## 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 $\square$－6ロロ－$\square$ |  |
| :---: | :---: | :---: | :---: |
| Measurement range |  | $0 . . .1000$ mbar according to the order code |  |
| Overload capability |  | According to the order code |  |
| Accuracy |  | for $P_{N} \geq 6$ mbar：$\leq \pm 0.5 \%$ of full－scale output for $P_{\mathrm{N}}<6 \mathrm{mbar}: \leq \pm 1 \%$ of full－scale output |  |
| Process temperature |  | $0 \ldots+50{ }^{\circ} \mathrm{C}\left(+32 \ldots+122^{\circ} \mathrm{F}\right)$ |  |
| 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： $U_{\text {supply }}=11 \ldots 32 \mathrm{~V} \mathrm{DC}$ |
|  |  |  | With automatic zero adjustment： $U_{\text {supply }}=24 \ldots 32 \mathrm{~V} \mathrm{DC}$ |
|  | 3－wire | $0 . .10 \mathrm{~V} / 0 . . .5 \mathrm{~V}$ <br> 4．．． $20 \mathrm{~mA} / 0 \ldots . .20 \mathrm{~mA}$ switchable output | Without automatic zero adjustment： $U_{\text {supply }}=19 \ldots 32 \mathrm{~V} \text { DC }$ |
|  |  |  | With automatic zero adjustment： $\mathrm{U}_{\text {supply }}=24 \ldots 32 \mathrm{~V} \text { DC }$ |
| Load resistance | 2－wire | current output | $\mathrm{R}_{\max }=\frac{U_{\text {supply }}-U_{\text {supply min．}}}{0.02 \mathrm{~A}},[\Omega]$ |
|  | 3－wire | voltage output | $\mathrm{R}_{\text {min }}=10 \mathrm{k} \Omega$ |
|  |  | current output | $\mathrm{R}_{\text {max }}=330 \Omega$ |
| Contact output （optional） | 2－wire | $2 \mathrm{x} \mathrm{PNP} \mathrm{open} \mathrm{collector} \mathrm{contact}, \mathrm{max}$.125 mA （short－circuit proof） |  |
|  | 3－wire | 2 x relay－output（NO／NC） $60 \mathrm{~V} \mathrm{DC}, 40 \mathrm{~V} \mathrm{AC}$ ，max． 1 A |  |
| Display （optional） |  | 2－line LCD display，visible range $32.5 \times 22.5 \mathrm{~mm}(1.3 \times 0.9$＂$) ;$5 －digit 7 segment main display，digit size $8 \mathrm{~mm}\left(3.15^{\prime \prime}\right)$ ，range of indication：$\pm 9999 ;$8 －digit 14 segment additional display，digit size 5 mm （ $0.2^{\prime \prime}$ ）； 52 segment bargraph；accuracy： $0.1 \% \pm 1$ digit |  |
| Process connection |  | According to the order code |  |
| Electrical connection |  | Cable gland M16x1．5 |  |
| Ingress protection |  | IP54 |  |
| Electric protection |  | Class III（SELV） |  |
| Weight |  | $\sim 165 \mathrm{~g}(0.36 \mathrm{lb})$ |  |

## NIPRESS

DDC－6पロ－ロ
DIFFERENTIAL PRESSURE TRANSMITTER

User＇s manual


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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 |
| :--- | :---: |
| PROCESS CONNECTION | CODE |
| $\varnothing 6.6 \times 11$ ；for flex tube $\varnothing 6$ | P |
| $\varnothing 4.4 \times 10 ;$ for flex tube $\varnothing 4$ | $\mathbf{R}$ |


|  |  |
| :--- | :---: |
| MEASURING RANGE <br> I（MAX．STATC PRESSURE）mbar | CODE |
| $0 \ldots 1.6 / 200$ | R |
| $0 \ldots 4 / 200$ | S |
| $0 . \ldots 10 / 200$ | 2 |
| $0 . \ldots 40 / 345$ | 6 |
| $0 . \ldots 250 / 1000$ | C |
| $0 . .1000 / 3000$ | F |


| ACCURACY | CODE |
| :--- | :---: |
| $1 \%(p \geq 6 \mathrm{mbar})$ | 3 |
| $2 \%(p<6 \mathrm{mbar})$ | 5 |


|  |  |
| :--- | :---: |
| Output | CODE |
| $4 \ldots 20 \mathrm{~mA}, 2$－wire | 2 |
| $0 . . .10 \mathrm{~V}, 3$－wire | 3 |

