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| **[ PCM ASSEMBLY & MARKINGUSER & MAINTENANCE MANUAL]** |
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# INTRODUCTION

The aim of this manual is to supply specification about the correct use of electrical drawing, schematic, flowchart and program.

# REFERENCE DATA

Costumer : SCHENEIDER ELECTRIC MANUFACTURING BATAM

Address : BATAMINDO INDUSTRIAL PARK LOT 4 MUKA KUNING

Machine Name : PCM Assembly & Marking

Last Release : 1. Manual : PCM\_Assembly\_Marking\_1.00

2. Document Support : Electric\_SCH

: Input\_Expansion

: Input\_PLC

: Output\_Expansion

: Output\_PLC

: Panel\_Box

: Preventa

# WARNING FOR OPERATION SAFETY

The machine is equipped with automation test system. If there is any automation or spesific hardware make reference to the related chapter of this manual.

Don’t use product or machine programs different from the ones listed on Product Reference.

Don’t use machine if all parts have not been properly installed. See layout and schematic diagram inside this manual.

If you are doubt or disagree with the application, please press “Emergency Button” then report to maintenace.

# WARNING FOR MACHINE SAFETY

Before start the machine, please check all ecectrical supply and air supply is on. Wait until “Yellow Lamp” turn on. It’s indicate that machine ready to operate. If something problem, normally HMI panel will inform you what is the problem. But, if it’s not work, you can do this action.

* Push “Emergency Button” in HMI Panel Box.
* Red Lamp will be blinking and alarm will be on, this indicate your machine is problem.
* Remove product from machine if product still on machine.
* Release “Emergency Button” and press “RESET Button” to reset emergency condition.
* Machine ready to operate again by pressing “START Button”
* If this action still not work, please turn on all electrical & air supply then restart the machine or you can report to project engineer or maintenance.

# WARNING FOR ADAPTER SAFETY

The main power input for the machine is single phase 220VAC. When installing the machine make sure that the terminal input power is installed corectly.

# TEST APPLIACTION – OPERATE & USE

* 1. **START UP**

After the installation for the incoming power ready with AC 220 V.

1. Switch on the main switch.
2. Switch on all MCB inside panel box.
3. Open air supply valve by pressing “AIR ON Button”.
4. Wait untill “YELLOW Lamp” turn on.
5. Machine ready to use.
   1. **OPERATE IN AUTOMATIC MODE**

Normally automatic mode use for running product. To operate the machine with automatic mode follow this instruction.

1. Your machine already “START UP”, please follow intruction in point 1.1
2. Change “AUTO/MAN Button” to automatic position.
3. Press “START Button” to start machine in automatic mode.
4. “Green Lamp” will turn on, this indicate that your machine running in automatic mode.
5. Insert the product to machine.
6. Remove your hand from machine.
7. Product will be assembly or marking automatically.
8. Don’t put your hand inside the machine when machine still process to assembly or marking product.
9. To stop machine press “STOP Button”.
   1. **OPERATE IN MANUAL MODE**

Manual mode use for checking all condition of sensor and actuator works. With manual mode you can easy to find problem of machine if machine not works. Operate actuator one by one and then check sensor condition in HMI display. To operate in manual mode please follow this instruction.

1. Your machine already “START UP”, please follow intruction in point 1.1
2. Change “AUTO/MAN Button” to manual position.
3. Press “Manual Tab” in HMI panel.
4. To operate the cylinder or actuator you can press cylinder button one by one in HMI panel.
5. To monitor sensor and other input, you can press menu “I/O Monitor” in HMI panel.
   1. **TROUBLESHOOTING**

**1.3.1 PLC**

* PLC need supply 220 VAC and common 24V DC (if use PNP wiring), 0V DC (if use NPN wiring)
* Verify if mode operation of PLC is RUN mode.
* If PLC in STOP mode, please change to RUN with Serial cable and PLC software.
* If PLC in ERROR mode, please restartup the machine, refer to point 1.1

**1.3.2 HMI Display**

* HMI display need 24V DC supply, this supply connected to main power supply inside main panel machine. If HMI display not turn on, please check this connection cable.
* To communicate with PLC, HMI use ethernet cable. If HMI display not working or showing connection error in display, please check connection of this cable.

