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## 1. Information on This Operating Instruction

- The manual is aimed at specialists and semi-skilled personnel.
- Please read the instructions carefully before carrying out any operation and keep the specified order.
- Thoroughly read and understand the information in chapter 2 "Safety Instructions".

If you have any problems or questions, please contact your supplier or contact us directly at:



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### 1.1 Pictographs Used in This Manual

In this manual, pictographs are used as hazard warnings.

Particular information, instructions and restrictions designed for the prevention of personal or substantial property damage:



**WARNING!** Is used to warn you against an imminent danger that may result in personal injury or death.

**IMPORTANT!** Is used to warn you against a possibly hazardous situation that may result in personal, property or environmental damage.

**CAUTION!** Is used to draw your attention to important recommendations to be observed. Disregarding them may result in property damage.



**DANGER!** This symbol is used for hazards generated by electric current. Disregarding these safety instructions may result in serious or fatal injuries.



**DANGER OF EXPLOSION!** Indicates a potentially hazardous situation, which may result from existing explosive gases and dusts. Disregarding the safety instructions may result in explosions.



Passages in the text containing **explanations, information or advice** are highlighted with this pictograph.



The following symbol highlights **actions** you have to conduct or **instructions** that have to be strictly observed.

### 1.2 Exclusion of Liability

We accept no liability for any damage or malfunction resulting from incorrect installation, inappropriate use of the device or failure to follow the instructions in this manual as well as technical regulations.

## 2. Safety Instructions

Please read this operating instruction thoroughly before operating the electronic pressure switch.

Disregarding the containing warnings, especially the safety instructions, may result in danger for people, the environment, and the device and the system it is connected to.

The electronic pressure switch corresponds with the state of engineering at the time of printing. This concerns the accuracy, the operating mode and the safe operation of the device. In order to guarantee that the device operates safely, the operator must act competently and be conscious of safety issues.

The ARMANO Messtechnik GmbH provides support for the use of its products either personally or via relevant literature. The customer verifies that our product is fit for purpose based on our technical information. The customer performs customer and application specific tests to ensure that the product is suitable for the intended use. With this verification, all hazards and risks are transferred to our customers. Our warranty expires in case of inappropriate use.

#### **Qualified personnel:**

- The personnel that is charged for the installation, operation and maintenance of the instrument must hold a relevant qualification. This can be based on training or relevant tuition. The personnel must be aware of this manual and have access to it at all times.
- The electrical connection shall be carried out by a fully qualified electrician only.

#### **General safety instructions:**

- In all work, the existing national regulations for accident prevention and safety at the workplace must be complied with. Any internal regulations of the operator must also be complied with, even if these are not mentioned in this manual.
- Handle this highly sensitive electronic measuring device carefully, both in its packaged and unpackaged condition!
- Any changes or modifications to the device are not permissible.
- Do not throw or drop the device!
- To avoid damaging the membrane, please remove the packaging and, if applicable, the protection cap not until installation of the device! The protection cap must be stored!
- After disassembly, this protection cap must be reattached on the membrane immediately.
- Handle an unprotected membrane with extreme care; it can easily be damaged.

# Operating Instructions

## Electronic Pressure Switch PS 300

- Do not exert any force when installing the devices to prevent damage to the device and the system!
- The display and the plastic housing are provided with a rotational limiter. Do not try to overtighten the display or housing by using force.
- When installing outdoors or in humid environments, please note the following:
  - The device should be electrically connected immediately after installation to ensure that no moisture can ingress in the plug connector. Otherwise, the ingress of moisture must be prevented, e.g. by using a suitable protective cap (the degree of protection specified in the data sheet applies to the connected device).
  - Select an installation position that allows splash water and condensation to drain off. Ensure that sealing surfaces are not exposed to standing liquid.
  - Install the device in such a way that it is protected from direct sunlight. In the worst case, direct sunlight may result in the maximum permissible operating temperature being exceeded, which can then damage the device or affect its ability to function correctly. If the internal pressure in the device increases, this may also cause temporary measurement errors.
- During installation, ensure that the pressure connection is not subjected to any mechanical stresses higher than that permitted, as this could lead to a shift in the characteristic curve or result in damage. This especially applies to very small pressure ranges as well as to devices with a plastic pressure connection.
- For hydraulic systems, position the device in a way that the pressure connection points upwards (ventilation).
- Provide a cooling extension when used in steam pipes.
- If there is a risk that a device installed outdoors might be damaged by lightning strike or overvoltage, we recommend the provision of an overvoltage protection between the power supply unit/switch cabinet and the device.
- If the device is installed with the pressure connection facing upwards, make sure that no liquid runs down the housing. This could result in moisture and dirt blocking the gauge reference in the housing and cause malfunctions. If necessary, remove any dust and dirt from the edge of the screw fitting of the electrical connection.



### **Risk of death due to electric shock**

Always install the device in a unpressurised and currentless state!

