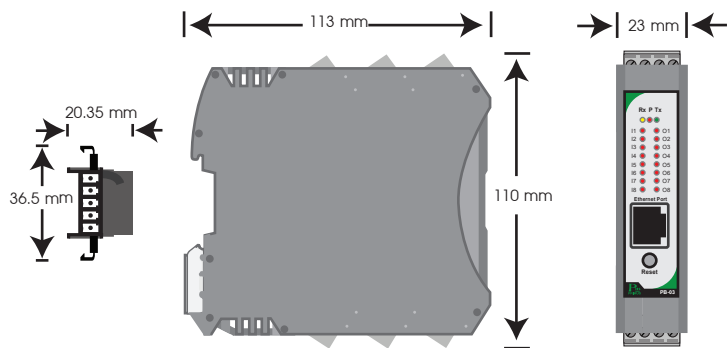




TECHNICAL SPECIFICATION

|                   |                 |                                   |
|-------------------|-----------------|-----------------------------------|
| Power Supply      |                 | 9-30 VAC/VDC                      |
| Power Consumption |                 | 2 VA                              |
| Display           |                 | LED                               |
| Output            | Digital Outputs |                                   |
|                   | Output Points   | 16                                |
|                   | Maximum Voltage | 36 VDC                            |
|                   | Maximum Current | 100 mA per output                 |
|                   | Isolation       | 1500 Vrms between field and logic |
| Communication     | Protocol        | Modbus TCP/IP                     |
|                   | Ethernet        | 10/100Mbps/s                      |
| Ambient Operation | Temperature     | -10 °C to 60 °C                   |
|                   | Humidity        | <85% RH Non-Condensing            |
| Ambient Storage   | Temperature     | -20 °C to 80 °C                   |
|                   | Humidity        | <85% RH Non-Condensing            |
| Protection Degree |                 | IP20                              |
| Installation      |                 | DIN RAIL                          |
| Material          |                 | ABS-V0                            |
| Size              |                 | 23 x 113 x 110 mm.                |
| Weight            |                 | 180 g.                            |

DIMENSION



DESCRIPTION

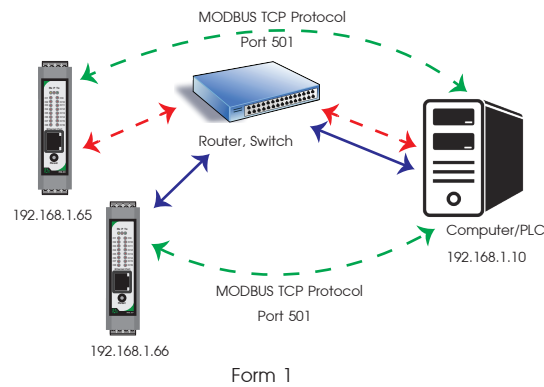
- is I/O Module device 16 Digital Output.
- Control by MODBUS TCP Protocol (RTU Mode).
- Can set operation via Web Browser.
- Output NPN Open Collector, Isolated.

OPERATION

is I/O Module device 16 Digital Output suit for application that needs to add I/O more. It is able to use with PLC or PC. Communication via MODBUS TCP (RTU Mode) on Ethernet or Lan network and Input/Output designed Isolated by Bi-directional Opto-Couplers. Input have Counters inside.

