OCTOGON

MANUAL

PSKA

ELECTRONIC PRESSURE SWITCH

Operating instructions



Document	Version	Date	Applies to
Operating instructions	V00x	11/2026	PSKA, all ranges, connections and outputs

This manual describes the PSKA electronic pressure switch: safety, technical data, dimensions, pin assignment, switching functions, operation and menus, RS485 interface, maintenance and removal.

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Contents

1 About this manual ... 2
1.1 Signal words ... 2
1.2 Versions covered ... 3
2 Safety ... 3
2.1 Intended use ... 3
2.2 Personnel ... 3
2.3 Disposal ... 3
3 Product description ... 3
3.1 Working principle ... 3
3.2 Display and keys ... 3
3.3 Technical data ... 3
3.4 Pressure resistance ... 4
4 Dimensions ... 4
5 Pin assignment M12 × 1 (4-pin) ... 5
6 Switching functions ... 5
7 Operation ... 5
7.1 Quick setting of the switch point ... 5
7.2 Opening the menus ... 5
7.3 Menu 001 – switching output version ... 6
7.4 Menu 001 – analogue version ... 6
7.5 Menu 001 – RS485 version ... 6
7.6 Menu 006 ... 6
8 Serial interface RS485 (Modbus RTU) ... 6
8.1 Data format ... 6
8.2 Address and settings ... 7
8.3 Read command 03H ... 7
8.4 Registers ... 7
9 Maintenance, cleaning and removal ... 7
9.1 Maintenance and cleaning ... 7
9.2 Removal ... 8

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 PSKA 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
Measuring range	0 … 10 / 60 kPa · 0 … 1 / 2 / 5 / 10 / 25 / 60 / 100 / 160 / 250 / 400 / 600 / 1000 bar · compound –10 … 10 kPa, –60 … 60 kPa, –1 … 1 / 2 / 5 bar
Pressure type	gauge pressure · negative pressure
Thread	G1/4 male, G1/2 male, G1/4 female, NPT1/4 male, R1/4 male, M20 × 1.5 male
Output	switching output / frequency · analogue 4 … 20 mA · analogue 1 … 5 V · RS485
Basic type	PS200

2 Safety

2.1 Intended use

The PSKA is a compact electronic pressure switch for gauge or negative pressure with LED display. Depending on the version it provides a switching output (optionally frequency), an analogue output 4 … 20 mA or 1 … 5 V, or an RS485 interface.

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 Personnel

The sensor may be set up and operated only by authorised personnel.

Caution Do not put the switch into operation if the sensor itself or the connecting cable is damaged. Do not use sharp or hard objects to operate the keys; they may damage the keys.

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

2.3 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 diffused silicon sensor measures the pressure; the LED shows the value continuously. The one-piece injection-moulded housing is protected to IP67 and connected via an M12 × 1 plug. The switching point is set with the up / down keys; the switching hysteresis is set to 0.5 % of the switching value ex works and can be adjusted.

3.2 Display and keys

Element	Function
LED display	real-time pressure value; blinking: switch point
Unit marking	pressure unit
– (left key)	decrease
+ (right key)	increase

3.3 Technical data

Item	Value
Measuring principle	diffused silicon sensor
Accuracy	≤ ± 0.5 % F.S.
Stability (annual drift)	≤ ± 0.3 % F.S.

