Thank you for choosing a NIVELCO instrument.
We are convinced that you will be satisfied with our product!

NIPRESS

DK-500, DK-600, DK-700

PRESSURE SWITCH FAMILY

Insatallation and programming manual

Manufacturer:
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1. INTRODUCTION

The NIPRESS DK−500, DK−600, and DK−700 pressure switches with flush sensor are a successful combination of an intelligent pressure switch and a 4-digit LED display. This makes it suitable for numerous applications in various industrial sectors for monitoring and controlling the pressure via switching outputs. It comes with a rotatable display and with PNP contact outputs. Ex version is also available.

DK-500 series is an electronic pressure switch with Stainless Steel sensor. Excellent for applications in the area of plant and machine engineering, heating and air conditioning, and environmental engineering (water – sewage – recycling).

DK-600 series is an electronic pressure switch with ceramic sensor. It is suitable for the usage in viscous, pasty or highly contaminated media. The robust rotatable Stainless-Steel housing is designed for using under rough conditions and in hard operating environment.

DK-700 series is an electronic pressure switch with welded Stainless-Steel sensor. This pressure switch has been developed for process industry, especially for food industry and pharmacy.

2. TECHNICAL DATA

GENERAL DATA

Type		DK□-5□□-□	DK□-6□2-□	DK□-7□□-□/DL□-7□□-□
Measuring range		−1…0; 0…600 bar (−14.5…0; 0…8700 psig) Per order code		−1…0; 0…40 bar (−14.5…0; 0…580 psig) Per order code
Overload tolerance		Per order code		
Accuracy		p ≥ 0.4 bar (5.8 psig): 0.25%; 0.5%	0.5%	p ≥ 0,4 bar (5.8 psig): 0.25%; 0.5%
Medium temperature		−40°C…+125°C (−40°F…+257°F)		−40°C…+125°C (−40°F…+257°F) silicone oil −10°C…+125°C (+14°F…+257°F) food grade oil
Ambient temperature		−40°C…+85°C (−40°F…+185°F)		
Materials of the wetted parts	Sensor	Stainless steel 1.4435 (316L)	Ceramic Al_2O_3 96%	Stainless Steel 1.4435 (316L)
	Seal	FKM; option: welded version without seal (max. 40 bar [580 psig])	FKM (option: EPDM, max. 160 bar [2320 psig]), NBR	FKM < 200°C (392 °F), FFKM > 200°C (392 °F)
	Process connection	Stainless steel 1.4404 (316L)	Stainless steel 1.4404 (316L) (option: PVDF only with ½" BSP, max. 60 bar [870 psig])	Stainless steel 1.4435 (316 L) (max. 60 bar [870 psig])
Housing		Stainless steel 1.4404 (316L)	Stainless steel 1.4301 (304)	Stainless steel 1.4404 (316L);
Output		1 or 2 independent PNP contacts, (optional analog output: 4...20 mA / 0–10 V)		
Switching output		Short-circuit resistant PNP output (max.: 125 mA), delay time adjustable between 0...100 s		
Power supply (U_{Supply})(1)		Without analog output: 13–36 V DC; 2-wire current output: 13–36 V DC 3-wire current output: 24 V DC ±10%; 3-wire voltage output: 24 V DC ±10%		
Load resistance of analog output		2- wire current output: R_{max}=[(U_{Supply}-$U_{Supply\ min.}$)/ 0.02 A], [Ω] 3- wire current output: R_{max}= 500 Ω; 3- wire voltage output: R_{min} = 10 kΩ		
Display		4-digit (7 mm [0.28 inch]), red LED display; Range of indication: −1999…+9999; Accuracy: 0.1% ±1 digit; Damping: 0.3–30 sec (adjustable)		
Process connection		Per order code		
Electrical connection		M12x1 (5-pin, metal)		
Ingress protection		IP67		
Electrical protection		Class III (SELV)		
Weight		~0.4 kg (~0.88 lb)		~0.5 kg (~1.1 lb)

(1) For information of Ex certified devices, see Special data for Ex certified models chart.

