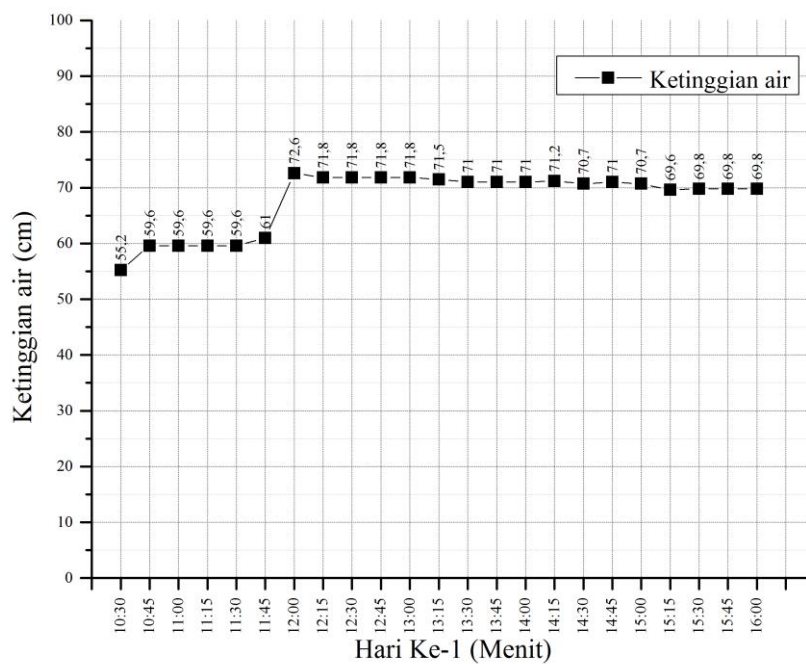


LAMPIRAN A DATA *MONITORING*

Hari ke - 1

Tabel 1 *Monitoring* Ketinggian Air Hari ke-1

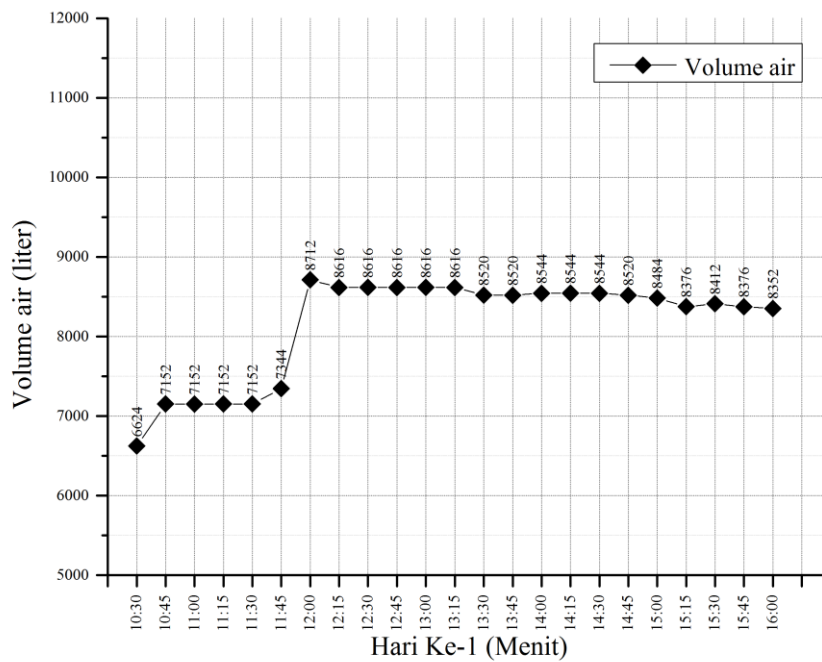
Tanggal	Waktu	Ketinggian air (cm)	Waktu	Ketinggian air (cm)
13/06/2022	10:30	6624	13:30	8520
	10:45	7152	13:45	8520
	11:00	7152	14:00	8544
	11:15	7152	14:15	8544
	11:30	7152	14:30	8544
	11:45	7344	14:45	8520
	12:00	8712	15:00	8484
	12:15	8616	15:15	8376
	12:30	8616	15:30	8412
	12:45	8616	15:45	8376
	13:00	8616	16:00	8352
	13:15	8616		



Gambar 1 Grafik *Monitoring* Ketinggian Air Hari ke-1

Tabel 2 *Monitoring* Volume Air Hari ke-1

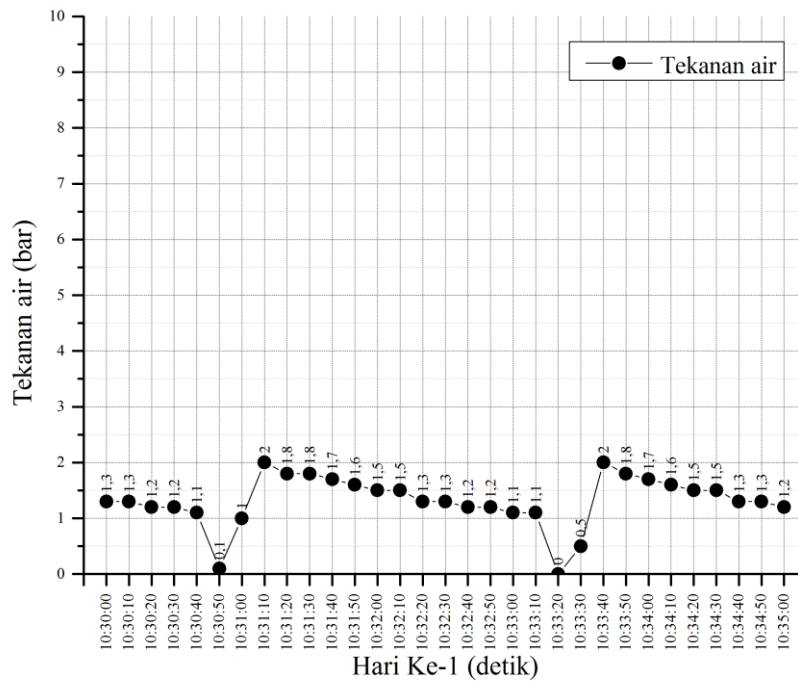
Tanggal	Waktu	Volume air (liter)	Waktu	Volume air (liter)
13/06/2022	10:30	6624	13:30	8520
	10:45	7152	13:45	8520
	11:00	7152	14:00	8544
	11:15	7152	14:15	8544
	11:30	7152	14:30	8544
	11:45	7344	14:45	8520
	12:00	8712	15:00	8484
	12:15	8616	15:15	8376
	12:30	8616	15:30	8412
	12:45	8616	15:45	8376
	13:00	8616	16:00	8352
	13:15	8616		



Gambar 2 Grafik *Monitoring* Volume Air Hari ke-1

Tabel 3 *Monitoring* Tekanan Air Hari ke-1

Tanggal	Waktu	Tekanan air (bar)	Waktu	Tekanan air (bar)
13/06/2022	10:30:00	1,3	10:32:40	1,2
	10:30:10	1,3	10:32:50	1,2
	10:30:20	1,2	10:33:00	1,1
	10:30:30	1,2	10:33:10	1,1
	10:30:40	1,1	10:33:20	0
	10:30:50	0,1	10:33:30	0,5
	10:31:00	1	10:33:40	2
	10:31:10	2	10:33:50	1,8
	10:31:20	1,8	10:34:00	1,7
	10:31:30	1,8	10:34:10	1,6
	10:31:40	1,7	10:34:20	1,5
	10:31:50	1,6	10:34:30	1,5
	10:32:00	1,5	10:34:40	1,3
	10:32:10	1,5	10:34:50	1,3
	10:32:20	1,3	10:35:00	1,2
	10:32:30	1,3		

