

# RE60





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|            |                  |           |
|------------|------------------|-----------|
| <b>1.</b>  | <b>RE60.....</b> | <b>5</b>  |
| <b>2.</b>  | .....            | <b>5</b>  |
| <b>3.</b>  | .....            | <b>6</b>  |
| 3.1.       | .....            | 6         |
| 3.2.       | .....            | 6         |
| 3.3.       | .....            | 7         |
| 3.4.       | .....            | 9         |
| <b>4.</b>  | .....            | <b>10</b> |
| <b>5.</b>  | .....            | <b>11</b> |
| 5.1.       | .....            | 11        |
| 5.2.       | .....            | 13        |
| <b>6.</b>  | .....            | <b>16</b> |
| 6.1.       | .....            | 16        |
| 6.2. PID-  | .....            | 17        |
| <b>7.</b>  | .....            | <b>20</b> |
| <b>8.</b>  | .....            | <b>21</b> |
| 8.1.       | .....            | 21        |
| 8.2.       | .....            | 21        |
| 8.3.       | .....            | 21        |
| <b>9.</b>  | .....            | <b>22</b> |
| <b>10.</b> | .....            | <b>23</b> |
| <b>11.</b> | .....            | <b>26</b> |
| <b>12.</b> | .....            | <b>26</b> |



1.

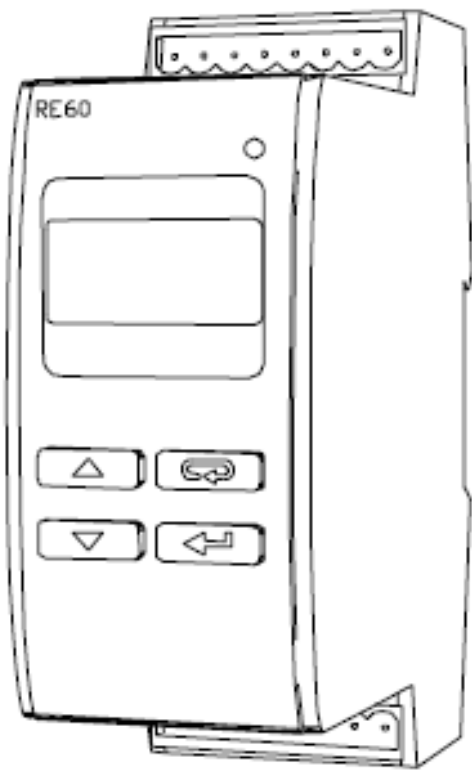
# RE60

RE60

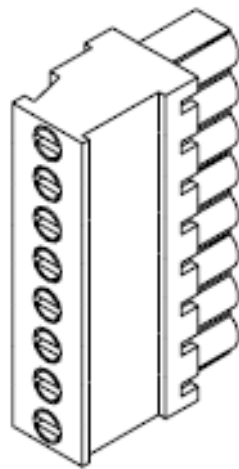
RE60

RE60

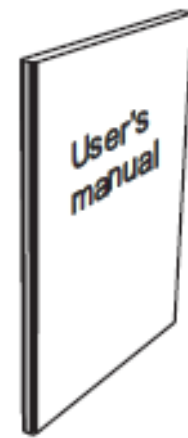
2.



- 1



- 2



- 1

- 1

- 1

3.

3.1.

RE23

61010-1,

61000-6-4.

EN

EN 61000-6-2

EN

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EN

61010-1.



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RE60,

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6.

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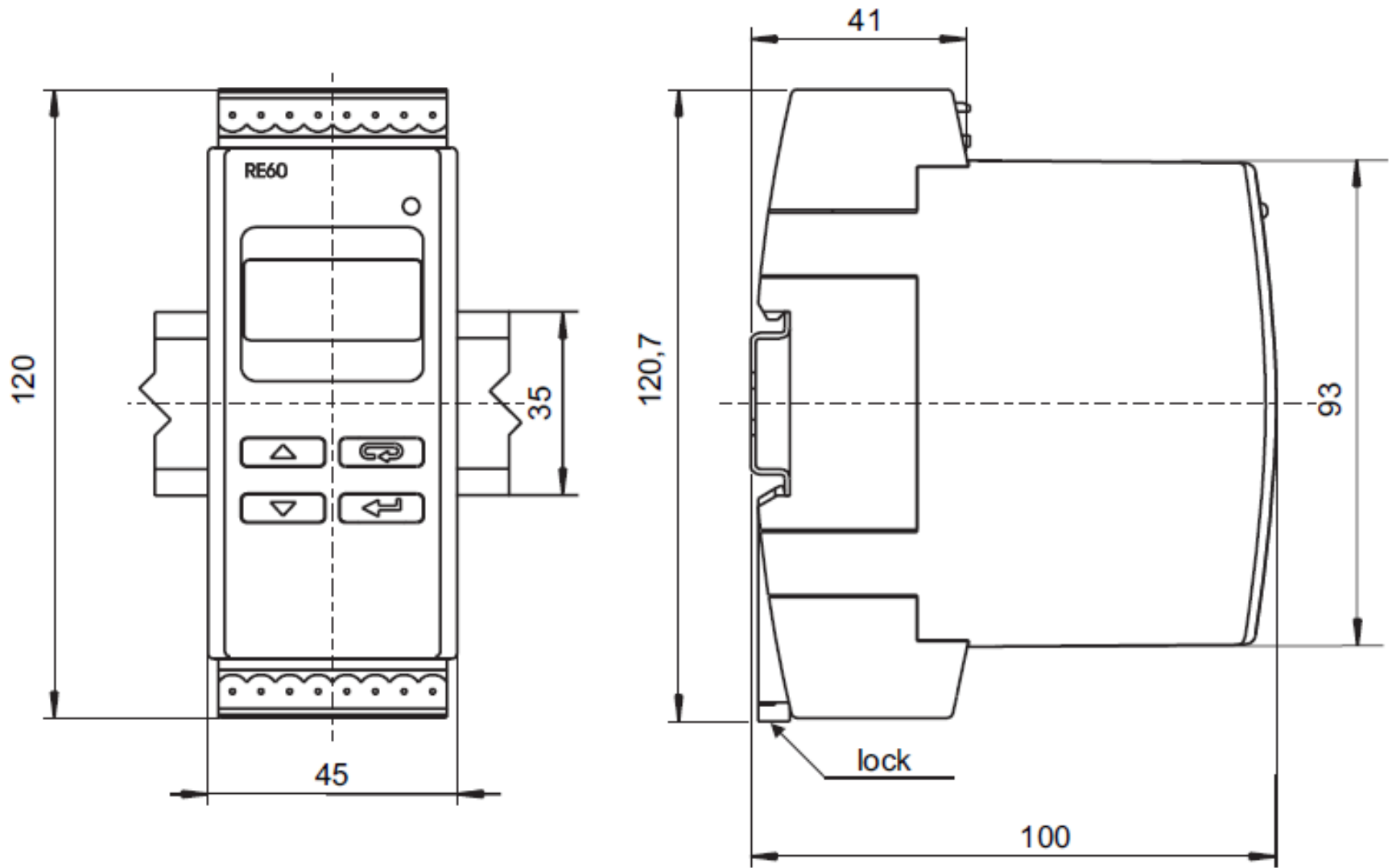
3.2.



