

" - "

**CDL**



:

187 -

"

",

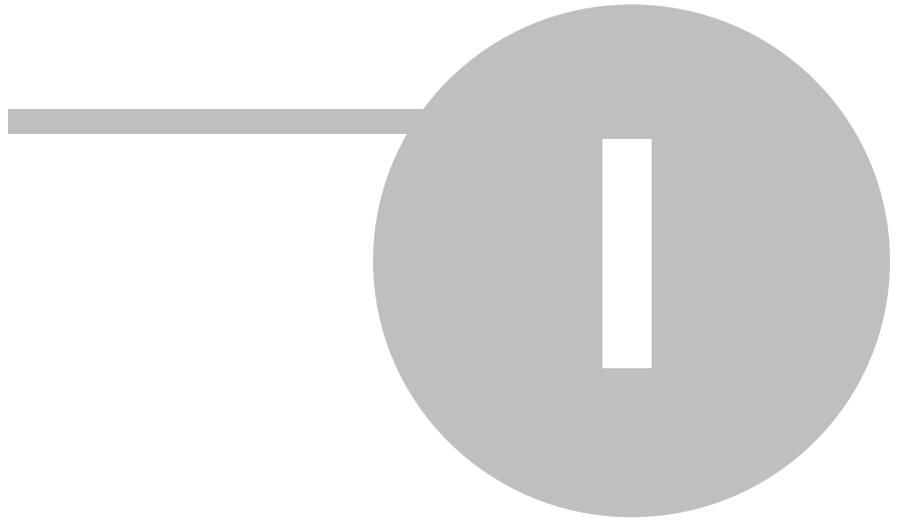
8.



<b>I</b>		<b>3</b>
<b>II</b>		<b>7</b>
<b>III</b>		<b>11</b>
<b>IV</b>		<b>15</b>
1	.....	15
2	.....	16
3	.....	18
4	.....	19
5	.....	20
6	.....	21
7	.....	23
<b>V</b>		<b>29</b>
1	.....	29
2	.....	30
3	.....	32
4	.....	33
5	.....	33
6	.....	33
<b>VI</b>		<b>39</b>
1	.....	39
2	.....	40
	.....	40
	.....	40
	.....	40
	.....	41
	.....	42
	.....	42
	.....	46
	.....	49
	.....	51
3	.....	52
<b>VII</b>		<b>57</b>
1	.....	57
2	.....	58
<b>VIII</b>		<b>63</b>

---

1	.....	63
<b>IX</b>	<b>CADET</b>	
<b>logic</b>		<b>67</b>
1	.....	67
<b>X</b>		<b>71</b>
1	.....	71
2	.....	72
3	.....	73
		<b>0</b>

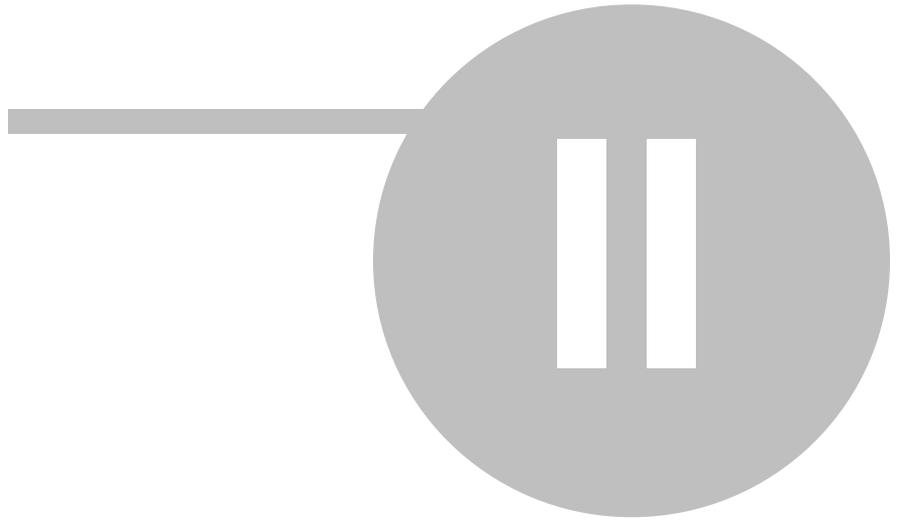




## 1

```
logic " CDL" / CADET
      " - " (www.raut-automatic.kiev.ua).
      "(Ladder Diagram), IEC 61131-3,
      " " CDL"
      -
      .
```



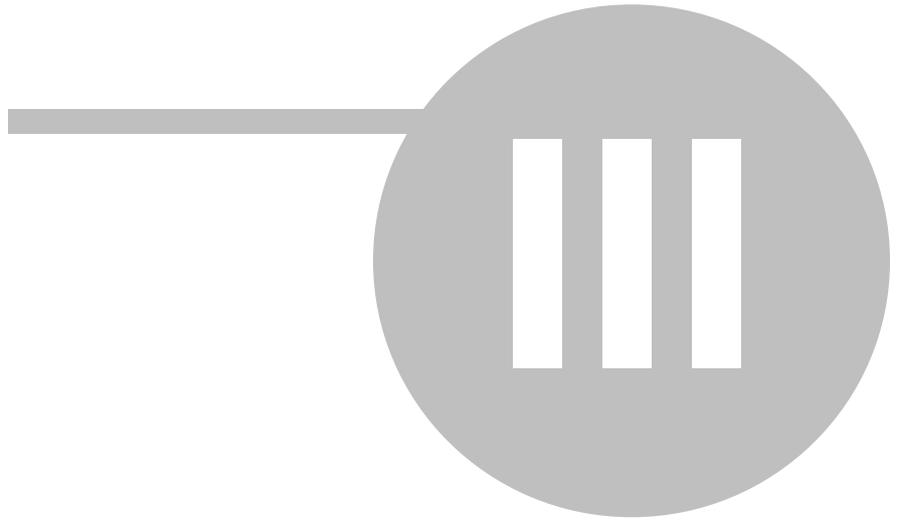




## 2

```
CDL"
"CfgLogic-install.exe" (
    " " ")
    ,
    :
    •
    •
    •
    ,
    " / CDL"
    /
    " "
    " CDL" "CfgLogic.exe"
    ,
    -
    , " CDL"
```



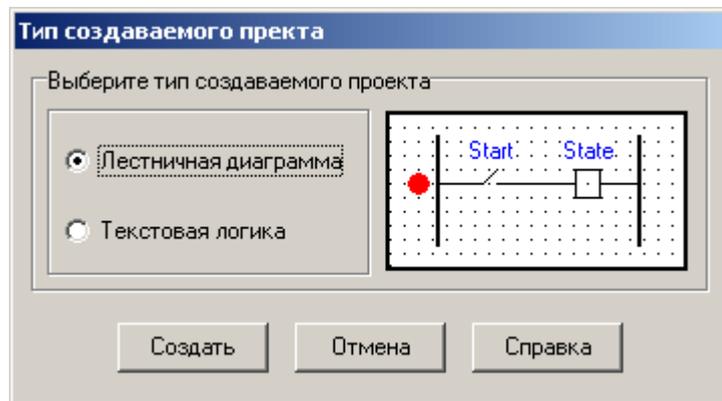




3

•  
•

:



IEC 61131-3.

С.

" "

" "

(" ").

" CDL".