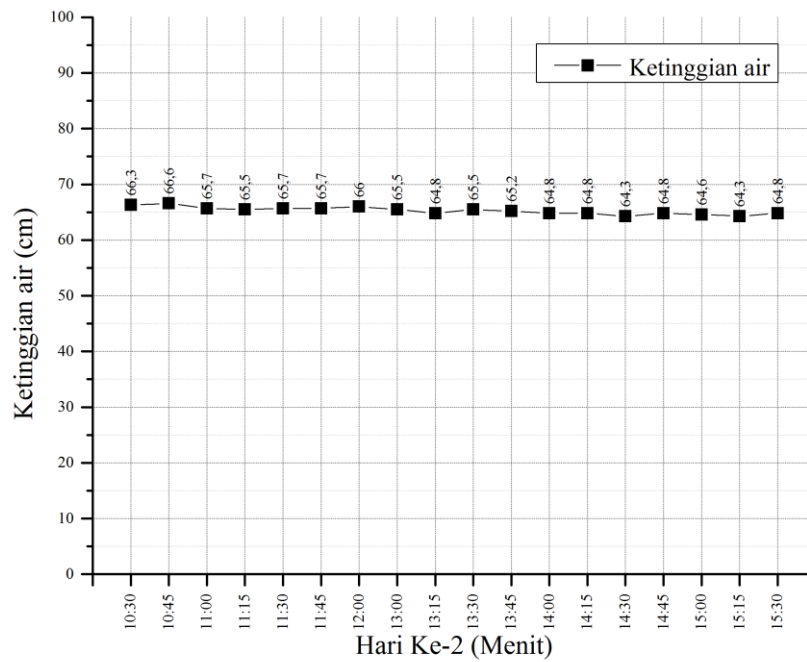


Gambar 3 Grafik *Monitoring* Tekanan Air Hari ke-1

Hari ke – 2

Tabel 4 *Monitoring* Ketinggian Air Hari ke-2

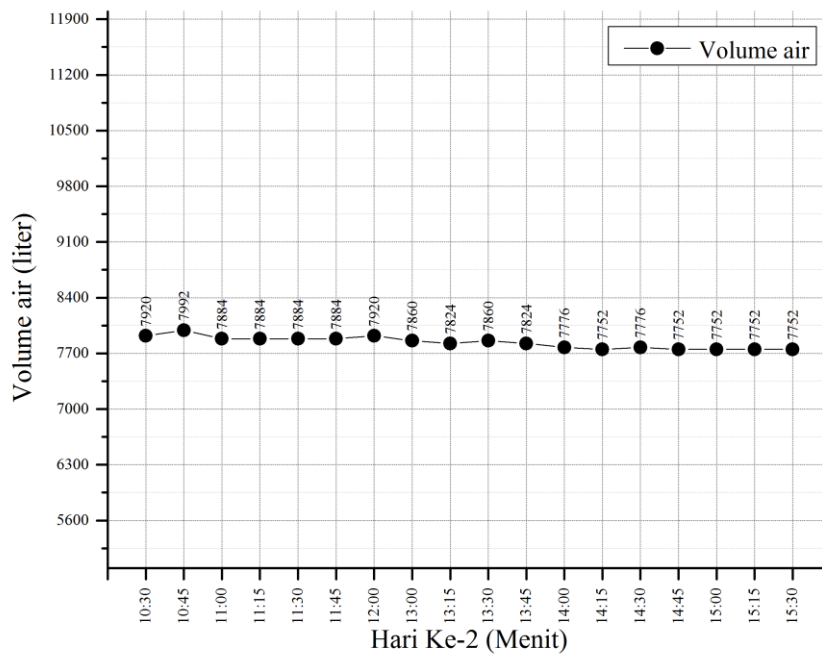
Tanggal	Waktu	Ketinggian air (cm)	Waktu	Ketinggian air (cm)
14/06/2022	10:30	66,3	13:30	65,5
	10:45	66,6	13:45	65,2
	11:00	65,7	14:00	64,8
	11:15	65,5	14:15	64,8
	11:30	65,7	14:30	64,3
	11:45	65,7	14:45	64,8
	12:00	66	15:00	64,6
	13:00	65,5	15:15	64,3
	13:15	64,8	15:30	64,8



Gambar 4 Grafik *Monitoring* Ketinggian Air Hari ke-2

Tabel 5 *Monitoring* Volume Air Hari ke-2

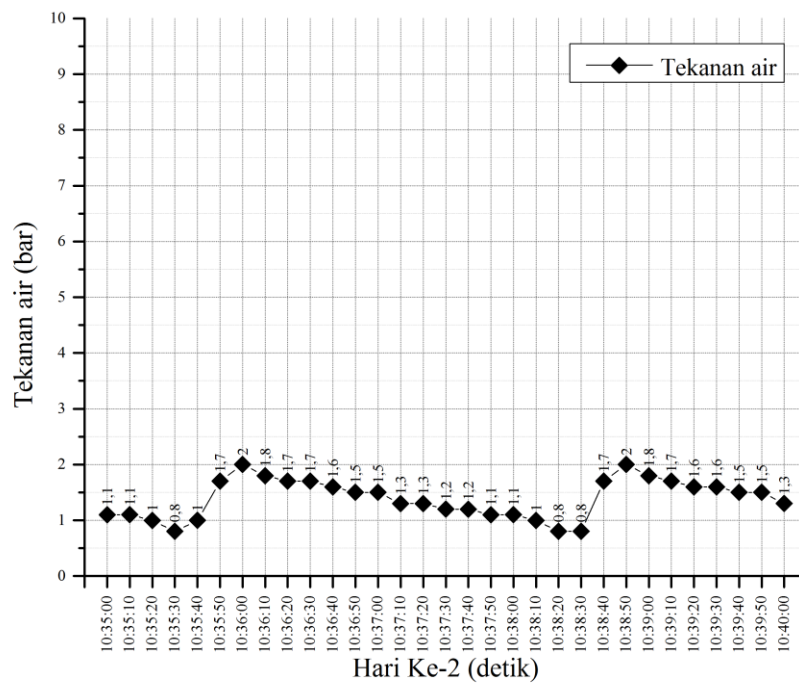
Tanggal	Waktu	Volume air (liter)	Waktu	Volume air (liter)
14/06/2022	10:30	7920	13:30	7860
	10:45	7992	13:45	7824
	11:00	7884	14:00	7776
	11:15	7884	14:15	7752
	11:30	7884	14:30	7776
	11:45	7884	14:45	7752
	12:00	7920	15:00	7752
	13:00	7860	15:15	7752
	13:15	7824	15:30	7752



