EMA8308/ EMA8308D
Ethernet Analog 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

Contents

Notes on hardware installation

Please register as user's club member to download the "Step_by_step_installation_of_Ethernet_module" document from http://automation.com.tw

1. Forward

Thank you for your selection of Ethernet module EMA8308 analog 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. EMA8308 module is a simple web based analog I/O control module. Standard type EMA8308 and EMA8308D is 16 bit version. While EMA8308D are 8 channels differential input, EMA8308 and are single or differential type. You can choose the suitable type for their application to achieve maximum resolution/cost. We have provided 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:

EMA8308 24bit uni-polar 8 differential /16 single end analog input, 2 16bit analog output

EMA8308D 24bit bi-polar 8 differential analog input, 2 16bit analog output

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

Analog input section

- Over-voltage protection on analog input
- High common mode voltage up to 10V (EMA8308D)
- 24 bit accuracy
- 10 samples per second
- Differential or single end analog input (EMA8308)
- Multiple analog input range: 0~5V, 0~10V, 4~20mA, 0~20mA (EMA8308)
  -5~+5V, -10~+10V, 4~20mA, 0~20mA (EMA8308D)

Analog output section

- Over-load protection on analog output
- -10V ~ +10V output

Ethernet section

- Direct web page control
- IP re-assignment
- 10/100M auto detection
- Software key function
- Peer to peer response time <2ms

3. Specifications

3.1 Analog input

3.1.1 Input points:
EMA8308:16 channels unipolar single end or differential
EMA8308D : 8 channels differential

3.1.2 Resolution: 24-bit

3.1.3 Offset error: 2.5uV(typ), 5uV(max)

3.1.4 Offset error drift: 20nV/^{o}C

3.1.5 Input common mode rejection: 120dB

3.1.6 Sample rate: 10 samples/second

3.1.7 Input type: differential or single end (port programmable)

3.1.8 Input range:
EMA8308:0~5V(23bit), 0~10V(24bit), 0~20mA(23bit), 4~20mA(22bit)
EMA8308D:-5V~ +5V(23bit), -10V~ +10V(24bit), 0~20mA(23bit), 4~20mA(22bit)

3.1.9 Input filter: 7.03K, 3.52K, 1.76K, 879Hz

3.1.10 Over-voltage protection: 20Vdc(max)

3.2 Analog output

3.2.1 Output points: 2 channels

3.2.2 Resolution: 16-bit

3.2.3 Output range: -10V~ +10Vdc

3.2.4 Over load protection: 50mA(peak)

3.3 Ethernet

3.3.1 10/100M auto switch x 2 port

3.3.2 Peer to peer response time <2ms

3.4 General

3.4.1 Power requirement: 12Vdc ~24Vdc

3.4.2 Operation Temperature: 0~ +70 degree C

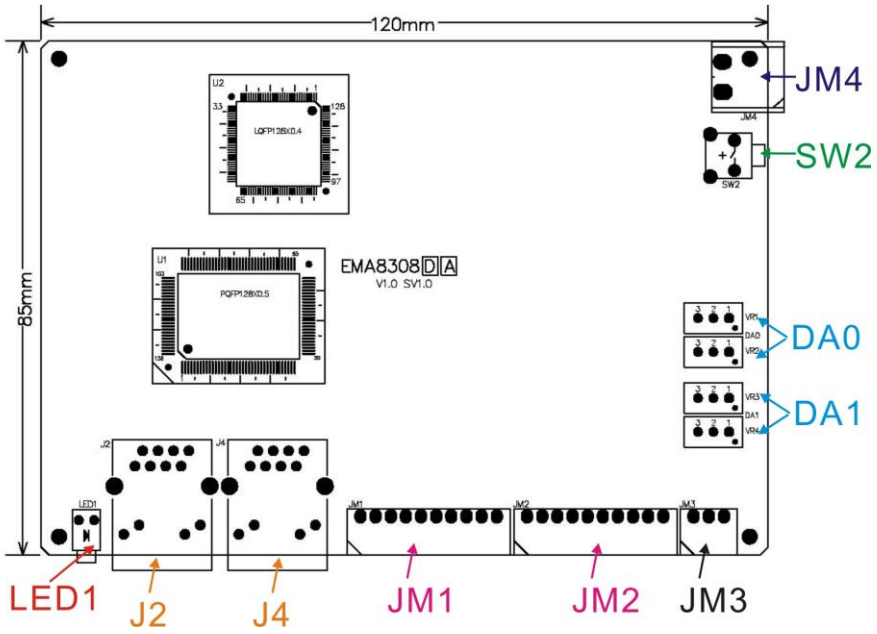
3.4.3 Storage Temperature: -20 ~ +80 degree C