35-  
EN 60715.

DIN-

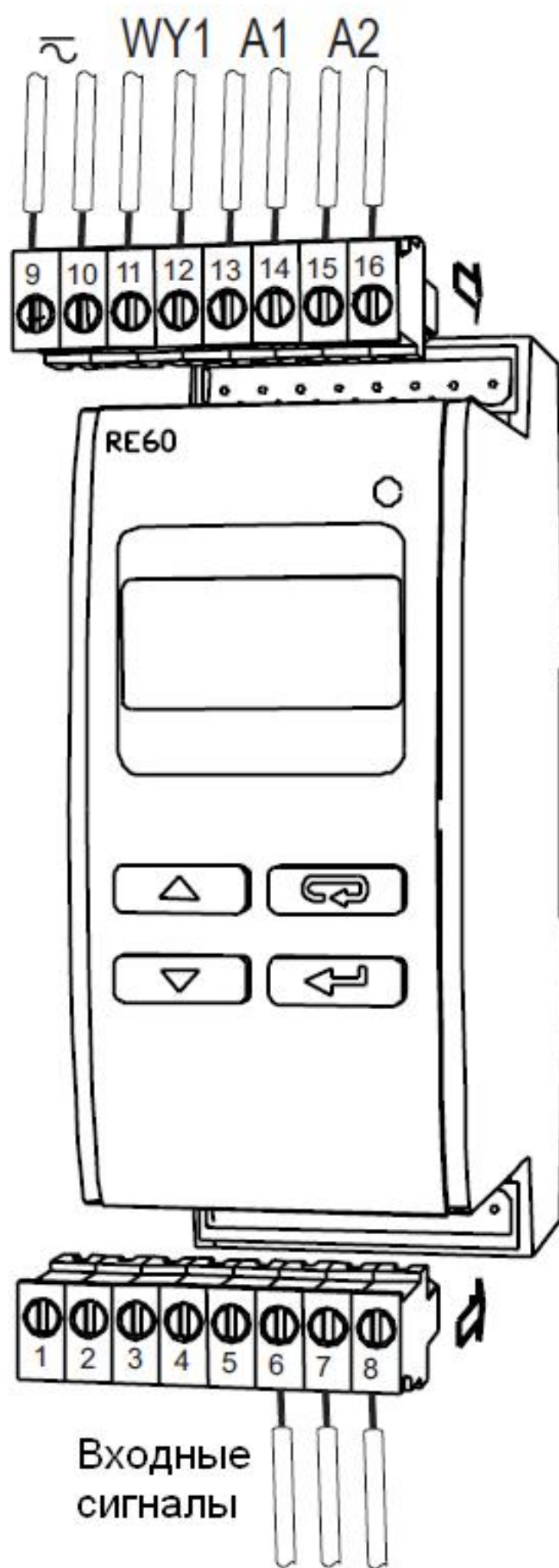
.1.



.1.

### 3.3.

Питание



.2.

|  |  |           |
|--|--|-----------|
|  |  |           |
| Термометр сопротивления Pt100 (2х-проводная схема) | Термометр сопротивления Pt100 (3х-проводная схема) | Термопара |

**.3. С**

|         |                |   |                |                          |
|---------|----------------|---|----------------|--------------------------|
|         |                |   |                |                          |
| Питание | Выход 1 - реле | Выход 1 - дискретный выход напряжения для управления SSR-реле | Выход 1 - реле | Аварийный выход 2 - реле |

**.4.**

### 3.4.

RE60

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30

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(90°).

4.

