

EMD8216
Ethernet Digital I/O module
User's Manual (V1.2)

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Correction record

Version	Record
1.0	firmware version 1.0 up
1.1	Add System Reset
1.2	1. Modify 3.4.5 dimension
	2. Add 4.2 dimension Image

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Notes on hardware installation

Please register as user's club member to download the
“EMD series Ethernet IO modules installation guide” document from <http://automation.com.tw>

1. **Forward**

Thank you for your selection of Ethernet module 8216 digital input output interface.

Thanks to the booming of network, Ethernet become a reliable and low cost solution for data communication. To utilize the Ethernet as data communication highway of industrial control devices is more attractive than ever. We also provide the dll's of Window's or Linux system, enabling you coding the flexible application as you need. Stable, high reliability and remote addressable module give you a new approach of application.

In the same series:

EMD8204 4 Isolated input and 4 relay output Ethernet DIO module

EMD8208 8 Isolated input and 8 relay output Ethernet DIO module

Any comment is welcome,
please visit our website

<http://www.automation.com.tw/>

<http://www.automation-js.com/> for the up to date information.

2. Features

- Over-voltage protection on digital input
- Various IO combinations : 16 bit configurable I/O's, any bit can be input or output
- High drive capacity on digital output
- Digital I/P as counter input
- WDT for communication discontinuity detect
- Wide power range
- Standalone mode : step sequence control
- IP re-assignment
- 10/100M auto detection
- Software key function
- Peer to peer response time <2ms

3. Specifications

3.1 Digital input

- 3.1.1 Input points: max 16 (Configurable)
- 3.1.2 Logic high level: 3.15V(min)
- 3.1.3 Logic low level: 1.35V(max)
- 3.1.4 Over-voltage protection: 60Vdc(max)
- 3.1.5 Over-current protection: 50mA(max)

3.2 Digital output

- 3.2.1 Transistor output: max 16 (Configurable)
- 3.2.2 Transistor capacity: 50mA, 45Vdc(max)

3.3 Ethernet

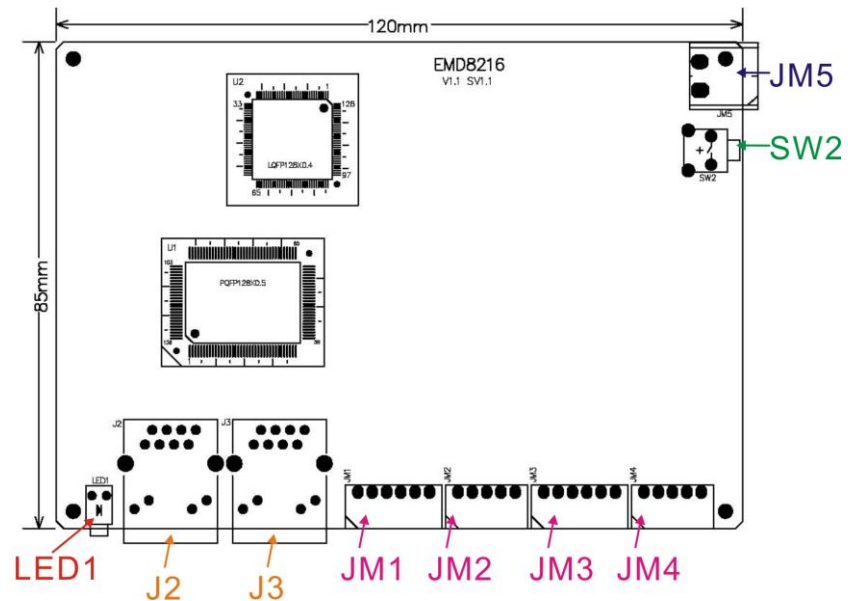
- 3.3.1 10/100M auto switch x 2 port
- 3.3.2 Peer to peer response time <2ms
- 3.3.3 WDT : 1~65535ms for communication discontinuity detect

3.4 General

- 3.4.1 Power requirement: 12Vdc ~24Vdc
- 3.4.2 Operation Temperature: 0 ~ +70 degree C
- 3.4.3 Storage Temperature: -20 ~ +80 degree C
- 3.4.4 Operation Humidity: 5~95% RH, non-condensing
- 3.4.5 Dimension: 115.4(D)*136(W)*34(H) mm
4.6(D)*5.4(W)*1.4(H) in