### **Risk of death in case of improper installation**

The installation must be carried out by appropriately qualified personnel only, who have read and understood the operating instruction.



### **Safety instructions oxygen:**



**DANGER OF EXPLOSION** in case of improper use of instruments suitable for oxygen applications! To ensure safe use, the following aspects have to be observed:

- Ensure that your instrument was ordered and supplied as special version for oxygen applications.
- When being despatched, the device is packed in a plastic bag to protect it from contaminations. In addition, any skin contact must be avoided during unpacking and installation, so that no grease residues remain on the device!
- During installation, the applicable regulations concerning explosion protection have to be regarded. Please check, whether an approval as intrinsically safe equipment is required in addition to the suitability for oxygen (The device delivered has no ATEX approval!).
- Please regard that the entire system must comply with the requirements of the BAM (Federal Institute for Materials Research and Testing), DIN 19 247.
- For oxygen applications >25 bar, pressure switch versions without sealing are recommended.
- Pressure switches with sealing rings made of 70 EPDM 281: permissible maximum values: 15 bar/+60 °C and 10 bar/+60 °C to +90 °C (BAM approval).
- Pressure switches with sealing rings made of FKM (Vi 567): permissible maximum values: 25 bar/150 °C (BAM approval).

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## Electronic Pressure Switch PS 300

### 3. Device Description

The pressure switch is equipped with an IO-Link interface as standard in order to exchange process data, diagnostic reports and status information with a superordinate control level. The parameters are set either via this control level or via the VDMA-compliant menu system, and can be carried out on site using the two buttons.

The PS 300 is designed for mechanical and plant engineering sectors. A large number of inch, metric or NPT threads are available for the user in order to ensure optimal integration into the application. In addition, unusual display positions can be compensated due to the multiple rotatability of the display to ensure that the user is able to read the vital information without any problems.

#### Nameplate and sticker:

The nameplate, with which the device can be identified, is located on the pressure switch. It provides the most important data.

		<b>ARMANO</b> Messtechnik GmbH	
<b>PS 300</b>	 <b>IO-Link</b>	Prod.-No.: 23456789	
Instr.-No.:	203251234	<a href="#">Connector Pinout:</a>	
Input:	0...10 bar	1:	+Ub
Supply:	18...30 VDC	3:	0V/Signal
Output 1:	IO-Link/SIO (PNP)	2:	PNP
Output 2:	PNP	4:	IO-Link/SIO
			

Figure 1: nameplate

 Do not remove the nameplate from the device!

#### Scope of delivery:

Please check whether all listed parts are included in the scope of delivery without any damage and whether they have been delivered according to your order:

- Electronic pressure switch PS 300
- For mechanical connections DIN 3852:
  - O-ring (pre-assembled)
- Operating instruction

### 3.1 Intended Use

The electronic pressure switch PS 300 is suitable for measuring and monitoring vacuum, positive pressures and absolute pressures of liquid and gaseous media for pressure ranges from 0 – 600 mbar to 0 – 600 bar.



#### WARNING!

Risk of death due to unintended use!

### 4. Technical Data

<b>Process connection</b>	
• material	stainless steel 316L (1.4404)
• connection thread	G 1/4" (DIN 3852)
<b>Measuring cell/sensor</b>	ceramic sensor made of Al <sub>2</sub> O <sub>3</sub> 96 %
<b>Sensor sealing</b>	FKM
<b>Case</b>	PA 6.6, polycarbonate, degree of protection IP67, rotatable
<b>Indication/LC display</b>	4 digits, visible area: 22.5 x 10.5 mm (0.89 x 0.41") digit height 7 mm (0.28") 4 LEDs for unit conversion (bar, mbar, psi, MPa)
<b>Supply voltage</b>	U <sub>B</sub> = 18...30 V DC
<b>Output signal 1</b>	IO-Link/SIO (PNP/NPN, switchable)
<b>Output signal 2</b>	4...20 mA, 0...10 V, PNP/NPN switchable
<b>Measurement accuracy</b>	±0.5 % FSO
<b>Temperature influence</b>	0.3 % FS/10 K
<b>Operating temperature</b>	-40 / + 85 °C (-40 / +185 °F)
<b>Medium temperature</b>	-40 / +125 °C (-40 / +257 °F)
<b>Storage temperature</b>	-40 / +100 °C (-40 / +212 °F)

### Pressure Ranges/Overload Capability in bar:

Vacuum	Positive pressure	Absolute pressure	Overload	Burst pressure
-1 / 0	-	-	5	7.5
-	0 – 0.6	0 – 0.6	5	7.5
-	0 – 1.0	0 – 1.0	5	7.5
-	0 – 1.6	0 – 1.6	10	15
-	0 – 2.5	0 – 2.5	10	15
-	0 – 4	0 – 4	20	25
-	0 – 6	0 – 6	40	50
-	0 – 10	0 – 10	40	50
-	0 – 16	0 – 16	80	120
-	0 – 25	0 – 25	80	120
-	0 – 40	0 – 40	105	210
-	0 – 60	0 – 60	210	420
-	0 – 100	0 – 100	210	420
-	0 – 160	0 – 160	600	1000
-	0 – 250	0 – 250	1000	1250
-	0 – 400	0 – 400	1000	1250
-	0 – 600	0 – 600	1000	1250

PN ≥ 1 bar: vacuum resistance unrestricted

## 5. Mounting

### 5.1 General Installation Steps

- Carefully remove the device from its packaging and dispose of it properly.
- Proceed as described in the following installation steps according to the connection variant.