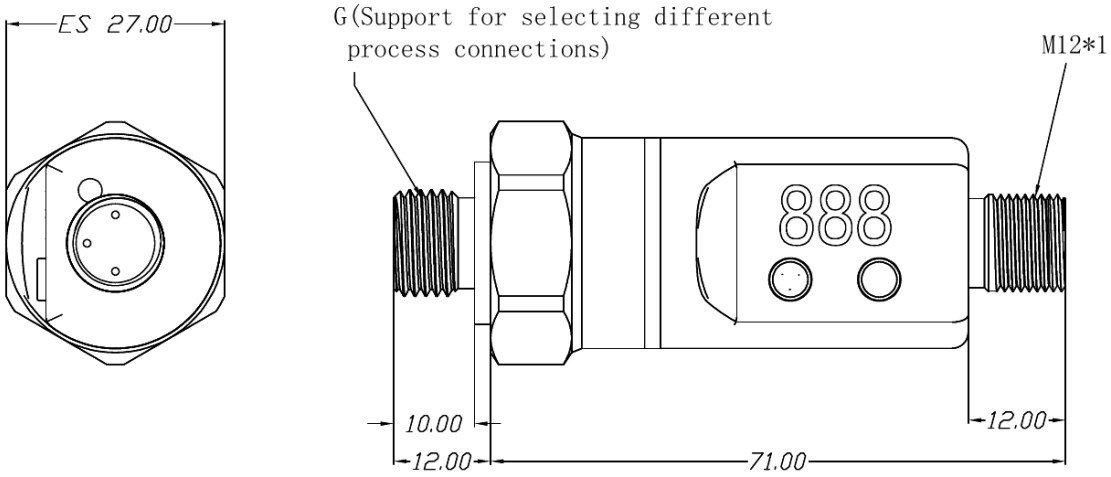
Item	Value
Switching accuracy	≤ ± 0.5 % F.S.
Medium temperature	–20 ... +85 °C
Ambient temperature	–20 ... +80 °C
Storage temperature	–30 ... +80 °C
Sensing diaphragm	stainless steel 316L / ceramic
Process connection	stainless steel 304
Seal	butadiene rubber / fluororubber
Housing	engineering plastic, one-piece injection-moulded
Protection class	IP67
Electrical connection	M12 × 1 connector
Supply voltage	12 ... 30 V DC
No-load current	max. 30 mA at 24 V DC
Protection	reverse polarity, overload
Output type	PNP / NPN, NO / NC selectable; frequency (100 Hz at full scale) optional
Switching load	< 200 mA
Response time	< 10 ms
Switching point	set by up / down keys
Hysteresis	0.5 % of the switching value ex works, adjustable
Analogue	4 ... 20 mA or 1 ... 5 V
Communication	RS485
Display	LED, digital reading

3.4 Pressure resistance

Measuring range	Max. overload pressure	Min. damage pressure
1 · 2 · 5 bar	× 5	× 6
10 · 16 · 25 bar	× 3	× 4
60 · 100 · 160 bar	× 2	× 3
250 · 400 bar	× 1.5	× 2
600 bar	× 1.3	× 1.6

4 Dimensions

Dimensions in mm. G = process thread (selectable), ES = width across flats.



5 Pin assignment M12 × 1 (4-pin)

Pin · wire	Switching output / frequency · analogue	RS485
1 · BN brown	supply +	supply +
3 · BU blue	supply –	supply –
4 · BK black	OUT1: SP1 PNP (default) / NPN · frequency · or 4 ... 20 mA or 1 ... 5 V	RS485 B
2 · WH white	not used	RS485 A

Pin 4 carries the output of the ordered version: switching output (SP1, PNP or NPN, or frequency with 100 Hz at full scale), analogue 4 ... 20 mA or analogue 1 ... 5 V.

6 Switching functions

When the pressure rises above or falls below the set switching limits (SP, rP), the switching state of the output changes. The switching output signal is selected in menu **001** (**out**, chapter 7.3):

Menu value	Function
NO	normally open
NC	normally closed
FNO	window function, normally open
FNC	window function, normally closed
F	frequency output

Hysteresis function: first set the switch point SP, then the reset point rP. If SP is changed again, the hysteresis changes with it.

7 Operation

7.1 Quick setting of the switch point

– In the main display, press **+** (right key) to increase or **–** (left key) to decrease the switch point.
– While the display blinks, it shows the switch point; when the display is not blinking, it shows the current measured value.
– After setting, the display stops blinking: the switch point has been changed.
– The quick setting can be enabled or disabled in menu **001** (**Son**).

7.2 Opening the menus

Important The settings in menus 001 and 006 should be changed only by qualified personnel.

– In the main display, hold **–** and **+** together for about 3 seconds: the display shows **LoK**.
– Select the menu with **+** / **–**: **001** (output settings, content depending on the version: 7.3, 7.4 or 7.5) or **006** (further settings, 7.6).
– Press **–** and **+** together to open the menu. **+** / **–** move between the items; **–** and **+** pressed together switch between an item and its value.
– At **End**, press **–** and **+** together to save and return to the main display.

