PIEZUS

INDICATOR
ANZ 200

Operation Manual

www.piezus.ru

This manual covers ANZ 200 indicator (hereinafter referred to as "device"); it contains technical data, description of design and other information necessary for proper application and maintenance of the device.

There are several versions of the device. Refer to specifications (www.piezus.ru), full code of the device, for the version information.

Production regulated by TOR 4212-000-7722857693–2015.

Terms and abbreviations used in the manual: Span – measurement range; URL – upper range limit (a.k.a URV).

1 Purpose of the device

1.1 The device converts unified current signal (4 ... 20 mA) into present value of the parameter controlled and delivers it to the display; it is also capable of controlling an external electric circuit from the built-in switch.

1.2 The device is a local indicator for any general purpose industrial transmitter that outputs a unified signal of 4...20 mA (2 wire) through a DIN 43650 connector.

1.3 Applications: control, safety, signaling and supervision systems in various industrial environments and at public utilities.

2 Technical specifications

2.1 General technical data

2.1.1 The device:

- displays current values of the parameter measured by the connected transmitter in a user-friendly form (units of measurement selected by user);
- stores peak values registered and shows graphs covering last hour, day, month, quarter;
- activates switch output when the controlled parameter reaches a set threshold;
- accepts operating mode adjustments made with control buttons (on the front panel).
- prevents unauthorized access to settings with a password.

2.1.2 The device is mounted onto a transmitter with a DIN 43650 connector; it is powered by the transmitter's current loop (resulting voltage is 6.5 V).

2.1.3 Resolution of the OLED display is 128 × 64 pixels; it measures 30 × 16 mm (see Table 1 for its basic specifications).

Table 1 - Display parameters

Name	Value (properties)
Range of displayed values	-1999…+9999
Displayed accuracy	0.1 % of span ± low-order digit as % of span
Readings display time (with pressure snubbing off)	≤1 s
Displayed readings change delay (programmable)	0.3...30 s

2.1.4 The switch output is based on an NPN transistor key (open collector); see Table 2 for its parameters.

Table 2 - Switch output parameters

Name	Value (properties)
Max switching current	30 mA, short-circuit protection
Voltage drop when functioning, max	1.5 V
Switch output action repeatability	≤ ± 0.1% of span
Switching accuracy*	≤ ± 0.5% of span
Switching frequency, max	10 Hz
Switching delay	0...100 s
Switching outputs resource	> 100×106

* Accuracy includes non-linearity, hysteresis and repeatability (under IEC 60770).

2.1.5 Housing of the device is plastic (see Supplement A). The display rotates for 330° in one plane (relative to the connector).

2.1.6 Housing dimensions, mm, max: 81 × 69 × 48 mm.

2.1.7 Weight, max: 0.11 kg.

2.1.8 Housing ingress protection (GOST 14254) - IP65.

2.2. Operating conditions:

- enclosed explosion-proof spaces free from aggressive vapors and gases;
- ambient air temperature from -25 to +85 °C, relative humidity from 5 to 95% (no moisture condensation);
- atmospheric pressure from 84 to 106.7 kPa (group P1 under GOST R 52931, max height above sea level - 1000 m).

Resistance to mechanical attack puts the device in group F3 under GOST R 52931: resistant to sinusoidal vibration with acceleration of 49 m/s2, frequency (10 ... 500) Hz and amplitude of 0.35 mm.

2.3 Electromagnetic interference resistance and emission

Electromagnetic emission: the device is a Class A equipment under GOST R 51318.22.

Electromagnetic interference resistance: the device is a class 3 equipment under GOST R 51317.4.3.

3 Safety precautions

3.1 The electric shock hazard class of the device is III (no dangerous voltage); see GOST 12.2.007.0 for full classification.

3.2 Take measures to prevent moisture from getting into the housing and onto connector pins.

4 Installation instructions

4.1 Install the device with maintenance convenience (incl. mounting, dismantling) in mind. Rotate the display to position it for convenient reading.

4.2 Always cut off power when connecting the device's circuits.

4.3 Connect circuits through the connector as prescribed by Appendix B.

5 Setup

5.1 General information

5.1.1 There are control buttons and a display on the front panel of the device. Press any button to cycle through displayed information (see Figures 1-4).

