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| **[ DC MOTOR BENCH USER & 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 : DC Motor Bench

Last Release : 1. Manual : DC\_MOTOR\_BENCH\_1.00

2. Document Support : Electric\_SCH

: Input\_PLC

: Output\_PLC

: Panel\_Box

# 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. There are indicator lamp for electrical supply in back panel of machine. Please make sure White Lamp, Yellow Lamp and Red Lamp is ON before you operate the machine. For air supply indicator, you can check pressure gauge. Please make sure pressure measured by pressure gauge is enough to operate machine. Normally machine use 9 bar air pressure.

# 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. 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. Insert the product to machine.
5. Remove your hand from machine.
6. Press two green mushroom button to assemby the product.
7. Product will be assembled automatically.
8. Don’t put your hand inside the machine when machine still process to assembly product.
9. When product already assembled, take out the product from machine
10. If you finish take out the product, machine will be go back to home position.
    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. 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. Then to operate machine you can press “START Button”
4. Machine will be operate one by one step when you press “START Button”
   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 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 | 3 pole | 1 unit | Supply Power |
| 2 | MCB | 2 pole | 2 unit | Supply PLC & Power Supply |
| 3 | Switching PSU | 24 Volt 5A | 1 unit | Supply IO |
| 4 | PLC | TWDLCAE40DRF | 1 unit | Controller |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Button 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 | Selector Switch Auto/Man | XB5AG41 | 1 pcs | Mode Operation |
| 4 | Emergency Switch | XB5AS8444 | 1 pcs | Emergency |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Banch** | | | |
| **Part Name** | **Spec** | **Qty** | **Used** |
| 1 | Solenoid | 24VDC | 2 unit | Drive Cylinder |
| 2 | Cut Off Valve | 24VDC | 1 unit | Turn On Air Supply |
| 3 | Sensor A\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 4 | Sensor A\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 5 | Sensor B\_PLUS | 24VDC | 1 pcs | Cylinder Sensor |
| 6 | Sensor B\_MIN | 24VDC | 1 pcs | Cylinder Sensor |
| 7 | OSSD1 | 24VDC | 1 pcs | Hand Sensor |
| 8 | OSSD2 | 24VDC | 1 pcs | Hand Sensor |
| 9 | Sensor PRESS | 24VDC | 1 pcs | Pressure Sensor |
| 10 | Mushroom Button | 24VDC | 2 pcs | Manua Trigger Machine |

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

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **PLC INPUT** | | |
| **INPUT NAME** | **POSITION** | **LABELING** |
| 1 | PUSH BUTTON START | BUTTON PANEL | %I0.0 |
| 2 | PUSH BUTTON STOP | BUTTON PANEL | %I0.1 |
| 3 | EMERGENCY SWITCH | BUTTON PANEL | %I0.2 |
| 4 | SELECTOR SWITCH AUTO/MAN | BUTTON PANEL | %I0.3 |
| 5 | OSSD1 | BANCH | %I0.4 |
| 6 | OSSD2 | BANCH | %I0.5 |
| 7 | SENSOR A\_MIN | BANCH | %I0.6 |
| 8 | SENSOR A\_PLUS | BANCH | %I0.7 |
| 9 | SENSOR B\_MIN | BANCH | %I0.8 |
| 10 | SENSOR B\_PLUS | BANCH | %I0.9 |
| 11 | SENSOR PRESSURE | BANCH | %I0.10 |
| 12 | SW1 PUSH BUTTON | BANCH | %I0.11 |
| 13 | SW2 PUSH BUTTON | BANCH | %I0.12 |

* + 1. **OUTPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **PLC OUTPUT** | | |
| **INPUT NAME** | **POSITION** | **LABELING** |
| 1 | CUTOFF VALVE | BANCH | %Q0.2 |
| 2 | SOLENOID YA1 | BANCH | %Q0.3 |
| 3 | SOLENOID YA2 | BANCH | %Q0.4 |
| 4 | SOLENOID YB1 | BANCH | %Q0.5 |
| 5 | SOLENOID YB2 | BANCH | %Q0.6 |
| 6 | LAMP PLC RUN | MAIN PANEL | %Q0.7 |