

Operating instructions
Betriebsanleitung
Mode d'emploi
Manual de instrucciones

Pressure switch model PSD-3x	GB
Druckschalter Typ PSD-3x	D
Pressostat type PSD-3x	F
Presostato modelo PSD-3x	E



Pressure switch model PSD-30

GB	Operating instructions model PSD-3x	Page	3 - 32
D	Betriebsanleitung Typ PSD-3x	Seite	33 - 64
F	Mode d'emploi type PSD-3x	Page	65 - 94
E	Manual de instrucciones modelo PSD-3x	Página	95 - 125

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 WIKA® ist eine geschützte Marke in verschiedenen Ländern.

Prior to starting any work, read the operating instructions!
 Keep for later use!

Vor Beginn aller Arbeiten Betriebsanleitung lesen!
 Zum späteren Gebrauch aufbewahren!

Lire le mode d'emploi avant de commencer toute opération !
 A conserver pour une utilisation ultérieure !

¡Leer el manual de instrucciones antes de comenzar cualquier trabajo!
 ¡Guardar el manual para una eventual consulta posterior!

Contents

1. General information	4
2. Safety	6
3. Specifications	9
4. Design and function	15
5. Transport, packaging and storage	15
6. Commissioning, operation	16
7. Maintenance and cleaning	29
8. Faults	30
9. Dismounting, return and disposal	31
Appendix 1: EC Declaration of Conformity for model PSD-3x	63

Declarations of conformity can be found online at www.wika.com.

1. General information

1. General information

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- The pressure switch described in the operating instructions has been designed and manufactured using state-of-the-art technology. All components are subject to stringent quality and environmental criteria during production. Our management systems are certified to ISO 9001 and ISO 14001.
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.
- The operating instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.
- Skilled personnel must have carefully read and understood the operating instructions, prior to beginning any work.
- The manufacturer's liability is void in the case of any damage caused by using the product contrary to its intended use, non-compliance with these operating instructions, assignment of insufficiently qualified skilled personnel or unauthorised modifications to the instrument.
- The general terms and conditions contained in the sales documentation shall apply.
- Subject to technical modifications.
- Further information:
 - Internet address: www.wika.de / www.wika.com
 - Relevant data sheet: PE 81.67
 - Application consultant: Tel.: (+49) 9372/132-8976
E-mail: support-tronic@wika.de

1. General information

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Explanation of symbols



WARNING!

... indicates a potentially dangerous situation which can result in serious injury or death if not avoided.



CAUTION!

... indicates a potentially dangerous situation which can result in light injuries or damage to the equipment or the environment if not avoided.



Information

... points out useful tips, recommendations and information for efficient and trouble-free operation.

Abbreviations

U ₊	Positive power terminal
U ₋	Negative power terminal
S ₊	Analogue output
SP1	Switch point 1
SP2	Switch point 2
C	Communication with IO-Link

2. Safety

2. Safety

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WARNING!

Before installation, commissioning and operation, ensure that the appropriate pressure switch has been selected in terms of measuring range, design and specific measuring conditions.

Non-observance can result in serious injury and/or damage to the equipment.



WARNING!

- Open the connections only after the system has been depressurised.
- Observe the working conditions in accordance with Chapter 3 "Specifications".
- Always operate the pressure switch within the overpressure safety range.



Further important safety instructions can be found in the individual chapters of these operating instructions.

2.1 Intended use

The pressure switch is used to convert pressure into an electrical signal indoors and outdoors.

The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

The technical specifications contained in these operating instructions must be observed. Improper handling or operation of the instrument outside of its technical specifications requires the instrument to be taken out of service immediately and inspected by an authorised WIKA service engineer.

The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.

2. Safety

2.2 Personnel qualification



WARNING!

Risk of injury if qualification is insufficient!

Improper handling can result in considerable injury and damage to equipment. The activities described in these operating instructions may only be carried out by skilled personnel who have the qualifications described below.

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Skilled personnel

Skilled personnel are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and on their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognising potential hazards.

Special operating conditions require further appropriate knowledge, e.g. of aggressive media.

2.3 Special hazards



WARNING!

For hazardous media such as oxygen, acetylene, flammable or toxic gases or liquids, and refrigeration plants, compressors, etc., in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.



WARNING!

