAP	Signal damping, default 0.06.
diS	Display update rate: **d1** every 100 ms, **d2** every 500 ms, **d3** every 1000 ms.
ZERo	Zero cut-off value in % of full scale, default 0.5.

7.4 Examples

AL and Ad1 (AL in the default mode LL)

AL set to 1.0 bar, Ad1 set to 0.2 bar:

- Pressure ≤ AL (1.0 bar): the normally open contact of relay 1 is closed (NO1 closed).
- Pressure rises, AL (1.0 bar) < pressure ≤ AL + Ad1 (1.2 bar): relay 1 remains closed.
- Pressure rises further, pressure > AL + Ad1 (1.2 bar): NO1 opens.
- Pressure falls, AL (1.0 bar) < pressure ≤ AL + Ad1 (1.2 bar): relay 1 remains open.
- Pressure falls further to ≤ AL (1.0 bar): as step 1.

That is: closed at low pressure, open at high pressure.

AH and Ad2 (AH in the default mode HH)

AH set to 5.0 bar, Ad2 set to 0.2 bar:

- Pressure ≥ AH (5.0 bar): the normally open contact of relay 2 is closed (NO2 closed).
- Pressure falls, AH – Ad2 (4.8 bar) ≤ pressure < AH (5.0 bar): relay 2 remains closed.
- Pressure falls further, pressure < AH – Ad2 (4.8 bar): NO2 opens.
- Pressure rises, AH – Ad2 (4.8 bar) ≤ pressure < AH (5.0 bar): relay 2 remains open.
- Pressure rises further to ≥ AH (5.0 bar): as step 1.

That is: closed at high pressure, open at low pressure.

8 Maintenance, cleaning and removal

8.1 Maintenance and cleaning

Sensors (switches) do not require maintenance.

Warning Periodically check whether the switch is working properly. If the switch does not work properly, stop the operation immediately.

Caution Unsuitable cleaning agents may damage the switch.

The following cleaning agents can be used to clean polycarbonate: mild soap or detergent, isopropyl alcohol. Rinse with water immediately after cleaning. Do not leave cleaning agent on the surface of the product. Do not clean the product in high heat or in direct sunlight.

The following cleaning agents are known to affect the integrity of polycarbonate components and must not be used:

- ZEP Fast 505, Pinesol, Formula 409
- halogenated solvents (benzene, gasoline, acetone or carbon tetrachloride)
- strong alkalis
- methyl ethyl ketone
- abrasive substances

8.2 Removal

Danger Remove the switch only when it is depressurised and de-energised (electrical, hydraulic/pneumatic). Disconnecting the switch from pressure and power supply must be performed by trained or instructed personnel in accordance with the state of the art.

Warning The surface of the housing may become very hot at high operating temperatures.