

# DN-8P8C

## User Manual

Date: Oct. 2013

### Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

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### Technical Support

If you have any problems, please feel free to contact us via email at [service@icpdas.com](mailto:service@icpdas.com).

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# 1 Introduction



The DN-8P8C External Board can be used to develop powerful and cost-effective analog control systems, and provides 8 Digital Output channels and 8 Counter Input channels for I-8088W, I-87088W, CAN-2088, or I-7088 Modules, allowing the load voltage to be increased from +3.5 to +50 V for the 8-channels PWM (Pulse Width Modulation) output and the 8-channels high-speed counter.

## 1.1 Features

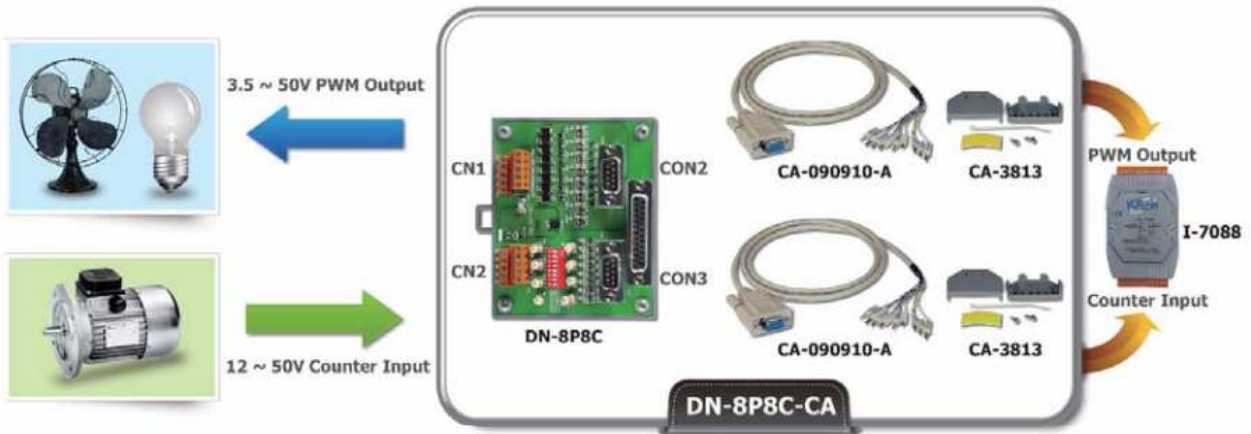
- 8-channel Digital Output and 8-channel Digital Input
- Sink-type Digital Inputs
- Supports Load Voltages ranging from +3.5 to +50 V PWM Output
- 4 kV ESD Protection
- Supports operating temperatures from -25 to +75°C
- DIN-Rail mountable for industrial usage

## 1.2 Specifications

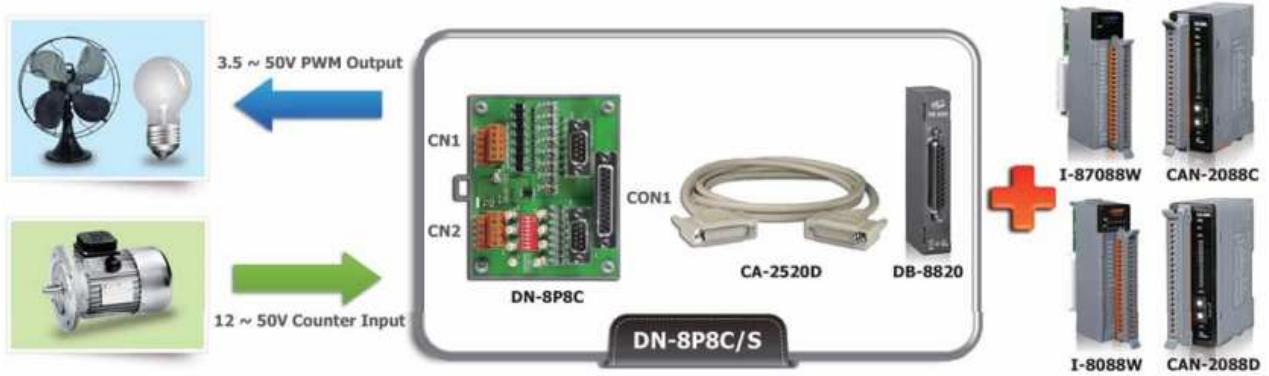
Digital Output		
Channels	8	
Type	Open Collector	
Sink/Source (NPN/PNP)	Sink	
Load Voltage	+3.5 to +50 V <sub>DC</sub>	
Max. Load Current	200 mA/Channel	
Frequency Range	1 Hz ~ 500 kHz	
Digital Input	SW1 OFF	SW1 ON
Channels	8	
Contact	Wet	
Sink/Source (NPN/PNP)	Sink	
Input Impedance	3 K $\Omega$ , 1 W	-
ON Voltage Level	+12 to +50 V <sub>DC</sub>	+3.5 to +5 V <sub>DC</sub>
OFF Voltage Level	+4 V <sub>DC</sub> Max	+1 V <sub>DC</sub> Max
Oversvoltage Protection	54 V <sub>DC</sub>	5 V <sub>DC</sub>
Max. Speed	500 kHz	
EMS Protection		
ESD (IEC 61000-4-2)	+/- 4 kV Contact for each Terminal	
Mechanical		
Dimensions (W x L x H)	96 mm x 103 mm x 30 mm	
Installation	DIN-Rail or Wall Mounting	
Environment		
Operating Temperature	-25 to +75 $^{\circ}$ C	
Humidity	10 ~ 95% RH, Non-condensing	