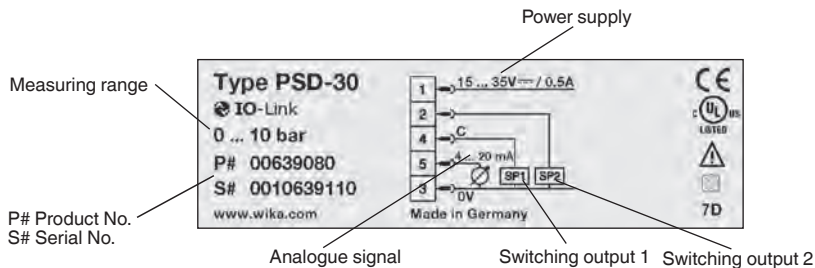
Residual media in dismantled pressure switches can result in a risk to persons, the environment and equipment. Take sufficient precautionary measures.

2. Safety

2.4 Labelling / safety marks

Product label

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If the serial number becomes illegible (e.g. due to mechanical damage or overpainting), traceability will no longer be possible.

Explanation of symbols



General danger symbol



cULus, Underwriters Laboratories Inc.®

The instrument was inspected in accordance with the applicable US standards and certified by UL.

Furthermore, instruments bearing this mark comply with the applicable Canadian standards on safety.



CE, Communauté Européenne

Instruments bearing this mark comply with the relevant European directives.

3. Specifications

3. Specifications

3.1 Measuring ranges

Relative pressure

bar	0 ... 1 ¹⁾	0 ... 1.6 ¹⁾	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25
	0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600	
psi	0 ... 15 ¹⁾	0 ... 25 ¹⁾	0 ... 30 ¹⁾	0 ... 50	0 ... 100	0 ... 160	0 ... 200	0 ... 300
	0 ... 500	0 ... 1,000	0 ... 1,500	0 ... 2,000	0 ... 3,000	0 ... 5,000	0 ... 8,000	

Absolute pressure

bar	0 ... 1 ¹⁾	0 ... 1.6 ¹⁾	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25
psi	0 ... 15 ¹⁾	0 ... 25 ¹⁾	0 ... 30 ¹⁾	0 ... 50	0 ... 100	0 ... 160	0 ... 200	0 ... 300

Vacuum and +/- measuring range

bar	-1 ... 0 ¹⁾	-1 ... 0.6 ¹⁾	-1 ... 1.5	-1 ... 3	-1 ... 5	-1 ... 9	-1 ... 15	-1 ... 24
psi	-14.5 ... 0	-14.5 ... 15	-14.5 ... 30	-14.5 ... 50	-14.5 ... 100	-14.5 ... 160	-14.5 ... 200	-14.5 ... 300

The given measuring ranges are also available in kg/cm² and MPa.

1) Not available for PSD-31.

Overpressure limit

2 times

3.2 Display

14-segment LED, red, 4-digit, 9 mm character size

Display can be turned electronically through 180°

Update (adjustable): 100, 200, 500, 1,000 ms

3. Specifications

3.3 Output signals

Switching output 1	Switching output 2	Analogue signal
PNP	-	4 ... 20 mA
PNP	-	DC 0 ... 10 V
PNP	PNP	-
PNP	PNP	4 ... 20 mA
PNP	PNP	DC 0 ... 10 V

Alternatively also available with an NPN instead of a PNP switching output.
With the IO-Link option, switching output 1 is always PNP.

Zero offset adjustment

maximum 3 % of span

Analogue signal

Current output load: $\leq 0.5 \text{ k}\Omega$

Voltage output load: $> 10 \text{ k}\Omega$

Settling time: 3 ms

Switching output

Switching output 1 and 2 are individually adjustable

Normally-open and normally-closed function: freely adjustable

Window and hysteresis function: freely adjustable

Switching current

- without IO-Link: maximum 250 mA
- with IO-Link: maximum 100 mA

Switching voltage: Power supply - 1 V

Settling time: $\leq 10 \text{ ms}$

3. Specifications

3.4 Voltage supply

Power supply

DC 15 ... 35 V

The power supply for the pressure switch must be made via an energy-limited electrical circuit in accordance with section 9.3 of UL/EN/IEC 61010-1 or an LPS to UL/EN/IEC 60950-1 or class 2 in accordance with UL1310/UL1585 (NEC or CEC). The power supply must be suitable for operation above 2,000 m should the pressure switch be used at this altitude.