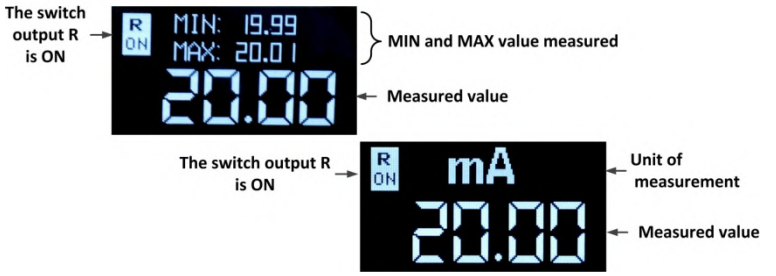


Figure 1 - Switchable screens displaying the measured value

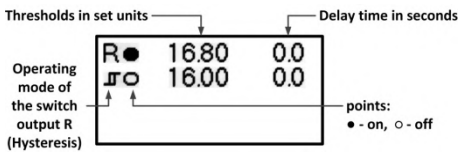


Figure 2 - Switch screen showing current switch output parameters

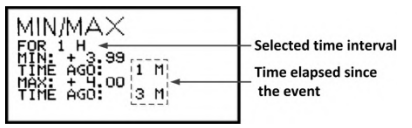


Figure 3 - MIN/MAX screen showing minimal and maximal values for 1 hour (press a button to cycle through other interval options: 24 hours, 30 days, 90 days)

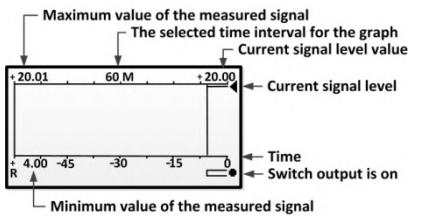


Figure 4 - Graph screen showing the signal change graph (vertical axis adjusts automatically to fit into the display)

Factory settings of the switch: mode - hysteresis; switching-on threshold - 55% of URL; switching-off threshold - 45% of URL; switching-on delay - 0 s; switching-off delay - 0 s.

5.2 Setup access

5.2.1 You can change operation parameters of the device in the special menu. To access this menu:
1) press both control buttons simultaneously;
2) enter password (using control buttons) in the dialog box;
3) press both control buttons simultaneously to confirm the password; if it is correct, you access the setup menu.

5.2.2 To return to the operation mode, press and hold (2 seconds) both control buttons.

5.2.3 Refer to the Programming manual for menu description and programming instructions.

6 Maintenance

Routine maintenance frequency - at least once a year; it includes checking reliability of mounting and removal of dust and dirt.

Always follow safety precautions described in section 3 when doing maintenance.

7 Marking

The device bears a label (sticker on the back of the housing) that contains the following information:
- name of the manufacturer, bar code (QR code); name and code of the device;
- type of connector, numbers of electrical contacts (for connector);
- input signal range; rated supply voltage and its type;
- electric shock protection class (GOST 12.2.007.0);
- ingress protection (IP code) under GOST 14254; serial number, month and year of manufacture.

8 Package contents

Name	Quantity
ANZ 200 indicator	1 pc
User manual (this paper)	1 copy*
Programming manual	1 copy*
Passport	1 copy

* 1 copy per 10 transmitters for batch supplies to the same address. The paper can be downloaded from the manufacturer's website.

9 Transportation and storage

9.2 Transport in packaging; permissible temperature from -40 to +85 °C, relative humidity below 95% (at +35 °C).

9.2 Use roofed transport to deliver the device.

9.3 Store in packaging in closed warehouses; permissible temperature from 0 to +55 °C, relative humidity below 95% (at +35 °C). The air in the warehouse should be free from aggressive vapors and gases.

10 Resource and service life

10.1 Operating mode: continuous.

10.1 Mean time between failures: 120,000 h.

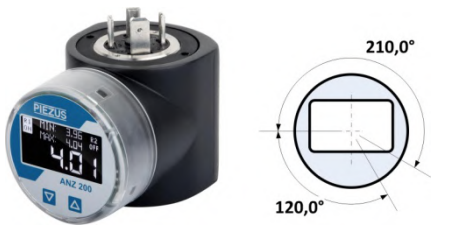
10.3 Service life - 12 years (normal working conditions: non-aggressive medium, temperature at +23 ± 3 °C, no vibrations and shaking).