" "

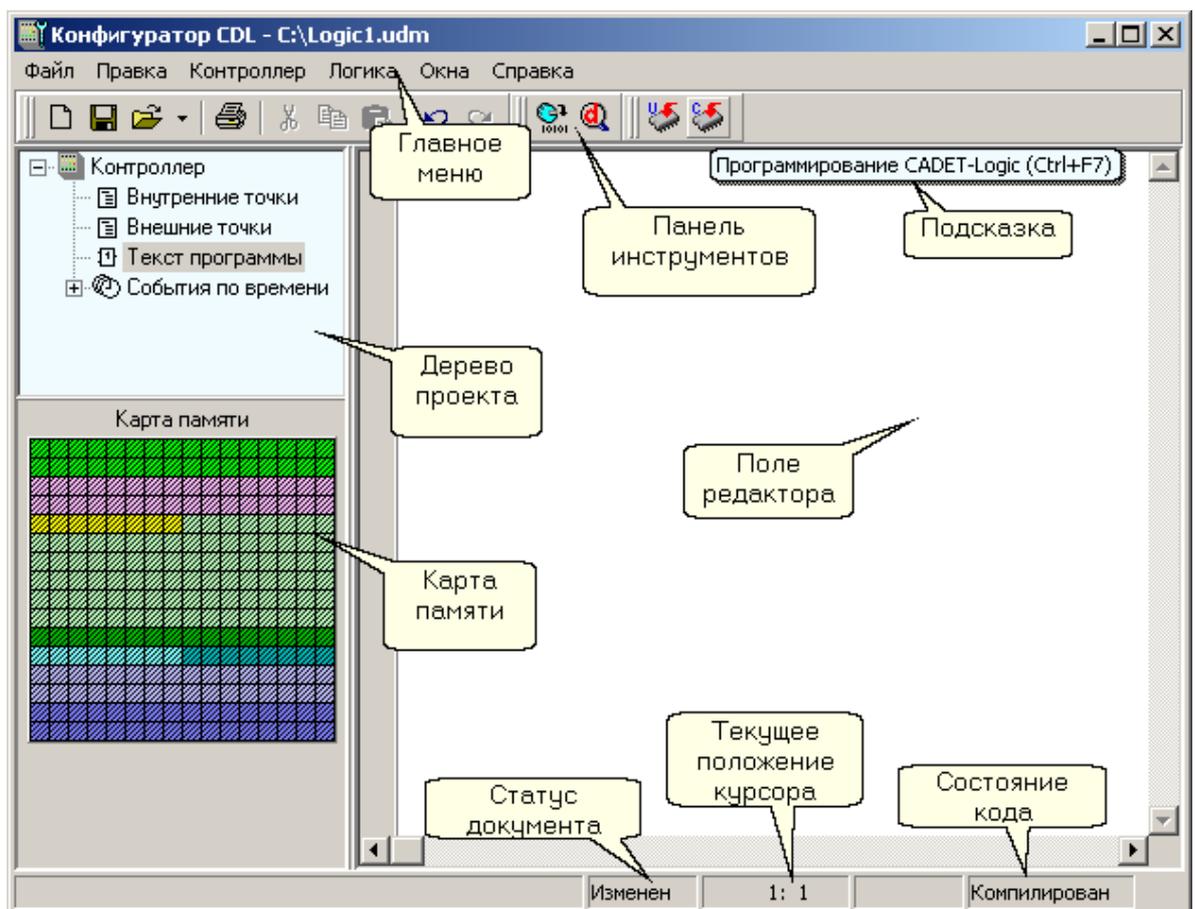
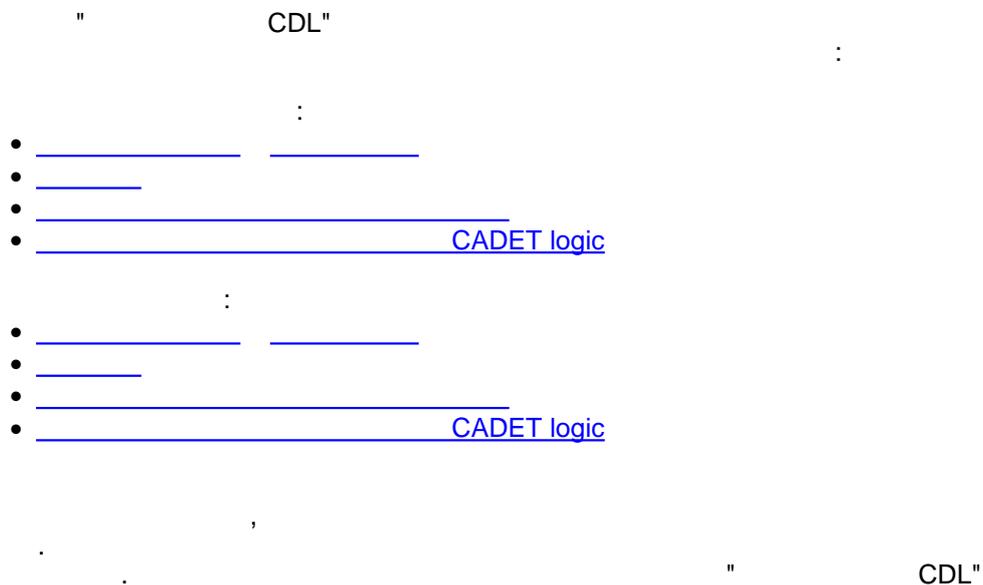






## 4

## 4.1

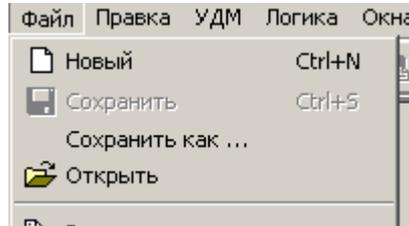




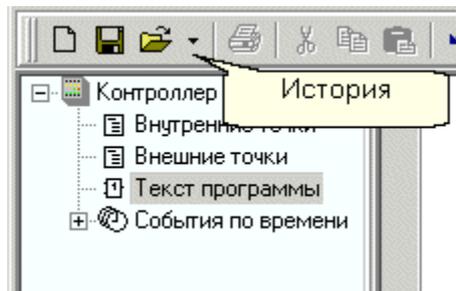


### 4.3

:



:



" CDL" "

CTRL+N

" " >>

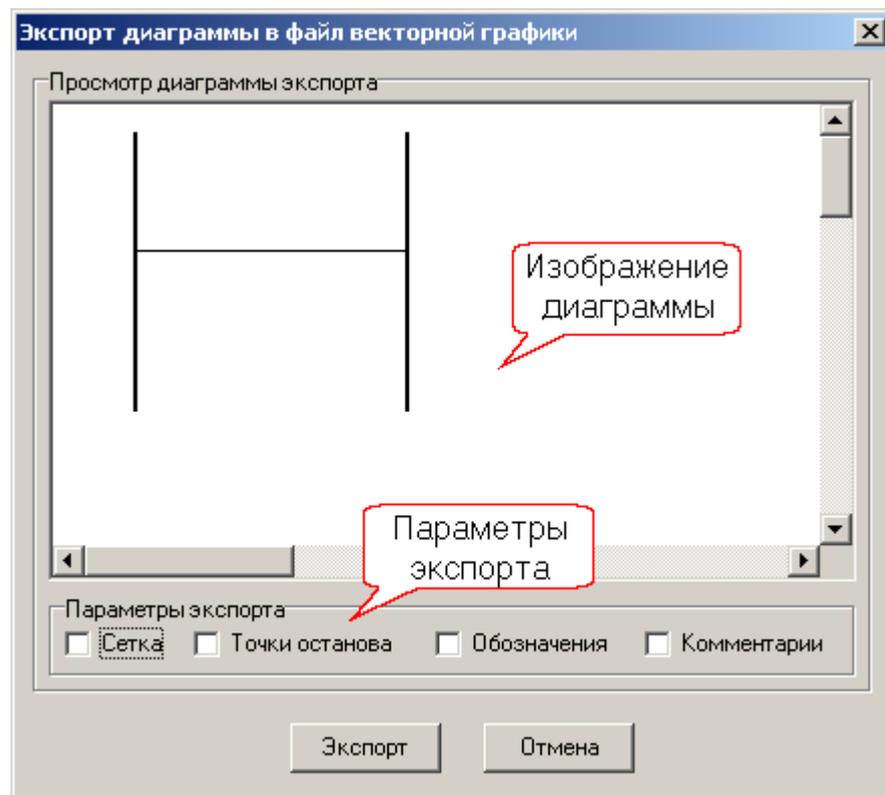
CTRL+O

- UDM -
- UDD -

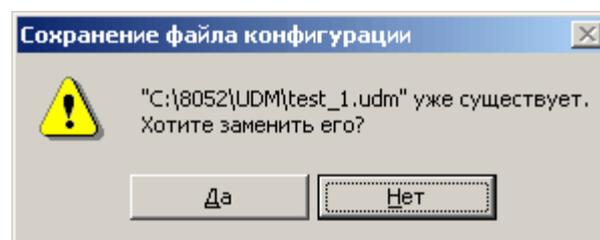
- " " >> "