Current consumption

maximum 100 mA

Total current consumption

- without IO-Link: maximum 600 mA including switching current
- with IO-Link: maximum 500 mA including switching current

3.5 Accuracy

Analogue signal

$\leq \pm 1.0$ % of span

Including non-linearity, hysteresis, zero-point and full scale deviations (corresponds to measured error per IEC 61298-2). Calibrated in vertical mounting position with process connection facing downwards.

Non-linearity: $\leq \pm 0.5$ % of span (BFSL, IEC 61298-2)

Long-term drift: $\leq \pm 0.2$ % of span (IEC 61298-2)

Switching output

Adjustment accuracy: $\leq \pm 0.5$ % of span

Display

$\leq \pm 1.0$ % of span ± 1 digit

Temperature error in rated temperature range

- typical: $\leq \pm 1.0$ % of span
- maximum: $\leq \pm 2.5$ % of span

3. Specifications

Temperature coefficients in rated temperature range

Mean TC zero point: $\leq \pm 0.2$ % of span/10 K (typical)

Mean TC span: $\leq \pm 0.1$ % of span/10 K (typical)

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3.6 Reference conditions

Temperature: 15 ... 25 °C

Atmospheric pressure: 950 ... 1,050 mbar

Humidity: 45 ... 75 % relative

Nominal position: Process connection lower mount (LM)

Power supply: DC 24 V

Load: see output signals

3.7 Operating conditions

Temperatures and humidity

Medium temperature: -20 ... +85 °C

Ambient temperature: -20 ... +80 °C

Storage temperature: -20 ... +80 °C

Rated temperature range: 0 ... 80 °C

Permissible humidity: 45 ... 75 % relative

Mechanics

Mounting position: as required

Vibration resistance: 10 g (IEC 60068-2-27, under resonance)

Shock resistance: 50 g (IEC 60068-2-6, mechanical)

Service life: 10 million load cycles

Ingress protection

IP 65 and IP 67

The stated ingress protection (per IEC 60529) only applies when plugged in using mating connectors that have the appropriate ingress protection.

3. Specifications

3.7 Electrical connections

Connections

- Circular connector M12 x 1; 4-pin
- Circular connector M12 x 1; 5-pin ¹⁾

1) Only for version with two switching outputs and analogue signal

Electrical safety

Short-circuit resistance: S₊ / SP1 / SP2 vs. U-
Reverse polarity protection: U₊ vs. U-
Insulation voltage: DC 500 V
Overvoltage protection: DC 40 V

3.8 Materials

Wetted parts

Process connection: Stainless steel 316L
Pressure sensor

- ≤ 10 bar: Stainless steel 316L
- > 10 bar: Stainless steel 13-8 PH

Non-wetted parts

Case: Stainless steel 304
Keyboard: TPE-E
Display window: PC
Display head: PC+ABS-Blend

3. Specifications

3.9 Approvals, directives and certificates

Approvals

Standard	without
Option	cULus

CE conformity

- Pressure equipment directive 97/23/EC
- EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application)

RoHS conformity

Yes

For special model numbers, e.g. PSD-30000, please note the specifications stated on the delivery note.

For further specifications see WIKA data sheet PE 81.67 and the order documentation.

4. Design and function / 5. Transport, packaging and storage

4. Design and function

4.1 Description

By means of a sensor element and by supplying power, the prevailing pressure is converted into a switching signal or an amplified standardised electrical signal via the deformation of a diaphragm. This electrical signal varies in proportion to the pressure and can be evaluated accordingly.

PSD-30: Process connection with internal diaphragm (standard version).

PSD-31: Process connection with flush diaphragm for highly viscous or crystallising media that may clog the bore of the process connection.

4.2 Scope of delivery

Cross-check the scope of delivery with the delivery note.

For flush design (model PSD-31) with pre-mounted sealings and protection cap.

5. Transport, packaging and storage



For the protection of the diaphragm, the flush design (model PSD-31) is delivered with a special protection cap.

- In order to avoid damage at the diaphragm and/or the process connection thread, remove the protection cap by hand only just before installation.
- Keep the protection cap for subsequent storage or transport.
- Fit the protection cap before dismantling and transporting the instrument.