11 Disposal

11.1 The device contains no precious metals.

11.2 Dispose of as prescribed by regulations adopted by the operator.

Supplement A Housing and control elements



Supplement B Wiring diagram

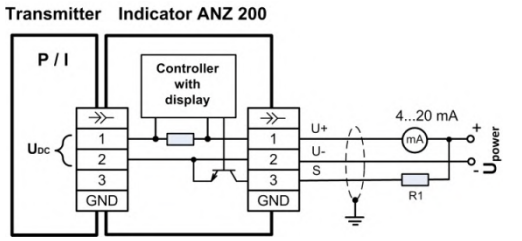


Figure B.1 - Connection of version with switch output

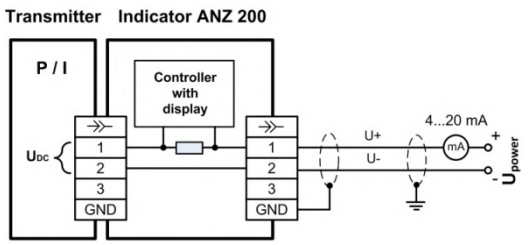


Figure B.2 - Connection of version without switch output

PIEZUS

ANZ 200

Programming manual

This manual covers programming of ANZ 200 indicator (hereinafter referred to as "device"); it contains information necessary for proper application of the device.

1 List of configurable parameters

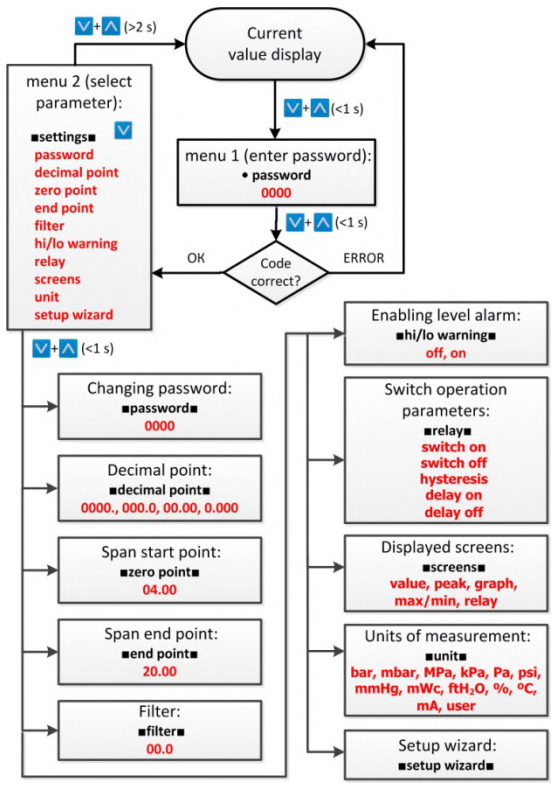


Figure 1 - Setup menu structure

2 Setting a new password

Select "password" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Set the desired numerical value and save it by pressing the two buttons.

3 Setting delay damping (filter)

Select "filter" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Set the desired numerical value (0.3 to 30 seconds) and save it by pressing the two buttons.

4 Setting the warning thresholds

Select "hi/lo warning" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Find the "on" item there, select it and press the two control buttons simultaneously.

When the current drops below 3.8 mA or exceeds 21 mA, the screen displays "<3.8 mA" or "> 21 mA".

5 Switch output control

5.1 Operating modes

Switch output operates in two modes, HYSTERESIS or WINDOW. See Figure 2 for the difference between them.

You can change the mode in the "relay" menu, there are "hysteresis" and "window" items there. The mode - regular or inverse - depends on the switching-on and switching-off points values.

5.2 Setting the switch output switching-on point

Select "relay" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Find the "switch on" item there, select it and press the two control buttons simultaneously. Set the desired numerical value and save it by pressing the two buttons.

See Table 1 for all configurable parameters.