### 5.2 Mounting Steps for Connections According to DIN 3852



**IMPORTANT!** Do **not** use any additional sealing material such as tow, hemp or Teflon tape!

- Make sure that the O-ring is seated undamaged in the designated groove.
- Ensure that the sealing face of the mating part has a flawless surface (R<sub>z</sub> 3.2).
- Screw the device into the mounting thread by hand.
- If you have a device with a knurled ring, it has to be screwed in by hand only.
- Devices with a wrench flat have to be tightened with a spanner (with steel wrench flat:
  - G ¼": approx. 5 Nm; G ½": approx. 10 Nm;
  - G ¾": approx. 15 Nm; G 1": approx. 20 Nm).
- **The specified tightening torques must not be exceeded!**

### 5.3 Mounting Steps for Connections According to DIN EN 837

- Use a suitable sealing, depending on the medium and the pressure to be measured (e.g. a copper seal).
- Ensure that the sealing face of the mating part has a flawless surface (R<sub>z</sub> 6.3).
- Screw the device into the mounting thread by hand.
- Then, tighten the device with a spanner (for G ¼": approx. 20 Nm; for G ½": approx. 50 Nm).
- **The specified tightening torques must not be exceeded!**

### 5.4 Mounting Steps for NPT Connections

- An additional sealant, e.g. PTFE tape, can be used for sealing.
- Screw the device into the mounting thread by hand.
- Then, tighten the device with a spanner (for ¼" NPT: approx. 30 Nm; for ½" NPT: approx. 70 Nm).
- **The specified tightening torques must not be exceeded!**

### 5.5 Positioning of the Display Module

The display is rotatable, ensuring perfect readability even in unusual installation positions. Its rotational capability is illustrated below (please note the rotation limits).

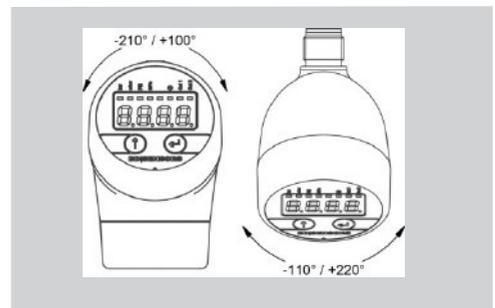


Figure 2: display module

### 5.6 Electrical Installation



**Risk of death due to electric shock**  
Install the device in a currentless state!



**WARNING!** The supply has to comply with protection class II (protective insulation)!



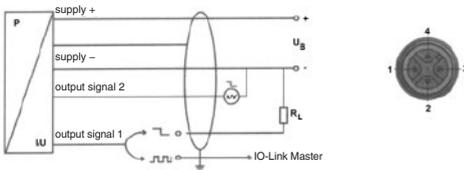
**WARNING!** The pressure switch shall be supplied with limited energy (according to UL 61010) or NEC Class 2 power supply.

Electrically connect the instrument according to the specifications given on the nameplate, in the pin assignment table below and on the wiring diagram.

**Pin Assignment Table**

Electrical connections	M 12x1 (4-pin) metal (without analogue output)	M 12x1 (4-pin) metal (with analogue output)
Supply +	1	1
Supply -	3	3
Signal +	-	2
Communication/switching output		
Output 1	4	4
Output 2	2	-
Shield	sensor/case	sensor/case

3-wire system (IO-Link / SIO with analogue output)



If possible, use a shielded and twisted multicore cable for the electrical connection.

### 6. Commissioning



Before commissioning, check for proper installation and for any visible defects of the device.

Commissioning shall only be carried out by qualified, specially trained personnel, who read and understood this manual!



**WARNING!** The device has to be operated within the specifications only! (Please refer to the technical data in the data sheet.)