5.1 Transport

Check the instrument for any damage that may have been caused by transport. With flush design (model PSD-31), additionally check the diaphragm for any optical damage.

Obvious damage must be reported immediately.

5. Transport, packaging and storage / 6. Commissioning, ...

5.2 Packaging

Do not remove packaging until just before mounting.

Keep the packaging as it will provide optimum protection during transport (e.g. change in installation site, sending for repair).

5.3 Storage

Permissible conditions at the place of storage:

- Storage temperature: -20 ... +80 °C
- Humidity: 45 ... 75 % relative humidity (no condensation)

In order to protect the diaphragm, mount the protection cap before storing the instrument.



WARNING!

Before storing the instrument (following operation), remove any residual media. This is of particular importance if the medium is hazardous to health, e.g. caustic, toxic, carcinogenic, radioactive, etc..

6. Commissioning, operation



CAUTION!

Only use the pressure switch if it is in perfect condition with respect to safety.

Check the following points before commissioning:

- Check the diaphragm for any visible damage, since this is a safety-relevant component.
- Leaking fluid is indicative of damage.



Required tool: SW 27 open-ended spanner, screwdriver

6. Commissioning, operation

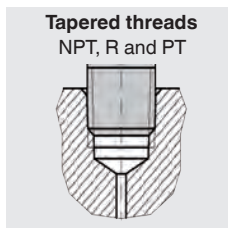
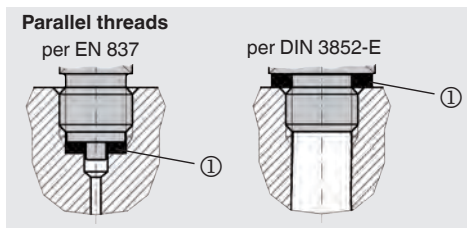
6.1 Making the mechanical connection

- With flush process connections (model PSD-31), remove the protection cap not until shortly before mounting. During installation, ensure that the diaphragm is not damaged.
- The sealing faces at the instrument always have to be clean.
- Only ever screw in, or unscrew, the instrument via the spanner flats.
- Never use the case as a working surface.
- The correct torque depends on the dimensions of the pressure connection and the gasket used (form/material).
- When screwing in, do not cross the threads.
- For information on tapped holes and welding sockets, see Technical Information IN 00.14 at www.wika.de.



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Seal



Correct sealing of the process connections with parallel threads at the sealing face ① must be made using suitable flat gaskets, sealing rings or WIKA profile sealings.

The sealing of tapered threads (e.g. NPT threads) is made by providing the thread with additional sealing material such as, for example, PTFE tape (EN 837-2).



For further information on seals see WIKA data sheet AC 09.08 or under www.wika.com.

6. Commissioning, operation

6.2 Making the electrical connection

- The instrument must be earthed via the process connection!
- The power supply for the pressure switch must be made via an energy-limited electrical circuit in accordance with section 9.3 of UL/EN/IEC 61010-1 or an LPS to UL/EN/IEC 60950-1 or class 2 in accordance with UL1310/UL1585 (NEC or CEC). The power supply must be suitable for operation above 2,000 m should the pressure switch be used at this altitude.
- For cable outlets, make sure that no moisture enters at the cable end.

Connection diagrams

Circular connector M12 x 1; 4-pin



Assignment

U ₊	U ₋	S ₊	SP1	SP2
1	3	2	4	2

Circular connector M12 x 1; 5-pin



Assignment

U ₊	U ₋	S ₊	SP1	SP2
1	3	5	4	2

Zero point adjustment

Check the indicated zero point on the display during commissioning.

Should an offset be displayed as a result of installation, this can be reset in programming mode with the 0SET parameter



- Carry out zero point adjustment for relative and vacuum pressure measuring ranges in a depressurised state.
- Carry out zero point adjustment of absolute pressure ranges from 0 bar absolute (vacuum). Since appropriate references are required for this, we recommend that this is only carried out by the manufacturer.

6. Commissioning, operation

6.2 Operating modes

System start

- Display is fully activated for 2 sec.
- When the pressure switch is powered up within the range of the hysteresis, the output switch is set to "not active" by default.

Display mode

Normal operation, display pressure value

Programming mode

Setting the parameters

6.3 Keys and functions

The pressure switch has two operating modes, the display mode and the programming mode. The selected operating mode determines the respective function of the key.



