

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

## 1. INTRODUCTION

The NIPRESS DD series differential pressure transmitters measure pressure and convert it into voltage or current. DD-600 family uses piezoresistive silicon sensor, has various measuring ranges up to 1000 mbar. Wall mounted design, suitable for measuring dry, non-aggressive gases and compressed air. This device is short circuit protected against inverse polarity as well.

The NIPRESS DD-600 can be used for a wide range of different HVAC applications. Its robust design can be used in laboratories or under industrial conditions. Preferred areas of use are heating, ventilation and air conditioning systems, clean room and medical technology, filtering technology and draft metering checks.

## 2. TECHNICAL SPECIFICATION

### 2.1 GENERAL DATA

Type	DD□-6□□-□		
Measurement range	0 – 1000 mbar according to the order code		
Overload capability	According to the order code		
Accuracy	for P <sub>N</sub> ≥ 6 mbar: ≤ ±0.5% of full-scale output for P <sub>N</sub> < 6 mbar: ≤ ±1% of full-scale output		
Medium temperature	0 °C ... +50 °C (32 °F ... +122 °F)		
Ambient temperature			
Sensor type	Piezoresistive		
Materials of the wetted parts	Sensor	Piezoresistive silicon sensor	
	Process connection	Brass nickel plated, PVC / silicone tube (inside the device)	
Ház anyaga	ABS		
Kimenet	current or voltage		
Power supply	2-wire	4 – 20 mA current output	Without automatic zero adjustment: U <sub>Supply</sub> = 11 – 32 V DC
			With automatic zero adjustment: U <sub>Supply</sub> = 24 – 32 V DC
	3-wire	0 – 10 V / 0 – 5 V 4 – 20 mA / 0 – 20 mA switchable output	Without automatic zero adjustment: U <sub>Supply</sub> = 19 – 32 V DC
			With automatic zero adjustment: U <sub>Supply</sub> = 24 – 32 V DC
Load resistance	2-wire	current output	$R_{max} = \frac{U_{Supply} - U_{Supply\ min.}}{0.02\ A}$ , [Ω]
	3-wire	voltage output	R <sub>min</sub> = 10 kΩ
			current output
Contact output (optional)	2-wire	2x PNP open collector contact, max. 125 mA (short-circuit proof)	
	3-wire	2x relay-output (NO/NC) 60 V DC, 40 V AC, max. 1 A	
Display (optional)	2-line LCD display, visible range 32.5 x 22.5 mm; 5-digit 7 segment main display, digit size 8 mm, range of indication: ±9999; 8-digit 14 segment additional display, digit size 5 mm; 52 segment bargraph; accuracy: 0.1% ±1 digit		
Process connection	According to the order code		
Electrical connection	Cable gland M16x1.5		
Ingress protection	IP54		
Electric protection	Class III (SELV)		
Mass	~0.2 kg (0.44 lb)		

# NIPRESS

DD□-6□□-□  
DIFFERENTIAL PRESSURE TRANSMITTER

User's manual



NIVELCO



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### 2.2 ACCESSORIES

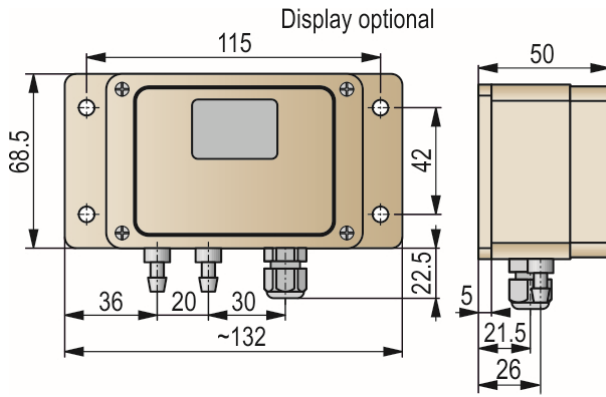
- User's manual
- Warranty Card
- EU Declaration of Conformity

