

Thank you for choosing a NIVELCO instrument!

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 _N ≥ 6 mbar: ≤ ±0.5% of full-scale output for P _N < 6 mbar: ≤ ±1% of full-scale output	
Process temperature		0...+50 °C (+32...+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)	
Housing		ABS	
Output		current or voltage	
Supply Voltage	2-wire	4...20 mA current output	Without automatic zero adjustment: U _{Supply} = 11...32 V DC
			With automatic zero adjustment: U _{Supply} = 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 _{Supply} = 19...32 V DC
			With automatic zero adjustment: U _{Supply} = 24...32 V DC
Load resistance	2-wire	current output	$R_{\max} = \frac{U_{\text{Supply}} - U_{\text{Supply min.}}}{0.02 \text{ A}}, [\Omega]$
	3-wire	voltage output	R _{min} = 10 kΩ
		current output	R _{max} = 330 Ω
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 (1.3 x 0.9"); 5-digit 7 segment main display, digit size 8 mm (3.15"), range of indication: ±9999; 8-digit 14 segment additional display, digit size 5 mm (0.2"); 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)	
Weight		~165 g (0.36 lb)	

2.3 ORDES CODE (NOT ALL COMBINATIONS POSSIBLE!)

NIPRESS D D □ - 6 □ □ - □

PROCESS CONNECTION	CODE
Ø6.6 x 11; for flex tube Ø6	P
Ø4.4 x 10; for flex tube Ø4	R

MEASURING RANGE / (MAX. STATC PRESSURE) mbar	CODE
0...1.6 / 200	R
0...4 / 200	S
0...10 / 200	2
0...40 / 345	6
0...250 / 1000	C
0...1000 / 3000	F

ACCURACY	CODE
1% ($p \geq 6$ mbar)	3
2% ($p < 6$ mbar)	5

OUTPUT	CODE
4...20 mA, 2-wire	2
0...10 V, 3-wire	3

NIPRESS

DD□-6□□-□
DIFFERENTIAL PRESSURE TRANSMITTER

User's manual



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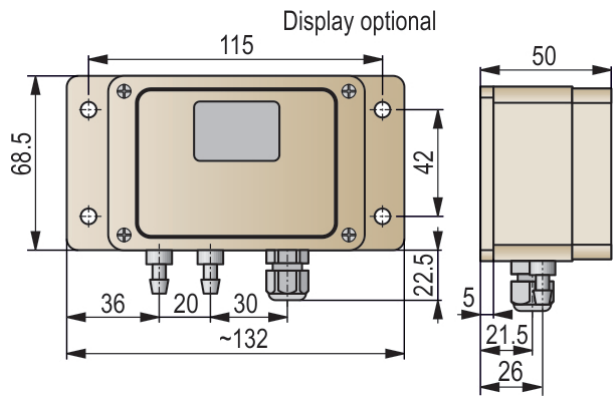


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2.2 ACCESSORIES

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

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.

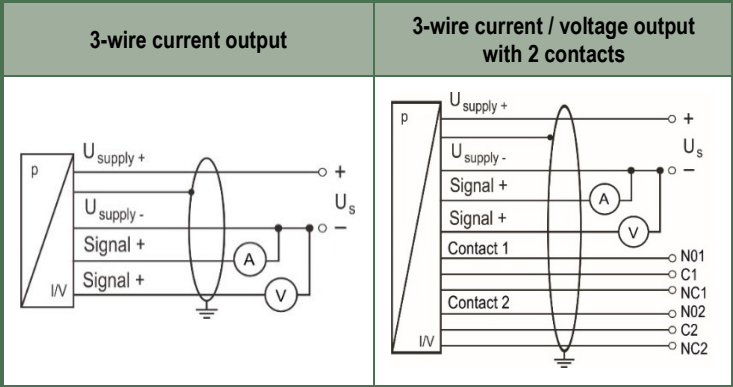
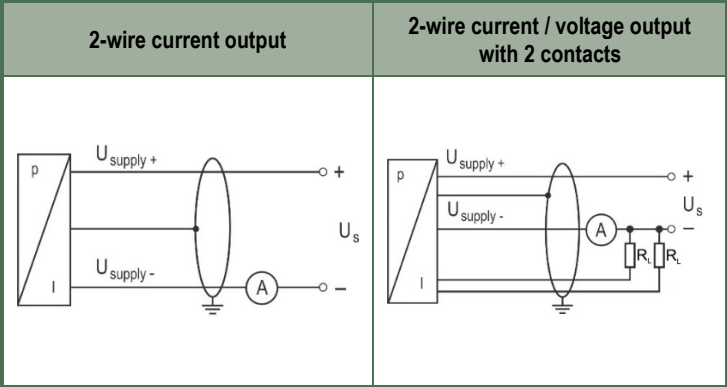
Initial start-up

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.)