Jumping into the programming mode

Keep the "MENU" key pressed for approx. 5 seconds. If the password is set to ≠ 0000, a password will be requested. If authentication is successful, then it enters the programming mode, otherwise it reverts to display mode.



Returning to the display mode

Simultaneous pressing of both keys.

6. Commissioning, operation

Status switching output 2 (optional)

Status switching output 1

Display mode

- ▶ Short press
Display of the unit
- ▶ Long press
Display of the set parameters see chapter 6.4 "Parameters"

Programming mode

- ▶ Short press
Menu up
Parameter value up (step-wise)
- ▶ Long press
Menu up
Parameter value up (fast)



4-digit LED display

- Display pressure value
- Display menu item
- Display parameter

Display mode

- ▶ Short press
Display of the unit
- ▶ Long press
Jumping into the programming mode

Programming mode

- ▶ Short press
Menu up
Parameter value up (step-wise)
- ▶ Long press
Menu up
Parameter value up (fast)

Display mode

- ▶ Short press
Display of the unit

Programming mode

- ▶ Short press
Select menu item
Confirmation of the input

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6. Commissioning, operation

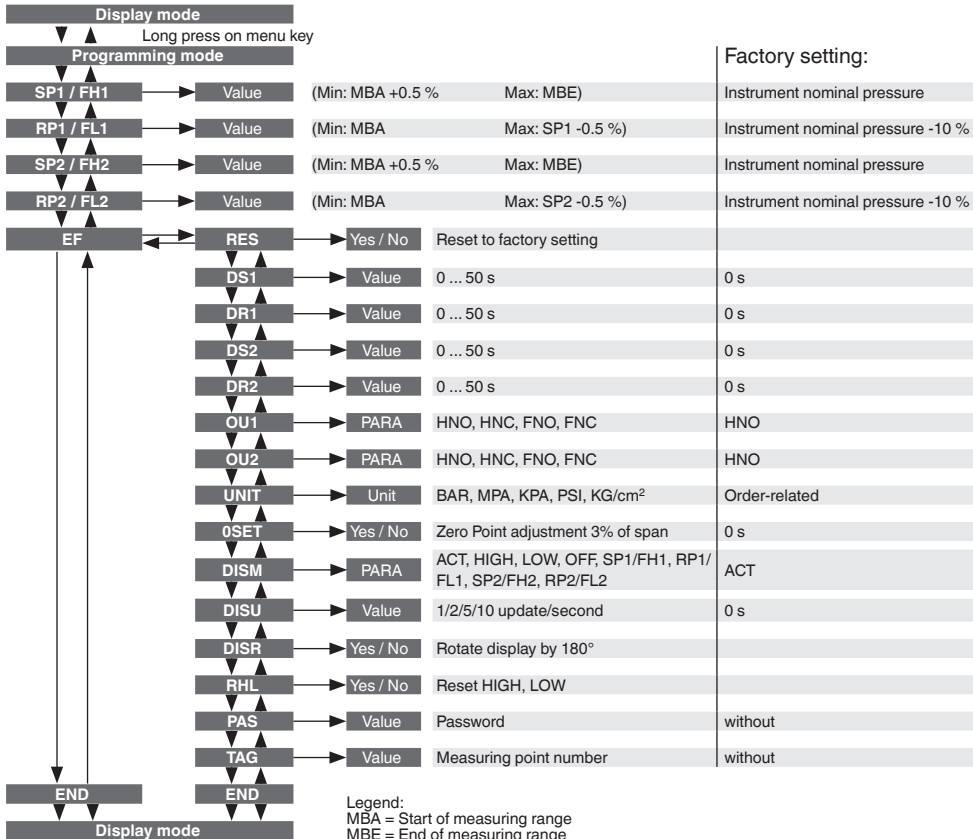
6.4 Parameters

Parameter	Description
SP1/SP2	Hysteresis function: Switch point switching output (1 or 2)
FH1/FH2	Window function: Window high switching output (1 or 2)
RP1/RP2	Hysteresis function: Reset point switching output (1 or 2)
FL1/FL2	Window function: Window low switch output (1 or 2)
EF	Extended programming functions
RES	Return the set parameter to the factory settings
DS1/DS2	Switch delay time, which must occur without interruption before any electrical signal change occurs (SP1 or SP2)
DR1/DR2	Switch delay time, which must occur without interruption before any electrical signal change occurs (RP1 or RP2)
OU1	Switching function switching output (1 or 2)
OU2	HNO = hysteresis function, normally open HNC = hysteresis function, normally closed FNO = window function, normally open FNC = window function, normally closed
UNIT	Changing units (If the measuring range is outside the indication range, a unit switching is not possible and the UNIT parameter is not indicated)
OSET	Offset adjustment (3 % of span)
DISM	Display value in display mode ACT = actual pressure value; LOW, HIGH = minimum, maximum temperature value OFF = display off; SP1/FH1 = function switch point 1, RP1/FL1 = function reset point 1, SP2/FH2 = function switch point 2, RP2/FL2 = function reset point 2
DISU	Display update 1, 2, 5, 10 updates/second
DISR	Rotate display indicator by 180°
RHL	Clear the Min- and Max-value memories
PAS	Password input, 0000 = no password Password input digit by digit
TAG	Input of a 16-figure alphanumeric measuring point number

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6. Commissioning, operation