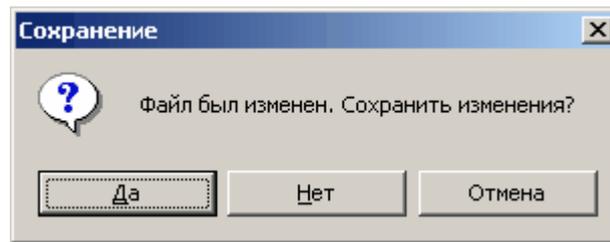
" " " >> "

/"

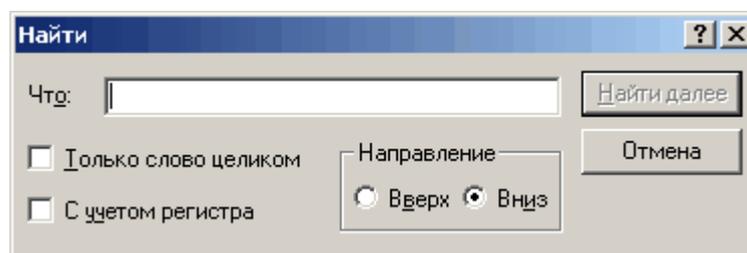
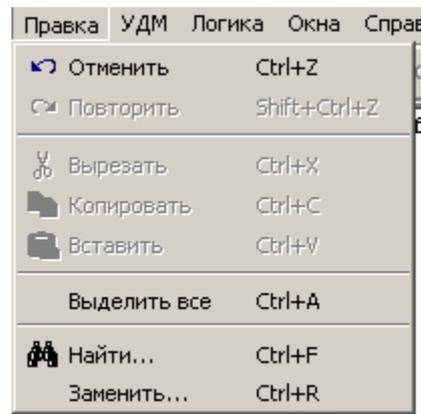


#### 4.4





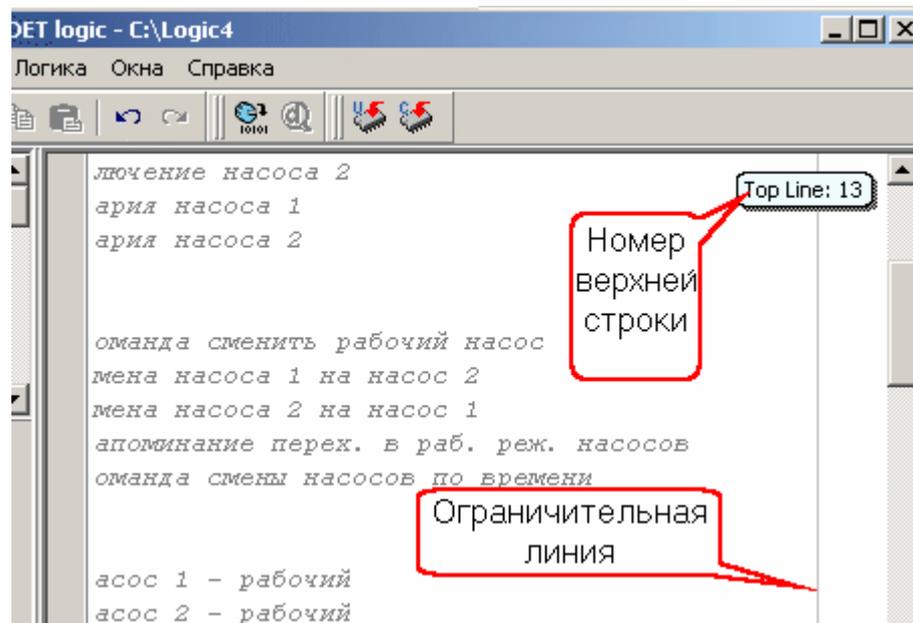
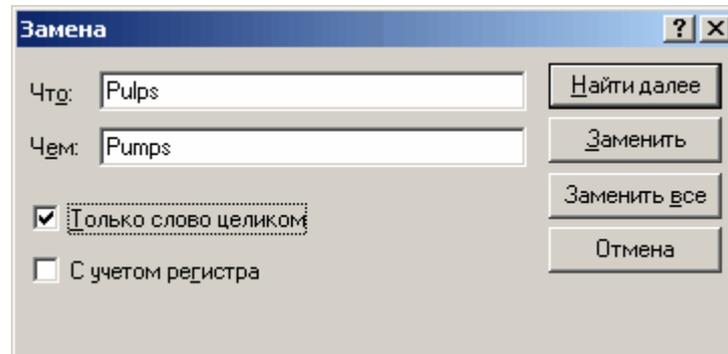
## 4.5



(" ");

(" ").

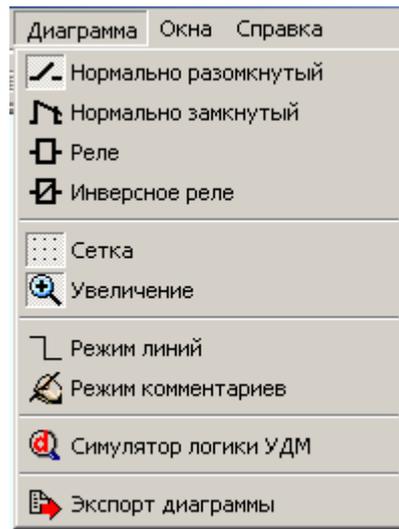
( ).



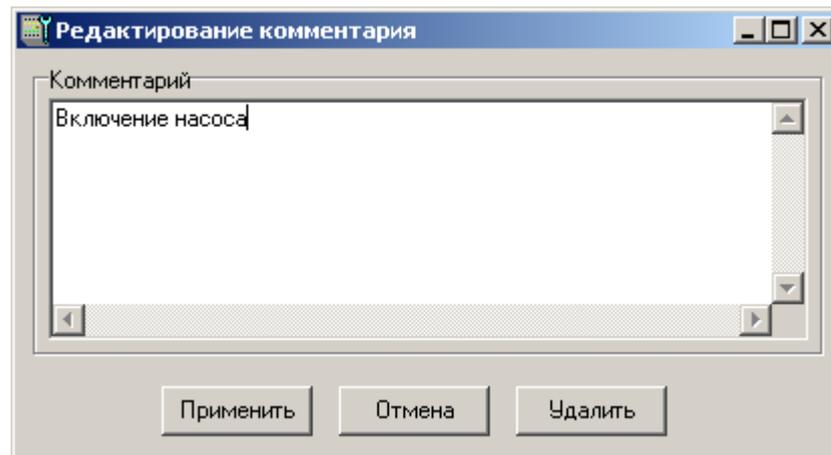
## 4.6

" CDL"

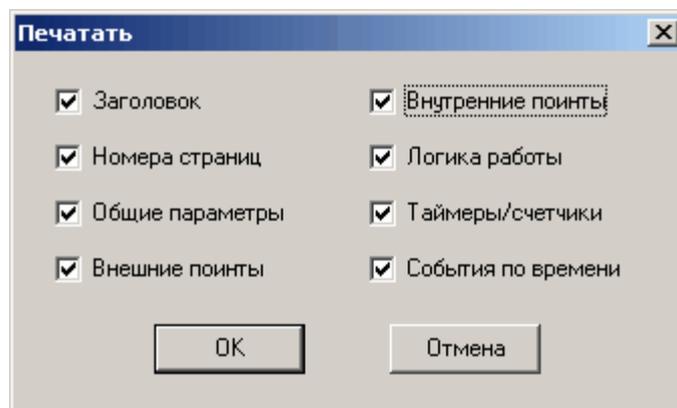
" "



- ( " " )
- - :
- - -
- - -
- - . ( )
- - ( , , ( )
- , - ) (
- ( - F2) (
- ( - " " F3).