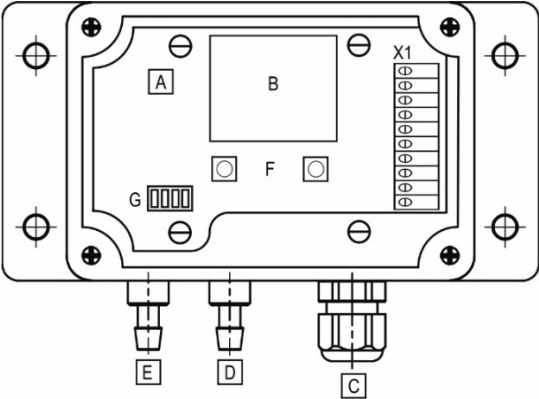
4. WIRING

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.



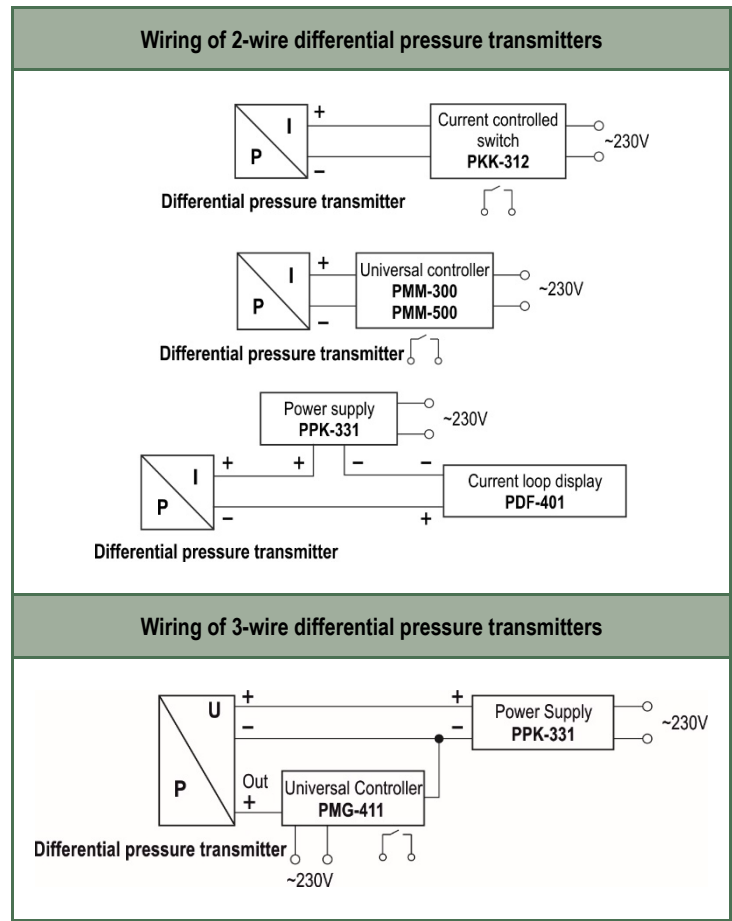
Wiring	X1 terminal strip 2-wire system
	2-wire 4 – 20 mA
USupply+	1
USupply –	2
Signal1	3
Signal2	4

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
USupply –	7
USupply+	8
IOUT	9
UOUT	10



- A. 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.
- B. Display (Optional)
- C. Cable Gland M16x1.5
- D. Negative pressure connection
- E. Positive pressure connection
- F. Menu buttons for zeroing: keep on pressing the left menu button for at least 1 second.
- G. Configuration Switching (see 5.1 Configuration Switch)