Menu (programming and factory setting)



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6. Commissioning, operation

6.5 Switching functions

Hysteresis function

If the system pressure fluctuates around the set point, the hysteresis keeps the switching status of the outputs stable. With increasing system pressure, the output switches when reaching the switch point (SP).

- Contact normally open (HNO): active
- Contact normally closed (HNC): inactive

With system pressure falling again, the output will not switch back before the reset point (RP) is reached.

- Contact normally open (HNO): inactive
- Contact normally closed (HNC): active

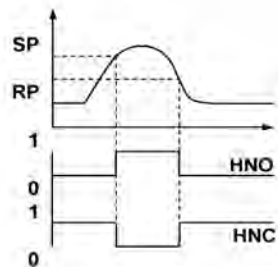


Fig.: Hysteresis function

Window function

The window function allows for the control of a defined range.

When the system pressure is between window High (FH) and window Low (FL), the output switches on.

- Contact normally open (FNO): active
- Contact normally closed (FNC): inactive

When the system pressure is outside window High (FH) and window Low (FL), the output does not switch on.

- Contact normally open (FNO): inactive
- Contact normally closed (FNC): active

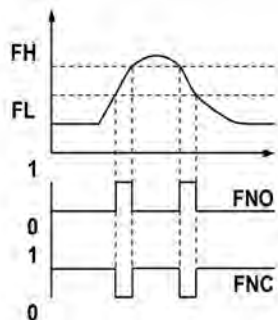


Fig.: Window function

6. Commissioning, operation

Delay times (0 ... 50 s)

This makes it possible to filter out unwanted pressure peaks of a short duration or a high frequency (damping).

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The pressure must be present for at least a certain pre-set time for the output to switch on. The output does not immediately change its status when it reaches the switching event (SP), but rather only after the pre-set delay time (DS).

If the switching event is no longer present after the delay time, the switch output does not change.

The output only switches back when the system pressure has fallen down to the reset point (RP) and stays at or below the reset point (RP) for at least the pre-set delay time (DR).

If the switching event is no longer present after the delay time, the switch output does not change.

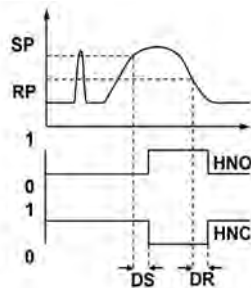


Fig.: Delay times

6. Commissioning, operation

6.6 Description of the IO-Link functionality (optional)

IO-Link is a point-to-point connection for the communication of the PSD-3x with an IO-Link master.

Physical layer

The PSD-3x supports the following features:

IO-Link specification:	Version 1.0
SIO mode:	Yes
Minimum cycle time:	2.3 ms
Rate:	COM2 (38.4 kBaud)
Process data length:	16 bit (Frametype 2.2)

Process data

The PSD-3x has 1 or 2 digital outputs. Both switching outputs are transmitted as process data over the IO-Link.

In the 'SIO Mode' (Standard I/O Mode), i.e. no IO-Link operation, the switching output 1 will switch on pin 4 of the M12 connector.