## 4.7



BoilersPumps\_udm

Страница 1

Заголовок

**Общие параметры**

Интервал автопосылки аварийных поинтов = 5 сек  
 Скорость обмена по сети = 38400  
 Количество устройств в сети = 32  
 Собственный номер в сети = 4

**Внутренние поинты**

Количество = 1

PointID	Address To	Interval Send	TimeOut	WorkFlags	Begin	End	Default Value	State Flags	Independent Mask
000Ah	02h	20	0	00h	M9	M14	0000h	0000h	0000h

**Внешние поинты**

Количество = 0

**Логика работы**

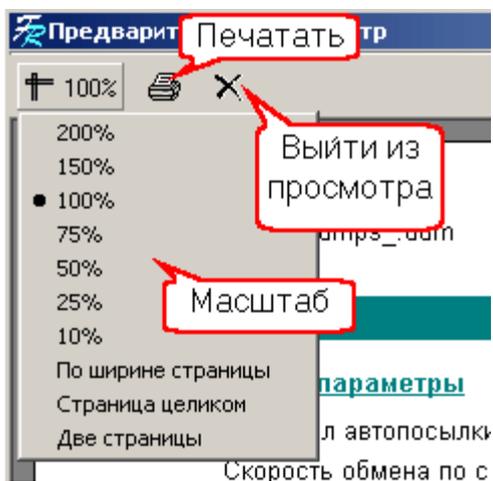
//КОТЕЛЬНАЯ. НАСОСЫ КОТЛОВОЙ ВОДЫ

//КОНТРОЛЛЕР "УДМ"

//Входы

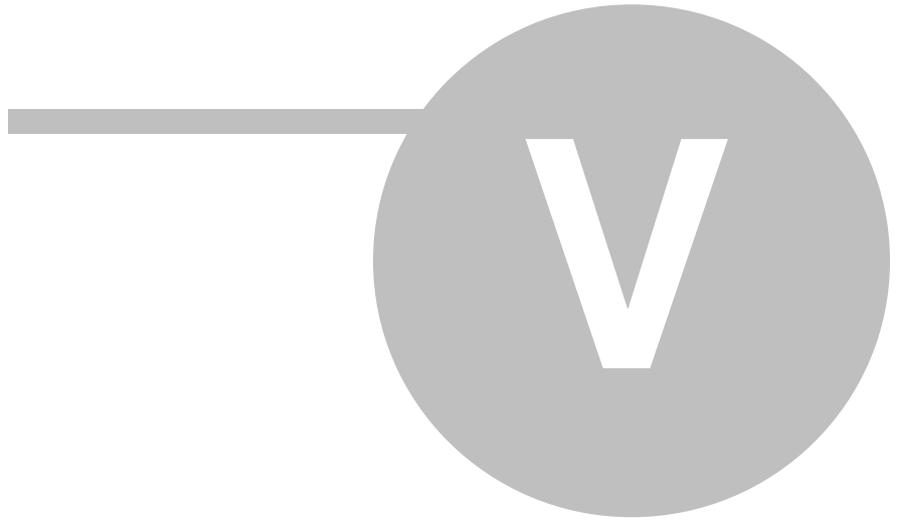
**define** PumpsPD = X1; //перепад давления на насосах

CDL".













( 1200 / 115200 / ).

9600 / ,

- 38400 / .

" ( UNIVERS) /

- 10 ,

: 10+"

" \* 2 ( 3 , ,

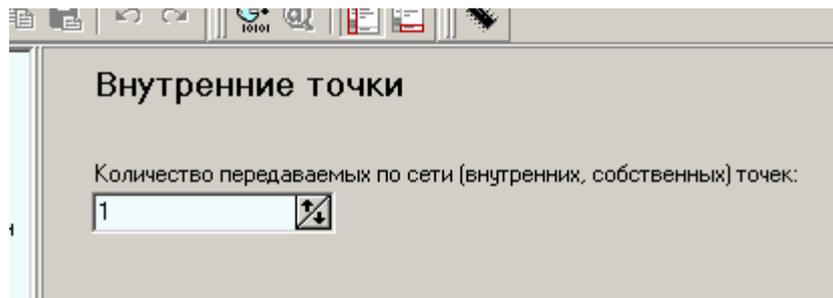
10+3\*2= 16 ).

" " ,

"0" . 2, 4, 6 ... .

## 5.2

" " " (ID). 1,



( \_\_\_\_\_ ) .

**Внутренние точки - ID=10 (000Ah)**

PointID:  
000Ah = 10

To:  
2

Send interval:  
20

TimeOut:  
0

Begin: 80      Count: 2

15	14	13	12	11	10	9	8
<input type="checkbox"/>	<input type="checkbox"/>						
7	6	5	4	3	2	1	0
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					

**PointID**

), ( - ( )  
).

**To****Send interval**

(" ").

- 255

**TimeOut****Begin**

0 255  
" "

**Count**

Begin. , 80, , 2, " ",  
- 80 81. - 16.

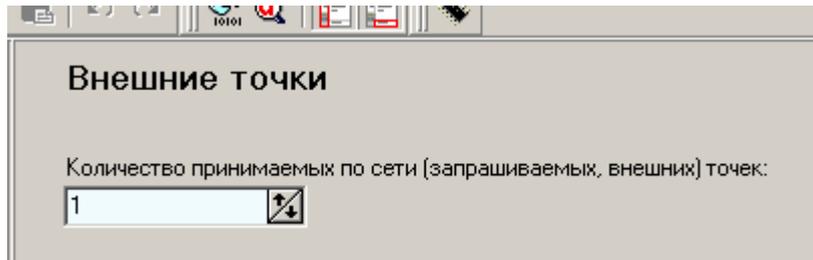
**AlarmMaskFlags**

"1", , 0- ( 80- 81-  
80- ) 1- ( , 81- ).

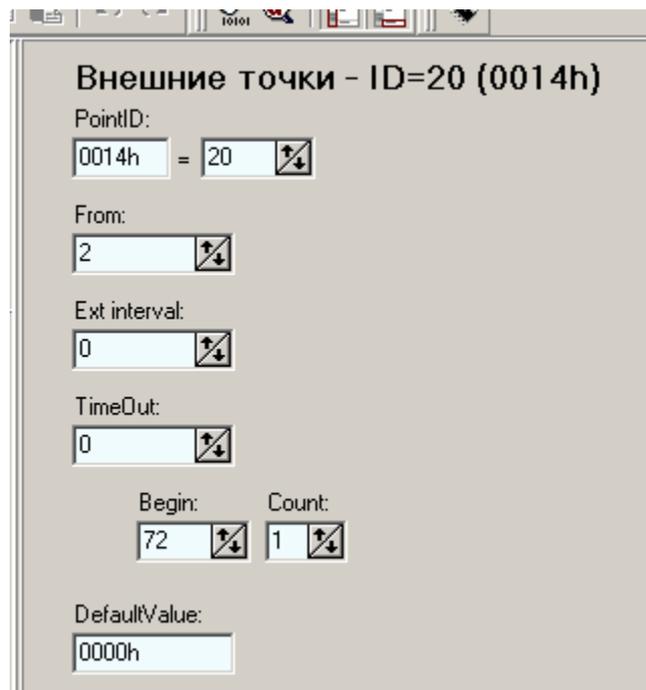
( )".

### 5.3

(ID).



( )".



**PointID**

( )".

**From**

Ext interval

0.

TimeOut

From. DefaulValue.

Begin

0 255  
" "

Count

Begin. - 80 81. 80, 2, " "  
- 16.

DefaultValue

5.4

CDL"

5.5

CDL".

5.6

CDL"

"0"("OFF") "1"("ON").

32

### Смена насосов

Разрешено

Тип

=

>=

Минуты:

Маска часа

0	1	2	3	4	5	6	7	8	9	10	11
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>									
12	13	14	15	16	17	18	19	20	21	22	23
<input type="checkbox"/>	<input type="checkbox"/>										

Маска месяца

1	2	3	4	5	6	7	8	9	10	11	12
<input checked="" type="checkbox"/>											

День

Маска дня недели

Пн	Вт	Ср	Чт	Пт	Сб	Вс
<input checked="" type="checkbox"/>	<input type="checkbox"/>					

Маска числа месяца

" 1" ( ).