### 2.3 ORDES CODE (NOT ALL COMBINATIONS POSSIBLE!)

NIPRESS D D □ - 6 □ □ - □

PROCESS CONNECTION	CODE	MEASURING RANGE / (MAX. STATC PRESSURE) mbar	CODE	ACCURACY	CODE	OUTPUT	CODE
Ø6.6 x 11; for flex tube Ø6	P	0 – 1.6 / 200	R	0.5% (p ≥ 6 mbar)	2	4 – 20 mA, 2-wire	2
Ø4.4 x 10; for flex tube Ø4	R	0 – 4 / 200	S	1% (p < 6 mbar)	3	0 – 10 V, 3-wire	3
		0 – 10 / 200	2				
		0 – 40 / 345	6				
		0 – 250 / 1000	C				
		0 – 1000 / 3000	F				

## 2.4 DIMENSIONS



## 3. INSTALLATION INSTRUCTION

The device has been calibrated in vertical position, when process connections are oriented downwards. If it is differently mounted, a tiny deviation from zero point may appear at. This deviation can be compensated by the "A" potentiometer.

This setting does not change the calibration of the device. In case of outdoor installation, we suggest to use protective cover against moisture and splashy water to avoid any potential failures due to inadequately tightened screws.

## Install the device only in depressurized and disconnected state!

After removing the front cover pull the cable through the gland and connect it to the X1 terminal strip with correct wiring. Tighten the gland screw firmly for proper sealing. Once the wires connected, reinstate the front cover.



**Attention! Do not blow into the pressure ports!  
This may damage the device.**

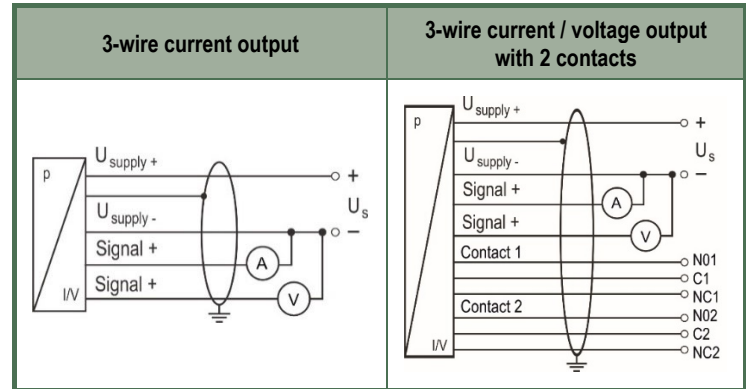
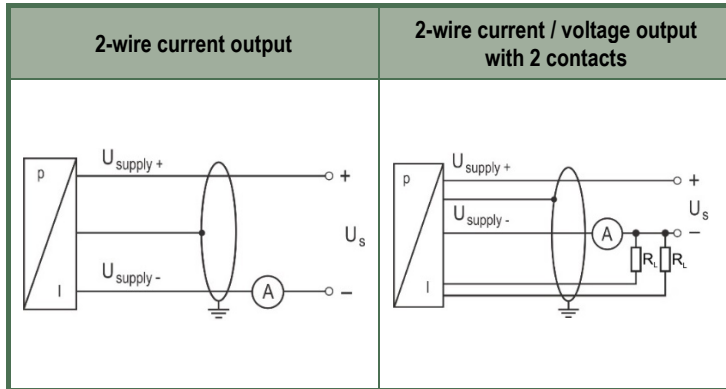
## Initial start-up

After turning on the power supply, the output signal can be measured. Variations in the output signal may have two possible causes:

1. The idling of the sensor is about 30 min. After this period, the sensor signal should be stable for zero pressure difference and constant ambient temperature.
2. For small pressure ranges, slight deviation from the zero-point due to ambient conditions may occur. This error can be corrected by adjusting the zero-point potentiometer of the sensor after the idling time is passed. (Set the output signal of the sensor to the nominal value with both pressure inputs open.)

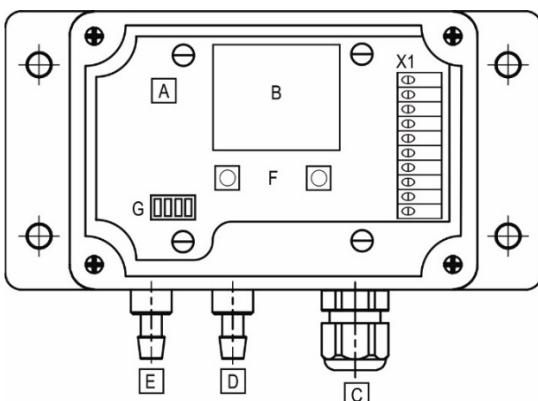
## 4. WIRING

An accidental touch of the inner terminal strip may cause electrostatic discharge which may result in the failure of the device. To avoid this, please touch any grounded points before opening the device.