### 7. Operation

#### 7.1 Operating and Indicating Elements

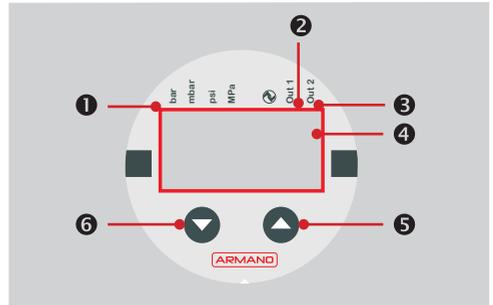


Figure 3: keypad for devices with 2 switching outputs

- ① 4 LEDs for the indication of the units
- ② LED Out 1 yellow: status indication switching output 1
- ③ LED Out 2 green: status indication switching output 2
- ④ 7 segment indication for measured value and parameters
- ⑤ button for navigation within one menu
- ⑥ button for navigation between different menus

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### LED Status in Normal Mode

yellow LED	on	switch point 1 reached, switching output enabled
	off	switch point not reached
green LED	on	switch point 2 reached, switching output enabled
	off	switch point not reached

### Button Functions

▲	press briefly	scroll from menu 1 to menu 5 and then back to the display
	press and hold	quickly increment the parameter values
▼		select the menu item within a menu
		save the set parameters and return to current menu item
▲▼	press both buttons simultaneously	return to the display

The device is configured according to VDMA 24574-1.

## 7.2 Switching / Return Characteristics

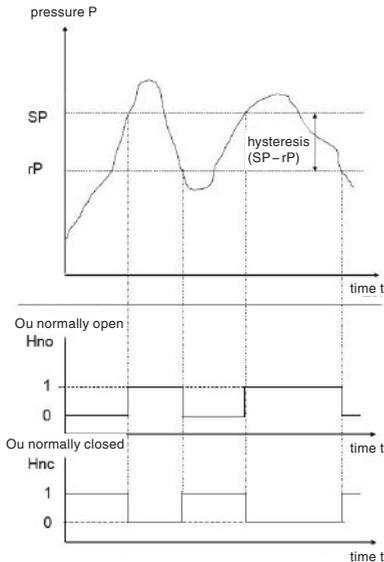


Figure 4: switching and return characteristics for the hysteresis function in the pressure-time diagram

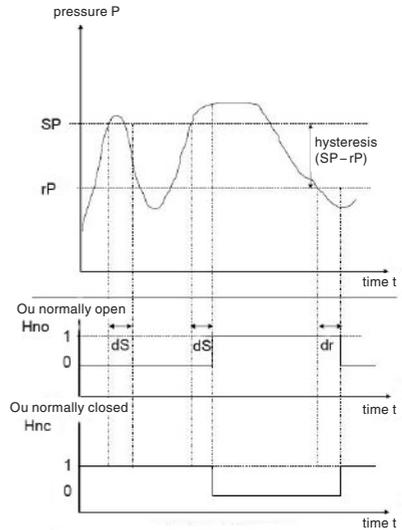


Figure 5: switching and return delay for the hysteresis function in the pressure-time diagram

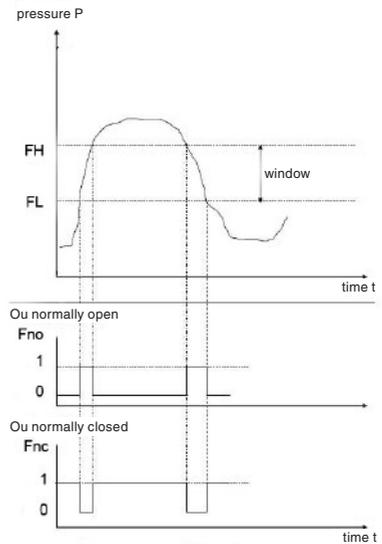
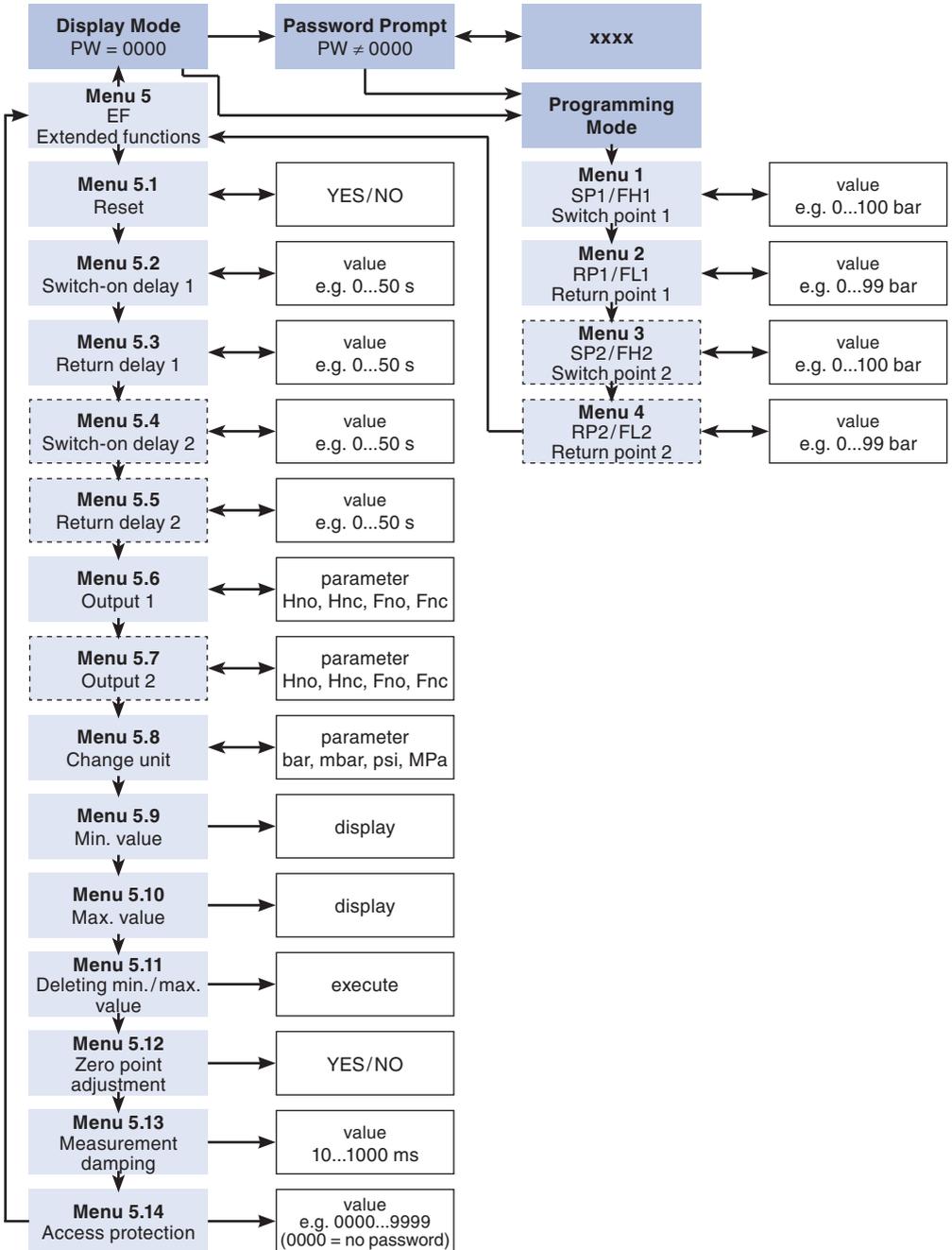