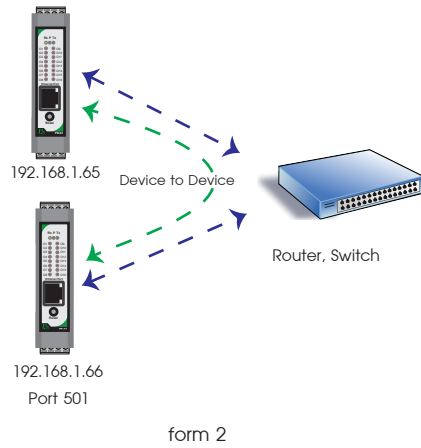
Communication form

MODBUS TCP Protocol Communication



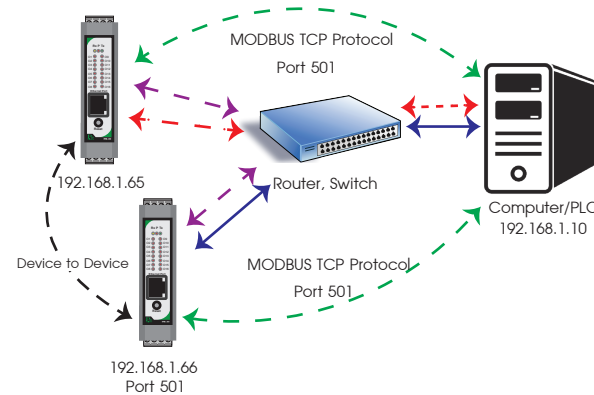
is MODBUS TCP Protocol Communication between Computer with device. MODBUS TCP I/O Module Computer can write or read data of MODBUS TCP I/O Module by using communication Port is 501.

Device to Device Communication without Toggle Mode type



is Device to Device communicate in Toggle Mode type between MODBUS TCP I/O Module device with MODBUS TCP I/O device Module such as user needs Input IP 192.168.1.65 transmit command to control Output IP 192.168.1.66 operation if computer require to control Output operation. IP 192.168.1.66 will can not control because Device to Device communication without Toggle Mode. Device IP 192.168.1.65 will transmits data to IP 192.168.1.66 all the time. Device can control Output at IP 192.168.1.66.

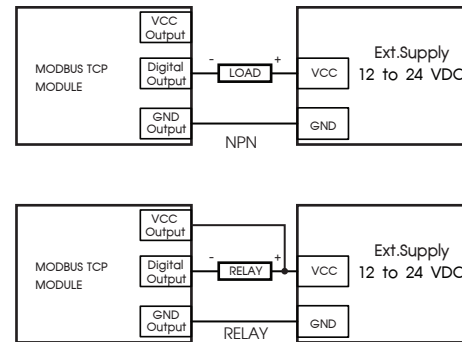
Device to Device communication in Toggle Mode type



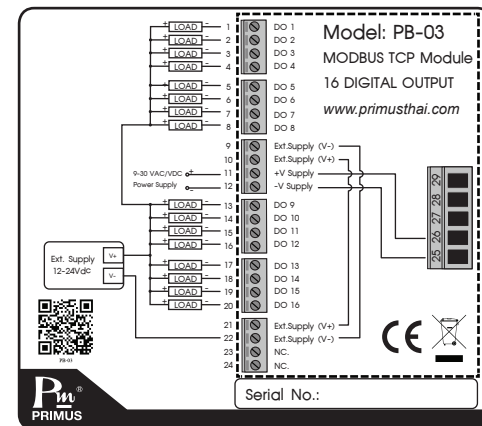
Form 3

is Device to Device communication in Toggle Mode type between MODBUS TCP I/O Module device with MODBUS TCP I/O device Module and Computer such as Request Input IP 192.168.1.65 transmits command to control Output IP 192.168.1.66 operation in this mode.Computer can control operation of Output IP 192.168.1.66. Because Input IP 192.168.1.65 will send control order to Output IP 192.168.1.66 when Input value has changed only.