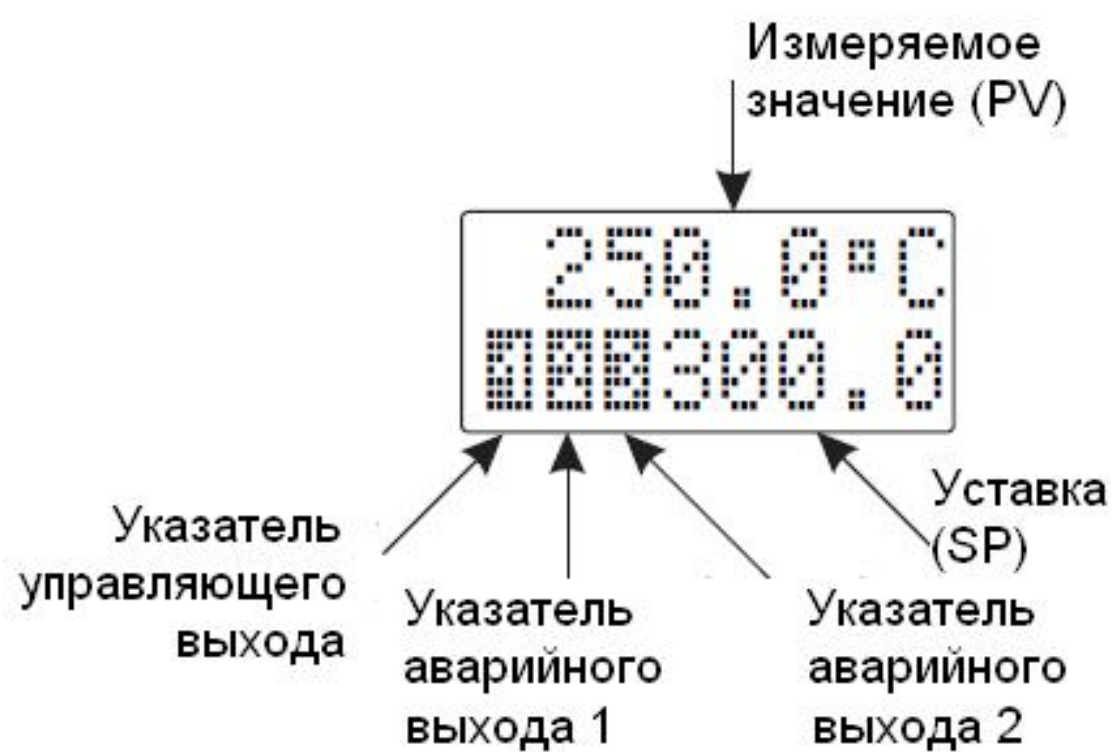
RE60  
ver1.00

3

RE60

2.0°

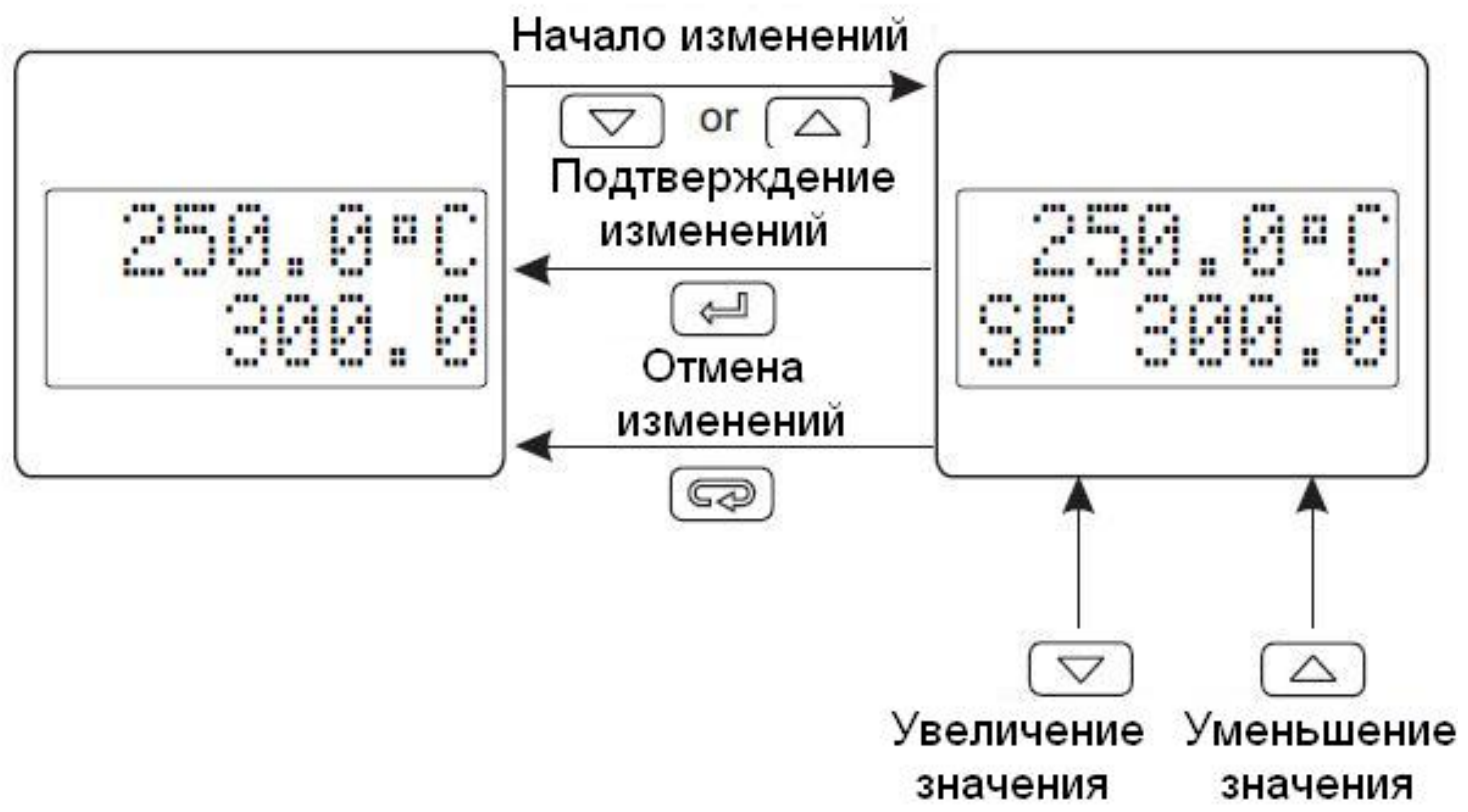
2.



.5.