SPECIAL DATA FOR EX CERTIFIED MODELS (ONLY FOR 4…20 mA / 2-WIRE)

Type	DK□-5□□-□	DK□-6□2-□	DK□-7□□-□ / DL□-7□□-□
Ex marking	(Pending)		
Ex power supply	15–28 V DC		
Intrinsically safety data	Use only with Ex ia certified power supply module! U_{imax} = 28 V DC, I_{imax} = 93 mA, P_{imax} = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 mH		
Max. switching current (2)	70 mA		
Permissible temperatures for environment	−25°C…+70°C (−13°F…+158°F)		

(2) The real switching current depends on the power supply unit

2.1 ACCESSORIES

- User's and programming manual
- Warranty card
- EU declaration of conformity

2.2 ORDER CODES

2.1 DK-500 ORDER CODE (NOT ALL COMBINATIONS POSSIBLE!)

NIPRESS D K ☐ – 5 ☐ ☐ – ☐*

MEASURING METHOD	CODE
Switch	K

PROCESS CONNECTION	CODE
¼" BSP	A
½" BSP	C
¼" NPT	G
½" NPT	H

RANGE (1) / OVERPRESSURE [bar]	CODE
-1 – 0 / 5	0
0 – 0.1 / 0.5	1
0 – 0.16 / 1	R
0 – 0.25 / 1	2
0 – 0.4 / 2	3
0 – 0.6 / 5	4
0 – 1 / 5	5
0 – 1.6 / 10	6
0 – 2.5 / 10	7
0 – 4 / 20	8
0 – 6 / 40	9
0 – 10 / 40	A
0 – 16 / 80	B
0 – 25 / 80	C
0 – 40 / 105	D
0 – 60 / 210	E
0 – 100 / 210	F
0 – 160 / 600	G
0 – 250 / 1000	H
0 – 400 / 1000	J
0 – 600 / 1000	K

ACCURACY	CODE
0.25 % (2)	1
0.5 %	2

OUTPUT / CERTIFICATES	CODE
1 PNP switching output	7
2 PNP switching output	9
4…20 mA 2-wire + 1 PNP switching output / Ex ia G (3)	F

** Ex versions are marked "Ex" right after the type designation on the label*

(1) Custom measuring range available; subject to prior negotiation.

(2) p ≥ 0,4

(3) Ex versions are available on special request. .

2.2 DK-600 ORDER CODE (NOT ALL COMBINATIONS POSSIBLE!)

NIPRESS **D K** □ – **6** □ **2** – □*

MEASURING METHOD	CODE
Switch	**K**

PROCESS CONNECTION	CODE
¼" BSP	**A**
½" BSP	**C**
¼" NPT	**G**
½" NPT	**H**

RANGE [1] / OVERPRESSURE [bar]	CODE
-1 – 0 / 4	**0**
0 – 0.4 / 1	**3**
0 – 0.6 / 2	**4**
0 – 1 / 2	**5**
0 – 1.6 / 4	**6**
0 – 2.5 / 4	**7**
0 – 4 / 10	**8**
0 – 6 / 10	**9**
0 – 10 / 20	**A**
0 – 16 / 40	**B**
0 – 25 / 40	**C**
0 – 40 / 100	**D**
0 – 60 / 100	**E**
0 – 100 / 200	**F**
0 – 160 / 400	**G**
0 – 250 / 400	**H**
0 – 400 / 600	**J**
0 – 600 / 800	**K**

ACCURACY	CODE
0.5 %	**2**

OUTPUT / CERTIFICATES	CODE
1 PNP switching output	**7**
2 PNP switching output	**9**
4…20 mA 2- wire + 1 PNP switching output / Ex ia G [2]	**F**

** Ex versions are marked "Ex" right after the type designation on the label.*
[1] Custom measuring ranges are available, subject to prior agreement.
[2] Ex versions are available on special request.

2.3 DK-700 ORDER CODE (NOT ALL COMBINATIONS POSSIBLE!)

NIPRESS **D** □ □ – **7** □ □ – □*

MEASURING METHOD / TEMPERATURE	CODE
Switch / up to +125°C (+257°F)	**K**
Switch / up to +300°C (+572°F) [1]	**L**

PROCESS CONNECTION	CODE
½" BSP [2]	**C**
¾" BSP	**D**
1" BSP	**E**
¾" TriClamp	**T**
1" TriClamp	**L**
1½" TriClamp	**M**
2" TriClamp	**N**
DN25 Pipe coupling [3]	**O**
DN40 Pipe coupling [4]	**P**
DN50 Pipe coupling [5]	**R**
VARIVENT® DN40/50	**V**

RANGE [6] / OVERPRESSURE [bar]	CODE
-1 – 0 / 5	**0**
0 – 0.1 / 0.5	**1**
0 – 0.16 / 1	**R**
0 – 0.25 / 1	**2**
0 – 0.4 / 2	**3**
0 – 0.6 / 5	**4**
0 – 1 / 5	**5**
0 – 1.6 / 10	**6**
0 – 2.5 / 10	**7**
0 – 4 / 20	**8**
0 – 6 / 40	**9**
0 – 10 / 40	**A**
0 – 16 / 80	**B**
0 – 25 / 80	**C**
0 – 40 / 105	**D**