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 EMA8308 Layout



LED1: system active LED

J2,J4: Ethernet RJ45 socket

JM1, JM2: analog input connector

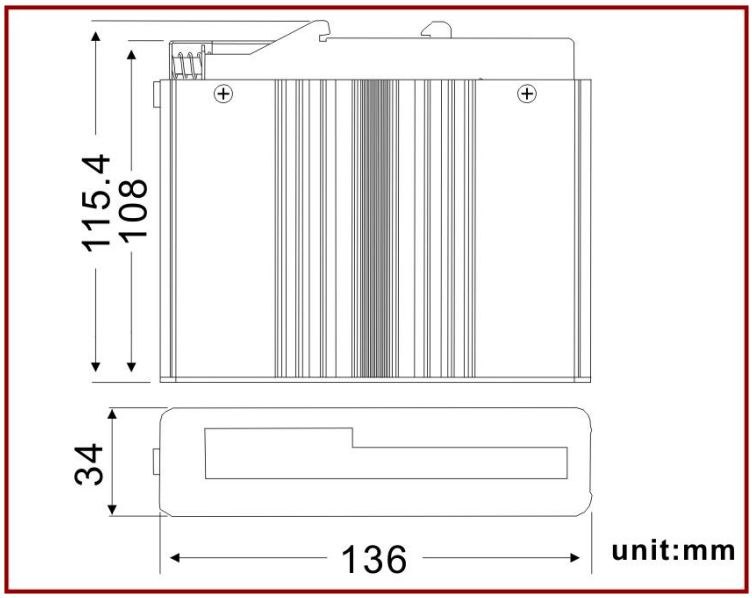
JM3: analog output connector

JM4: external power 24V connector

SW2: system reset switch

DA0,DA1: factory preset voltage trimmer

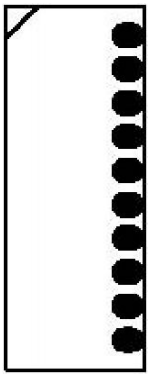
4.2 EMA8308 Dimension



5. Pin definitions

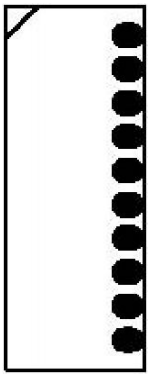
5.1 JM1 pin definitions

AI00	1
AI01	2
AI02	3
AI03	4
GND	5
AI04	6
AI05	7
AI06	8
AI07	9
GND	10



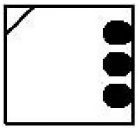
5.2 JM2 pin definitions

AI10	1
AI11	2
AI12	3
AI13	4
GND	5
AI14	6
AI15	7
AI16	8
AI17	9
GND	10



5.3 JM3 pin definitions

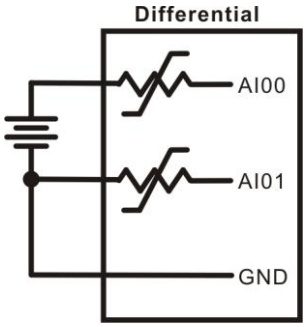
DA0	1
DA1	2
GND	3

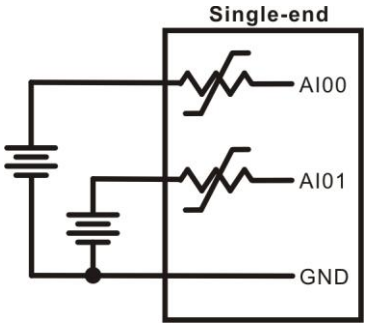


6. I/O Interface diagram

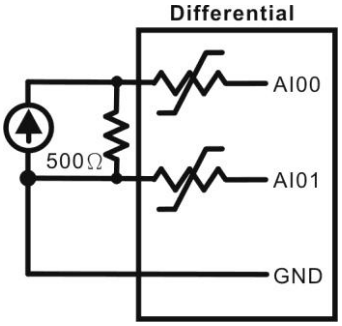
6.1 Analog input diagram

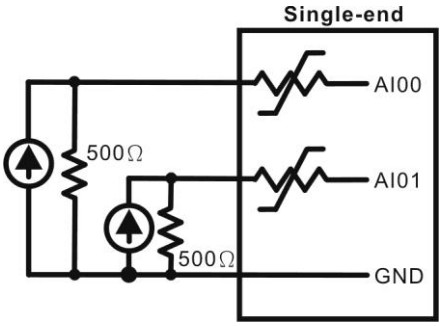
Voltage data acquisition



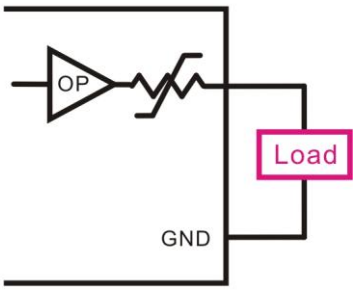


Current data acquisition





6.2 Analog output diagram



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

8. Applications

- For remote analog voltage sensing
  -- sensor signal sensing
  -- analog voltage monitoring

- For remote voltage output
  -- remote voltage control

9. Ordering information

PRODUCT	DESCRIPTIONS
EMA8308	Ethernet module, 24bit uni-polar 8 differential/16 single end analog input, 2 16bit analog output
EMA8308D	Ethernet module, 24bit bi-polar 8 differential analog input, 2 16bit analog output
JD52000	110/220Vac to 24Vdc @1.5A power supply
JS52026	110/220Vac to 24Vdc @0.75A power adapter