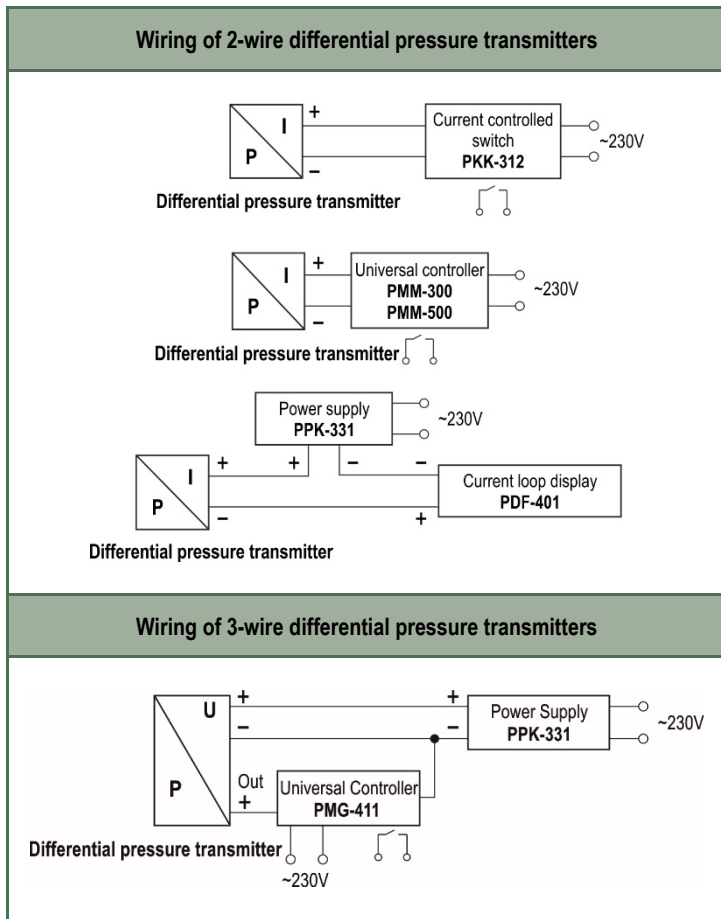
Wiring	X1 terminal strip 2-wire system	
	2-wire 4 – 20 mA	
$U_{Supply+}$	1	
$U_{Supply-}$	2	
Signal1	3	
Signal2	4	

Wiring	X1 terminal strip 3-wire system	
	3-wire 0 – 10 V / 0 – 20 mA	
NO2	1	
C2	2	
NC2	3	
NO1	4	
C1	5	
NC1	6	
$U_{Supply-}$	7	
$U_{Supply+}$	8	
$I_{OUT}$	9	
$U_{OUT}$	10	