4. Layout and dimensions

4.1 EMD8216 Layout



LED1: system active LED

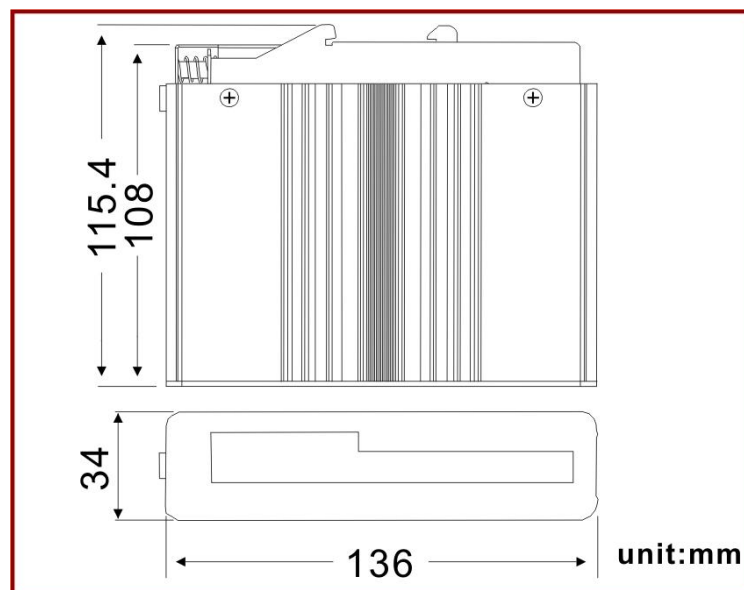
J2,J3: Ethernet RJ45 socket

JM1, JM2, JM3, JM4: I/O connector

JM5: external power 24V connector

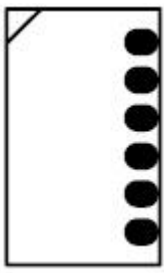
SW2: system reset switch

4.2 EMD8216 Dimension

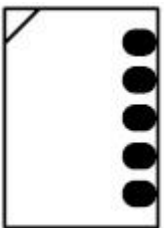


5. Pin definitions

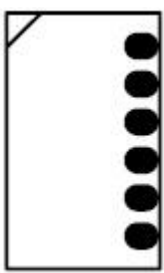
5.1 JM1 pin definitions

+Ve0*	1	
IO_00	2	
IO_01	3	
IO_02	4	
IO_03	5	
GND	6	

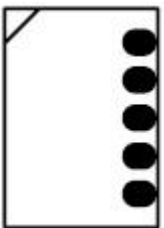
5.2 JM2 pin definitions

IO_04	1	
IO_05	2	
IO_06	3	
IO_07	4	
GND	5	

5.3 JM3 pin definitions

+Ve1*	1	
IO_10	2	
IO_11	3	
IO_12	4	
IO_13	5	
GND	6	

5.4 JM4 pin definitions

IO_14	1	
IO_15	2	
IO_16	3	
IO_17	4	
GND	5	

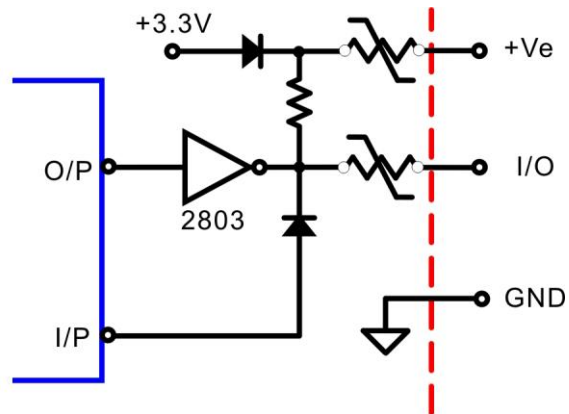
* +Ve0 and +Ve1 can floating or voltage input (voltage range +3.3V ~ +24V)

* +Ve0 is used for IO_00~IO_07, +Ve1 is used for IO_10~IO_17.

* +Ve0 and +Ve1 can apply different voltage as you need.

6. I/O Interface diagram

6.1 I/O diagram



Note: If +Ve0 is externally applied +24V then the IO_00 ~ IO07 will be also applied.
Same to +Ve1 for IO_10~IO_17

7. System Reset

The system reset switch SW2 has provide normal system reset and reset to default functions.

7.1 Normal system reset

Push the SW2 for more than 5 seconds, the power LED will flick at 3 HZ to signal the system has already reset. Once you release the switch, the LED will return to normal flick rate.

7.2 Reset to default

Push the switch while power on (We suggest to push the switch first then power on and wait for 3 seconds) for 3 seconds, the LED will:

1. stop flick
2. flicking at 3 Hz--- system now setting default data
3. flicking at normal speed --- system now already reset, you can release the switch.

item	default value
IP	192.168.0.100
password	12345678
socket port	6936
IO_config	ALL input (0xFF)
polarity	ALL inactive (0x0)
WDT timer	1second (0xA)
WDT output state	ALL inactive (0x0)
Standalone function	ALL clean (0x0)
Power on standalone	Disable (0x0)

8. Applications

- For remote contact sensing
 - window or door open/close signal sensing
 - alarm signal sensing
 - fire detector signal sensing
- For remote contact make or break control
 - window or door open close control
 - light control
 - power on/off control
- Standalone step sequence controller
- Multi-channel low speed counter (100Hz)

9. **Ordering information**

PRODUCT	DESCRIPTIONS
EMD8216	Ethernet module, 16 I/O
JD52000	110/220Vac to 24Vdc @ 1.5A power supply
JS52026	110/220Vac to 24Vdc @ 0.75A power adapter