**1.3.3 Sensor**

Please see source document of sensor.

# MACHINE APPLICATION – GENERAL INFORMATION

* 1. **Flowchart machine Process**



# PROJECT DOCUMENT

* 1. **Sparepart**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Main Panel** | | | |
| **Part Name** | **Spec** | **Qty** | **Used** |
| 1 | MCB | 2 pole | 1 unit | Supply PLC |
| 2 | MCB | 2 pole | 1 unit | Supply I/O |
| 3 | Switching PSU | AVL8REM24050 | 1 unit | Supply CPU |
| 4 | PLC | TWDLCAE40DRF | 1 unit | Controller |
| 5 | Input Module | TM2 DDI 32DK | 1 unit | Input Device |
| 6 | Output Module | TM2 DD0 32TK | 1 unit | Output Device |
| 7 | Contactor | XPSAC5121 | 1 unit | Electrical Safety |
| 8 | Relay | RXM4B2BD | 2 unit | Electrical Safety |
| 9 | Loto Switch | 24VDC | 1 unit | Panel Switch |
| 10 | Power Lamp | XB5AVM4 | 1 unit | Power Indicator |
| 11 | ELCB | 24VDC | 1 unit | Electrical Safety |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **HMI Panel** | | | |
| **Part Name** | **Spec** | **Qty** | **Used** |
| 1 | Push Button Start | XB5AA31 | 1 pcs | Start Machine |
| 2 | Push Button Stop | XB5AA42 | 1 pcs | Stop Machine |
| 3 | Push Button Reset | XB5AW36B5 | 1 pcs | Reset Error |
| 4 | Push Button Air On | XB5AW31B5 | 1 pcs | Open Air Valve |
| 5 | Selector Switch Auto/Man | XB5AG41 | 1 pcs | Mode Operation |
| 6 | Emergency Switch | XB5AS8444 | 1 pcs | Emergency |
| 7 | HMI Display | 5 Inch HMI | 1 unit | Display I/O Condition |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Banch** | | | |
| **Part Name** | **Spec** | **Qty** | **Used** |
| 1 | Tower Lamp | XVMB2RAGSHSB | 1 unit | Indicator Machine |
| 2 | Solenoid | 24VDC | 6 unit | Drive Cylinder |
| 3 | Solenoid Air On | 24VDC | 1 unit | Cylinder Sensor |
| 4 | Sensor A\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 5 | Sensor A\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 6 | Sensor B\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 7 | Sensor B\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 8 | Sensor C\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 9 | Sensor C\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 10 | Sensor D\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 11 | Sensor D\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 12 | Sensor E\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 13 | Sensor E\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 14 | Sensor F\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 15 | Sensor F\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 16 | Sensor COLOR\_A | 24VDC | 1 pcs | Orientation Sensor |
| 17 | Sensor COLOR\_B | 24VDC | 1 pcs | Orientation Sensor |
| 18 | Sensor OBJ | 24VDC | 1 pcs | Product Sensor |
| 19 | Sensor HAND\_A | 24VDC | 1 pcs | Hand Sensor |
| 20 | Sensor HAND\_B | 24VDC | 1 pcs | Hand Sensor |
| 21 | Sensor PRESS | 24VDC | 1 pcs | Pressure Sensor |
| 22 | Sensor OBJ\_A | 24VDC | 1 pcs | Product Sensor |
| 23 | Sensor OBJ\_B | 24VDC | 1 pcs | Product Sensor |
| 24 | Sensor DOOR | 24VDC | 1 pcs | Door Sensor |