"="

( "1" )

"="

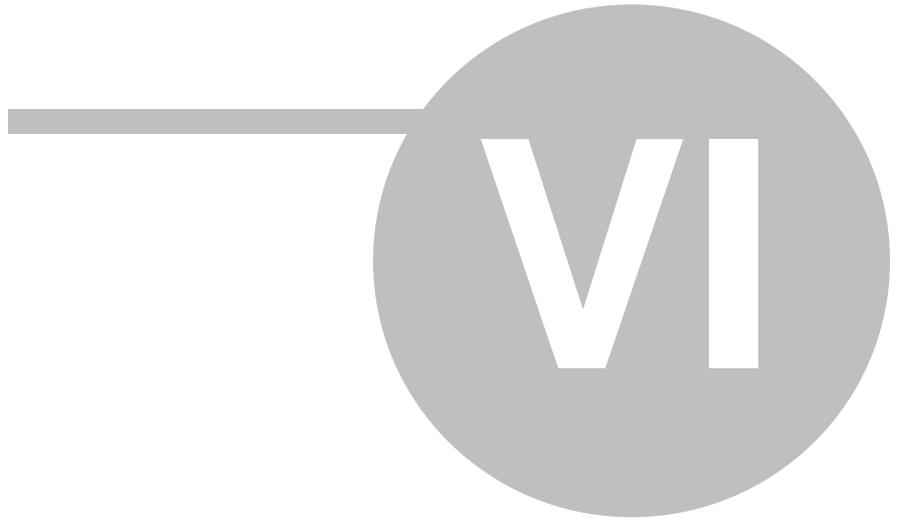
">=" - "1":

">=" - "1":

"=" -

' 10' . '

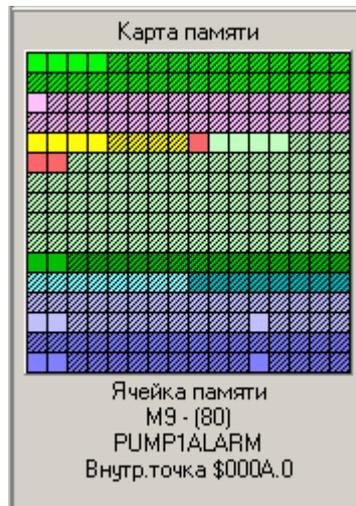






## 6

## 6.1



256

- 1 32 ( 0 31),
  - 1 32 ( 32 63),
  - Y1 Y8 ( 64 71),
  - 1 88 ( 71 159),
  - 89 104 ( 160 175),
  - CI1 CI8 ( 176 183),
  - C 1 C 8 ( 184 191),
  - 1 32 ( 192 223),
  - S1 S32 ( 224 255),
- (0:0)
- (0:0)
- (0,1,2 . .).



"PumpChange"  
1.

M2 = M1;  
M2 = PumpChange;

PumpChange = 1;  
**define** PumpChange = M1;

timer counter

timer T17 = 30;  
counter 1 = 10;

6.2.1.3

( ).

- 
- 
- 
- 
- 
- 

"OFF". " " " " "1" "ON", " " " - "0" "  
( ):

- () -
- ! -
- & -
- | - ; ^ -
- = -

1	2	1 & M2	1   M2	M1 ^ M2
0	0	0	0	0
1	0	0	1	1
0	1	0	1	1
1	1	1	1	0

:  
1 = 1, ! 1 = 0.

M1 = !M2 | M3 & M4 ^ (M5 & M6);

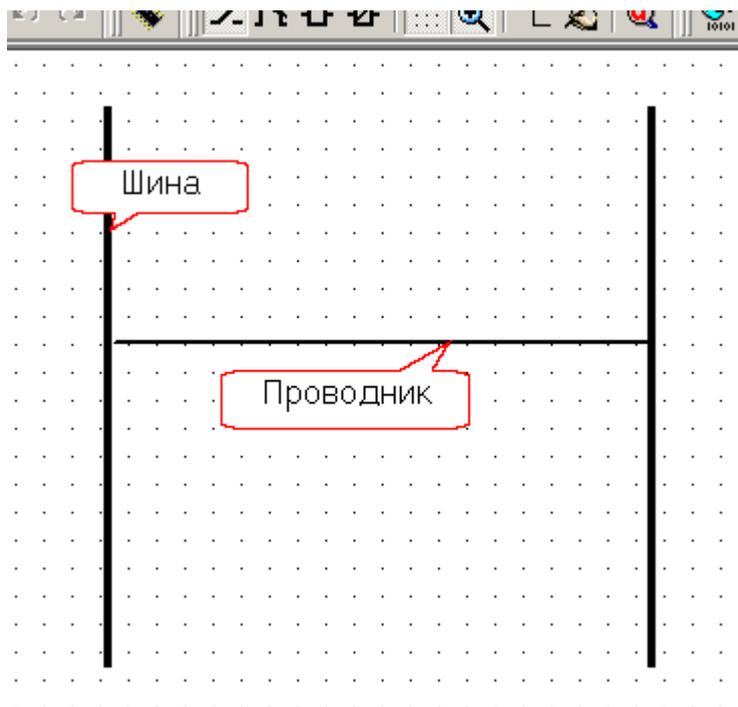
M5 & M6 ( M5 & M6= 1),  
! 2 ( ! 2= 2).  
M3 & M4 ( M3 & M4= 3),  
( )  
2 | 3 ( 2 | 3= 4), 4 ^ 3 ( 4 ^ 3= 5).  
1 = 5.

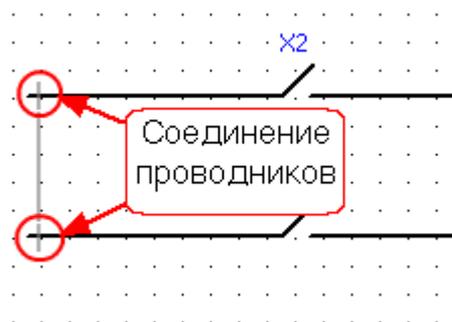
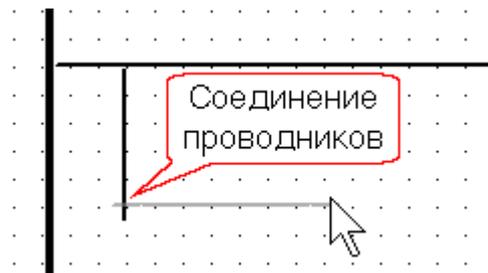
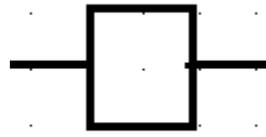
6.2.2

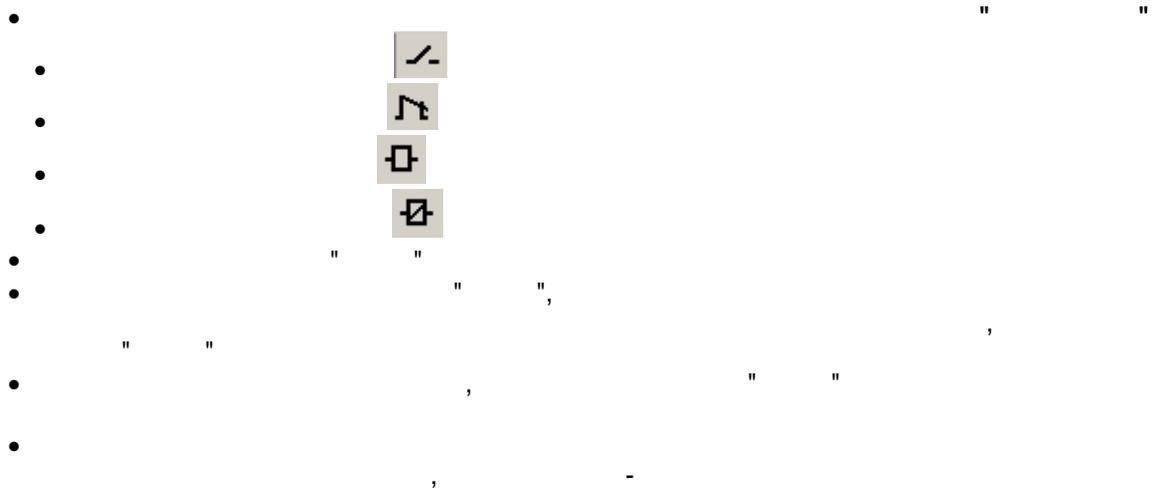
6.2.2.1

" CDL"  
LD (Ladder Diagram) IEC-61131-3 ( 61131-3).