30

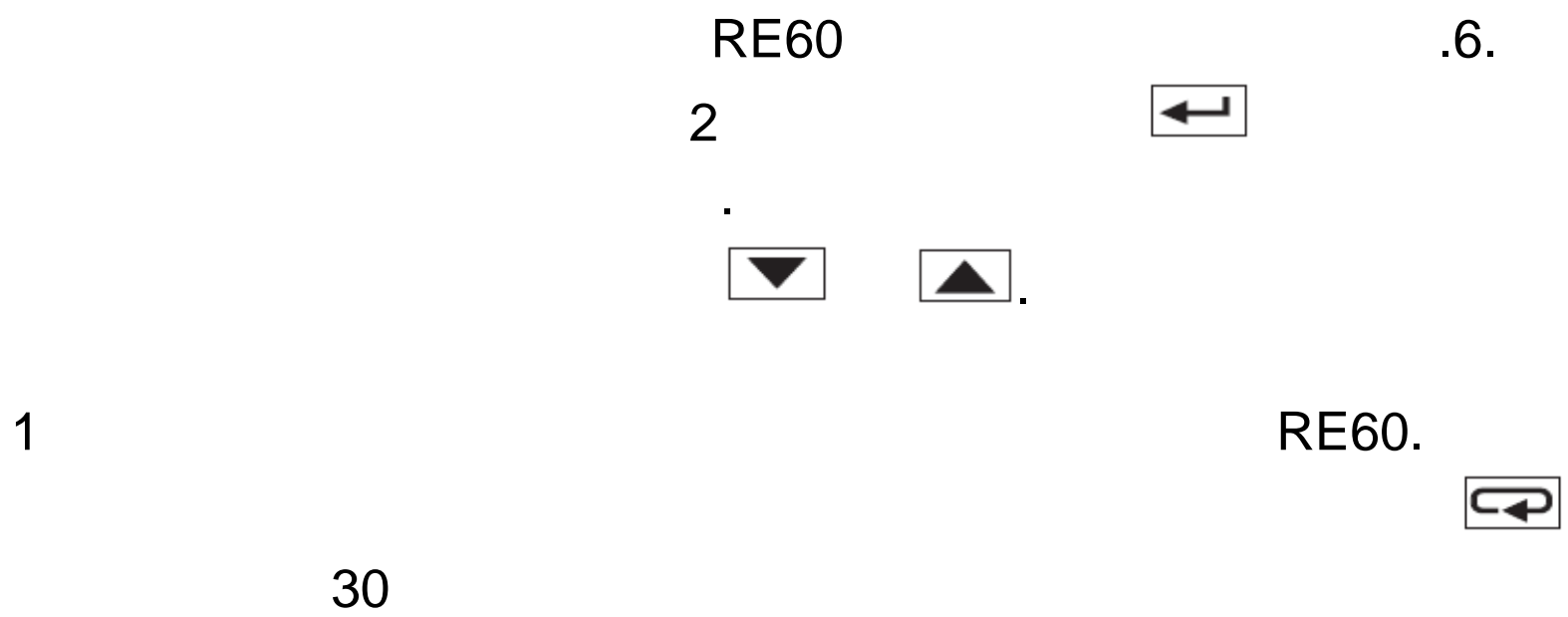




.5.

5.

5.1.



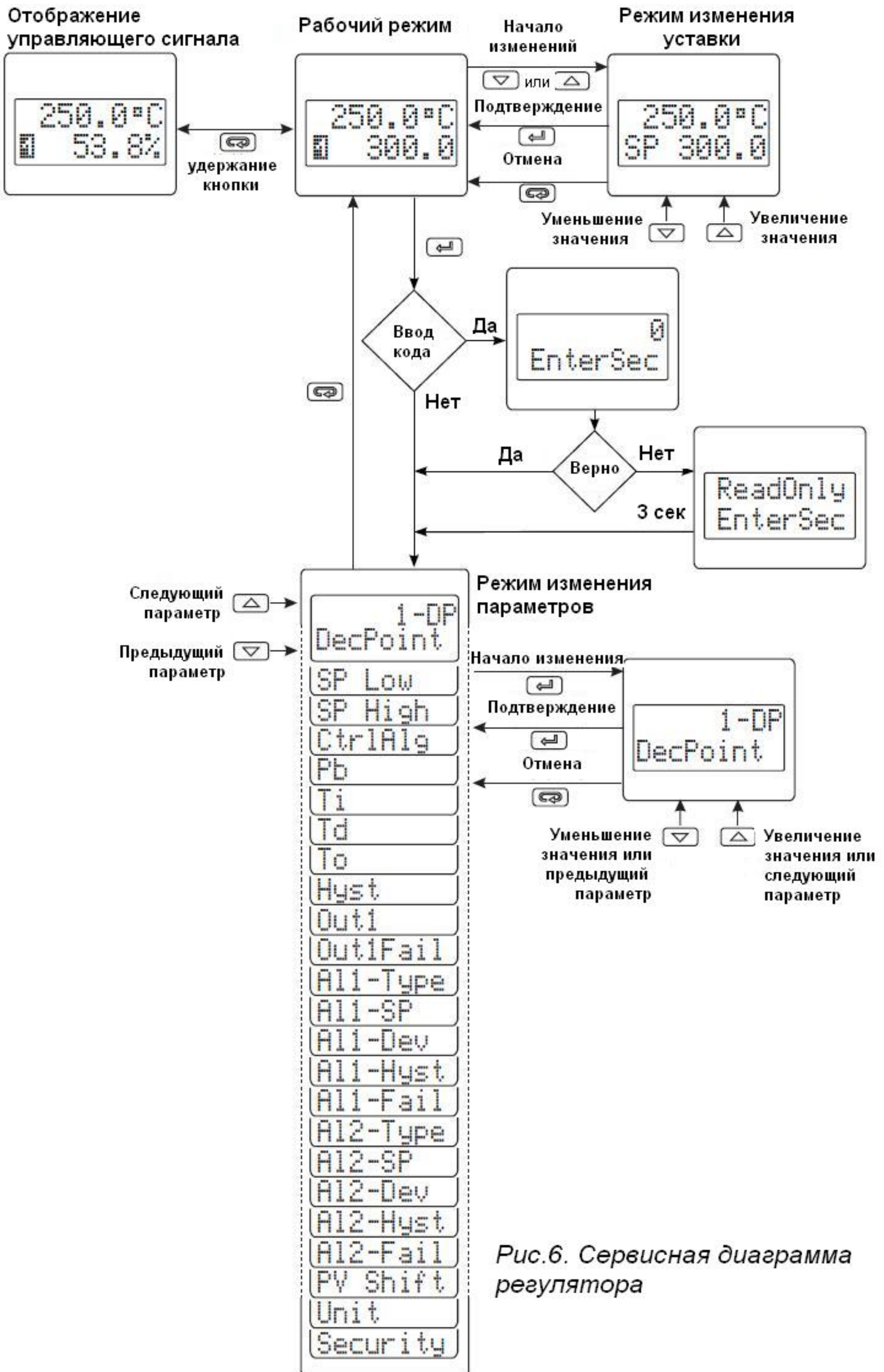


Рис.6. Сервисная диаграмма регулятора

## 5.2.

R60

1.