Output wiring diagram



WIRING DIAGRAM



Data Registers

| Modbus Address | Register Name       | Low Limit | High Limit | Access | Format | Comment                        |
|----------------|---------------------|-----------|------------|--------|--------|--------------------------------|
| 0              | Digital Output 1    | 0         | 1          | R/W    | Int    | Status of Digital Outputs      |
| 1              | Digital Output 2    | 0         | 1          | R/W    | Int    | "                              |
| 2              | Digital Output 3    | 0         | 1          | R/W    | Int    | "                              |
| 3              | Digital Output 4    | 0         | 1          | R/W    | Int    | "                              |
| 4              | Digital Output 5    | 0         | 1          | R/W    | Int    | "                              |
| 5              | Digital Output 6    | 0         | 1          | R/W    | Int    | "                              |
| 6              | Digital Output 7    | 0         | 1          | R/W    | Int    | "                              |
| 7              | Digital Output 8    | 0         | 1          | R/W    | Int    | "                              |
| 8              | Digital Output 9    | 0         | 1          | R/W    | Int    | "                              |
| 9              | Digital Output 10   | 0         | 1          | R/W    | Int    | "                              |
| 10             | Digital Output 11   | 0         | 1          | R/W    | Int    | "                              |
| 11             | Digital Output 12   | 0         | 1          | R/W    | Int    | "                              |
| 12             | Digital Output 13   | 0         | 1          | R/W    | Int    | "                              |
| 13             | Digital Output 14   | 0         | 1          | R/W    | Int    | "                              |
| 14             | Digital Output 15   | 0         | 1          | R/W    | Int    | "                              |
| 15             | Digital Output 16   | 0         | 1          | R/W    | Int    | "                              |
| 16             | Digital Outputs LSB | 0         | 255        | R/W    | Int    | Digital Output in 8 bits. 1-8  |
| 17             | Digital Outputs MSB | 0         | 255        | R/W    | Int    | Digital Output in 8 bits. 9-16 |

ORDERING CODE

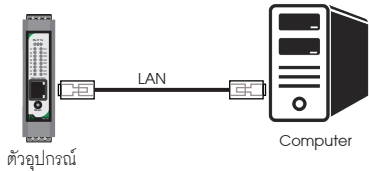
PB -

03

SETTING

1. Connect device to Computer

1.1 Connect LAN to device and Computer



1.2 Device from factory. IP Address is 192.168.1.10

User Name : admin

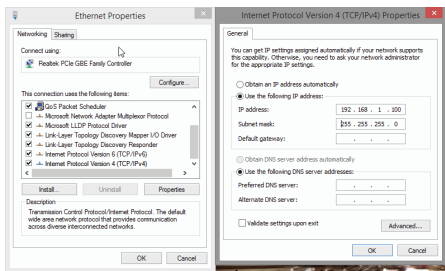
Password : 1234

1.3 In case user does not know password IP Address,

User Name or Password then press Reset hold for 4 seconds until all LED will turn red light.

2. Set Computer IP Address to 192.168.1.100

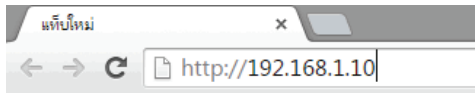
follow the example below.



\* Do not set IP Address to 192.168.1.10 or same as other device because it will make IP Address error \*

3. Open Web Browser and fill Address http://192.168.1.10

Homepage will appear.



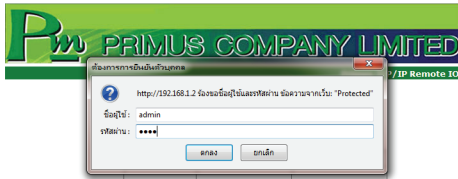
Overview  
Configuration

16DO-DIGITAL OUTPUT MODULE

Module Name : PM\_16DO

| Number    | Name      | Status | Enable |
|-----------|-----------|--------|--------|
| Output 1  | Output_1  | OFF    | ●      |
| Output 2  | Output_2  | OFF    | ●      |
| Output 3  | Output_3  | OFF    | ●      |
| Output 4  | Output_4  | OFF    | ●      |
| Output 5  | Output_5  | OFF    | ●      |
| Output 6  | Output_6  | OFF    | ●      |
| Output 7  | Output_7  | OFF    | ●      |
| Output 8  | Output_8  | OFF    | ●      |
| Output 9  | Output_9  | OFF    | ●      |
| Output 10 | Output_10 | OFF    | ●      |
| Output 11 | Output_11 | OFF    | ●      |
| Output 12 | Output_12 | OFF    | ●      |
| Output 13 | Output_13 | OFF    | ●      |
| Output 14 | Output_14 | OFF    | ●      |
| Output 15 | Output_15 | OFF    | ●      |
| Output 16 | Output_16 | OFF    | ●      |

4. Click Configuration Device will ask User Name & Password for enter to setting.



For default value from User Name is "admin" Password is "1234" which can change in later.