In the IO-Link communication mode, this pin is reserved exclusively for communication. Switching output 2 is always switched in addition on pin 2 of the M12 connector.

With a Frametype 2.2, the 16-bit process data from the pressure switch are transmitted cyclically. Bit 0 is the state of switching output 1 and Bit 1 is the state of switching output 2. Where 1 and DC 24 V correspond to the "closed" logic state of the respective output.

The remaining 14 bits contain the analogue value measured by the pressure switch. The start of the measuring range (MBA) corresponds to a value of 1,000 d and the end of the measuring range (MBE) corresponds to a value of 9,000 d.

Bit	Process value	Value range
0	OU1	0 = off, 1 = on
1	OU2	0 = off, 1 = on
2 ... 15	Measured value (integer)	1,000 d = MBA 9,000 d = MBE

6. Commissioning, operation

Service data (SPDU service protocol data unit)

Service data is always acyclic and exchanged on the request of the IO-Link Master

With the help of the service data, the following parameter values or instrument status can be read:

IO-Link-specific

Index (decimal)	Object name	Format	Access	Factory setting	Remarks
16	Vendor name	Visible string	R	WIKA Alexander Wiegand SE & Co. KG	
17	Vendor text	Visible string	R	www.wika.com	
19	Product ID	Visible string	R	e.g. 1013093	This SPDU determines the relationship with the corresponding IODD.
21	Serial number	Visible string	R	S#	Corresponds to serial number on the product label (S#).
24	TAG	max. 16 Byte Visible string	R/W	-	Customer-specific measuring point number
33	Last event	Visible string	R	-	
40	Process data In	16 Bit unsigned	R	-	Display of the process data that are cyclically transferred.
243	Order no	Visible string	R	P#	Corresponds to product number on the product label (P#).

Manufacturer-specific

Index (decimal)	Object name	Format	Access	Value range	Factory setting	Remarks
65	SP1 or FH1	16 Bit unsigned	R/W	1,040 ... 9,000	9,000	Switch point/window High switching output 1
66	RP1 or FL1	16 Bit unsigned	R/W	1,000 ... 8,960	8,200	Reset point/window Low switching output 1

6. Commissioning, operation

Index (decimal)	Object name	Format	Access	Value range	Factory setting	Remarks
67	OU1	8 Bit Enumeration	R/W	0 = HNO = hysteresis function, normally open 1 = HNC = hysteresis function, normally closed 2 = FNO = window function, normally open 3 = FNC = window function, normally closed	0	Switching function switching output 1
68	SP2 or FH2	16 Bit unsigned	R/W	1,040 ... 9,000	9,000	Switch point/window high switching output 2
69	RP2 or FL2	16 Bit unsigned	R/W	1,000 ... 8,960	8,200	Reset point/window Low switching output 2
70	OU2	8 Bit Enumeration	R/W	0 = HNO = hysteresis function, normally open 1 = HNC = hysteresis function, normally closed 2 = FNO = window function, normally open 3 = FNC = window function, normally closed	0	Switching function switching output 2
72	Unit	8 Bit Enumeration	R/W	0 = bar 1 = Mpa 2 = kPa 3 = psi 4 = kg/cm ²	Order-related	Unit change. MBA and MBE must be read again after writing.
73	HIGH	16 Bit unsigned	R	0 ... 10,000	-	Max. value memory
74	LOW	16 Bit unsigned	R	0 ... 10,000	-	Min. value memory
75	DS1	16 Bit unsigned	R/W	0 ... 50,000 (0 ... 50 s)	0	Switch delay time switch point 1

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6. Commissioning, operation

Index (decimal)	Object name	Format	Access	Value range	Factory setting	Remarks
76	DR1	16 Bit unsigned	R/W	0 ... 50,000 (0 ... 50 s)	0	Switch delay time reset point 1
77	DS2	16 Bit unsigned	R/W	0 ... 50,000 (0 ... 50 s)	0	Switch delay time switch point 2
78	DR2	16 Bit unsigned	R/W	0 ... 50,000 (0 ... 50 s)	0	Switch delay time reset point 2
240	MBA	32 Bit IEEE 754 Float	R	-	1,000	The pressure value is always linearised such that the MBA equals the value 1000 and the MBE equals the value 9000.
241	MBE	32 Bit IEEE 754 Float	R	-	9,000	The pressure value is always linearised such that the MBA equals the value 1,000 and the MBE equals the value 9,000.
250	DISR	8 Bit Enumeration	R/W	0 = Standard 1 = 180° rotated	0	Turn display indicator by 180°
251	DISM	8 Bit Enumeration	R/W	0 = Act 1 = HIGH 2 = LOW 3 = SP1/FH1 4 = RP1/FL1 5 = SP2/FH2 6 = RP2/FL2 7 = Off	0	Display value in display mode
252	PAS	16 Bit unsigned	R/W	0 ... 9,999	-	Enter password in order to set the parameters at the instrument. Password 0 = no password
253	LOCK	8 Bit Enumeration	R/W	0 = Unlocked 1 = Locked	0	General keylock