1

|          |    |        |  |
|----------|----|--------|--|
| .        |    |        |  |
| DecPoint |    | 1-DP   | 0-DP:<br>1-DP: 1                         |
| SPLow    |    |        |  |
| SPHigh   |    |        |  |
| CtrlAlgo |    | ON-OFF | ON-OFF:<br>P: P-<br>PD: PD-<br>PID: PID- |
| Pb       | 1) | 30.0   | 0.1...999.9°                             |
| Ti       | 2) | 300    | 1...9999                                 |
| Td       | 3) | 60.0   | 0.1...999.9                              |



|          |    |      |   |
|----------|----|------|---|
| '        |    |      |   |
| To       | 1) | 20.0 | 0.5...99.9  |
| Hyst     | 4) | 2.0  | 0.2...99.9°                                       |
| Out1     |    | IN   | DIR:<br>( )<br>INV:<br>( )                        |
| Out1Fail |    | 0.0  | 0.0...100.0%                                      |
| AL1-Type | 1  | NONE | NONE:<br>ABS-HI:<br>ABS-LO:<br>DEV-HI:<br>DEV-LO: |
| AL1-SF   | 1  | 0.0  |   |
| AL1-Dev  | 1  | 0.0  | -199.9...199.9°                                   |
| AL1-Hys  | 1  | 2.0  | 0.2...99.9°                                       |
| AL1-Fail | 1  | OFF  | OFF:<br>ON:                                       |

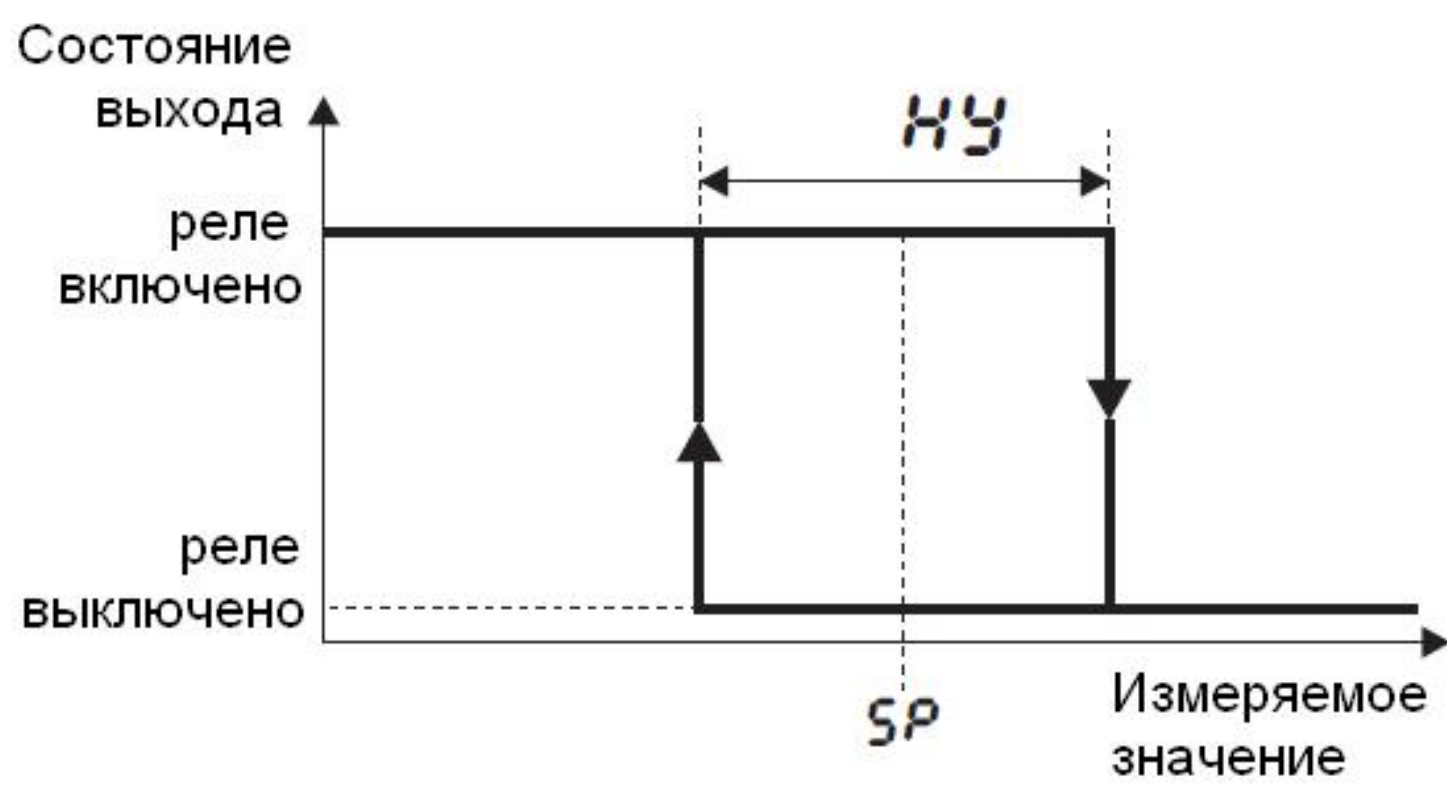
|          |   |      |   |
|----------|---|------|---|
|          |   |      |   |
| AL2-Type | 2 | NONE | NONE:<br>ABS-HI:<br>ABS-LO:<br>DEV-HI:<br><br>DEV-LO: |
| AL2-SP   |   | 2    | 0.0   |
| AL2-Dev  | 2 |      | 0.0   |
| AL2-Hyst | 2 |      | 2.0   |
| AL2-Fail | 2 |      | OFF:<br>ON:   |
| PVShift  |   |      | 0.0   |
| Unit     |   |      | °C  |
| Security |   |      | 0   |

- 1)
- 2)
- 3)
- 4)

P, PD, PID-  
PID-  
PD, PID-

6.

6.1.



.7.