4.1 EXAMPLES OF ARRANGEMENTS



5. PROGRAMMING

5.1 CONFIGURATION SWITCH

3-wire system

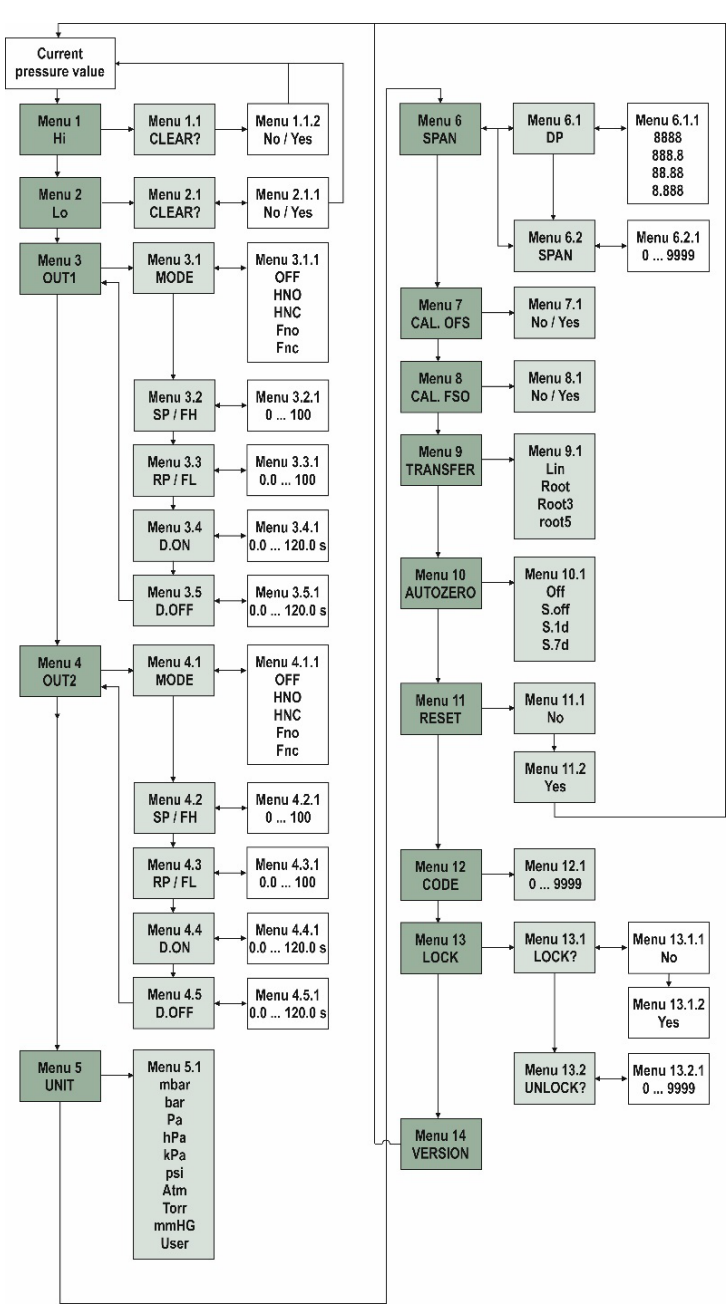
1	2	3	4				
		Off	0 – 10 V / 0 – 20 mA				
		On	0 – 5 V / 4 – 20 mA				
		Off	Automatic zero adjustment off				
		On	Zero adjustment active at start and for 24 h				
Off	Off	Nominal pressure range					
		1.6	4	10	40	250	1000
On	Off	Customized ranges					
		1.0	2.5	6	25	60	400
Off	On					160	600

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.

5.2 STRUCTURE OF THE MENU SYSTEM



5.3 DESCRIPTION OF THE MENU SYSTEM

Menu		Description
Activation		By pressing the right-hand key.
Menu 1 HI		Displays the maximum value since the previous start 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.
Menu 2 Lo		Displays the minimum value since the previous start 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.
Menu 3 / 4 OUT 1 / 2	MODE	Menu only activated with contacts • Off Deactivated • Hno Hysteresis, normally open • Hnc Hysteresis, normally closed • Fno Window, normally open • Fnc Window, normally closed 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.
	SP FH	Values for set points in % 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.
	RP FL	Values for reset points in % 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.
	D. ON	Turn-on delay in s 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.
	D. OFF	Return switching delay in s 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.
Menu 5 UNIT		Setting the pressure unit 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.
Menu 6 SPAN		Span value for display can be set when the user unit is selected 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.		
Menu 7 Cal. OFS	Calibration of the Offset to the current value (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.		
Menu 8 Cal. FSO	Calibration of the endpoint (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.		
Menu 9 TRANSFER	Square-root extraction output signal (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	
	root5	y = x^2.5	
Menu 10 AUTOZERO	Menu only visible if zeroing value is visible (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	
	S. 7d	upon switching on and after 7 days	
Menu 11 RESET	Resets all menu settings to factory preset 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.		
Menu 12 CODE	Activate locking code set all values (zero is not applicable) and confirm. Menu point "LOCK" is displayed.		
Menu 13 LOCK	Lock / UNLOCK menu LOCK? you can select between "yes" and "no" with the right-hand key. Confirm the selection with the left-hand key. With YES the menu is closed immediately, measured value is displayed. (Locking code is deactivated if all values are set on 0 – otherwise the device automatically closes after 2 minutes or in absence of the input power. When UNLOCK? is displayed enter the right code to unlock.)		
Menu 14 VERSION	Displays the current firmware version.		

6. MAINTENANCE AND REPAIR

The device does not require regular maintenance. Refer to the warranty card for warranty information. The device returned for repair must be cleaned by the user, all chemical deposits must be removed, and the device must be disinfected before sending it back. In addition, the return package must include a properly filled [Returned Equipment Handling Form](#), in which the sender declares that the device is free of all contamination and substances hazardous to health.

7. STORAGE CONDITIONS

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

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NIVELCO reserves the right to change technical data without notice.