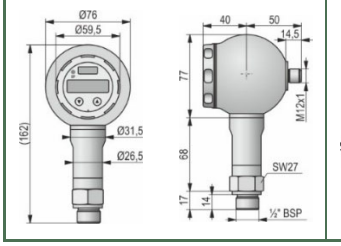
ACCURACY	CODE
0.25% [7]	**1**
0.5 %	**2**

OUTPUT / CERTIFICATES	CODE
1 PNP switching output	**7**
2 PNP switching output	**9**
4…20 mA 2- wire + 1 PNP switching output / Ex ia G [8]	**F**

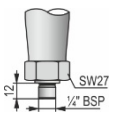
** Ex versions are marked "Ex" right after the type designation on the label.*
[1] Up to +150°C (+302°F) in vacuum
[2] p ≥ 1 bar (14.5 psig)
[3] DIN 11851 (0.25–40 bar [3.6–580 psig])
[4] DIN 11851 (0.25–40 bar [3.6–580 psig])
[5] DIN 11851 (0.25–25 bar [3.6–362.6 psig])
[6] Custom measuring ranges are available, subject to prior agreement.
[7] p ≥ 0.4 bar (5.8 psig)
[8] Ex versions are available on special request.

2.3 DIMENSIONS

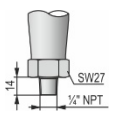
DKC-5□□-□ / DKC-6□□-□



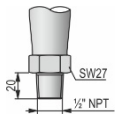
DKA-5□□-□ / DKA-6□□-□



DKG-5□□-□ / DKG-6□□-□

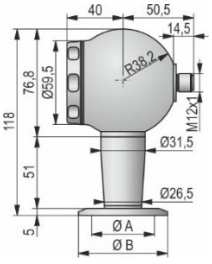


DKH-5□□-□ / DKH-6□□-□



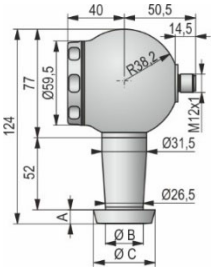
If nominal pressure p > 400 bar (5800 psig) the length of devices increases by 19 mm (0.75 inch) in case of non-Ex version and by 39 mm (1.5 inches) in case of IS version.

D□□-7□□-□ TRICLAMP



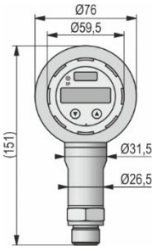
Size	¾"	1"	1 ½"	2"
A [mm]	14	23	32	45
B [mm]	25	50.5	50.5	64
P [bar]	≥ 4 / ≤ 8	≥ 0.25 / ≤ 16	≤ 16	≤ 16

D□□-7□□-□ HYGIENIC CONNECTIONS (PIPE COUPLING)

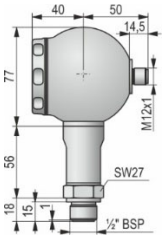


Size	DN 25	DN 40	DN 50
A [mm]	23	32	45
B [mm]	44	56	68,5
C [mm]	10	10	11
P [bar]	≥ 0.25 / ≤ 40	≥ 0.25 / ≤ 40	≥ 0.25 / ≤ 25

D□C-7□□-□



D□C-7□□-□



3.3 SPECIAL CONDITIONS OF SAFE USE

- Make sure the installation is complete with no visible defects before turning on the device.
- The device may only be used within the limitations specified in the technical specifications.
- Ex ia certified transmitters may only be operated in certified and approved intrinsically safe Ex ia IIC circuits complying with the technical data and the device's explosion protection marking.
- The metal housing of the device must be connected to the EP (equipotential) network!

4. INSTALLATION

To enable the safe replacement of the instrument during operation the use of closing armature is recommended. A simple ball valve will be suitable for lower pressures and for higher pressures (above 6 bar [87 psig]) a three-way blow-off needle-valve can be suggested.
Treat the sensor diaphragm with utmost care; as this part can be damaged very easily. Remove the packaging and protective cap just before the beginning of the assembly to avoid the damage of the diaphragm. Keep the protective cap! In case if the installing of the unit is not immediate, the protective cap must be reinstated as soon as possible!
The display and the operating module are equipped with a turning limiter. Do not rotate the display beyond the rotation limits.
When installing the device, avoid high mechanical stresses on the pressure port! This will result in a shift of the characteristic curve or to damage.
The device can be installed in-, or outdoors. Select the mounting position such that there is enough space for installation, programming and reading of the display. Do not expose the device to direct sunlight when using outdoors! Direct solar radiation might cause that the permissible operating temperature of the device would be exceeded. This is to be particularly avoided in case if the device is used in any explosion-hazardous area! Select the operating position, so that splashed and condensed water can be drained off. If the device has cable outlet, the outgoing cable must be routed downwards. If the cable needed to be routed upwards, this must be done in an initially downward curve.