“ ”

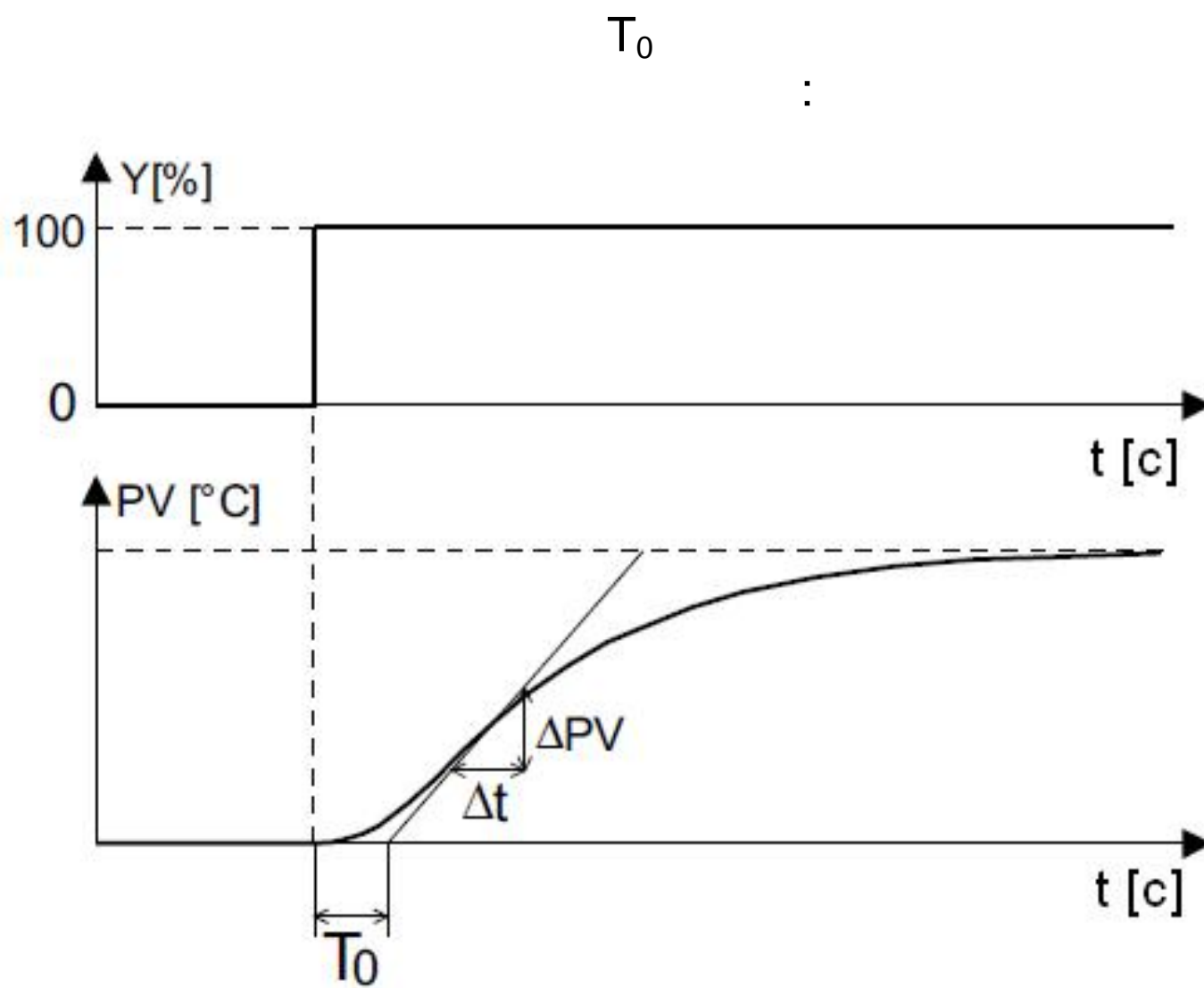
## 7.2. PID-

PID-

PID-

### 6.2.1.

PID-



$$V_{max} = \frac{\Delta PV_{ma}}{\Delta t}$$

PID-

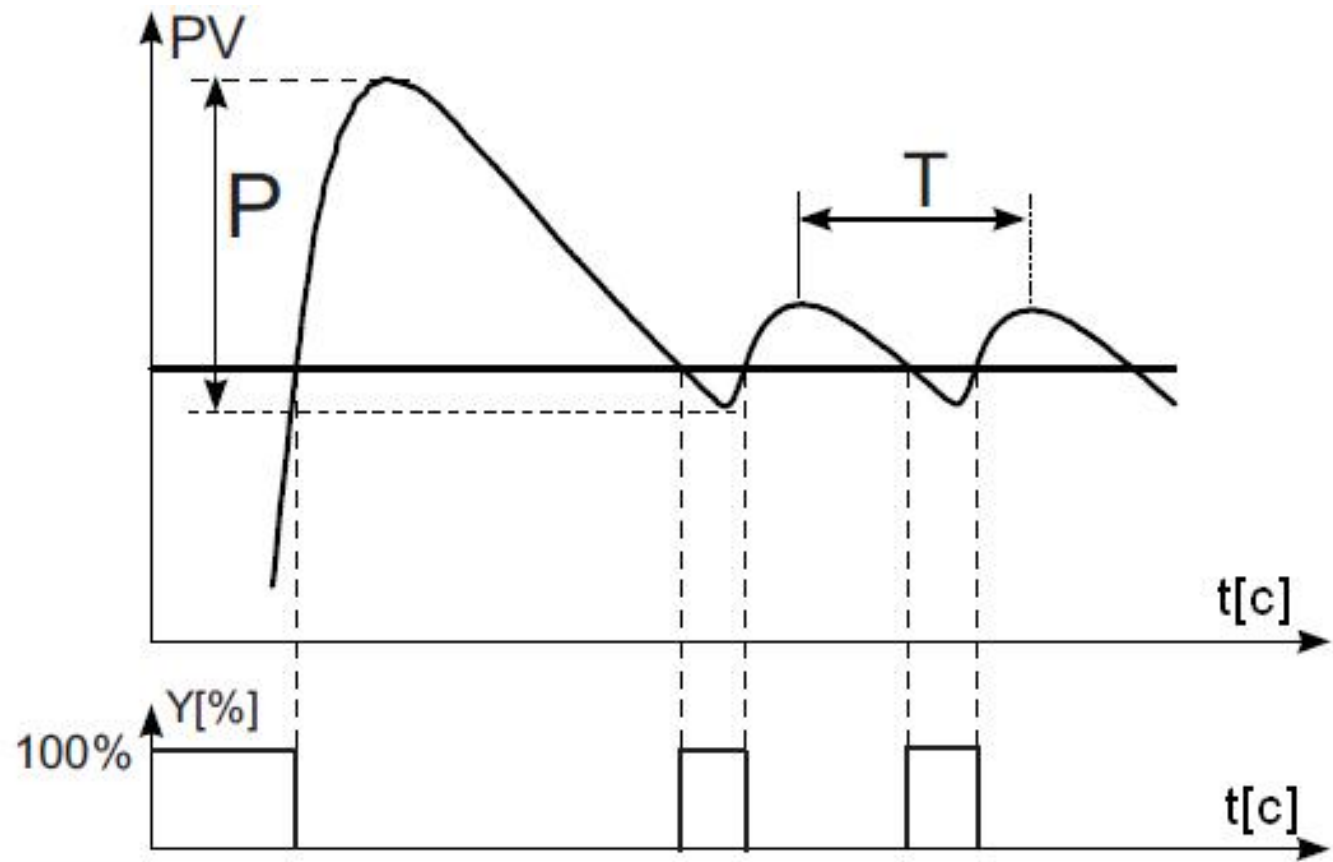
$$Pb = 1,1 \cdot Vmax \cdot T_0$$

$$t_i = 2,4 \cdot T_0$$

$$t_d = 0,4 \cdot T_0$$

6.2.2.

PID-



.8.

PID-

PID-

- Pb = P -
- ti = T -
- td = 0,25 · T -

6.2.3.

PID-

PID-

,

,

:

) \_\_\_\_\_:

- \_\_\_\_\_,  
- \_\_\_\_\_.

b) \_\_\_\_\_:

- \_\_\_\_\_,  
- \_\_\_\_\_,

c) \_\_\_\_\_:

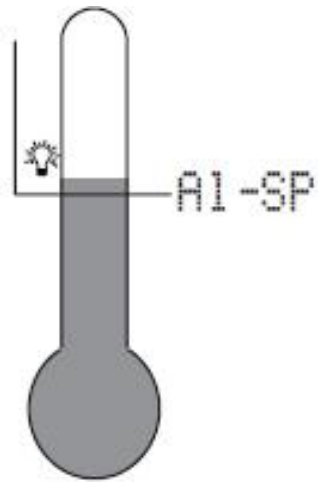