Figure 5: switching and return characteristics for the window function in the pressure-time diagram

# Operating Instructions

## Electronic Pressure Switch PS 300

### 7.3 Structure of the Menu System



### 7.4 Menu List

First Menu Level	
SP 1	<b>Menu 1 – setting switch point 1</b>
FH 1	Setting the respective value for the activation of switch point 1. If the window function in menu 5.6 is activated, the value of switch point 1 is the upper pressure limit of the window (WindowHigh).
RP 1	<b>Menu 2 – setting return point 1</b>
FL 1	Setting the respective value for the activation of return point 1. If the window function in menu 5.6 is activated, the value of return point 1 is the lower pressure limit of the window (WindowLow).
SP 2	<b>Menu 3* – setting switch point 2</b>
FH 2	Setting the respective value for the activation of switch point 2. If the window function in menu 5.7 is activated, the value of switch point 2 is the upper pressure limit of the window.
RP 2	<b>Menu 4* – setting return point 2</b>
FL 2	Setting the respective value for the activation of return point 2. If the window function in menu 5.7 is activated, the value of return point 2 is the lower pressure limit of the window.
EE	<b>Menu 5 – extended functions</b>
Second Menu Level	
rES	<b>Menu 5.1 – reset</b> Restoring the delivery default setting of all adjustable parameters and deleting the min. and max. values.
dS 1	<b>Menu 5.2 – switching delay time 1</b> Setting the value for the switching delay time 1 after switch point 1 is reached (0...50 s adjustable).
dr 1	<b>Menu 5.3 – return delay time 1</b> Setting the value for the return delay time 1 after return point 1 is reached (0...50 s adjustable).
dS 2	<b>Menu 5.4* – switching delay time 2</b> Setting the value for the switching delay time 2 after switch point 2 is reached (0...50 s adjustable).
dr 2	<b>Menu 5.5* – return delay time 2</b> Setting the value for the return delay time 2 after return point 2 is reached (0...50 s adjustable).
ou 1	<b>Menu 5.6 – output 1</b> Switching functions of the switching output: Hno = hysteresis function, normally open Hnc = hysteresis function, normally closed Fno = window function, normally open Fnc = window function, normally closed
ou 2	<b>Menu 5.7 – output 2</b> Switching functions of the switching output: Hno = hysteresis function, normally open Hnc = hysteresis function, normally closed Fno = window function, normally open Fnc = window function, normally closed
uni	<b>Menu 5.8 – unit conversion</b> Selecting the physical unit for the displayed and set pressure values: bAr = bar nnBa = mbar PSi = psi mPA = MPa