5. Configuration page and setting data.

| Overview      | Network Configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Configuration | MAC Address : 00:1E:C0:CA:F4:51<br>Host Name : PMBOARD<br><input type="checkbox"/> Enable DHCP<br><input type="checkbox"/> Enable DHCP SERVER<br>IP Address : 192.168.1.13<br>Gateway : 192.168.1.1<br>Subnet Mask : 255.255.255.0<br>Primary DNS : 192.168.1.1<br>http port : 80<br>Modbus port : 501<br>Output 1 port : 510<br>Output 2 port : 511<br>Output 3 port : 512<br>Output 4 port : 513<br>Output 5 port : 514<br>Output 6 port : 515<br>Output 7 port : 516<br>Output 8 port : 517<br>Output 9 port : 518<br>Output 10 port : 519<br>Output 11 port : 520<br>Output 12 port : 521<br>Output 13 port : 522<br>Output 14 port : 523<br>Output 15 port : 524<br>Output 16 port : 525 |

| Name               | Description                                                                                                                                                   | Default       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| MAC Address        | MAC Address value is specific value for each device. It has form HH:HH:HH:HH:HH:HH can not change value.                                                      | -             |
| Host Name          | Host name of device that you can access to device by Host name beside enter by IP Address directly such as Http://pmboard limited 15 letters and no gap.      | PMBOARD       |
| Enable DHCP        | DHCP is choice for case that need to receive value from other device automatic. If turn on module will be set value such as IP Address from Router or Switch. | Disable       |
| Enable DHCP Server | Enable DHCP Server is device for setting value such as IP Address to other device etc.                                                                        | Enable        |
| IP Address         | Device IP Address                                                                                                                                             | 192.168.1.10  |
| Geteway            | IP Address of Gateway device by normally it is usually Router or Switch.                                                                                      | 192.168.1.1   |
| Subnet Mask        | Subnet Mask                                                                                                                                                   | 255.255.255.0 |
| Primary DNS        | Primary DNS (Normally, it will point to Geteway)                                                                                                              | 192.168.1.1   |
| http port          | Can set 80 or 8,000-8,200                                                                                                                                     | 80            |
| Modbus Port        | Port Number of this device for Modbus Protocol                                                                                                                | 501           |
| Output 1 Port      | Port number for Client that needs to connect to Output 1.                                                                                                     | 510           |

System Configuration

USER : admin  
Password : .....

Module Name : PM\_16DO

|                          |                            |
|--------------------------|----------------------------|
| Output 1 Name : Output_1 | Output 9 Name : Output_9   |
| Output 2 Name : Output_2 | Output 10 Name : Output_10 |
| Output 3 Name : Output_3 | Output 11 Name : Output_11 |
| Output 4 Name : Output_4 | Output 12 Name : Output_12 |
| Output 5 Name : Output_5 | Output 13 Name : Output_13 |
| Output 6 Name : Output_6 | Output 14 Name : Output_14 |
| Output 7 Name : Output_7 | Output 15 Name : Output_15 |
| Output 8 Name : Output_8 | Output 16 Name : Output_16 |

Save Config

| Name           | Description                                           | Default |
|----------------|-------------------------------------------------------|---------|
| Output 2 Port  | Port Number for Client that needs to connect Output 2 | 511     |
| Output 3 Port  | Port Number for Client that needs to connect Output 3 | 512     |
| Output 4 Port  | Port Number for Client needs to connect to Output 4   | 513     |
| Output 5 Port  | Port Number for Client needs to connect to Output 5   | 514     |
| Output 6 Port  | Port Number for Client needs to connect to Output 6   | 515     |
| Output 7 Port  | Port Number for Client needs to connect to Output 7   | 516     |
| Output 8 Port  | Port Number for Client needs to connect to Output 8   | 517     |
| Output 9 Port  | Port Number for Client needs to connect to Output 9   | 518     |
| Output 10 Port | Port Number for Client needs to connect to Output 10  | 519     |
| Output 11 Port | Port Number for Client needs to connect to Output 11  | 520     |
| Output 12 Port | Port Number for Client needs to connect to Output 12  | 521     |
| Output 13 Port | Port Number for Client needs to connect to Output 13  | 522     |
| Output 14 Port | Port Number for Client needs to connect to Output 14  | 523     |
| Output 15 Port | Port Number for Client needs to connect to Output 15  | 524     |
| Output 16 Port | Port Number for Client needs to connect to Output 16  | 525     |