- - ,
- - , ( )



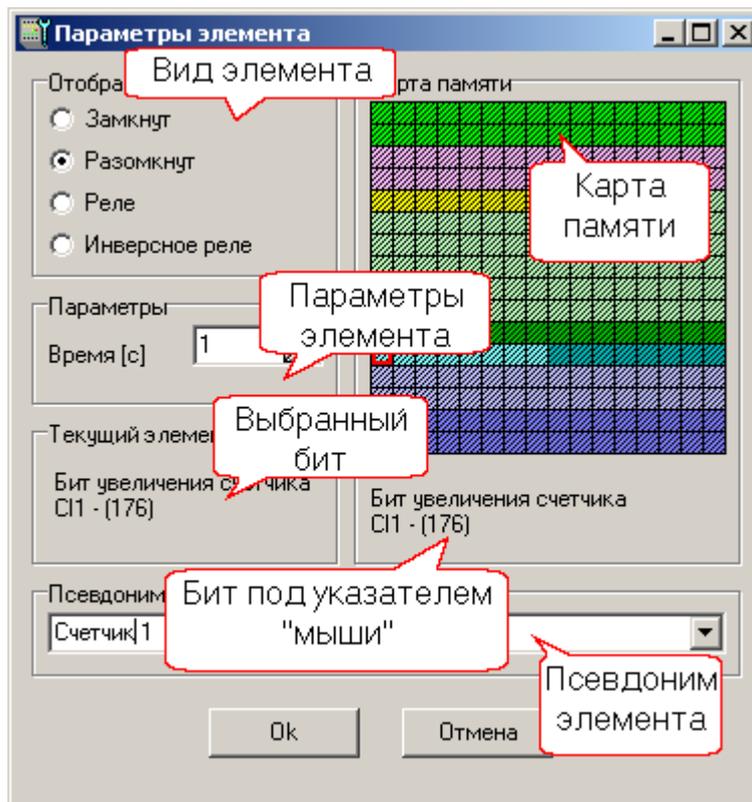




Подключение  
элемента



## 6.2.2.2





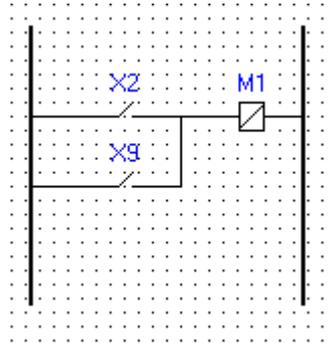
	'	'	'		
	" "	" "	" "		
					'
					'
		" "			' ' " "
		" "			' ' ' ' " "
		" "			' ' "
		" "			' ' " "
					'
					' ' ' ' '
" "		" "			' ' ' ' '
				" "	" "
		" "			' ' ' ' '



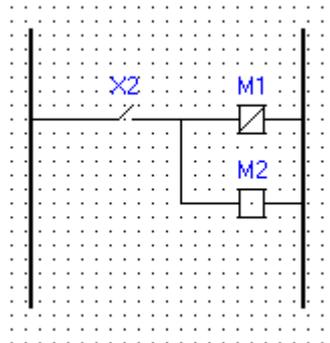
( 1=1), Y1 " "

:

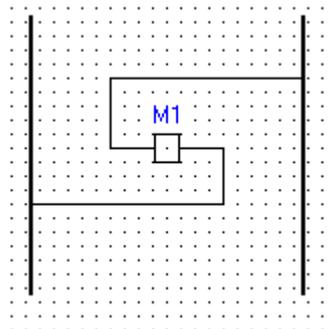
•



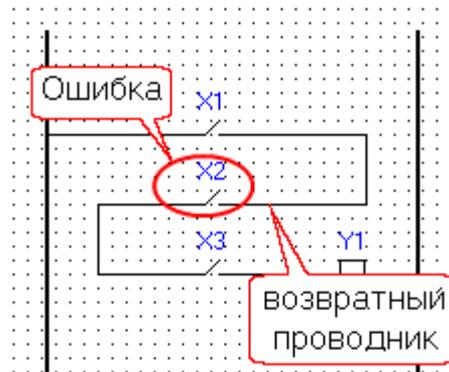
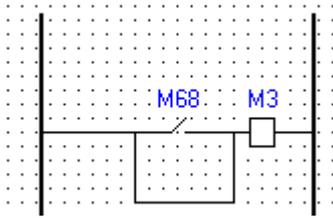
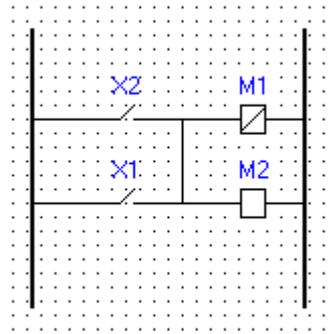
•



•



•



6.2.3

```

CDL"
32 _____, 8'
32 _____
_____ 32 63,
1 32.

define.

:
define ChangeTime = B1;

1
"1", 1 "0" - ChangeTime,

```

```

"          CDL"
•          192 - 207 ( 1 - 16) 224 - 239 (TS1 - TS16)
          ,
          - 25,5
•          208 - 223 ( 17 - 32) 240 - 255 (TS17 - TS32)
          - 255
          (
          ):
timer T17 = 30;
T17 -          ,          17 TS17.
          30 -          TS17          30
          17          "1",
TS17          17          "1" (          ).
          "0",          ,          TS17
          "1".          :(          :
          ).
          176 - 183 (CI1 - CI8) 184 - 191 ( 1 - 8).
255.          (          ):
counter C1 = 10;
          1 -          ,          CI1          CI1          1.
          10 -          CI1          "1",          CI1          "0",          1.
          (          ).          CI1          :(          1 - "1"
          ).          :

```

6.3

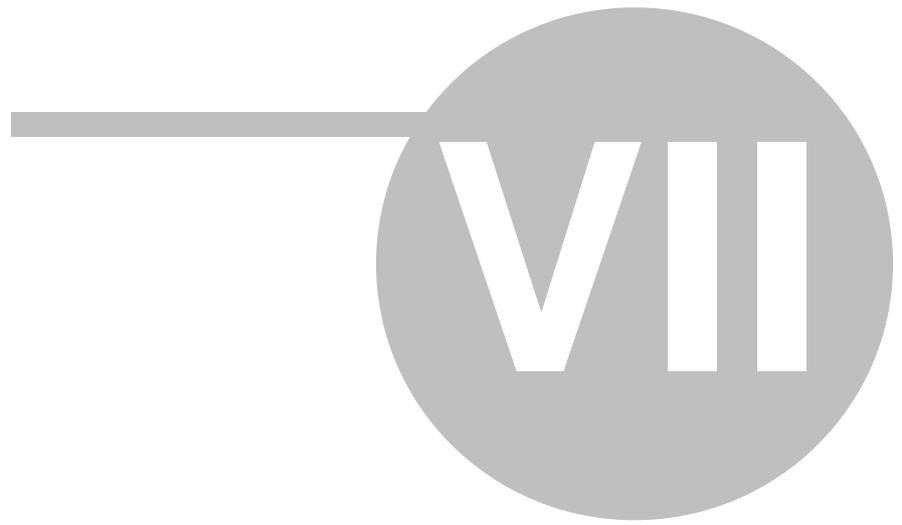
```

"          "
"          "->"          " (Ctrl + F9)
          (
          ):
•          < > -
•          (
•          (timer, define, counter)
•          -
          ,          (
          1).
•          < > -