\* menus marked with an asterisk are not available for pressure switches with analogue output

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### Second Menu Level (Continuation)

l o	<b>Menu 5.9 – min. value</b> Indicating the minimum pressure applied during the measurement (the value is lost if the voltage supply is interrupted).
Hi	<b>Menu 5.10 – max. value</b> Indicating the maximum pressure applied during the measurement (the value is lost if the voltage supply is interrupted).
- - -	<b>Menu 5.11 – deleting min. and max. values</b> The execution of the deletion process of the values is confirmed on the display.
SETO	<b>Menu 5.12 – zero point adjustment</b> Correcting the zero point of the display and the analogue output signal by up to $\pm 3\%$ of the nominal pressure range.
dAP	<b>Menu 5.13 – measurement damping</b> Setting the value for the damping of the measured values (0...1000 in 10 ms steps).
code	<b>Menu 5.14 – access protection</b> Setting the password for the access protection of the menu 0000 = no password 0000 . . . 9999 adjustable

Menu Item	Designation	Factory Setting	Customer Setting
Menu 1 SP1/FH1	Switch point 1/WindowHigh 1	80 % of the nominal pressure	
Menu 2 rP1/FL1	Return point 1/WindowLow 1	75 % of the nominal pressure	
Menu 3 SP2/FH2	Switch point 2/WindowHigh 2	80 % of the nominal pressure	
Menu 4 rP2/FL2	Return point 2/WindowLow 2	75 % of the nominal pressure	
Menu 5.2 dS1	Switching delay time 1	0 sec	
Menu 5.3 dr1	Return delay time 1	0 sec	
Menu 5.4 dS2	Switching delay time 2	0 sec	
Menu 5.5 dr2	Return delay time 2	0 sec	
Menu 5.6 ou1	Switching function output 1	Hno	
Menu 5.7 ou2	Switching function output 2	Hno	
Menu 5.8 uni	Units	bar	
Menu 5.13 dAP	Damping of measured values	0 ms	
Menu 5.14 code	Password	0000	

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### 8. IO-Link Interface

#### 8.1 General Device Information

Baud rate	COM 2 (38.4 kBaud)
Process data length input	2 byte
Minimum cycle time	5 ms
IO-Link version	V 1.1
SIO mode	yes

#### 8.2 SIO Mode (Standard IO Mode)

In this mode, the sensor operates like a normal pressure switch with standard output signals. The digital output is always at pin 4 (output 1) of the M12 plug. Depending on the version, pin 2 (output 2) can be an analogue or an additional digital output.

#### 8.3 IO-Link Mode (Communication Mode)

The pressure sensor switches to the IO-Link communication mode when it is operating under an IO-Link master. The IO-Link communication is only possible via pin 4 of the M 12 plug.

#### 8.4 Process Data

The process data length of the sensor is 16 bit. Both the switching states (BDC1 and BDC2) and the current measured values are transmitted. The 14 bit of the measured value are scaled according to the measuring range of the sensor.

15 bit	14...2	1	0
signed bit	measured value	BDC2/ output 2	BDC1/ output 1

### 8.5 Error Codes

Error Code	Description
0x8011	index not available
0x8012	subindex not available
0x8023	access denied
0x8030	parameter value out of range
0x8033	parameter length overrun
0x8034	parameter length underrun

### 8.6 Event Codes

	Event Codes IO-Link 1.1	Event Codes IO-Link 1.0	Device Status	Type
No malfunction	0x0000	0x0000	0	Notification
General malfunction Unknown error	0x1000	0x1000	4	Error
Process variable range overrun Process data uncertain	0x8C10	0x8C10	2	Warning
Process variable range underrun Process data uncertain	0x8C30	0x8C10	2	Warning

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### 8.7 Parameter Data

The parameter data of the pressure switch correspond to the Smart Sensor Profile.

Index hex	Subindex hex	Object Name	Single Value	Default	Comment
0x02	0x00	System Com- mands	0x81 = Delete min./max. value 0x82 = res 0xA0 = Set0		the action is executed by writing into the subindex
0x03	0x00	Data Storage Index	0x01: Upload Start 0x02: Upload End 0x03: Download Start 0x04: Download End 0x05: Datastorage Break		
0x0C	0x00	Device Access Lock	0x00: Unlocked 0x01: IO-Link Lock 0x02: Datastorage Lock 0x04: Parameterisation Lock 0x08: User Interface Lock 0x03: IO-Link Lock + Datastorage Lock 0x05: IO-Link Lock + Parameterisation Lock 0x09: IO-Link Lock + User Interface Lock 0x06: Datastorage Lock + Parameterisation Lock 0x0A: Datastorage Lock + User Interface Lock 0x07: Datastorage Lock + IO-Link Lock + Parameterisation Lock 0x0B: Datastorage Lock + IO-Link Lock + User Interface Lock	0x00: un-locked	
0x24	0x00	Device Status	0x00: Device is operating properly 0x02: Out-of-Specification 0x04: Failure		
0x3D	0x02	Switch Point Mode 1	0x80: Hysteresis normally open (NO) 0x81: Hysteresis normally closed (NC) 0x82: Window normally open (NO) 0x83: Window normally closed (NC)	0x80: HNo	
0x3F	0x02	Switch Point Mode 2	0x80: Hysteresis normally open (NO) 0x81: Hysteresis normally closed (NC) 0x82: Window normally open (NO) 0x83: Window normally closed (NC)	0x80: HNo	
0xD4	0x00	Unit	0x00: bar 0x01: mbar 0x02: psi 0x03: MPa	0x00: bar	the pressure unit of the display is changed, the IO-Link process data remain unchanged