| Name          | Description                                                      | Default  |
|---------------|------------------------------------------------------------------|----------|
| USER          | User Name for log in into Configuration page Maximum 10 letters. | admin    |
| Password      | Password for log in into Configuration page Maximum 10 letters.  | 1234     |
| Counter Mode  | Mode for counting Input.                                         | 0        |
| Input Filter  | Choosing Input signal filter.                                    | 0        |
| Module Name   | Module Name for device Maximum 10 letters.                       | PM_16DO  |
| Output 1 Name | Name Output 1 Maximum 10 letters.                                | Output_1 |
| Output 2 Name | Name Output 2 Maximum 10 letters.                                | Output_2 |
| Output 3 Name | Name Output 3 Maximum 10 letters.                                | Output_3 |
| Output 4 Name | Name Output 4 Maximum 10 letters.                                | Output_4 |
| Output 5 Name | Name Output 5 Maximum 10 letters.                                | Output_5 |

| Name           | Description                       | Default   |
|----------------|-----------------------------------|-----------|
| Output 6 Name  | Name Output 6 Maximum 10 letters  | Output_6  |
| Output 7 Name  | Name Output 7 Maximum 10 letters  | Output_7  |
| Output 8 Name  | Name Output 8 Maximum 10 letters  | Output_8  |
| Output 9 Name  | Name Output 9 Maximum 10 letters  | Output_9  |
| Output 10 Name | Name Output 10 Maximum 10 letters | Output_10 |
| Output 11 Name | Name Output 11 Maximum 10 letters | Output_11 |
| Output 12 Name | Name Output 12 Maximum 10 letters | Output_12 |
| Output 13 Name | Name Output 13 Maximum 10 letters | Output_13 |
| Output 14 Name | Name Output 14 Maximum 10 letters | Output_14 |
| Output 15 Name | Name Output 15 Maximum 10 letters | Output_15 |
| Output 16 Name | Name Output 16 Maximum 10 letters | Output_16 |

After press Save Config at module will reset at device body.

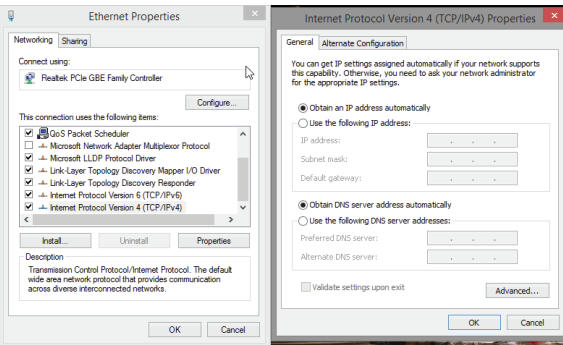
Reboot In Progress...

You settings were successfully saved, and the board is now rebooting to configure itself with the new settings.  
Your board is now located at : <http://PMBOARD/>

Reconnection Instruction

- Did you change the hostname, IP or MAC address?  
It is necessary to clear the address caches in you web browser and OS. From the command prompt in Windows, enter "nbtstat -R" to clear the hostname cache, close you current web browser, open a new web browser, and then try to access the web address above.
- Did you try the IP address?  
Try accessing the board directly at the IP address shown on the LCD screen, (ex : enter "http://192.168.5.23/" into you browser). If this fails, then the IP address you set is not reachable. Try the step below.

if Computer connect with Network system will must change IP Address that receive from Local Network.



Example

Device IP Address is 192.168.1.50 then needs to check inside Network system has Device IP Address or not.

- Open the windows start menu.
- Click Run.
- Fill " ping 192.168.1.50 " in the gap.

If device can connect with Network. Program will reply " Reply from 192.168.1.50 " and reply data.

\* If there are any problem. Program will reply " Request time out " check Power Supply, device Configuration setting.



PB-03

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