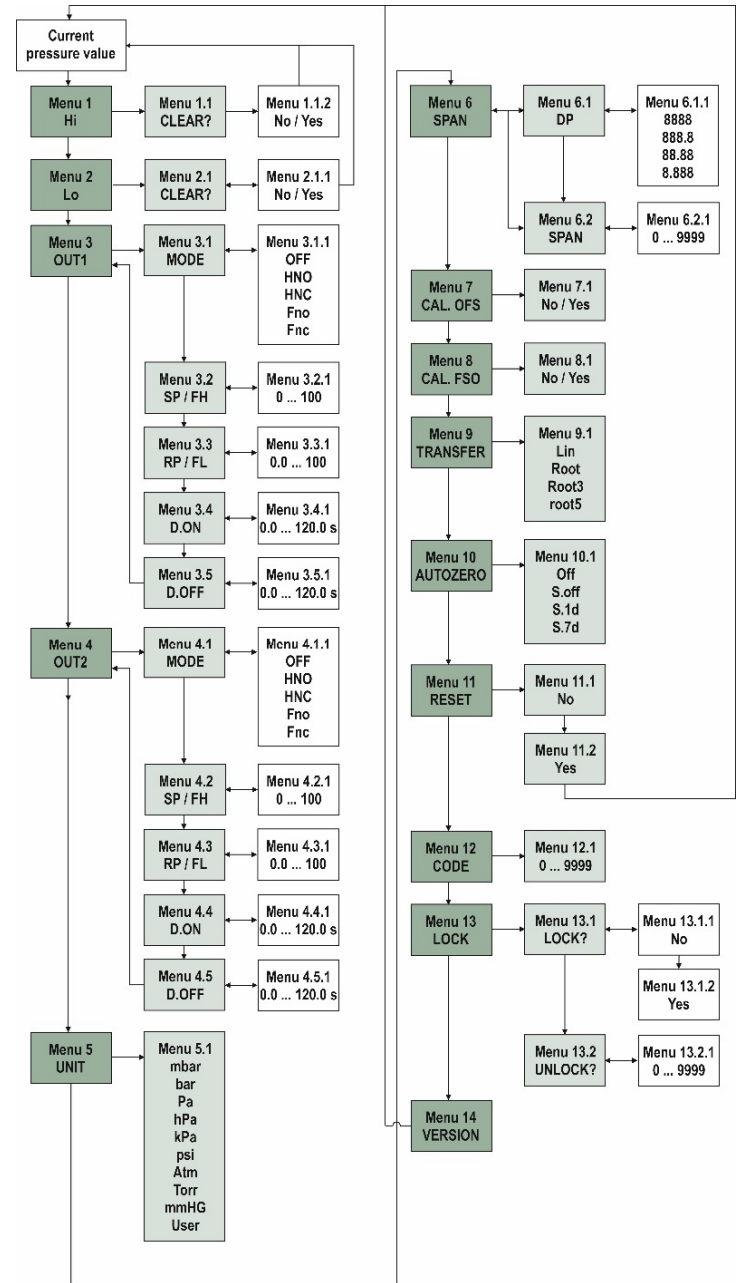


- Potentiometer to adjust damping. The damping of the device can be set by turning a size 2 Phillips screwdriver in the area of 0 – 5000 ms.
- Display (Optional)
- Cable Gland M16x1.5
- Negative pressure connection
- Positive pressure connection
- Menu buttons for zeroing: keep on pressing the left menu button for at least 1 second.
- Configuration Switching (see 5.1 Configuration Switch)

## 4.1 EXAMPLES OF ARRANGEMENTS



## 5.2 STRUCTURE OF THE MENU SYSTEM



## 5. PROGRAMMING

### 5.1 CONFIGURATION SWITCH

#### 3-wire system

1	2	3	4
		Off	0 – 10 V / 0 – 20 mA
		On	0 – 5 V / 4 – 20 mA
		Off	Automatic zero adjustment off
		On	Zero adjustment active at start and for 24 h
Off	Off	Nominal pressure range	
		1.6	4    10    40    250    1000
On	Off	Customized ranges	
		1.0	2.5    6    25    60    400
Off	On	160    600	

#### 2-wire system

1	2	3	4
		Off	Off    Automatic zero adjustment off
		On	Off    Zero adjustment active at start
		Off	On    Zero adjustment active at start and for 24 h
		On	On    Zero adj. active at start, then every 7 days
Off	Off	Nominal pressure range	
		1.6	4    10    40    250    1000
On	Off	Customized ranges	
		1.0	2.5    6    25    60    400
Off	On	160    600	

Switches 1 and 2 don't have any functions at special pressure ranges.