- \_\_\_\_\_,  
- \_\_\_\_\_,  
- \_\_\_\_\_.

d) \_\_\_\_\_:

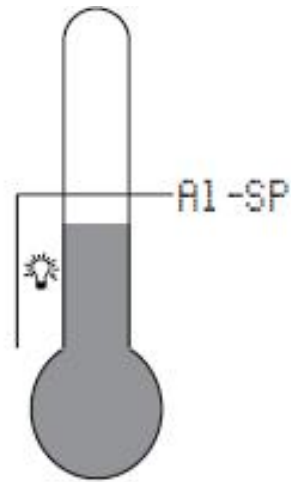
- \_\_\_\_\_.

7.

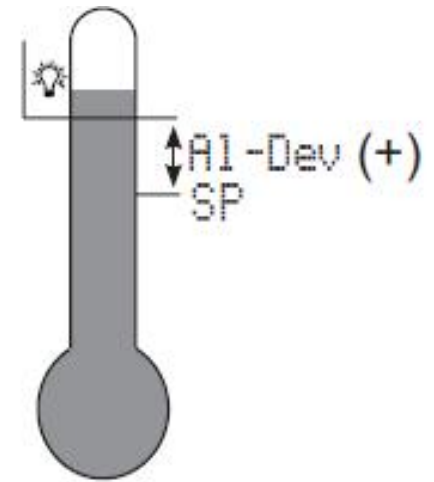
RE60



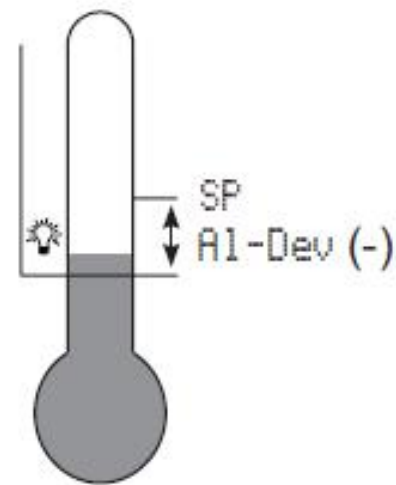
Абсолютная верхняя (ABS-HI)



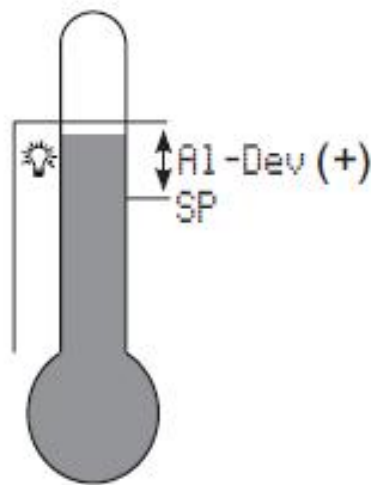
Абсолютная нижняя (ABS-LO)



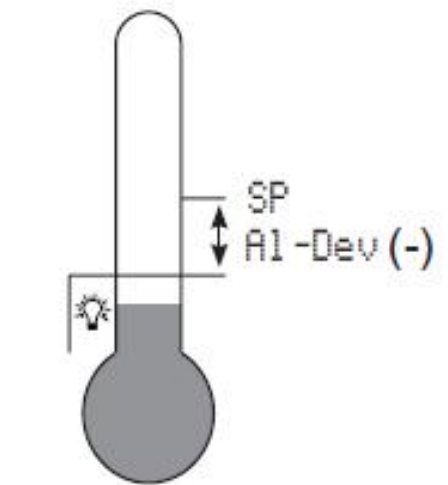
Относительная верхняя (DEV-HI)



Относительная верхняя (DEV-HI)



Относительная нижняя (DEV-LO)



Относительная нижняя (DEV-LO)

.9.