Gambar 5 Grafik *Monitoring* Ketinggian Air Hari ke-2

Tabel 6 *Monitoring* Tekanan Air Hari ke-2

Tanggal	Waktu	Tekanan air (bar)	Waktu	Tekanan air (bar)
14/06/2022	10:35:00	1,1	10:37:40	1,2
	10:35:10	1,1	10:37:50	1,1
	10:35:20	1	10:38:00	1,1
	10:35:30	0,8	10:38:10	1
	10:35:40	1	10:38:20	0,8
	10:35:50	1,7	10:38:30	0,8
	10:36:00	2	10:38:40	1,7
	10:36:10	1,8	10:38:50	2
	10:36:20	1,7	10:39:00	1,8
	10:36:30	1,7	10:39:10	1,7
	10:36:40	1,6	10:39:20	1,6
	10:36:50	1,5	10:39:30	1,6
	10:37:00	1,5	10:39:40	1,5
	10:37:10	1,3	10:39:50	1,5
	10:37:20	1,3	10:40:00	1,3
	10:37:30	1,2		



Gambar 6 Grafik *Monitoring* Ketinggian Air Hari ke-2

LAMPIRAN B PERHITUNGAN

Persamaan awal :

$$y = mx + b$$

Persamaan untuk mencari keluaran arus :

$$I = \frac{I_{high} - I_{low}}{Pv_{high} - Pv_{low}} (Pv - Pv_{low}) + I_{low}$$

Keterangan :

I = arus (mA)

I_{high} = arus maksimal (mA)

I_{low} = arus minimal (mA)

Pv_{high} = batas atas pengukuran (cm) untuk ketinggian dan (bar) untuk tekanan

Pv_{low} = batas bawah pengukuran (cm) untuk ketinggian dan (bar) untuk tekanan

Pv = hasil yang terukur

Perhitungan Arus Level Transmitter	
Ketinggian air (cm)	Perhitungan Arus (mA)
0 cm	$I = \frac{I_{high} - I_{low}}{Pv_{high} - Pv_{low}} (Pv - Pv_{low}) + I_{low} = \frac{20-4}{100-0} (0 - 0) + 4 = 4 \text{ mA}$
5.7 cm	$I = \frac{20-4}{100-0} (5.7 - 0) + 4 = 4.91 \text{ mA}$
10.6 cm	$I = \frac{20-4}{100-0} (10.6 - 0) + 4 = 5.70 \text{ mA}$
15 cm	$I = \frac{20-4}{100-0} (15 - 0) + 4 = 6.40 \text{ mA}$
20.2 cm	$I = \frac{20-4}{100-0} (20.2 - 0) + 4 = 7.20 \text{ mA}$
25.5 cm	$I = \frac{20-4}{100-0} (25.5 - 0) + 4 = 8.08 \text{ mA}$
30.2 cm	$I = \frac{20-4}{100-0} (30.2 - 0) + 4 = 8.83 \text{ mA}$
35.5 cm	$I = \frac{20-4}{100-0} (35.5 - 0) + 4 = 9.68 \text{ mA}$
40.6 cm	$I = \frac{20-4}{100-0} (40.6 - 0) + 4 = 10.50 \text{ mA}$
45.6 cm	$I = \frac{20-4}{100-0} (45.6 - 0) + 4 = 11.30 \text{ mA}$
50.3 cm	$I = \frac{20-4}{100-0} (50.3 - 0) + 4 = 12.05 \text{ mA}$
55.2 cm	$I = \frac{20-4}{100-0} (55.2 - 0) + 4 = 12.83 \text{ mA}$
60.3 cm	$I = \frac{20-4}{100-0} (60.3 - 0) + 4 = 13.65 \text{ mA}$
65.2 cm	$I = \frac{20-4}{100-0} (65.2 - 0) + 4 = 14.43 \text{ mA}$
70.1 cm	$I = \frac{20-4}{100-0} (70.1 - 0) + 4 = 15.22 \text{ mA}$

Perhitungan Arus <i>Level Transmitter</i>	
Ketinggian air (cm)	Perhitungan Arus (mA)
73 cm	$I = \frac{20 - 4}{100 - 0} (73 - 0) + 4 = 15.68 \text{ mA}$



Perhitungan Arus <i>Pressure Transmitter</i>	
Tekanan air (cm)	Perhitungan Arus (mA)
0 bar	$I = \frac{I_{high} - I_{low}}{Pv_{high} - Pv_{low}} (Pv - Pv_{low}) + I_{low} = \frac{20-4}{100-0} (0 - 0) + 4 = 4 \text{ mA}$
0.2 bar	$I = \frac{20 - 4}{10 - 0} (0.1 - 0) + 4 = 4,16 \text{ mA}$
0.5 bar	$I = \frac{20 - 4}{10 - 0} (0,5 - 0) + 4 = 4,80 \text{ mA}$
0.7 bar	$I = \frac{20 - 4}{10 - 0} (0.7 - 0) + 4 = 5,12 \text{ mA}$
1 bar	$I = \frac{20 - 4}{10 - 0} (1 - 0) + 4 = 5,6 \text{ mA}$
1,2 bar	$I = \frac{20 - 4}{10 - 0} (0.2 - 0) + 4 = 5,92 \text{ mA}$
1,5 bar	$I = \frac{20 - 4}{10 - 0} (1,5 - 0) + 4 = 6,40 \text{ mA}$
1,7 bar	$I = \frac{20 - 4}{10 - 0} (1,7 - 0) + 4 = 6,72 \text{ mA}$
2 bar	$I = \frac{20 - 4}{10 - 0} (2 - 0) + 4 = 7.2 \text{ mA}$

1. *Level transmitter*

Persentase kesalahan

$$\begin{aligned} \text{Kesalahan (\%)} &= \left| \frac{\text{Nilai Eksperimen} - \text{Nilai Teoritis}}{\text{Nilai teoritis}} \right| \times 100\% \\ &= \left| \frac{159,74 - 160,46}{160,46} \right| \times 100\% = 0,4\% \end{aligned}$$

Scaling Analog Masukan Level

B112		Gain = A/B x value + C	No	---	Gain: $y = (1000/1023) x + -200$ Range: $0 \leq y \leq 1000$
B114		Gain = A/B x value + C	No	---	Gain: $y = (1000/800) x + 0$ Range: $0 \leq y \leq 1000$

Gain B112

Analog masukan, X = 779, A=1000, B=1023, C= -200

$$\begin{aligned} Y &= \left(\frac{A}{B} \right) X + C \\ Y &= \left(\frac{1000}{1023} \right) 779 - 200 \end{aligned}$$

$$Y = 561$$

Gain B114

Analog Masukan, X = 561, A=1000, B=880, C=0

$$Y = \left(\frac{A}{B}\right)X + C$$

$$Y = \left(\frac{1000}{880}\right)561 + 0$$



$$Y = 701$$

2. *Pressure transmitter*

Persentase Kesalahan

$$\begin{aligned} \text{Kesalahan (\%)} &= \left| \frac{\text{Nilai Eksperimen} - \text{Nilai Teoritis}}{\text{Nilai teoritis}} \right| \times 100\% \\ &= \left| \frac{50,23 - 50,08}{50,08} \right| \times 100\% = 0,2\% \end{aligned}$$

Scaling Analog Masukan Pressure

No	Symbol	Function	Lock	Latching	Parameters
B024		Gain = A/B x value + C	No	---	Gain: y = (100/1023) x + -20 Range: 0 <= y <= 2000
B025		Gain = A/B x value + C	No	---	Gain: y = (100/80) x + 0 Range: 0 <= y <= 100