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Index hex	Subindex hex	Object Name	Access	Length	Value Range	Gradient	Unit	Default
0x3C	0x01	switch point 1 = SP1	R/W	2 byte	process data			100 %
0x3C	0x02	return point 2 = rP1	R/W	2 byte	process data			0 %
0x3E	0x01	switch point 1 = SP2	R/W	2 byte	process data			100 %
0x3E	0x02	return point 2 = rP2	R/W	2 byte	process data			0 %
0x60	0x00	password	W	4 byte	0000..9999			0
0xD0	0x00	switching delay time 1	R/W	2 byte	0..500	0.1	sec	0
0xD1	0x00	return delay time 1	R/W	2 byte	0..500	0.1	sec	0
0xD2	0x00	switching delay time 2	R/W	2 byte	0..500	0.1	sec	0
0xD3	0x00	return delay time 2	R/W	2 byte	0..500	0.1	sec	0
0xD5	0x00	min. pressure value	R	2 byte	process data			
0xD6	0x00	max. pressure value	R	2 byte	process data			
0xD7	0x00	measurement damping	R/W	2 byte	0...1000 in 10 ms steps	1	ms	0

### 9. Maintenance/Cleaning, Storage and Transport



#### **CAUTION! Material damage and loss of warranty!**

Any modifications or interventions in the device, made by the customer, might damage important parts or components. Such intervention leads to the loss of any warranty and manufacturer's responsibility!

→ Never modify the device or perform any repairs yourself.

#### **Maintenance:**

In principle, the device is maintenance-free. If necessary, the housing of the device can be cleaned with a damp cloth and a non-aggressive cleaning solution when switched off.

#### **Cleaning:**

Depending on the medium, deposits or contamination may occur on the membrane. If such a tendency of the medium is known, the operator has to specify appropriate cleaning intervals.

After professionally decommissioning the instrument, the membrane can usually be cleaned carefully with a non-aggressive cleaning solution and a soft brush or sponge. If the membrane is calcified, it is recommended to have the decalcification carried out by the ARMANO Messtechnik GmbH. Please also refer to chapter 10.2 "Return".



**CAUTION!** Incorrect cleaning may cause irreparable damage of the measuring cell. Therefore, never use any sharp objects or compressed air for cleaning the membrane.



**IMPORTANT! Improper transport can destroy the device and cause considerable personal and property damage.**

Please inspect the transport packaging and the delivered items immediately upon their receipt to determine their integrity, completeness and conformity with the delivery documents.

The permissible ambient conditions for storage and transport can be found in the data sheet.

#### **Storage:**

- If possible, store the instrument in its original packaging.
- If possible, remove the packaging not until installation of the device.
- Store the instruments in a dry place, not exposed to direct sunlight.
- The storage temperature of the instruments should not fall below or exceed the permissible temperature limitations specified in the data sheets.

#### **Transport:**



#### **Electronic components!**

The device is equipped with sensitive electronic components and has to be handled with due care.

- Use the original packaging or comparable packaging for transport.
- Avoid impacts or strong vibrations.
- Protect the device against moisture.

### 10. Recalibration and Return

#### 10.1 Recalibration

The offset value or range value may shift during the service life of the device. In this regard, it appears that a deviating signal value in relation to the set lower or upper range value is displayed. If either of these two phenomena occurs after prolonged use, recalibration is recommended to ensure continued high accuracy.

### 10.2 Return

Prior to any return, whether for recalibration, decalcification, for modification or for repair, the instrument has to be cleaned thoroughly and packaged carefully. Please enclose a notice of return with a detailed description of the faults when returning a defective device. If your instrument came into contact with harmful substances, a declaration of contamination is required additionally. A corresponding template can be found on our website [www.armano-messtechnik.com](http://www.armano-messtechnik.com). If you send in your device without a declaration of contamination and our service department has doubts regarding the medium used, then the repair will only be started once a corresponding declaration has been submitted.



#### **WARNING! Risk of injury due to harmful substances!**

If the device came into contact with harmful substances, appropriate precautions are to be taken during cleaning!

### 11. Dismounting and Disposal



#### **WARNING! Risk of injury!**

Never remove the device from a system in operation.  
Make sure that the system is switched off professionally.