# 1.3 Specifications

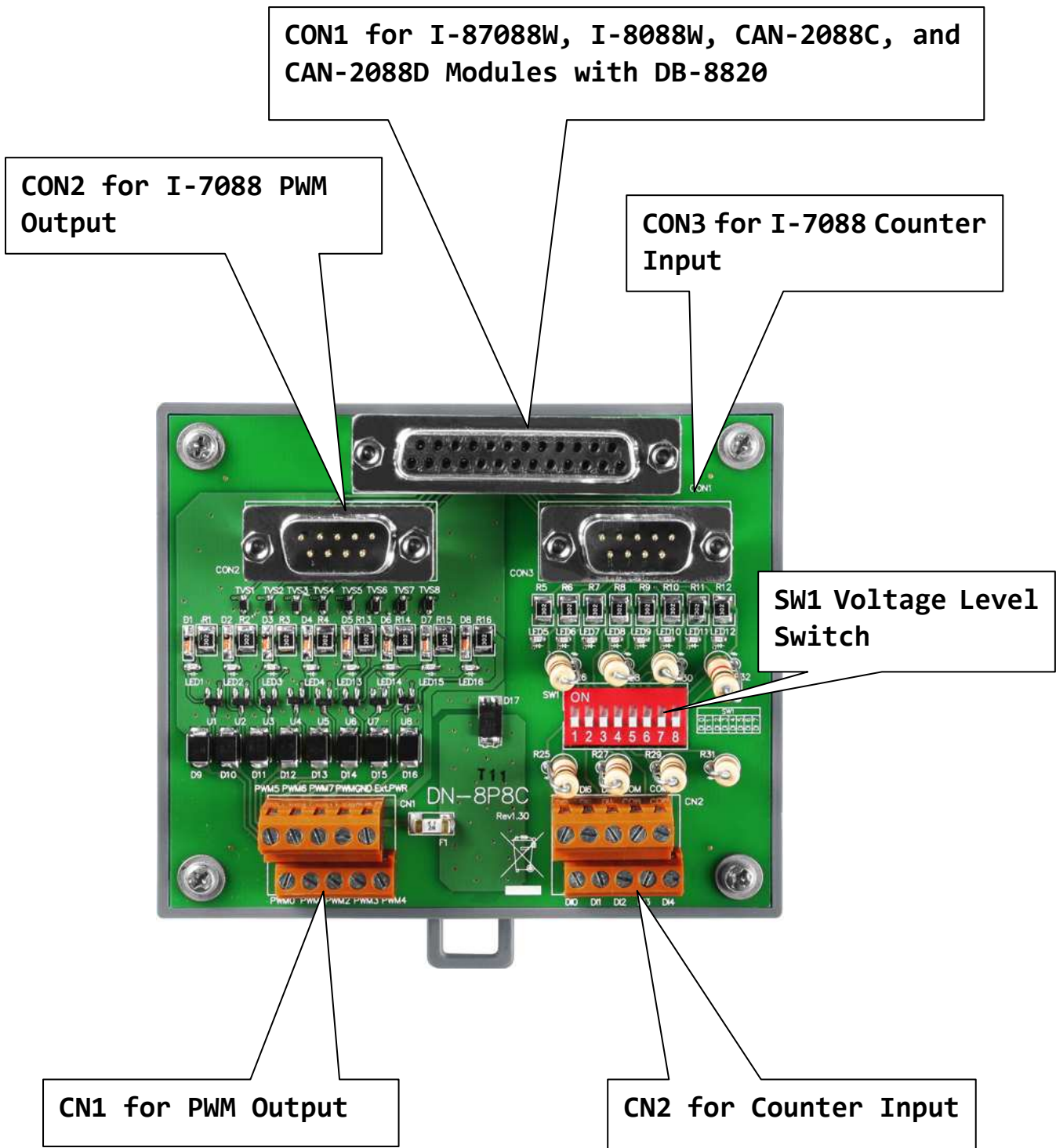
## 1.3.1 DN-8P8C-CA



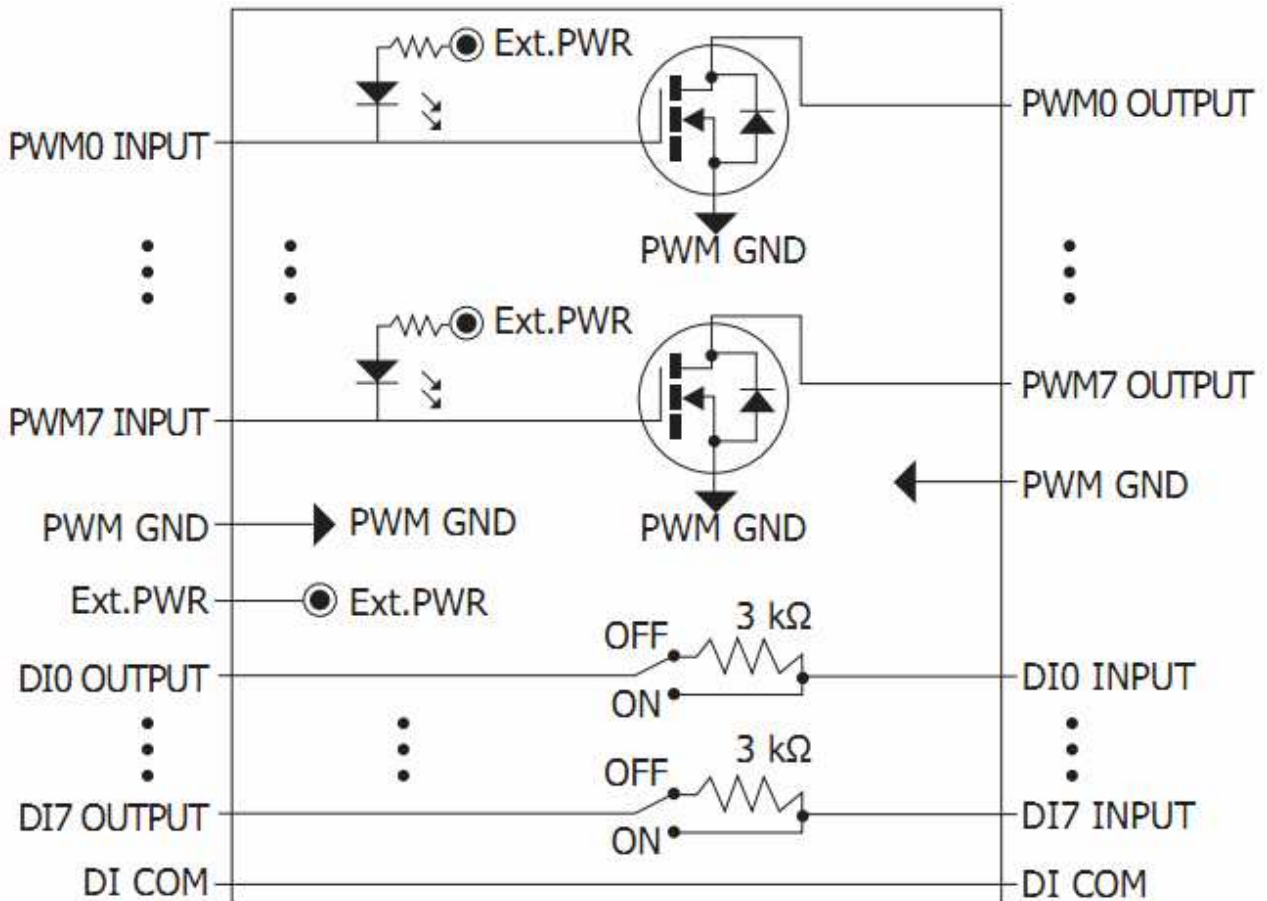
## 1.3.2 DN-8P8C/S



# 1.4 Hardware Description

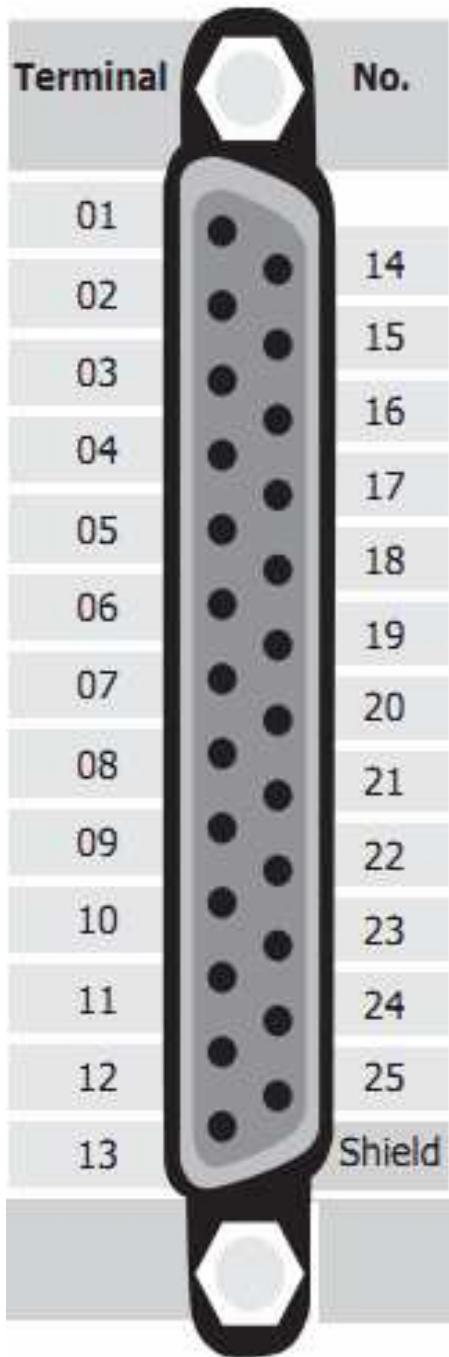