Gain B024

Analog masukan, X = 368, A=100, B=1023, C=-20

$$Y = \left(\frac{A}{B}\right)X + C$$

$$Y = \left(\frac{100}{1023}\right)369 - 20$$

$$Y = 16$$

Gain B024

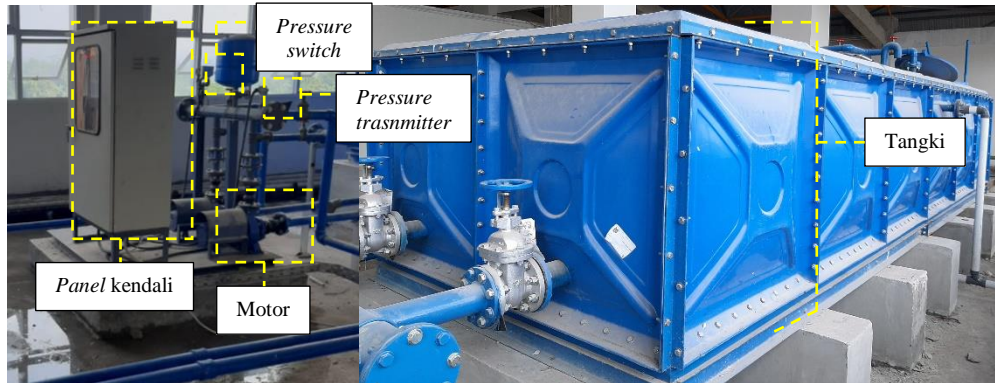
Analog Masukan, X = 16, A=100, B=80, C=0

$$Y = \left(\frac{A}{B}\right)X + C$$

$$Y = \left(\frac{100}{80}\right)16 + 0$$

$$Y = 20$$

LAMPIRAN C PERALATAN PENELITIAN



Gambar 7 *Plant Penelitian*



Gambar 8 *Level Transmitter*

Tabel 7 Spesifikasi *Level Transmitter*

No	Nama	Spesifikasi
1	Merek	ZGCJ
2	No. Model	CJ-YBT
3	<i>Range</i>	0-1 meter
4	<i>Siganl keluaran</i>	4-20 mA (2 wire)
5	<i>Power supply</i>	24 VOLT DC
6	<i>accuracy</i>	$\pm 0,5\%$ FS
7	<i>Protection</i>	IP68



Gambar 9 *Pressure Transmitter*

Tabel 8 Spesifikasi *Pressure Transmitter*

No	Nama	Spesifikasi
1	Merek	Autonics
2	No. Model	TPS20-G16P2
3	Range	0-10 kgf/cm ²
4	Signal keluaran	4-20 mA (2 wire)
5	Power supply	24 VOLT DC
6	accuracy	± 0,3% FS



Gambar 10 *Pressure Switch*



Gambar 11 *Pressure Gauge*

LAMPIRAN D *LISTING* PROGRAM HMI

1. *Listing tombol log in*

Touch Pushbutton > Action

```
DIM LOGONRESULT AS DISCRETE;  
LOGONRESULT = PostLogonDialog();
```

```
$OperatorEntered = "None";
```

```
$PasswordEntered = "";
```

2. *Listing script application*

Listing volume tank

```
Volume_Tank = ((6*2*Level/100)*1000);
```

Listing data float pressure transmitter (scaling)

```
Pressure_Bar = (Nilai_Pressure*1/10);
```

Listing data float level transmitter (scaling)

```
Level = (Nilai_Level*1/10);
```

3. *Listing Window Log on*

```
IF $Operator == "Administrator " OR $Operator == "Engineer" OR  
$Operator == "Staff" OR $Operator == "Operator" THEN  
    Show "Monitoring";  
ELSE  
    Hide "Monitoring";  
ENDIF;
```

4. *Listing Tombol Change Password*

Touch Pushbutton > Action

```
IF Log_Out == Logoff() THEN
```

```
    Show "Menu Log On";
```

```
    Hide "Monitoring";
```

```
ENDIF;
```

5. *Listing Tombol Log out*

Touch Pushbutton > Action

```
IF Log_Out == Logoff() THEN
```

```
    Show "Menu Log On";
```

```
        Hide "Monitoring";  
ENDIF;
```

6. Listing Tombol Connect

Touch Pushbutton > Action

```
ResultCode = SQLConnect(ConnectionID, "DSN=DataSkripsi");
```

7. Listing Tombol Disconnect

Touch Pushbutton > Action

```
ConnectionID = 0;
```

```
ResultCode = 0;
```

```
ResultCode = SQLDisconnect(ConnectionID);
```

8. Listing Script Data Change Database

```
ResultCode = SQLSelect(ConnectionID, "DataSkripsi", "dataskripsi",  
"","");
```

```
ResultCode = SQLInsert(ConnectionID, "DataSkripsi", "dataskripsi");
```

```
Nomor = Nomor+1;
```

```
Tanggal =$DateString;
```

```
Waktu = $TimeString;
```

```
ErrorMsg = SQLErrorMsg(ResultCode);
```

LAMPIRAN E PROGRAM PLC

Module : SR3B261BD Cycle time in the module : 11 x 2 ms WATCHDOG action : Inactive Type of Hardware Input Filtering : Slow (3ms) <input type="checkbox"/> Locking of module front panel Date format : dd/mm/yyyy <input type="checkbox"/> Daylight Saving Time change activated Zone : Europe Change to Daylight Saving Time : March, Last Sunday Return to winter time : October, Last Sunday	XT2 : SR3XT43BD Type of inputs : Input IP : 0-20 mA Input IQ : 0-20 mA Type of outputs : Output OF : Analog Output OG : Analog Analog output ramp : Output OF : 0 s Output OG : 0 s Frequency of PWM outputs : Not Applicable
--	--

XT1 : SR3MBU01 Number of wires and format : 2 wires, RTU Speed in bauds : 19200 Parity : Even Modbus slave address : 1