4.1 INSTALLATION INSTRUCTION

Install the device only in a depressurized and disconnected state!
The medium may be dangerous; therefore, suitable protective clothing, gloves, and goggles are required for the installation process.
Torque must only be transmitted to the hexagonal screw on the instrument body (torque wrench). When installing the device, avoid applying strong mechanical stress on the pressure port! It will result in a shift of the characteristic curve or damage the device.
The transmitter housing is grounded to suppress electronic noise. If the grounding of the device is correct, no further grounding is needed, otherwise the instrument must be grounded.

Mounting position: The pressure switch has been calibrated in a vertical position when the diaphragm is oriented downwards. If it is differently mounted, a tiny deviation can appear at the output in the measured values.
For oxygen applications (only DK-600) transmitters are recommended with O-rings of FKM Vi 567: permissible maximum values: 25 bar / 150°C (362.6 psig / 302°F) (BAM approval), over 25 bar (362.6 psig) pressure transmitters can be used without seals.

Tightening torques:

¼ " BSP: max. 5 Nm;	¾ " BSP: max. 15 Nm;
½ " BSP: max. 10 Nm;	1" BSP: max. 20 Nm;
¼ " NPT: max. 30 Nm;	½ " NPT: max. 70 Nm.

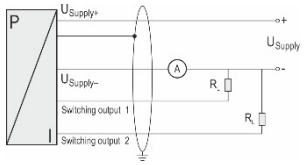
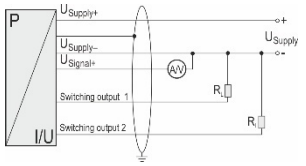
The specified tightening torques must not be exceeded!
Do not use a pipe wrench, because its use can cause damage to the device!
Installation steps for BSP process connection (DIN 3852):
Do not use any additional sealing material such as Teflon tape!
Check if the O-ring is undamaged, its surface is flawless and clean and it is seated in the designated groove. Screw the device into the correct thread by hand! If your device is secured with a knurled ring instead of a hexagonal screw, the pressure transmitter must only be tightened by hand! Devices with hexagonal screw mounting must be tightened using an open-ended wrench (torque wrench)!
Installation steps for NPT process connection:
Use suitable seal (e.g., a PTFE-strip)! Screw the device into the correct thread by hand, and tighten it with a wrench!
Installation steps for hygienic connections (only DK-700, DL-700)
Check if the O-ring is undamaged, its surface is flawless and clean and it is seated in the designated groove. Screw the device into the correct thread by hand! Centre the dairy pipe connection in the counterpart! Screw the cup nut onto the mounting
part! Tighten it with a hook wrench!
Installation steps for „TRICLAMP and VARIVENT" connections (only DK-700, DL-700)
Use a suitable seal corresponding to the medium and the pressure input! Place the seal onto the corresponding mounting part! Centre the TRICLAMP or VARIVENT connection on the fitting counterpart with seal! Then fit the device with a suitable fastening element (e. g. half-ring or retractable ring clamp) according to the supplier's instructions.

5. WIRING

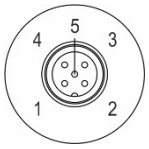
Use a shielded and twisted multicore cable for the electrical connection.
For devices with cable gland, make sure that the external diameter of the cable used is within the allowed clamping range! Once connected the wires, tighten the gland screw firmly until the sealing is proper!
The bending radiuses of the cables have to comply with the following:
Cable without ventilation tube:
- static installation: 8-fold cable diameter,
- dynamic application: 12-fold cable diameter.

Cable with ventilation tube:
- static installation: 10-fold cable diameter,
- dynamic application: 20-fold cable diameter.