## 1.5 Internal I/O Structure



# 1.6 Pin Assignments

## 1.6.1 CON1 Assignments



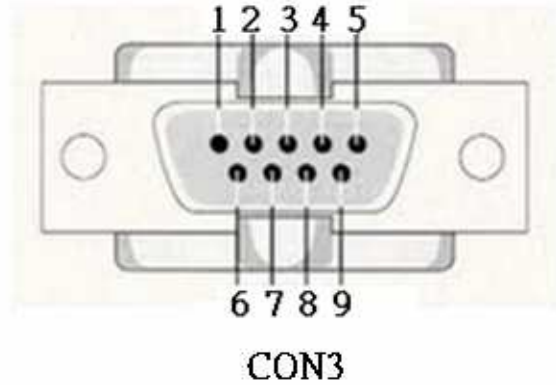
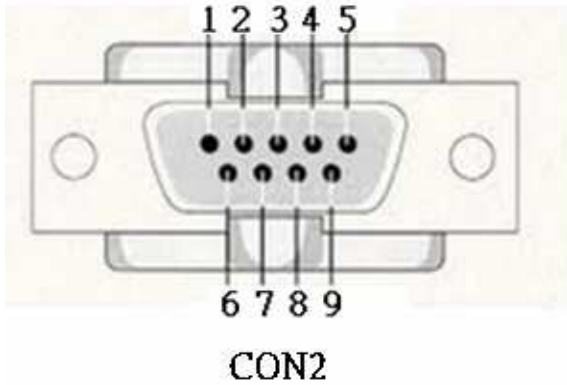
CON1 Assignments

CON1 Assignment	
01	N/A
02	i_PWM1
03	i_PWM3
04	i_PWM5
05	i_PWM7
06	PWM GND
07	i_DI0