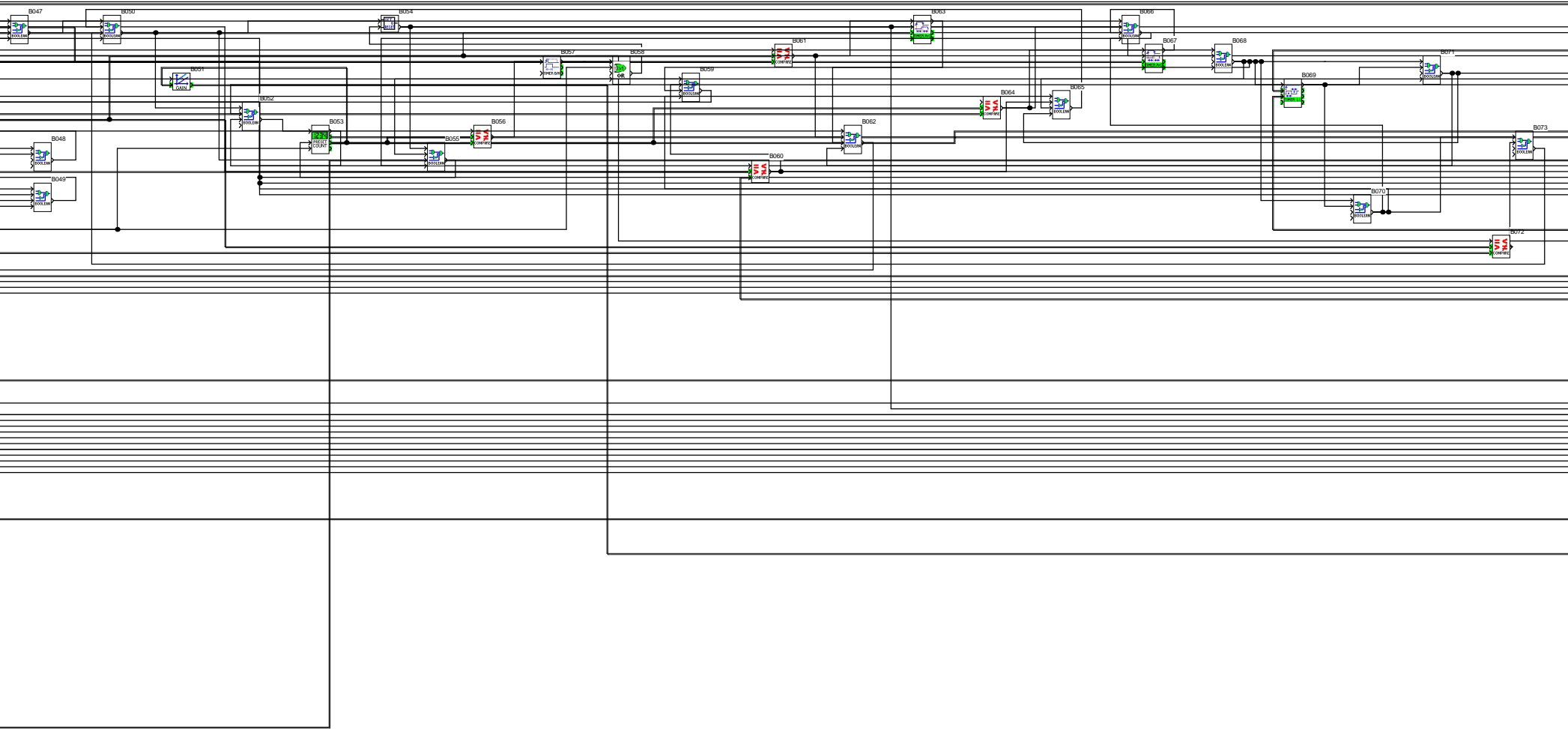
Gambar 12 *Setting-an* pada Zelio Smart Relay



Program information

Author : Author
 Project name : indobara
 Version : 0.0

<p>Module : SR3B261BD</p> <p>Cycle time in the module : 11 x 2 ms WATCHDOG action : Inactive Type of Hardware Input Filtering : Slow (3ms) <input type="checkbox"/> Locking of module front panel</p> <p>Date format : dd/mm/yyyy <input type="checkbox"/> Daylight Saving Time change activated Zone : Europe Change to Daylight Saving Time : March, Last Sunday Return to winter time : October, Last Sunday</p>	<p>XT1 : SR3MBU01</p> <p>Number of wires and format : 2 wires, RTU Speed in bauds : 19200 Parity : Even Modbus slave address : 1</p>	<p>XT2 : SR3XT43BD</p> <p>Type of inputs : Input IP : 0-20 mA Input IQ : 0-20 mA</p> <p>Type of outputs : Output OF : Analog Output OG : Analog</p> <p>Analog output ramp : Output OF : 0 s Output OG : 0 s</p> <p>Frequency of PWM outputs : Not Applicable</p>
--	---	--