### 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.


| Wiring | X1 terminal strip 2-wire system |
| :---: | :---: |
|  | 2-wire 4-20 $\mathbf{~ m A}$ |
| Usupply $^{+}$ | 1 |
| Usupply | 2 |
| Signal1 | 3 |
| Signal2 | 4 |


| Wiring | $\mathbf{X 1}$ terminal strip 3-wire system |
| :---: | :---: |
|  | 3-wire $\mathbf{0} \mathbf{- 1 0} \mathbf{~} / \mathbf{0} \mathbf{0} \mathbf{- \mathbf { 2 0 } \mathbf { m A }}$ |
| NO2 | 1 |
| C2 | 2 |
| NC2 | 3 |
| NO1 | 4 |
| C1 | 5 |
| NC1 | 6 |
| Usupply- | 7 |
| Usupply + | 8 |
| lout | 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 $0-5000 \mathrm{~ms}$.
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

5.2 STRUCTURE OF THE MENU SYSTEM


### 5.3 DESCRIPTION OF THE MENU SYSTEM

| Menu |  | Description |
| :---: | :---: | :---: |
| Activation |  | By pressing the right-hand key. |
| $\text { Menu } 1$$\mathrm{HI}$ |  | Displays the maximum value since the previous start Available option: Delete value (CLEAR no / yes) (deletes the upper and lower maximum value) <br> 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 lefthand key. |
| $\text { Menu } 2$Lo |  | Displays the minimum value since the previous start Available option: Delete value (CLEAR no / yes) (deletes the upper and lower minimum value) <br> 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 lefthand key. |
| $\begin{aligned} & \text { Menu } \\ & 3 / 4 \\ & \text { OUT } \\ & 1 / 2 \end{aligned}$ | MODE | Menu only activated with contacts <br> - Off Deactivated <br> - Hno Hysteresis, normally open <br> - Hnc Hysteresis, normally closed <br> - Fno Window, normally open <br> - Fnc Window, normally closed <br> 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. |
|  | $\begin{aligned} & \text { SP } \\ & \text { FH } \end{aligned}$ | Values for set points in \% <br> 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. |
|  | $\begin{aligned} & \text { RP } \\ & \text { FL } \end{aligned}$ | Values for reset points in \% <br> 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 <br> 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 $0.0 \ldots 120.0$ 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) <br> 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 <br> 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 <br> Cal. OFS | Calibration of the Offset to the current value <br> (only for basic versions without automatic zeroing and square root extraction) <br> 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 <br> Cal. FSO | Calibration of the endpoint (display and analogue output) to the current pressure level. <br> 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 <br> TRANSFER | Square-root extraction output signal (only at square root extraction versions with LCD display) |  |  |
|  | Lin | Standard |  |
|  | root | $y=x^{\wedge} 0.5$ | cut off 0-10\% |
|  | root3 | $y=x^{\wedge 1.5}$ |  |
|  | root5 | $y=x^{\wedge} 2.5$ |  |
| Menu 10 AUTOZERO | Menu only visible if zeroing value is visible (Value is readonly! Setting only possible via configuration switch.) (only at automatic zeroing versions) |  |  |
|  | Off | no automa | djustment |
|  | S. | upon switc | device on |
|  | S. 1d | upon switc | nd after 24 hours |
|  | S. 7d | upon switc | nd after 7 days |
| Menu 11 <br> 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 lefthand 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 <br> LOCK? you can select between "yes" and "no" with the righthand key. Confirm the selection with the left-hand key. With YES the menu is closed immediately, measured value is displayed. <br> (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: $-10 \ldots+70^{\circ} \mathrm{C}\left(+14 \ldots+158^{\circ} \mathrm{F}\right)$

## ddr622en20h01

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NIVELCO reserves the right to change technical data without notice.