#### **Before dismounting:**

Check before dismounting, whether the system

- is switched off,
- is in a safe and currentless state,
- is unpressurised and cooled down.

#### **Dismounting:**

→ Pay attention to potentially leaking media. Take appropriate precautions to collect them.

#### **Disposal:**

In compliance with the directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE), the device must be disposed of separately as electrical and electronic waste. Please regard legal regulations of the country of distribution.



#### **NO DOMESTIC WASTE!**

The instrument comprises various materials. It shall not be disposed of together with domestic waste.

→ Bring the device to your local recycling plant

or

→ send the device back to your supplier or to the ARMANO Messtechnik GmbH.

### 12. Warranty Conditions

The warranty conditions are subject to the statutory warranty period of 24 months, valid from the date of delivery.

Any warranty claims are excluded in case of improper use, modification of or damage to the device. Damaged membranes are not accepted as warranty claim. Furthermore, defects resulting from normal wear are not subject to warranty services.

### 13. CE Conformity



The CE marking of the instruments certifies the conformity with prevailing EU directives for placing products on the market within the European Community. The following directives apply:

2014/30/EU (EMC)

2014/68/EU (PED)

The corresponding declaration of conformity is enclosed or available upon request.

## 14. Declaration of Conformity

### EU-Konformitätserklärung nach DIN EN ISO/IEC 17 050-1

### EU Declaration of Conformity according to DIN EN ISO / IEC 17 050-1

Für die nachfolgend bezeichneten Erzeugnisse

We hereby declare for the following named goods

**ELEKTRONISCHER DRUCKSCHALTER**  
Typ PS 300  
gemäß Datenblatt 9621

**ELECTRONIC PRESSURE SWITCH**  
Model PS 300  
according to data sheet 9621

**ELEKTRONISCHER DRUCKSCHALTER**  
Typ PS 400  
gemäß Datenblatt 9622

**ELECTRONIC PRESSURE SWITCH**  
Model PS 400  
according to data sheet 9622

wird hiermit erklärt, dass sie den wesentlichen Schutzanforderungen entsprechen, die in nachfolgend bezeichneten Richtlinien festgelegt sind:

that they meet the essential protective requirements, which have been fixed in the following directives:

RICHTLINIE 2014/30/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 26. Februar 2014 zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit – kurz: **EMV-Richtlinie**  
Konformitätsbewertungsverfahren: Modul A  
Angewandte Norm: EN 61326-1:2013

**DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND THE COUNCIL** from February 26, 2014 on the approximation of the laws of the Member States relating to the electromagnetic compatibility – short: **EMC Directive**  
Conformity assessment procedure: Module A  
Applied standard: EN 61326-1:2013

RICHTLINIE 2011/65/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 08. Juni 2011 zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten – kurz: **RoHS-Richtlinie**  
Konformitätsbewertungsverfahren: Modul A  
Angewandte Norm: DIN EN IEC 63000:2019-05

**DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND THE COUNCIL** from June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment – short: **RoHS Directive**  
Conformity assessment procedure: Module A  
Applied standard: DIN EN IEC 63000:2019-05

Des Weiteren fallen diese Geräte mit einem Druckmessbereich >0,5 bar als „druckhaltende Ausrüstungsteile“ unter die:

Moreover, these instruments with a pressure range >0.5 bar are, as pressure equipment parts, subject to

RICHTLINIE 2014/68/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 15. Mai 2014 zur Angleichung der Rechtsvorschriften der Mitgliedstaaten betreffend Druckgeräte – kurz: **Druckgeräterichtlinie**

**DIRECTIVE 2014/68/EU OF THE EUROPEAN PARLIAMENT AND THE COUNCIL** from May 15, 2014 on the approximation of the laws of the Member States relating to pressure equipment – short: **Pressure Equipment Directive**

Die Geräte werden nach geltender guter Ingenieurpraxis ausgelegt und gefertigt.  
Mit Messbereichen ab 0 – 200 bar wurden sie folgendem Konformitätsbewertungsverfahren unterzogen:

These instruments are designed and manufactured according to sound engineering practice.  
Versions with pressure ranges from 0 – 200 bar are subjected to the following conformity assessment procedure:

**Modul A „Interne Fertigungskontrolle“**

**Module A “Internal Production Control”**

Soweit zutreffend erstreckt sich die CE-Kennzeichnung dann auch auf diese Richtlinie.

As far as they are concerned, the CE-marking then also applies to this directive.

Diese Erklärung wird verantwortlich für den Hersteller:  
*This declaration is issued under the sole responsibility of the manufacturer:*

**ARMANO Messtechnik GmbH**  
abgegeben durch/by  
Grünhain-Beierfeld, 2020-10-19



**Bernd Vetter**  
Geschäftsführender Gesellschafter / Managing Director

**ARMANO**

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