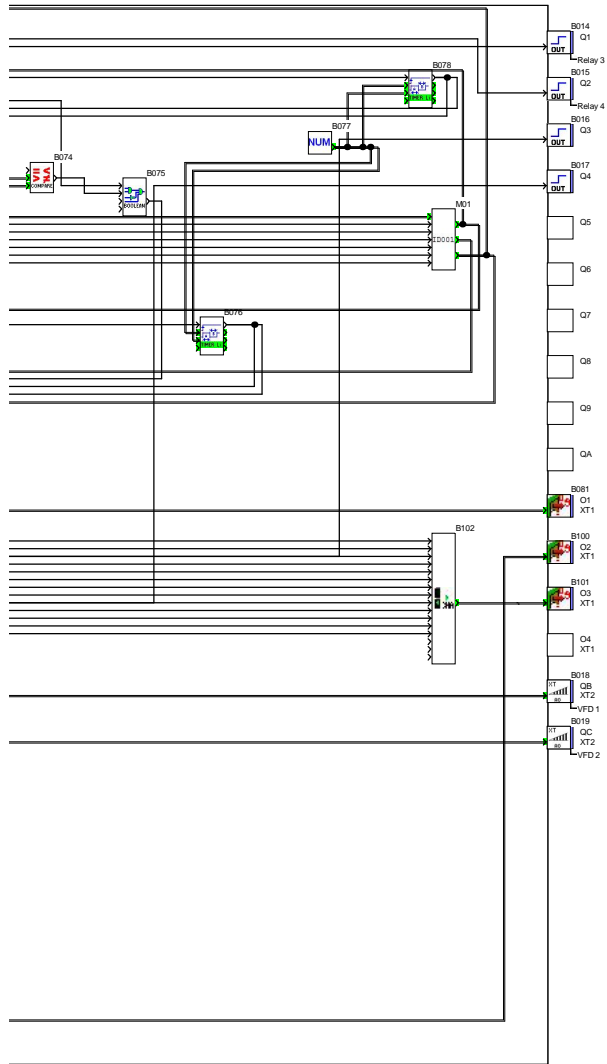
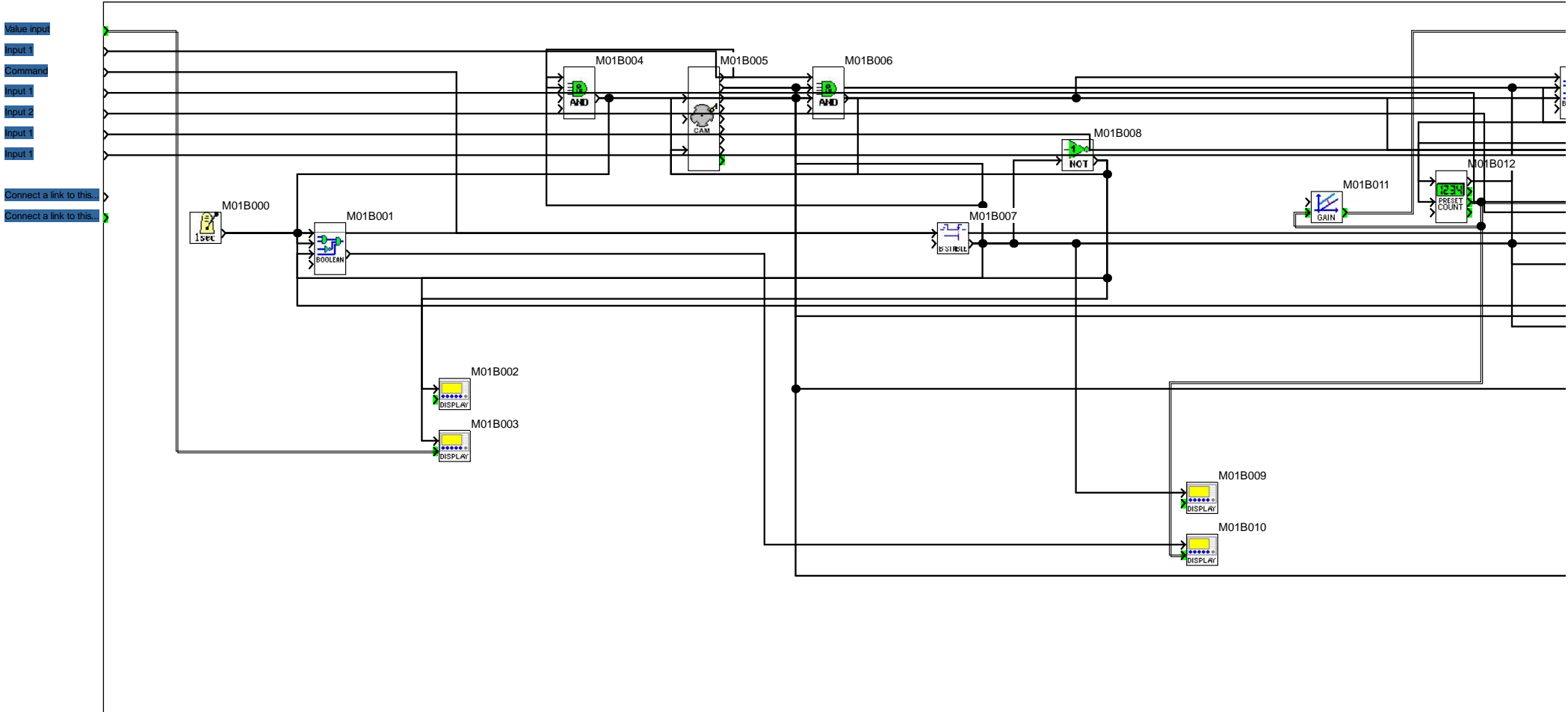
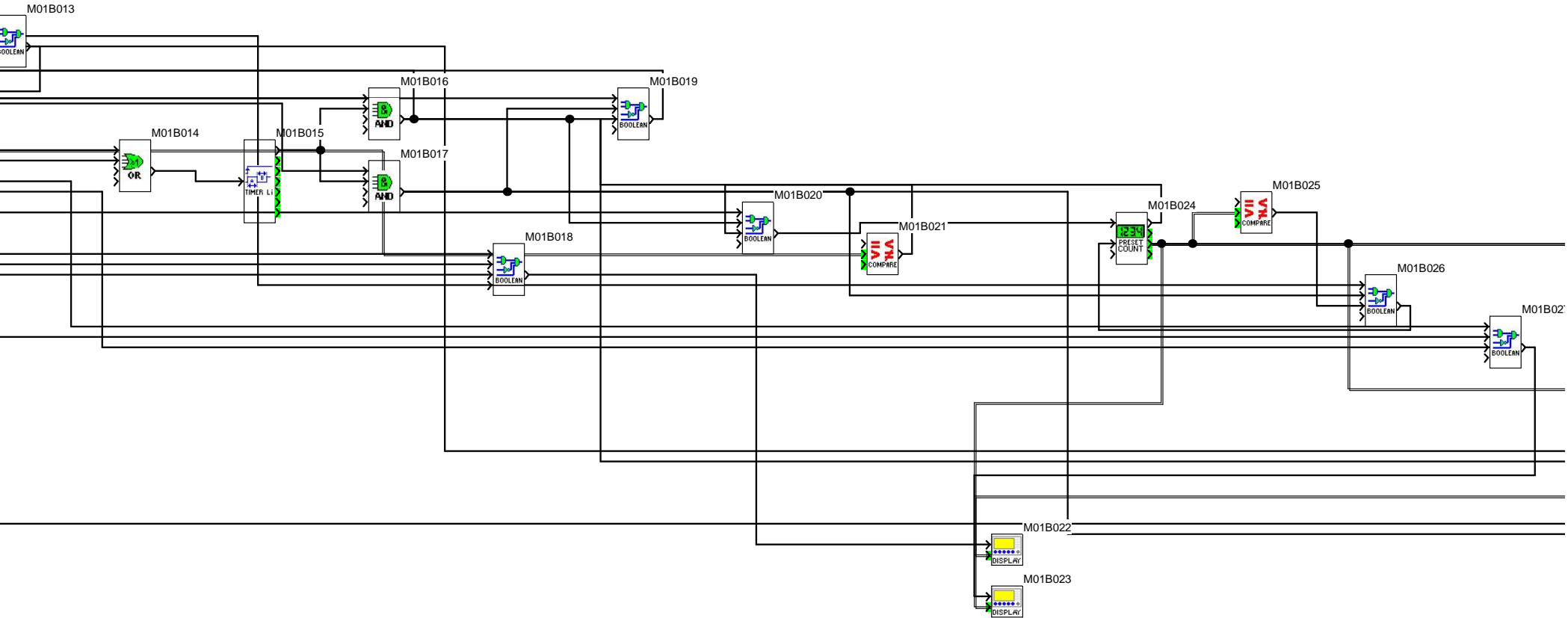
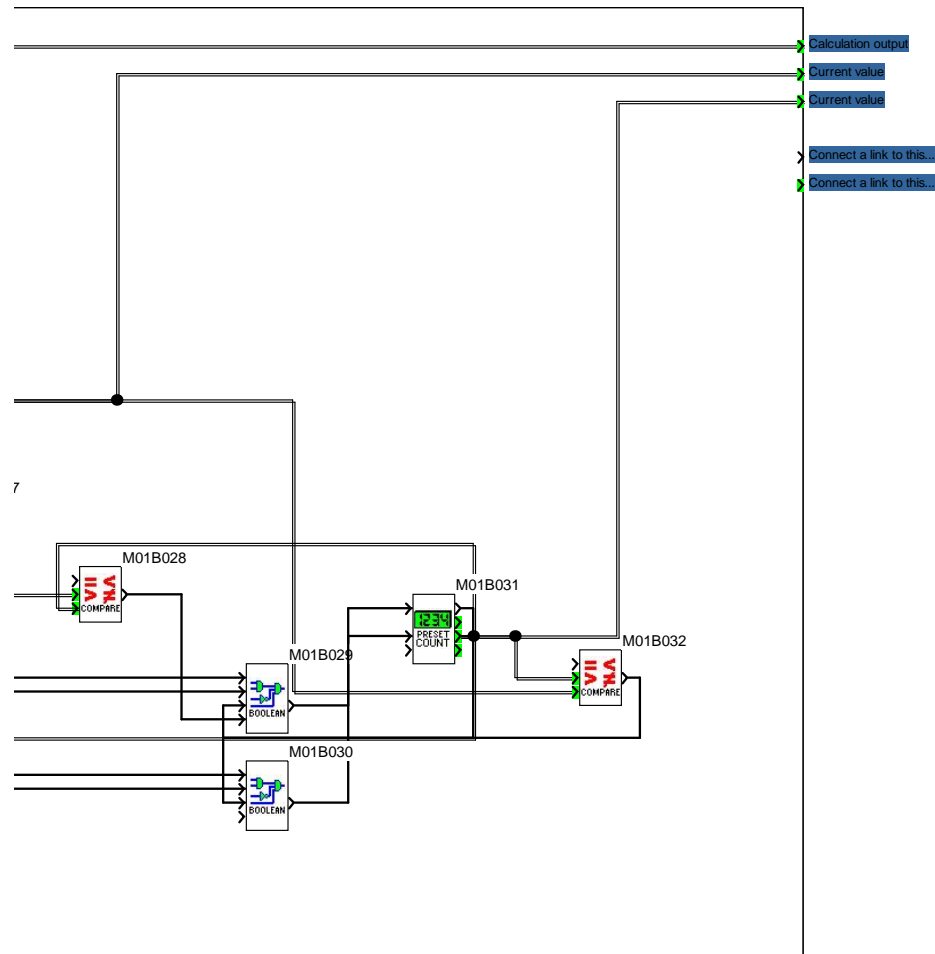