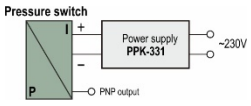
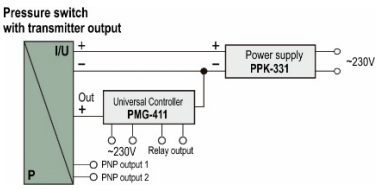
5.1 WIRING

WITH 2-WIRE TRANSMITTER	WITH 3-WIRE TRANSMITTER
	

M12x1 (5-pin, metal) pin configuration	
Electrical connection	M12x1 (5-pin)
Power supply +	1
Power supply -	3
3-wire: signal +	2
Switching output 1	4
Switching output 2 (optional)	5
Shield	housing / pressure port

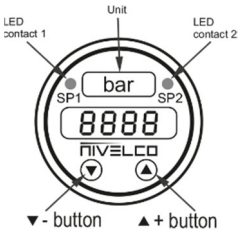


5.2 ARRANGEMENT EXAMPLES

PRESSURE SWITCH (1-2 SWITCHING OUTPUTS)	WIRING OF 3-WIRE PRESSURE SWITCH WITH TRANSMITTER OUTPUT
	

6. PROGRAMMING

6.1 CONFIGURATION



According to the order, the device has max. 2 PNP contacts.

The status of the outputs is indicated by 2 LEDs. The LEDs will light up when the respective point has been reached, and the contact is active. The green LED 1 is on if switching point 1 is reached and the switch output 1 is active. The yellow LED 2 lights up when switching point 2 is reached, and the switch output 2 is active (optional).

Regardless of the number of PNP switches, the menu structure is the same for all device types. They differ only in the number of menu items. Following the chart (6.5) and the menu list (6.6) they guide you through all possible menu items.

The 4-digit 7-segment display shows the measured value and provides information about the menu items.
The two buttons below the display are for moving in the menu and setting the parameters.

Button "▲": moves forward in the menu system or increases the displayed value.

Button "▼": moves backwards in the menu system or decreases the displayed value.

Pressing the two buttons simultaneously: pressing both buttons at the same time changes between display mode and configuration mode and confirms the menu items and values.
When setting the values, the counting speed can be increased by holding down the up or down key for more than 5 seconds.

The menu navigation is a wrap-around system scrolling both forward and backward through the individual set-up menus to the desired item.

Changes take effect only after pressing the two buttons together and leaving the menu item.

All settings are stored permanently in an EEPROM so settings will not be forgotten even after disconnecting from the supply voltage.

6.2 PASSWORD

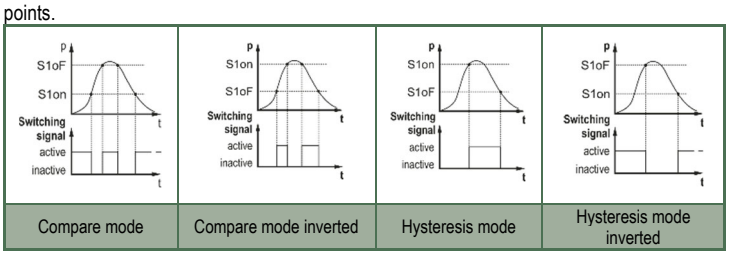
The menu system of the device can be protected by a password, so it is only possible for authorized persons to change the settings. If password access ("PAon") is activated, the entire menu system will be locked. For more information, see "6.6 Description of the Menu System." Entering the password will make the entire menu accessible again, and the password can be changed in the special menu item 4. If the password is lost or forgotten, restore the factory default settings of the device.
Use the special menu item 4 to do so.

6.3 CONFIGURING THE ANALOG OUTPUT (EXAMPLE) (FOR 4…20 MA / 3-WIRE ADJUSTABLE)

The analog output can be configured in the menus **ZP** (zero point) and **EP** (end point). The following example shows how to use them:
In this example, the device has a measurement range of 0–400 bar (0–5800 psi).
The output analog signal:
0 bar (0 psi) = 4.00 mA 200 bar (2900 psi) = 12.00 mA 400 bar (5800 psi) = 20 mA.
If the value is changed from 0 to 20 in ZP and the EP value from 400 to 300, the output signal changes as follows:
20 bar (290 psi) = 4.00 mA 160 bar (2320 psi) = 12.00 mA 300 bar (4350 psi) = 20 mA.
The values of ZP and EP are adjustable up to 1:5 of the nominal pressure range.