```





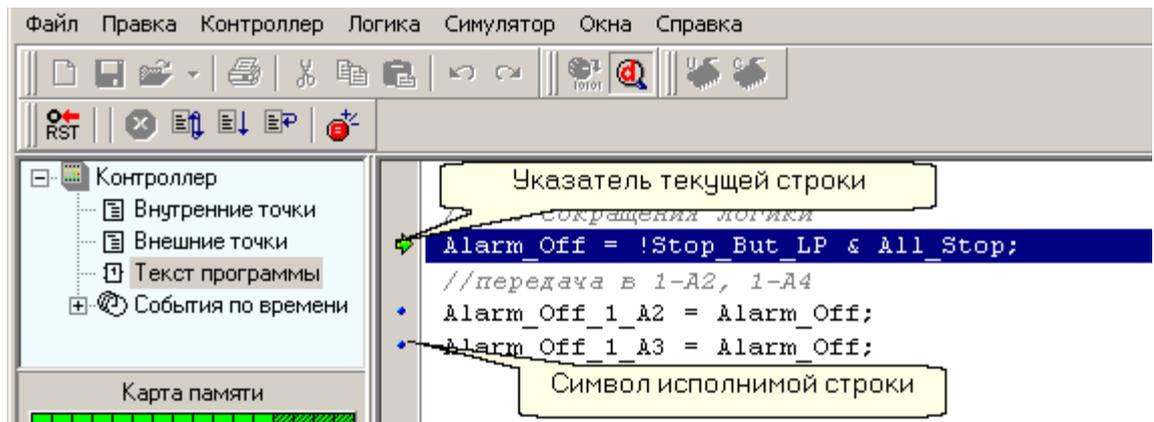




# 7

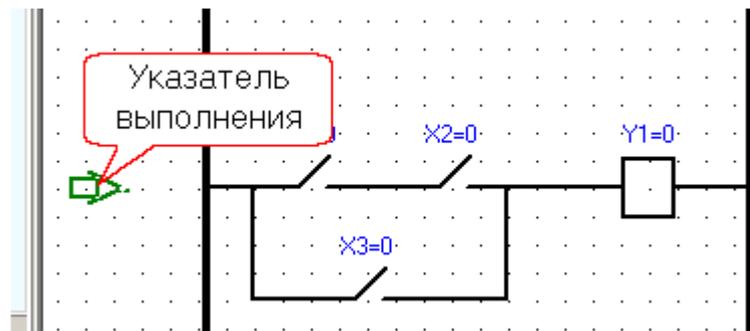
## 7.1

-> " " (F6), " " ( ):

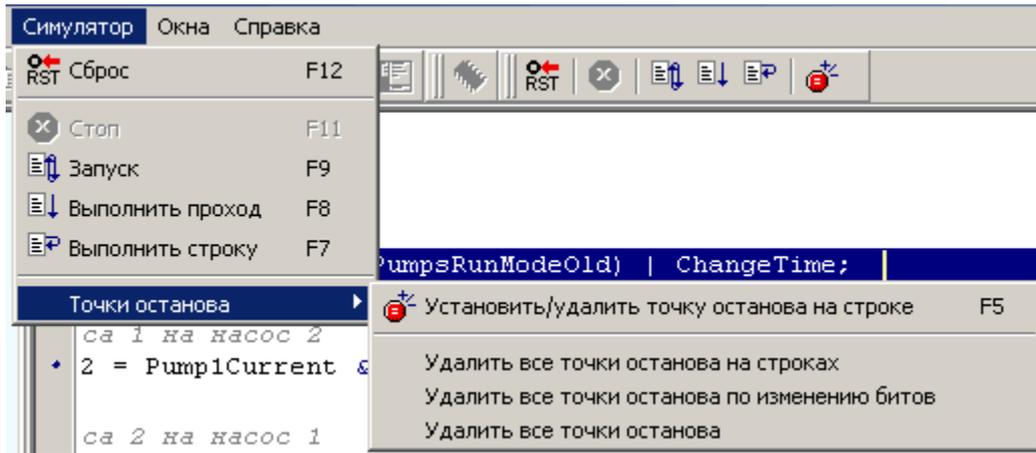


). ( - ' ;

), ( -



" "



### 7.2

( ( - ), ' / )

"1", "0" ("OFF").

Карта памяти

3

"1".

3

"0".

1

1.

TS1,

CDL"

```

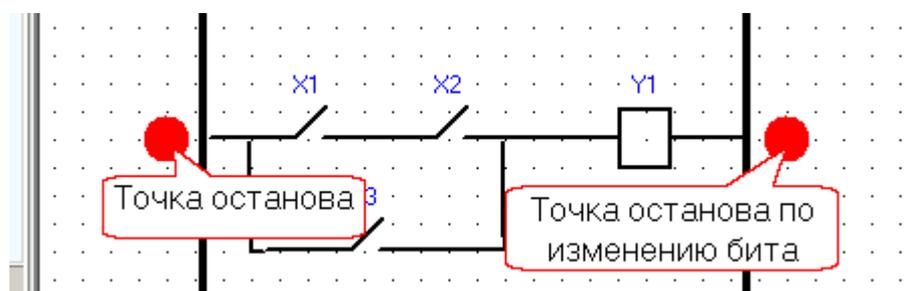
• Pump1Current = !Pump2Current & !PumpsChange12;
//насос 2 - рабочий
• Pump2Current = !Pump1Current & !PumpsChange21;
//автоматизация переключения в рабочий режим насосов

```

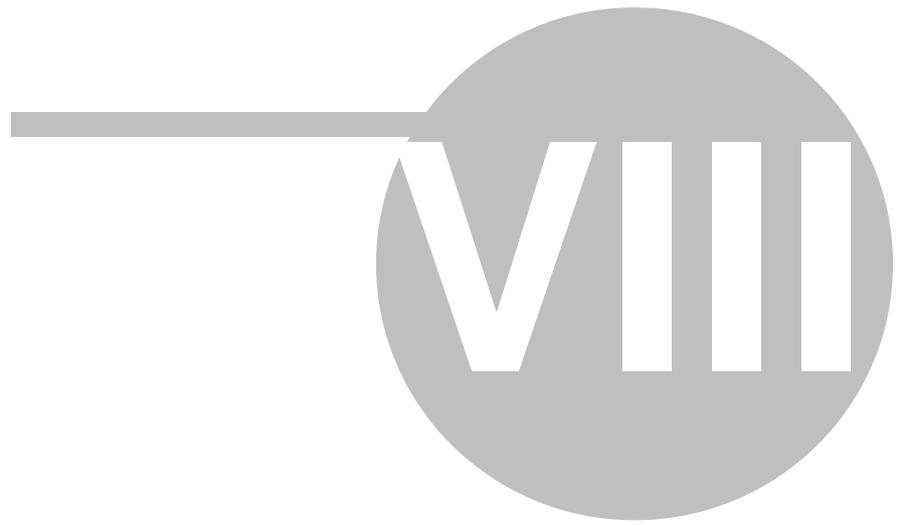
```

• Pump1Current = !Pump2Current & !PumpsChange12;
//насос 2 - рабочий
• Pump2Current = !Pump1Current & !PumpsChange21;
  Pump1Current (M89) = 1
//автоматизация переключения в рабочий режим насосов

```











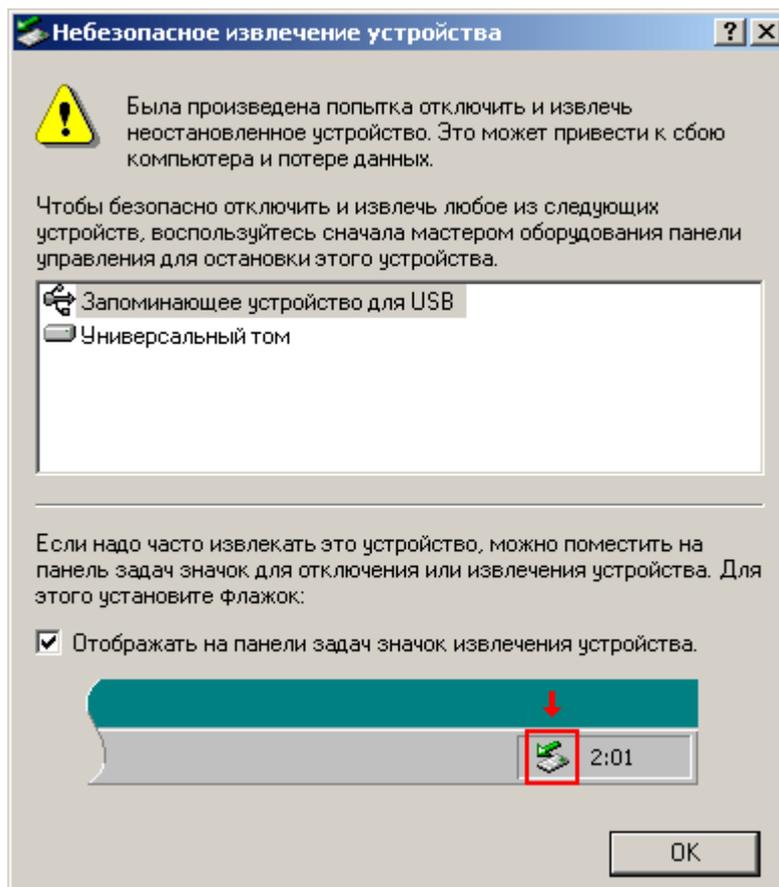
" " > " " .  
, " " ' .