Diagram of the macro "ID001"














Physical inputs

Input	No	Symbol	Function	Lock	Parameters	Comment
I1	B000		Discrete input	---	No parameters	Relay 1
I2	B001		Discrete input	---	No parameters	Auto Pump 1
I3	B002		Discrete input	---	No parameters	Auto Pump 2
I4	B003		Discrete input	---	No parameters	Manual Pump 1
I5	B004		Discrete input	---	No parameters	Manual Pump 2
I6	B005		Discrete input	---	No parameters	Start Pump 1
I7	B006		Discrete input	---	No parameters	Start Pump 2
I8	B007		Discrete input	---	No parameters	Stop Pump 1
I9	B008		Discrete input	---	No parameters	Stop Pump 2
IA	B009		Discrete input	---	No parameters	Relay 2
IB	B010		Discrete input	---	No parameters	Emergency Stop
IC	B011		Discrete input	---	No parameters	
ID	B012		Discrete input	---	No parameters	
IH XT2	B013		Analog input expansion 10bits	---	No parameters	Pressure Transmitter









Input	No	Symbol	Function	Lock	Parameters	Comment
IJ XT2	B113		Analog input expansion 10bits	---	No parameters	Level Transmitter

Module keys












No	Symbol	Function	Comment
B020		Z1 button	
B021		Z2 button	
B022		Z3 button	
B023		Z4 button	

Physical outputs

Output	No	Symbol	Function	Comment
Q1	B014		Discrete output	Relay 3
Q2	B015		Discrete output	Relay 4
Q3	B016		Discrete output	
Q4	B017		Discrete output	
QB XT2	B018		Analog output expansion 10bits	VFD 1
QC XT2	B019		Analog output expansion 10bits	VFD 2






Configurable functions

No	Symbol	Function	Lock	Latching	Parameters	Comment
B024		Gain = A/B x value + C	No	---	Gain: $y = (100/1023) x + -20$ Range: $0 \leq y \leq 2000$	
B025		Gain = A/B x value + C	No	---	Gain: $y = (100/80) x + 0$ Range: $0 \leq y \leq 100$	
B026	NUM	Numerical constant	No	---	Value of the constant : 60	
B027	NUM	Numerical constant	No	---	Value of the constant : 45	
B028		Timer A/C ext setpoint	---	No	Unit : x 1 s	
B029		Timer A/C ext setpoint	---	No	Unit : x 1 s	
B030	NUM	Numerical constant	No	---	Value of the constant : 5	
B031		RS switching	---	---	Priority : RESET has priority	
B032		Boolean function	---	---	See details below	
B033		Boolean function	---	---	See details below	
B034		Boolean function	---	---	See details below	
B035		Gain = A/B x value + C	No	---	Gain: $y = (1023/50) x + 0$ Range: $0 \leq y \leq 1023$	
B036		Boolean function	---	---	See details below	
B037		Preset up/down counter	No	No	Output ON when the preset value is reached : 50 Cycle Single	










No	Symbol	Function	Lock	Latching	Parameters	Comment
B038		RS switching	---	---	Priority : RESET has priority	
B039		Boolean function	---	---	See details below	
B040		Comparison of 2 values	---	---	VALEUR 1 \leq VALEUR 2	
B041		Timer B/H	No	No	On time : 0H 0M 1S Function H	
B042		Boolean function	---	---	See details below	
B043		Boolean function	---	---	See details below	
B046		RS switching	---	---	Priority : RESET has priority	
B047		Boolean function	---	---	See details below	
B048		Boolean function	---	---	See details below	
B049		Boolean function	---	---	See details below	
B050		Boolean function	---	---	See details below	
B051		Gain = A/B x value + C	No	---	Gain: $y = (1023/50) x + 0$ Range: $0 \leq y \leq 1023$	
B052		Boolean function	---	---	See details below	
B053		Preset up/down counter	No	No	Output ON when the preset value is reached : 50 Cycle Single	
B054		RS switching	---	---	Priority : RESET has priority	







No	Symbol	Function	Lock	Latching	Parameters	Comment
B055		Boolean function	---	---	See details below	
B056		Comparison of 2 values	---	---	VALEUR 1 ≤ VALEUR 2	
B057		Timer B/H	No	No	On time : 0H 0M 1S Function H	
B059		Boolean function	---	---	See details below	
B060		Comparison of 2 values	---	---	VALEUR 1 ≤ VALEUR 2	
B061		Comparison of 2 values	---	---	VALEUR 1 ≤ VALEUR 2	
B062		Boolean function	---	---	See details below	
B063		Timer A/C ext setpoint	---	No	Unit : x 1 s	
B064		Comparison of 2 values	---	---	VALEUR 1 ≤ VALEUR 2	
B065		Boolean function	---	---	See details below	
B066		Boolean function	---	---	See details below	
B067		Timer A/C ext setpoint	---	No	Unit : x 1 s	
B068		Boolean function	---	---	See details below	
B069		Cyclic timing ext setpoint	---	No	Unit : x 1 s Continuous flashing Function Li	
B070		Boolean function	---	---	See details below	









No	Symbol	Function	Lock	Latching	Parameters	Comment
B071		Boolean function	---	---	See details below	
B072		Comparison of 2 values	---	---	$VALEUR 1 \geq VALEUR 2$	
B073		Boolean function	---	---	See details below	
B074		Comparison of 2 values	---	---	$VALEUR 1 \geq VALEUR 2$	
B075		Boolean function	---	---	See details below	
B076		Cyclic timing ext setpoint	---	No	Unit : x 0,1 s Continuous flashing Function Li	
B077		Numerical constant	No	---	Value of the constant : 3	
B078		Cyclic timing ext setpoint	---	No	Unit : x 0,1 s Continuous flashing Function Li	
B111		LCD display	---	---	See details below	
B112		Gain = A/B x value + C	No	---	Gain: $y = (1000/1023) x + -200$ Range: $0 \leq y \leq 1000$	
B114		Gain = A/B x value + C	No	---	Gain: $y = (1000/800) x + 0$ Range: $0 \leq y \leq 1000$	
01B00		Boolean function	---	---	See details below	
01B00		LCD display	---	---	See details below	
01B00		LCD display	---	---	See details below	
01B00		CAM BLOCK	No	No	See details below	