* 1. **PLC I/O LIST**
     1. **INPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **PLC INPUT** | | |
| **INPUT NAME** | **POSITION** | **LABELING** |
| 1 | INPUT PREVENTA | MAIN PANEL | %I0.0 |
| 2 | PUSH BUTTON START | HMI PANEL | %I0.1 |
| 3 | PUSH BUTTON STOP | HMI PANEL | %I0.2 |
| 4 | PUSH BUTTON RESET | HMI PANEL | %I0.3 |
| 5 | SELECTOR SWITCH AUTO/MAN | HMI PANEL | %I0.4 |
| 6 | SENSOR E\_PLUS | BANCH | %I0.1.8 |
| 7 | SENSOR E\_MIN | BANCH | %I0.1.9 |
| 8 | SENSOR A\_PLUS | BANCH | %I0.1.10 |
| 9 | SENSOR A\_MIN | BANCH | %I0.1.11 |
| 10 | SENSOR B\_PLUS | BANCH | %I0.1.12 |
| 11 | SENSOR B\_MIN | BANCH | %I0.1.13 |
| 12 | SENSOR C\_PLUS | BANCH | %I0.1.14 |
| 13 | SENSOR C\_MIN | BANCH | %I0.1.15 |
| 14 | SENSOR D\_PLUS | BANCH | %I0.1.16 |
| 15 | SENSOR D\_MIN | BANCH | %I0.1.17 |
| 16 | SENSOR E\_PLUS | BANCH | %I0.1.18 |
| 17 | SENSOR E\_MIN | BANCH | %I0.1.19 |
| 18 | SENSOR F\_PLUS | BANCH | %I0.1.20 |
| 19 | SENSOR F\_MIN | BANCH | %I0.1.21 |
| 20 | SENSOR OPT\_A | BANCH | %I0.1.22 |
| 21 | SENSOR OPT\_B | BANCH | %I0.1.23 |
| 22 | SENSOR OBJ | BANCH | %I0.1.24 |
| 23 | SENSOR HAND\_A | BANCH | %I0.1.25 |
| 24 | SENSOR HAND\_B | BANCH | %I0.1.26 |
| 25 | SENSOR PRESSURE | BANCH | %I0.1.27 |
| 26 | SENSOR OBJ\_A | BANCH | %I0.1.28 |
| 27 | SENSOR OBJ\_B | BANCH | %I0.1.29 |
| 28 | SENSOR DOOR | BANCH | %I0.1.30 |

* + 1. **OUTPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **PLC OUTPUT** | | |
| **INPUT NAME** | **POSITION** | **LABELING** |
| 1 | PULSE | BANCH | %Q0.0 |
| 2 | RESET LAMP | HMI PANEL | %Q0.2 |
| 3 | TOWER LAMP RED | BANCH | %Q0.3 |
| 4 | TOWER LAMP YELLOW | BANCH | %Q0.4 |
| 5 | TOWER LAMP GREEN | BANCH | %Q0.5 |
| 6 | BUZZER | BANCH | %Q0.6 |
| 7 | SOLENOID YA1 | BANCH | %Q0.2.0 |
| 8 | SOLENOID YA2 | BANCH | %Q0.2.1 |
| 9 | SOLENOID YB1 | BANCH | %Q0.2.2 |
| 10 | SOLENOID YB2 | BANCH | %Q0.2.3 |
| 11 | SOLENOID YC | BANCH | %Q0.2.4 |
| 12 | SOLENOID YD1 | BANCH | %Q0.2.5 |
| 13 | SOLENOID YD2 | BANCH | %Q0.2.6 |
| 14 | SOLENOID YE | BANCH | %Q0.2.7 |
| 15 | SOLENOID YF | BANCH | %Q0.2.8 |
| 16 | SOLENOID YSAF | BANCH | %Q0.2.9 |
| 17 | OIL TRIGGER | BANCH | %Q0.2.10 |
| 18 | MARKING TRIGGER | BANCH | %Q0.2.11 |