6.4 HYSTERESIS AND COMPARE MODE

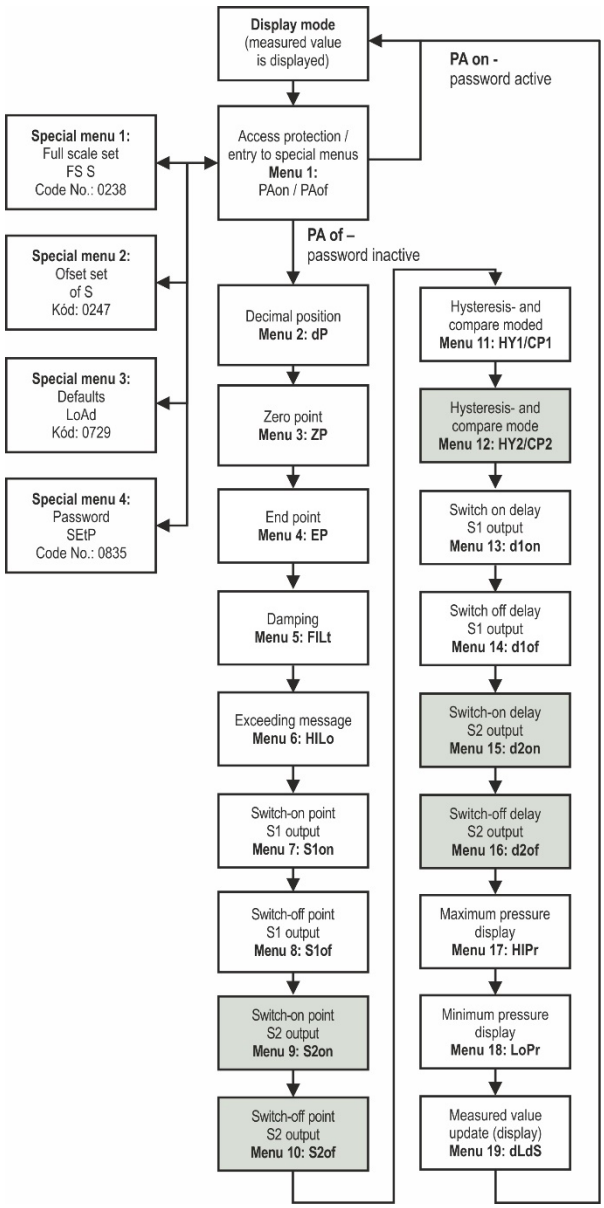
The diagrams below show the operation of the switch outputs.
To reverse the relevant modes, you have to swap the values for the switch-on and switch-off points.



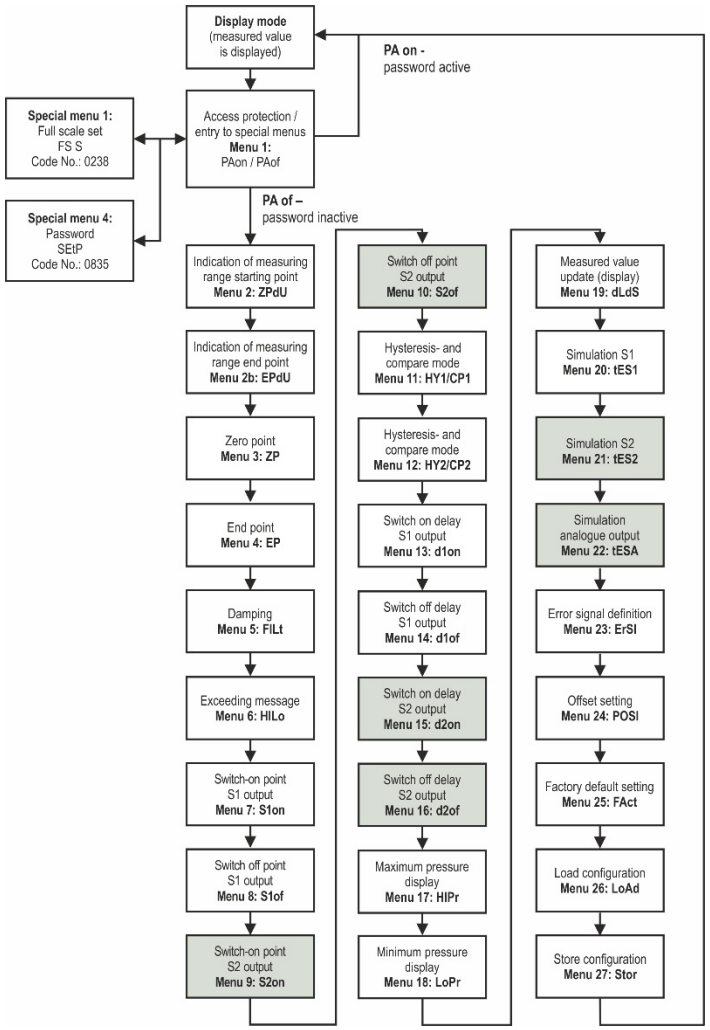
Compare mode	Compare mode inverted	Hysteresis mode	Hysteresis mode inverted

6.5 STRUCTURE OF THE MENU SYSTEM

2-WIRE SYSTEM



3-WIRE SYSTEM



6.6 DESCRIPTION OF THE MENU SYSTEM

Menu 1 – Access protection

PAon PAon → password active → to deactivate: enter password.
PAoF PAof → password inactive → to activate: enter password.