No	Symbol	Function	Lock	Latching	Parameters	Comment
01B00		LCD display	---	---	See details below	
01B01		LCD display	---	---	See details below	
01B01		Gain = A/B x value + C	No	---	Gain: $y = (60/1) x + 0$ Range: $-32768 \leq y \leq 32767$	
01B01		Preset up/down counter	No	Yes	Output ON when the preset value is reached : 600 Cycle Single	
01B01		Boolean function	---	---	See details below	
01B01		Cyclic timing	No	No	On time : 2 x 0,1 s Off time : 2 x 0,1 s Function Li - Continuous flashing	
01B01		Boolean function	---	---	See details below	
01B01		Boolean function	---	---	See details below	
01B02		Boolean function	---	---	See details below	
01B02		Comparison of 2 values	---	---	$VALEUR 1 \leq VALEUR 2$	
01B02		LCD display	---	---	See details below	
01B02		LCD display	---	---	See details below	
01B02		Preset up/down counter	No	Yes	Output ON when the preset value is reached : 60 Cycle Single	
01B02		Comparison of 2 values	---	---	$VALEUR 1 \leq VALEUR 2$	
01B02		Boolean function	---	---	See details below	




No	Symbol	Function	Lock	Latching	Parameters	Comment
01B02		Boolean function	---	---	See details below	
01B02		Comparison of 2 values	---	---	VALEUR 1 > VALEUR 2	
01B02		Boolean function	---	---	See details below	
01B03		Boolean function	---	---	See details below	
01B03		Preset up/down counter	No	Yes	Output ON when the preset value is reached : 60 Cycle Single	
01B03		Comparison of 2 values	---	---	VALEUR 1 ≤ VALEUR 2	
M01	ID001	ID001	---	---	See blocks M01BXX	





BOOLEAN (Boolean function)

B032		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE
0	0	0	0	0
1	0	0	0	0
0	1	0	0	0
1	1	0	0	0
0	0	1	0	0
1	0	1	0	0
0	1	1	0	0
1	1	1	0	0
0	0	0	1	0
1	0	0	1	1
0	1	0	1	0
1	1	0	1	0
0	0	1	1	0
1	0	1	1	0
0	1	1	1	0
1	1	1	1	0


B033		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	SORTIE	
0	0	0	
1	0	0	
0	1	0	
1	1	1	




B034		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE	
0	0	0	0	
1	0	0	1	
0	1	0	1	
1	1	0	0	
0	0	1	1	
1	0	1	0	
0	1	1	0	
1	1	1	0	


B036		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE	
0	0	0	0	
1	0	0	0	
0	1	0	0	
1	1	0	1	
0	0	1	0	
1	0	1	0	
0	1	1	0	
1	1	1	0	




B039	 Boolean function				
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	0	




B042		Boolean function		
Output OFF if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE
0	0	0	0	0
1	0	0	0	0
0	1	0	0	0
1	1	0	0	0
0	0	1	0	0
1	0	1	0	0
0	1	1	0	0
1	1	1	0	0
0	0	0	1	0
1	0	0	1	0
0	1	0	1	0
1	1	0	1	0
0	0	1	1	0
1	0	1	1	0
0	1	1	1	0
1	1	1	1	0


B043		Boolean function	
Output OFF if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	1
1	0	1	0
0	1	1	0
1	1	1	0




B047		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE
0	0	0	0	0
1	0	0	0	0
0	1	0	0	0
1	1	0	0	0
0	0	1	0	0
1	0	1	0	0
0	1	1	0	0
1	1	1	0	0
0	0	0	1	0
1	0	0	1	1
0	1	0	1	0
1	1	0	1	0
0	0	1	1	0
1	0	1	1	0
0	1	1	1	0
1	1	1	1	0


B048		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	SORTIE	
0	0	0	
1	0	0	
0	1	0	
1	1	1	




B049		Boolean function		
Output OFF if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE
0	0	0	0	0
1	0	0	0	0
0	1	0	0	0
1	1	0	0	0
0	0	1	0	0
1	0	1	0	0
0	1	1	0	0
1	1	1	0	0
0	0	0	1	0
1	0	0	1	0
0	1	0	1	0
1	1	0	1	0
0	0	1	1	0
1	0	1	1	0
0	1	1	1	0
1	1	1	1	0


B050		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	1
0	1	0	1
1	1	0	0
0	0	1	1
1	0	1	0
0	1	1	0
1	1	1	0




B052		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE	
0	0	0	0	
1	0	0	0	
0	1	0	0	
1	1	0	1	
0	0	1	0	
1	0	1	0	
0	1	1	0	
1	1	1	0	

B055		Boolean function			
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	0	




B059	 <small>BOOLEAN</small>	Boolean function			
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	1	





B062	 Boolean function				
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	0	




B065	 Boolean function				
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	1	





B066		Boolean function			
Output ON if result is TRUE					
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE	
0	0	0	0	0	
1	0	0	0	0	
0	1	0	0	0	
1	1	0	0	1	
0	0	1	0	0	
1	0	1	0	0	
0	1	1	0	0	
1	1	1	0	0	
0	0	0	1	0	
1	0	0	1	0	
0	1	0	1	0	
1	1	0	1	0	
0	0	1	1	0	
1	0	1	1	0	
0	1	1	1	0	
1	1	1	1	0	


B068		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	SORTIE	
0	0	0	
1	0	0	
0	1	0	
1	1	1	

B070		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	SORTIE	
0	0	0	
1	0	0	
0	1	0	
1	1	1	





B071		Boolean function
Output ON if result is TRUE		
ENTREE 1	ENTREE 2	SORTIE
0	0	0
1	0	1
0	1	0
1	1	0


B073		Boolean function
Output ON if result is TRUE		
ENTREE 1	ENTREE 2	SORTIE
0	0	0
1	0	0
0	1	0
1	1	1

B075		Boolean function
Output ON if result is TRUE		
ENTREE 1	ENTREE 2	SORTIE
0	0	0
1	0	0
0	1	0
1	1	1





M01B001		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	1
1	0	1	1
0	1	1	1
1	1	1	0


M01B013		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	1
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	0

M01B018		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	1
1	0	1	1
0	1	1	1
1	1	1	0





M01B019		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	1
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	0

M01B020		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	1
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	0


M01B026		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	1
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	0





M01B027		Boolean function	
Output ON if result is TRUE			
ENTREE 1	ENTREE 2	ENTREE 3	SORTIE
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	1
1	0	1	1
0	1	1	1
1	1	1	0


M01B029		Boolean function		
Output ON if result is TRUE				
ENTREE 1	ENTREE 2	ENTREE 3	ENTREE 4	SORTIE
0	0	0	0	0
1	0	0	0	0
0	1	0	0	0
1	1	0	0	1
0	0	1	0	0
1	0	1	0	0
0	1	1	0	0
1	1	1	0	0
0	0	0	1	0
1	0	0	1	0
0	1	0	1	1
1	1	0	1	0
0	0	1	1	0
1	0	1	1	0
0	1	1	1	0
1	1	1	1	0




M01B003		LCD display
* * * * * . *		
<input type="checkbox"/> Modification authorized in L3C7		

M01B009		LCD display
T i m e r	:	m i n
l o w	:	b a r
h i g h	:	b a r
C M J	= >	+ -

M01B010		LCD display
* * * * * * *		
<input type="checkbox"/> Modification authorized in L1C10		

M01B022		LCD display
* * * * * . *		
<input type="checkbox"/> Modification authorized in L2C10		

M01B023		LCD display
* * * * * . *		
<input type="checkbox"/> Modification authorized in L3C10		