7.3 Menu 001 – switching output version

Menu	Function	Factory setting
SP1	switch point	0.2 % of the range
rP1	reset point	SP1 – 0.5 %
dS1	switching delay of OUT1	0 s
dr1	reset delay of OUT1	0 s
out	switching output signal: **NO**, **NC**, **FNO**, **FNC**, **F** (chapter 6)	–
S1F	the reset point follows the switch point in proportion: with 0.90 and the switch point set to 30, the reset point is 27; with 0.00 it does not follow	–
Son	quick setting of the switch point with the keys: **on** enabled, **off** disabled	–
SL1	intelligent voltage detection; set to 0 to disable; the display shows the alarm **E-1** and the output is disconnected	–
End	save and exit	–

7.4 Menu 001 – analogue version

Menu	Function	Factory setting
ASP	lower limit of the analogue range	–
AEP	upper limit of the analogue range	–
out	analogue output signal: **420** = 4 ... 20 mA	**420**
End	save and exit	–

The values of **out** for the 1 ... 5 V version are not part of this manual; please ask.

7.5 Menu 001 – RS485 version

Menu	Function	Factory setting
id	device address	1
bud	baud rate: 0 = 2400, 1 = 4800, 2 = 9600, 3 = 19200, 4 = 115200	2
Por	parity: **no** = none, **EVE** = even, **odd** = odd	**no**
Sto	stop bits: 1 or 2	1
dP	decimal places	–
End	save and exit	–

7.6 Menu 006

Menu	Function	Factory setting
oSt	display offset: the displayed value is increased or decreased by the set value	0
FLt	filter coefficient, adjustable from 0 to 100	5
SPL	reaction rate of the displayed value (increase / decrease)	–
rES	factory data reset	–
P-n	PNP / NPN switchover	–
End	save and exit	–

8 Serial interface RS485 (Modbus RTU)

8.1 Data format

- The device uses the Modbus RTU format; data are exchanged in master-slave query mode.
- Each byte (10 bits): 1 start bit, 8 data bits (least significant bit first), 1 stop bit; coding 8-bit binary.
- Baud rates: 2400, 4800, 9600, 19200, 115200 (menu **bud**).

Start	Address	Function code	Data	CRC	End
≥ 3.5 characters	8 bit	8 bit	n × 8 bit	16 bit	≥ 3.5 characters

- Message frames are separated by idle intervals of at least 3.5 characters.
- The entire message frame must be sent as a continuous stream of characters.
- The idle interval between two characters must not exceed 1.5 characters.

8.2 Address and settings

- Address 0 is the broadcast address; broadcast is not supported.
- Device address 1 ... 250 (menu **id**, factory setting 1); the address must not conflict with the addresses of other devices.
- Factory setting: 9600 baud (code 2), 8 data bits, no parity, 1 stop bit.

8.3 Read command 03H

Request (hexadecimal): read three registers of device 01, starting at register 0000.

Byte	Meaning
01	device address
03	read command
00	start address, high byte
00	start address, low byte
00	number of registers, high byte
03	number of registers, low byte
05	CRC low
CB	CRC high

Response (hexadecimal): 01 03 06 00 00 01 23 00 01 10 83

Byte	Meaning
01	device address
03	read command
06	6 data bytes follow
00 00	register 0000: sign of the pressure (0000H = 0 = positive)
01 23	register 0001: pressure value (0123H = 291)
00 01	register 0002: decimal places (0001H = 1)
10	CRC low
83	CRC high

Result of the example: positive pressure, value 291 with one decimal place, i.e. pressure 29.1 (in the displayed unit).

8.4 Registers

Decimal	Hex	Modbus	Parameter	Data type	Explanation
0	0	40001	sign of the pressure	16-bit unsigned integer	0 = positive, 1 = negative
1	1	40002	pressure value	16-bit unsigned integer	value in the displayed unit
2	2	40003	decimal places of the pressure value	16-bit unsigned integer	1 = one decimal place (as displayed)

- Decimal, hexadecimal and Modbus register addresses are different notations of the same parameter. If the master software does not accept one notation, try one of the other two.
- Recommended polling interval: more than 100 ms. After reading one sensor, wait 100 ms before reading the next sensor.

9 Maintenance, cleaning and removal

9.1 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

9.2 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.