The default password is "0005"; modification of the password is described in "Special menu 4".

Menu 2 – Set decimal point position

dP Set the position of the decimal point!

Menu 2a – Indication of the start of the measuring range (zero point) (only 4…20 mA / 3-wire adjustable)

ZPdU Value defined in the order, no input option.

Menu 2b – Indication of the end of the measuring range (end point) (only 4…20 mA / 3-wire adjustable)

EPdU Value defined in the order, no input option.

Menu 3 and Menu 4 – Set zero point / end point

ZP & EP The device has been configured correctly before delivery, so a later setting of a 2-wire device is only necessary, if a differing displayed value is desired (e. g. 0 – 100 %). For 4…20 mA / 3-wire adjustable: this menu has a different meaning. The configuration of the zero point affects the analog output, whereas the display value remains unchanged (zero and endpoint can be configured within the limits of the nominal pressure range, according to the manufacturing label); for more information, see "6.3 Configuration the analog output (example). (for 4…20 mA / 3-wire adjustable)".

Menu 5 – Set damping

FILt This feature eliminates problems caused by rapidly changing pressure values. By setting the time (0.3 – 30 sec), the current output signal can be delayed. The higher the value entered, the longer it takes to reach the current pressure output signal's value.

Menu 6 – Excess value message

HILo Set "On" or "Off".

Menu 7, Menu 9 – Set switch-on point for switching output (switching outputs S1, S2)

S1on Set a switch-on value for the relevant output. (S1, S2 output **S1on**, **S2on**)!

Menu 8, Menu 10 – Set switch-off point for switching output (S1, S2 outputs S1on, S2on).

S1oF Set a switch-off value for the relevant output. (S1, S2 output **S1oF**, **S2oF**)!

Menu 11, Menu 12 – – Select hysteresis or compare mode (Select S1, S2 output mode)

HY 1 & CP 1 Select the hysteresis mode (HY 1 – HY 2) or compare mode (CP 1 – CP 2)! You can find a description from the hysteresis and compare mode are in chapter **6.4.**

Menu 13, Menu 15 – Set switch-on delay

d1on Set the switch-on delay value for the relevant output. (Output S1, S2, d1on, d2on); (0-100 s).

Menu 14, Menu 16 – Set switch-off delay

d1oF Set the switch-off delay value for the relevant output. (Outputs S1, S2, d1oF, d2oF); (0-100 s)

Menu 17 and Menu 18 – Maximum / minimum pressure display

HIPr & LoPr Displays the high pressure (HiPr) or low pressure (LoPr) value during the measurement process (values are lost when power is gone). To delete the values, press the two buttons at the same time again within 1 second.

Menu 19 – Measured value update (display)

dLdS Sets the display refresh cycle length. (0.0–10 sec)

Menu 20, Menu 21 – Simulate contact outputs (only 4…20 mA / 3-wire adjustable)

tES1 The state of the switch outputs can be simulated. Select, activate or deactivate the up and down buttons (outputs S1, S2 from tES1, tES2).

Menu 22 – Simulate analogue output (only 4…20 mA / 3-wire adjustable)

tESA The value of the analog output signal can be simulated. Select one of the following settings: “oi 4” (4 mA or 2 V), “oi12” (12 mA or 6 V) and ”oi20” (20 mA or 10 V)

Menu 23 – Error signal definition (only 4…20 mA / 3-wire adjustable)

ErSi Set the desired error signal (this is sent out if there is an error). Permitted options: “0FF” (no error signal), “C 0” (0 mA or 0 V), “C L0” (3.5 mA or 1.75 V) and “C HI” (23 mA or 11.5 V). The error message appears only when Menu 6 “HILo” is set to “on.”

Menu 24 – Offset compensation / position correction (only 4…20 mA / 3-wire adjustable)

POSI Enter the POSI menu; if offset ≠ ambient pressure it is necessary to place the device under pressure pended on mounting position (the pressure reference has to correspond to the zero point of the pressure measuring range); press the two buttons at the same time; "oF I" will be appeared on the display; press the two buttons at the same time; "Pro2" will be displayed; press the two buttons at the same time; the display will now show "o"; the reference value can now be inputted with the push buttons.