AL1-Type AL2-Type.

.9.

AL2-SP,

—

AL1-Dev AL2-Dev.

,

,

AL1-Hyst AL2-Hyst.

—

AL1-SP

8.

8.1.



(0...100%).

8.2.

:

- PID-

(CtrlAl9≠ON-OFF)  
Out1Fail,

- 

(CtrlAl9=ON-OFF)

,

-

.

AL1-Fail

AL2-Fail.

8.3.



:

Set  
Defaults



9.

2

|          |  |  |
|----------|--|--|
|          |  |  |
| ErrPV-Lo |  |  |
| ErrPV-Hi |  |  |
| Err.Cal  |  |  |

# 10.

- . 3

3

|                         |       | [°C]      | [°C] |
|-------------------------|-------|-----------|------|
| Pt100, EN 60751+A2:1997 | Pt100 | -50...100 | 0.8  |
| Pt100                   | Pt100 | 0...250   | 1.3  |
| Pt100                   | Pt100 | 0...600   | 3.0  |
| Fe-CuNi, EN 60584-1     | J     | 0...250   | 3.0  |
| Fe-CuNi                 | J     | 0...600   | 4.0  |
| Fe-CuNi                 | J     | 0...900   | 5.0  |
| NiCr-NiAl, EN 60584-1   | K     | 0...600   | 4.0  |
| NiCr-NiAl               | K     | 0...900   | 5.0  |
| NiCr-NiAl               | K     | 0...1300  | 6.0  |

**Pt100**

220 µA

0.5

:

- , Pt100

:

-

:

: 250 V a.c., 150 V d.c.

: 5A 250 V a.c., 5 A 30 V d.c.

: 1250 VA, 150 W

- ( ) -

5 V

66

:

-

-

:

-

-

+

-

230 V a.c.± 10%  
110 V a.c.± 10%  
24 V a.c. ± 10%  
18...72 V d.c.

-

50/60 Hz

-

0...23...50°

-

-20...+70°

-

< 85% ( )

-

< 400 A/m

-

30

-

< 3 VA

45 x 100 x 120

< 0.3

DIN- 35

, IP 40 EN 60529

- : 100% /10 K

- **EN 61010-1**  
- III  
- 2

- :  
- , 300 V  
- 50 V

- :  
- EN 61000-6-2  
- EN 61000-6-4

**RE60-05-1-2-3-8** :  
**RE60** – RE60 ( DIN- 35 )  
**05** - J  
**1** - :  
**2** - : 2  
**3** - : 24 V a.c. 50/60 Hz  
**8** -

11.

4

|                      |                          |           |          |          |          |
|----------------------|--------------------------|-----------|----------|----------|----------|
| <b>RE60 -</b>        |                          | <b>XX</b> |          |          |          |
| :                    |                          |           |          |          |          |
|                      | Pt100 (-50...100°C)..... | <b>01</b> |          |          |          |
|                      | Pt100 (0...250°C).....   | <b>02</b> |          |          |          |
|                      | Pt100 (0...600°C).....   | <b>03</b> |          |          |          |
| J                    | (0...250°C).....         | <b>04</b> |          |          |          |
| J                    | (0...600°C).....         | <b>05</b> |          |          |          |
| J                    | (0...900°C).....         | <b>06</b> |          |          |          |
| K                    | (0...600°C).....         | <b>07</b> |          |          |          |
| K                    | (0...900°C).....         | <b>08</b> |          |          |          |
| K                    | (0...1300°C).....        | <b>09</b> |          |          |          |
| S                    | (0...1600°C).....        | <b>10</b> |          |          |          |
| .....                |                          | <b>XX</b> |          |          |          |
| :                    |                          |           |          |          |          |
| .....                |                          |           | <b>1</b> |          |          |
| ,                    | 0/5 V<br>(SSR).....      |           | <b>2</b> |          |          |
| .....                |                          |           | <b>X</b> |          |          |
| :                    |                          |           |          |          |          |
|                      | .....                    |           | <b>0</b> |          |          |
| 1                    | .....                    |           | <b>1</b> |          |          |
| 2                    | .....                    |           | <b>2</b> |          |          |
| .....                |                          |           | <b>X</b> |          |          |
| :                    |                          |           |          |          |          |
| 230 V 50/60 Hz.....  |                          |           |          | <b>1</b> |          |
| 110 V 50/60 Hz ..... |                          |           |          | <b>2</b> |          |
| 24 V 50/60 Hz .....  |                          |           |          | <b>3</b> |          |
| 18...72 V d.c.....   |                          |           |          | <b>4</b> |          |
| .....                |                          |           |          | <b>X</b> |          |
| :                    |                          |           |          |          |          |
| .....                |                          |           |          |          | <b>8</b> |
| .....                |                          |           |          |          | <b>7</b> |
| *                    | .....                    |           |          |          |          |

\*

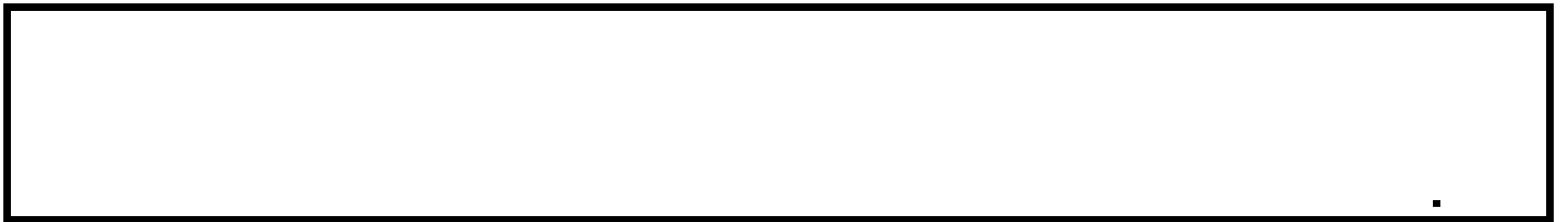
12.

RE60

1.

2.

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