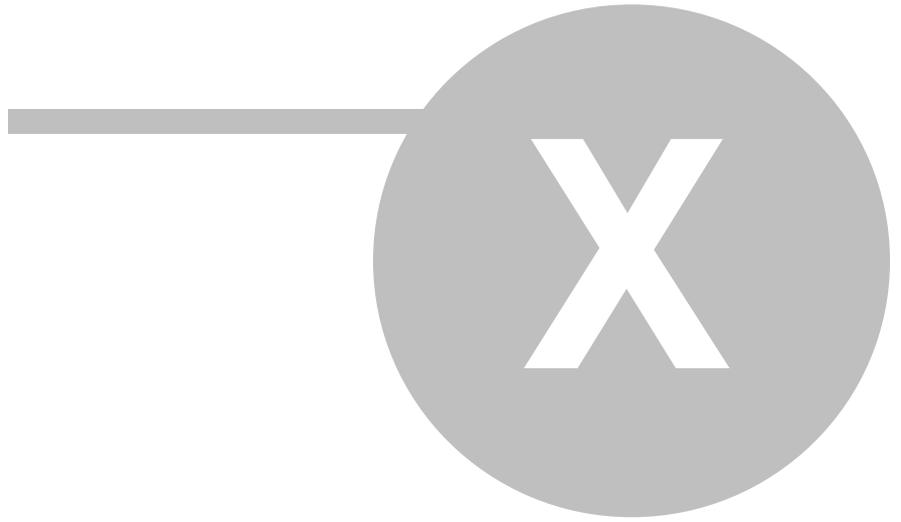
**CADET logic**







Windows,



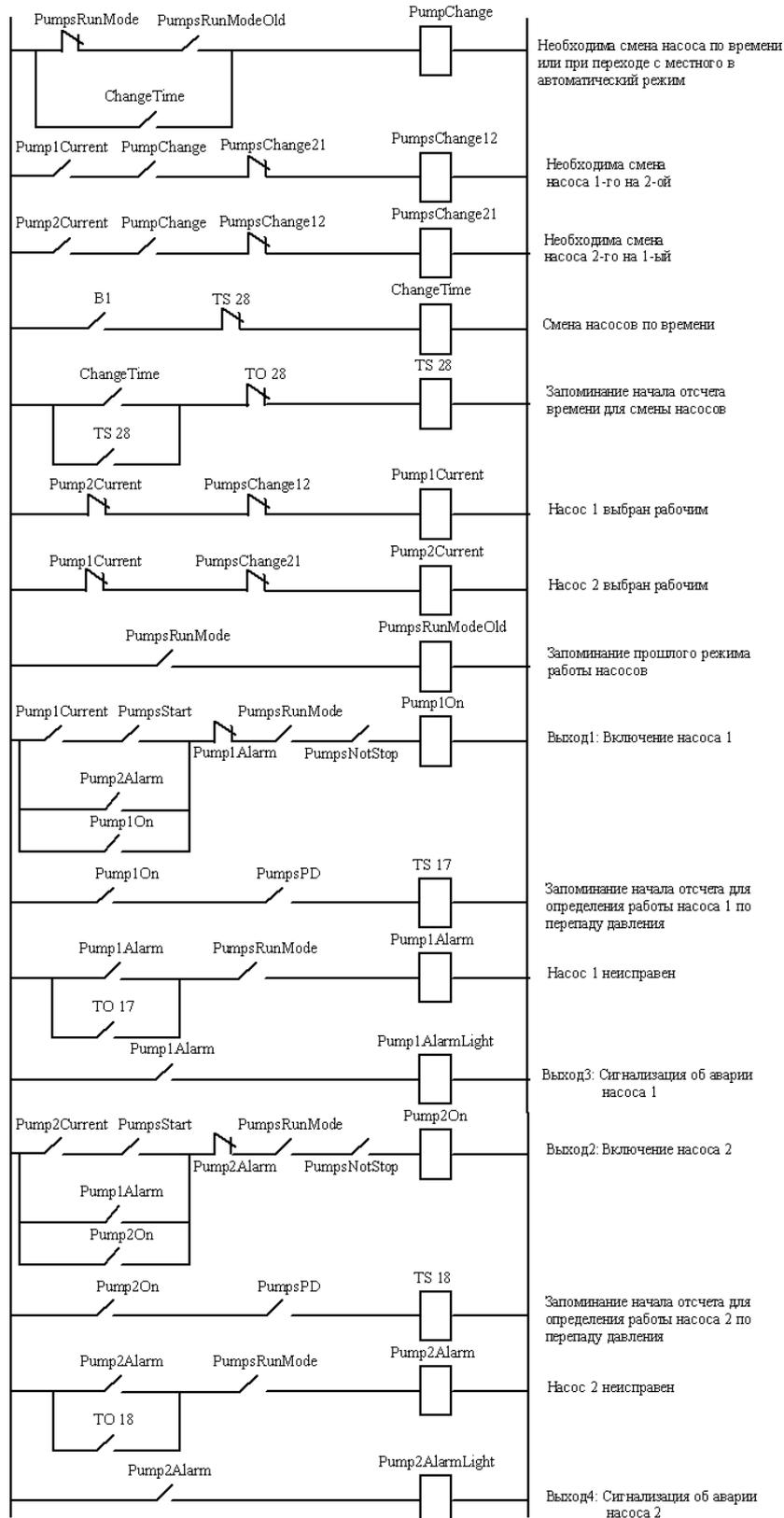


## 10

### 10.1

- - 
  - /
  - 
  - )
  - 
  - 
  -
- :
- 
- (
- 10 )

## 10.2



## 10.3

```

" "
,
:
•
; 2) 4 , : 1) ; 3)
; 4)
4 :
define PumpsPD = X1; //
define PumpsStart = X2; //
define PumpsNotStop = X3; //
define PumpsRunMode = X4; //
1 - 1 = 0
"1" 4 2 3 -
•
: 4
define Pump1On = Y1; // 1
define Pump2On = Y2; // 2
define Pump1AlarmLight = Y3; // 1
define Pump2AlarmLight = Y4; // 2
•
• ,
• , , 1- 2-
• , , 2- 1-
• , ( ) ( / )
• , ( / ).
• ,
define PumpChange = M1; //
define PumpsChange12 = M2; // 1 2
define PumpsChange21 = M3; // 2 1
define PumpsRunModeOld = M4; //
define ChangeTime = M5; //
define Pump1Current = M89; // 1 -
define Pump2Current = M90; // 2 -
•
"1" ( ), 3 : TS
timer T17 = 30; // 1
timer T18 = 30; // 2
timer T28 = 70; //
, 1.

```

- $$PumpChange = (!PumpsRunMode \& PumpsRunModeOld) | ChangeTime;$$
- $$PumpsChange12 = Pump1Current \& PumpChange \& !PumpsChange21;$$

$$PumpsChange21 = Pump2Current \& PumpChange \& !PumpsChange12;$$
- $$ChangeTime = B1 \& !TS28;$$
- $$TS28 = (ChangeTime | TS28) \& !TO28;$$
- $$Pump1Current = !Pump2Current \& !PumpsChange12;$$

$$Pump2Current = !Pump1Current \& !PumpsChange21;$$
- $$PumpsRunModeOld = PumpsRunMode;$$
- $$Pump1On = PumpsRunMode \& !Pump1Alarm \& PumpsNotStop \& ((Pump1Current \& PumpsStart) | Pump2Alarm | Pump1On);$$

$$Pump2On = PumpsRunMode \& !Pump2Alarm \& PumpsNotStop \& ((Pump2Current \& PumpsStart) | Pump1Alarm | Pump2On);$$
- $$TS17 = Pump1On \& PumpsPD;$$

$$TS18 = Pump2On \& PumpsPD;$$
- $$Pump1Alarm = (TO17 | Pump1Alarm) \& PumpsRunMode;$$

$$Pump2Alarm = (TO18 | Pump2Alarm) \& PumpsRunMode;$$

---

- :

```
Pump1AlarmLight = Pump1Alarm;  
Pump2AlarmLight = Pump2Alarm;
```



" - "

, 03680, , 27, . 8, 330  
/ . : +38 044 422 8957

E-mail: [soft@raut-automatic.kiev.ua](mailto:soft@raut-automatic.kiev.ua)  
Web: <http://www.raut-automatic.kiev.ua>