The reference value is, for example, 5% (−0.2 bar [2.9 psig]) of the measuring range: −1–15 bar (−14.5−217.5 psig); enter 5% using the buttons, then press the two buttons simultaneously; the display will show "oF5". Accordingly, the right and stable pressure should be added to the system (−0.2 bar [2.9 psig]).

If the measured value displayed on the display is a bad value, the operating sequence must be repeated.

A position correction is required if the installation position is different from the calibration position (as this may cause a little deviation of the signal, so the displayed value will be wrong). The analogue output signal (for devices with analogue output signals) will have no effect; if you move the offset, the entire scale will be moved.

Menu 25 – Load default settings (only 4…20 mA / 3-wire adjustable)

FAct This option restores the factory default value for all settings. To reset the factory defaults, press the two buttons at the same time after selecting this option. Note that any changes you have made so far will be lost, so the password will also be reverted to “0005.”

Menu 26 – Load configuration (only 4…20 mA / 3-wire adjustable)

LoAd Load configuration stored on the device (Menu 32). (Choose from 1 to 5).

Menu 27 – Store configuration (only 4…20 mA / 3-wire adjustable)

Stor Saves the device configuration settings. Select a number between 1 and 5.

SPECIAL MENUS:

To access the special menu, select “PAof” with the “▲” or “▼” button, then press both buttons to activate the menu item. “1” appears on the display.

Special Menu 1 – Full-scale compensation

FS S Full-scale compensation is necessary if the indicated value for full scale differs from the real full-scale value in the application; compensation is only possible with an appropriate reference source if the deviation of the measured value is within the defined limits.

Set “0238” with the “▲” and “▼” keys; confirm with both buttons; “FS S” will appear on the display. Now it is necessary to connect the pressure reference, which corresponds to the measuring range’s end value, to P1. P2 must stay open! Press both keys again, to store the signal being emitted from the pressure switch as full scale; the display will show the set endpoint, although the entire range detection signal has been shifted.

Please note that the analog output signal (on devices with analog output) remains unaffected by this change.

Special Menu 2 – Offset compensation / position correction (not available for 4…20 mA / 3-wire adjustable)

oF S Set "0247"; the menu description is identical with menu "POSI" (menu 36) for 3-wire-devices).

Special Menu 3 – Load default settings (not available for 4…20 mA / 3-wire adjustable)

LoAd Set "0729". The menu item description is the same as "FAct", “Menu 37” for 3-wire devices.

Special Menu 4 – Set password

SEtP Enter “0835”; apply setting by pressing the two keys together; the display will say “SEtP”; now set the password using the “▲” - or “▼” -keys. Any number from 0 to 9999 can be entered except for the following code numbers: 0238, 0247, 0729, and 0835. After entering the new code number, save it by pressing the two buttons together.

7. TROUBLESHOOTING

Fault	Possible causes	Fault detection / solution
No output signal:	Faulty connection.	Check the connection.
	Broken wire.	Check all wires with a cable tester.
	Defective measuring device (signal input).	Check the ammeter (and its fuse) and the analogue input of the signal processing unit!
Analog output signal too low:	Load resistance too high.	Check the value of the load resistance!
	Power supply failure.	Check the power supply and power / current on the transducer / transmitter!
Output signal slightly offset:	The diaphragm of the sensor is severely contaminated.	Cleaning with non-aggressive cleaning solutions, soft brush or sponge.
	The diaphragm of the sensor is calcified or crusted.	It is recommended to clean the device carefully to ensure all the dirt is completely removed.
Large offset in the output signal:	The diaphragm of the sensor is damaged (by overpressure or mechanically).	Check the diaphragm of the sensor, if it is damaged send the device back to the manufacturer.

8. MAINTENANCE AND REPAIR

The instrument does not require regular maintenance. If necessary possible dirt deposited should be cleaned off. The warranty conditions are included in the warranty card.

Dismount the device only when it is depressurized and disconnected! Drain the medium before dismounting the device.

If necessary, clean the diaphragm carefully with a non-aggressive cleaning solution, soft brush, or sponge. Improper cleaning may cause irreparable damage to the diaphragm.

For this reason, never use sharp objects or pressurized air for cleaning the diaphragm. Before returning the device for repairs, it must be cleaned carefully, the parts in contact with the medium that might contain harmful substances must be decontaminated. Our official form (Returned Equipment Handling Form) must be enclosed. Download it from our website www.nivelco.com. The device must be sent with a declaration of decontamination. Please provide a statement in the declaration that the decontamination process is completed, the device is clean and free from harmful materials, and there are no hazardous substances on it.

9. STORAGE CONDITIONS

Storage temperature: −40°C...+100°C (−40°F...+212°F)

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