6. Commissioning, operation / 7. Maintenance and cleaning

Index (decimal)	Object name	Value	Remarks
2	RES	130	Return the set parameter to the factory settings
2	LOCK	163	General keylock On
2	UNLOCK	164	General keylock Off
2	RHL	176	Clear the Min- and Max-value memories
2	OSET	177	Zero-point adjustment (3 % of span) see page 18

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7. Maintenance and cleaning

7.1 Maintenance

This instrument is maintenance-free.

Repairs must only be carried out by the manufacturer.

7.2 Cleaning



CAUTION!

- Before cleaning, correctly disconnect the instrument from the pressure supply, switch it off and disconnect it from the mains.
- Clean the instrument with a moist cloth.
- Electrical connections must not come into contact with moisture.
- Wash or clean the dismantled instrument before returning it in order to protect personnel and the environment from exposure to residual media.
- Residual media in dismantled instruments can result in a risk to persons, the environment and equipment.
- Take sufficient precautionary measures.
- Do not use any pointed or hard objects for cleaning, as they may damage the diaphragm of the process connection.

For information on returning the instrument see chapter 9.2 "Return".



8. Faults

8. Faults

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In the event of any faults, first check whether the pressure switch is mounted correctly, mechanically and electrically.

Error display

Via the instrument's display internal errors of the instrument are output. The following table shows the error codes and their meaning.

Error	Description
ATT1	On changing the switch point, the system automatically reduces the reset point.
ATT2	Zero-point adjustment error, current pressure is outside the limits
ATT3	Password entered for menu access is incorrect
ERR	Internal error
OL	Overpressure, measuring range exceeded > approx. 5% (display blinks)
UL	Underpressure, below measuring range < approx. 5 % (display blinks)

Acknowledgement of an error display by pressing the "Enter" key.

Problem	Possible cause	Measure
No output signal	Cable break	Check the continuity
No output signal	No/wrong power supply	Rectify the power supply
No/wrong output signal	Wiring error	Observe the pin assignment
Constant output signal upon change in pressure	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
Deviating zero point signal	Overpressure limit exceeded	Observe the permissible overpressure limit
Signal span too small	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
Signal span too small	Power supply too high/low	Rectify the power supply

9. Dismounting, return and disposal

Problem	Possible cause	Measure
Signal span drops	Humidity has entered	Assemble the cable correctly
Signal span drops/too small	Diaphragm damaged, e.g. due to impacts, abrasive/aggressive medium; corrosion at diaphragm/process connection	Contact manufacturer and replace instrument

If complaint is unjustified, we will charge you the complaint processing fees.



CAUTION!

If deficiencies cannot be eliminated by means of the measures listed above, shut down the instrument immediately, and ensure that pressure and/or signal are no longer present, and secure the instrument from being put back into operation inadvertently. In this case, contact the manufacturer. If a return is needed, follow the instructions given in chapter 9.2 "Return".

9. Dismounting, return and disposal



WARNING!

Residual media in dismantled pressure switches can result in a risk to persons, the environment and equipment.
Take sufficient precautionary measures.

9.1 Dismounting

Only disconnect the pressure switch once the system has been depressurised!

9. Dismounting, return and disposal

9.2 Returns



WARNING!

Absolutely observe the following when shipping the instrument:

All instruments delivered to WIKA must be free from any kind of hazardous substances (acids, leachate, solutions, etc.).

When returning the instrument, use the original packaging or a suitable transport package.

Enclose the completed return form with the instrument.



The return form can be found under the heading 'Service' at www.wika.com

9.3 Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.