Table A1 - Operating parameters

Menu items ■settings■	Parameters	Function
password	password	set a new password (to replace the one set at the factory)
decimal point	decimal point	select the position of the decimal point displayed on the screen
zero point	zero point	set the numeric value that shows on display when the output signal is "zero" (at 4 mA current)
end point	end point	set the numerical value that shows when the transmitter's output signal reaches the upper range limit (at 20 mA current)
filter	filter	this function allows filtering out output signal fluctuations when measured parameters change abruptly; range - 0.3 to 30 seconds.
hi/lo warning	hi/low level warnings	set the thresholds to show "warning" on the display when the measured parameter drops below or exceeds the set values: off - disabled; on - enabled
relay	switch	setting switch output parameters: **switch on - switching-on level;** **switch off - switching-off level;** **hysteresis/window - selection of hysteresis or window mode;** **delay on - switching-on delay, range - 0 to 100 s;** **delay off - switching-off delay, range - 0 to 100 s**
screens	screens	select screens to be used - press both buttons to check or uncheck checkboxes of screens (all checkboxes and checked by default): **√ value - current value of the measured parameter in selected units of measurement;** **√ peak - displays the current measured and peak values for the past period;** **√ graph - graph of measured values for 1 hour, (60 M), 24 hours (24 H), 30 days (30 D), 90 days (90 D) (see Operation manual, Figure 4);** **√ max/min - maximal and minimal values registered within the past operation period (see Operation manual, Figure 3);** **√ relay – switch-on (●), switch-off (○) levels and delay applied to the switch (see Operation manual, Figure 2);**
unit	unit of measurement	available values: bar, mbar, MPa, kPa, Pa, psi, mmHg, mWc, ftH2O, %, oC, mA, user
setup wizard	setup wizard	setup of the following parameters: 1) decimal point; 2) zero point; 3) end point; 4) units of measurement

To enter programming menu:
1) press both control buttons simultaneously;
2) enter password (using control buttons) in the dialog box, default password is "5";
3) confirm the password by pressing both control buttons simultaneously, if the password is correct, you enter the ■settings■ screen with a list of available parameters (Menu 2, Figure 1).

Use forward and back buttons to change parameters. Press both control buttons simultaneously to save the changed value.

6 Selecting information screens

Select "screens" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Browse to the needed item there, press the two control buttons simultaneously to check or uncheck the checkbox of the item.

Press and hold the buttons to return to the previous menu.

Press and hold two buttons simultaneously to return to the previous screen or exit the setup mode.

When in hysteresis mode, if the switching-on point value is less than the switching-off point value, the switch operates in inverse mode (Figure 2, B).

When in window mode, if the switching-on point value (lower threshold) is less than the switching-off point value, the switch operates in regular mode (Figure 2, B).

5.3 Setting the switch output switching-off point

Select "relay" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Find the "switch off" item there, select it and press the two control buttons simultaneously. Set the desired numerical value and save it by pressing the two buttons.

When in hysteresis mode, if the switching-off point value is less than the switching-on point value, the output switch operates in regular mode (Figure 2, A).

When in window mode, if the switching-off point value (upper threshold) is less than the switching-on point value, the output switch operates in inverse mode (Figure 2, D).

5.4 Setting the switch output switching-on delay

Select "relay" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Find the "delay on" item there, select it and press the two control buttons simultaneously. Set the desired numerical value (0 to 100 seconds) and save it by pressing the two buttons.

5.5 Setting the switch output switching-off delay

Select "relay" on the ■settings■ screen and enter the menu by simultaneously pressing the two control buttons.

Find the "delay off" item there, select it and press the two control buttons simultaneously. Set the desired numerical value (0 to 100 seconds) and save it by pressing the two buttons.

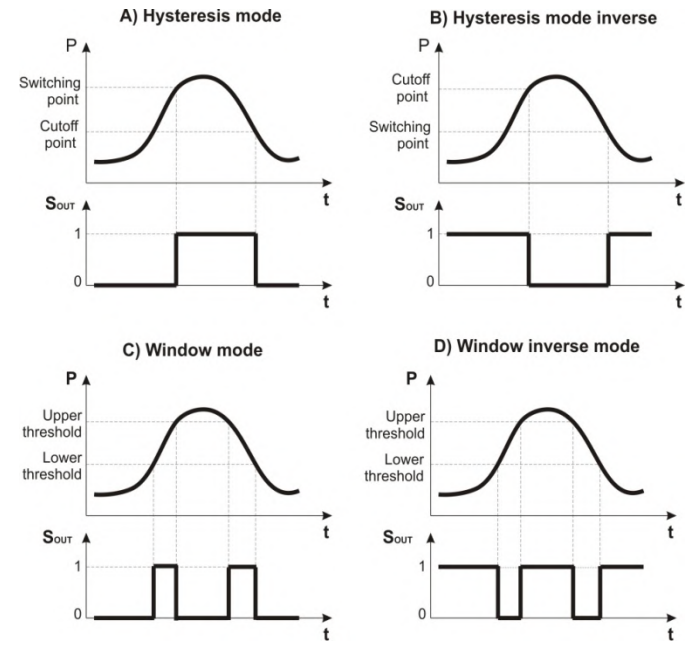


Figure 2 - Switch output operating mode (Sout)