### 5.3 DESCRIPTION OF THE MENU SYSTEM

Menu	Description
Activation	By pressing the right-hand key.
<b>Menu 1</b> HI	<b>Displays the maximum value since the previous start</b> Available option: Delete value (CLEAR no / yes) (deletes the upper and lower maximum value) To delete the value: Press the left-hand key ► A "CLEAR?" message start flashing in the bottom line, while in the upper line a "no" message is displayed; you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 2</b> Lo	<b>Displays the minimum value since the previous start</b> Available option: Delete value (CLEAR no / yes) (deletes the upper and lower minimum value) To delete the value: Press the left-hand key ► A "CLEAR?" message start flashing in the bottom line, while in the upper line a "no" message is displayed; you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 3 / 4</b> OUT 1 / 2	<b>MODE</b> <b>Menu only activated with contacts</b> <ul style="list-style-type: none"> <li>• Off Deactivated</li> <li>• Hno Hysteresis, normally open</li> <li>• Hnc Hysteresis, normally closed</li> <li>• Fno Window, normally open</li> <li>• Fnc Window, normally closed</li> </ul> OUT flashing in the bottom line, in the upper line the current setting is displayed, e.g. "Hno"; the contacts can be selected with the right-hand key. Confirm the selection with the left-hand key.
	<b>SP</b> <b>FH</b> <b>Values for set points in %</b> Setting the set points: press the left-hand key ► "SP %" message start flashing in the bottom line, while in the upper line the current value is displayed; it is possible to change the value with the right-hand key. Confirm the selection with the left-hand key.
	<b>RP</b> <b>FL</b> <b>Values for reset points in %</b> Setting the reset points: press the left-hand key ► "RP %" message start flashing in the bottom line, while in the upper line the current value is displayed; it is possible to change the value with the right-hand key. Confirm the selection with the left-hand key.
	<b>D. ON</b> <b>Turn-on delay in s</b> Timing the turning-on of the device delay: press the left-hand key ► "D. ON s" message start flashing in the bottom line, the current value is displayed in the upper line; it is possible to change the value between 0.0 – 120.0 with the right-hand key. Confirm the selection with the left-hand key.
	<b>D. OFF</b> <b>Return switching delay in s</b> Setting the return switching delay: press the left-hand key ► "D. OFF s" message start flashing in the bottom line, while in the upper line the current value is displayed; it is possible to change the value between 0.0 ... 120.0 with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 5</b> UNIT	<b>Setting the pressure unit</b> Units which can be set: [mbar], [bar], [Pa], [hPa], [kPa], [psi], [Atm], [torr], [mmHG], or [user] (if the USER unit is selected, the maximum display value that is shown can be set under the menu item span) Setting the unit: press the left-hand key ► "unit" message start flashing in the bottom line, while in the upper line the currently set unit is displayed; the unit can be selected with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 6</b> SPAN	<b>Span value for display can be set when the user unit is selected</b> Setting DP / SPAN: press the left hand key ► "SPAN" is displayed in the lower line, the currently set value is displayed in the upper line; by pressing the left hand button again, "DP" flashes in the lower line, 8.888, e.g. is displayed in the upper line, the decimal point can be adjusted with the right hand key, 88.88 e.g. Confirm the selection with the left hand key. "SPAN" message start flashing in the bottom line, while in the upper line the currently set value is displayed; the position can be selected with the left-hand key, the corresponding numerical value can be changed with the right-hand key, the selection is confirmed with the left-hand key.

Menu	Description
Activation	By pressing the right-hand key.
<b>Menu 7</b> Cal. OFS	<b>Calibration of the Offset to the current value</b> (only for basic versions without automatic zeroing and square root extraction) Calibration of the Offset: Press the left-hand key ► "CAL. OFS?" message start flashing in the bottom line, while in the upper line the "no" message is displayed; you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 8</b> Cal. FSO	<b>Calibration of the endpoint</b> (display and analogue output) to the current pressure level. Calibration of the endpoint: Press the left-hand key ► "CAL. FSO?" message start flashing in the bottom line, while in the upper line "no" message is displayed; you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key.
<b>Menu 9</b> TRANSFER	<b>Square-root extraction output signal</b> (only at square root extraction versions with LCD display)
	Lin                      Standard – Linear
	root $y = x^{0.5}$ cut off 0 – 10%
	root3 $y = x^{1.5}$
<b>Menu 10</b> AUTOZERO	<b>Menu only visible if zeroing value is visible</b> (Value is read-only! Setting only possible via configuration switch.) (only at automatic zeroing versions)
	Off                      no automatic zero adjustment
	S.                        upon switching the device on
	S. 1d                    upon switching on and after 24 hours
<b>Menu 11</b> RESET	<b>Resets all menu settings to factory preset</b> Reset: Press the left-hand key ► the message "RESET" message start flashing in the bottom line, while in the upper line "no" message is displayed; you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key.
	<b>Menu 12</b> CODE
	<b>Menu 13</b> LOCK
	<b>Menu 14</b> VERSION

### 6. MAINTENANCE AND REPAIR

The instrument does not require regular maintenance. Any possible deposited dirt should be cleaned off. Any repairs to be carried out by the manufacturer only.

### 7. STORAGE CONDITIONS

Storage temperature: -10 °C ... +70 °C (14 °F ... +158 °F)

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NIVELCO reserves the right to change technical data without notice.