08	i_DI2
09	i_DI4
10	i_DI6
11	N/A
12	DI.COM
13	N/A
14	i_PWM0
15	i_PWM2
16	i_PWM4
17	i_PWM6
18	PWM GND
19	N/A
20	i_DI1
21	i_DI3
22	i_DI5
23	i_DI7
25	DI.COM
25	N/A



## 1.6.2 CON2 and CON3 Assignments

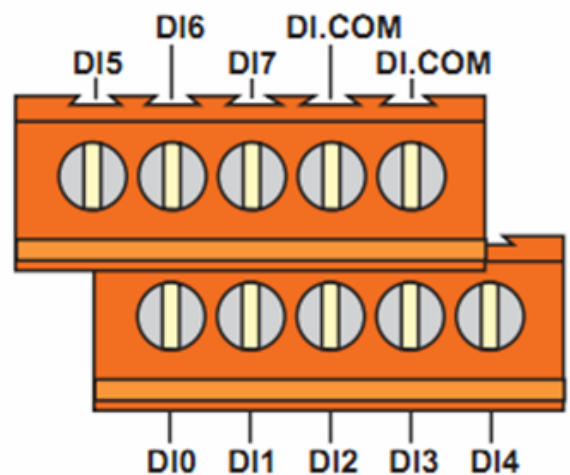
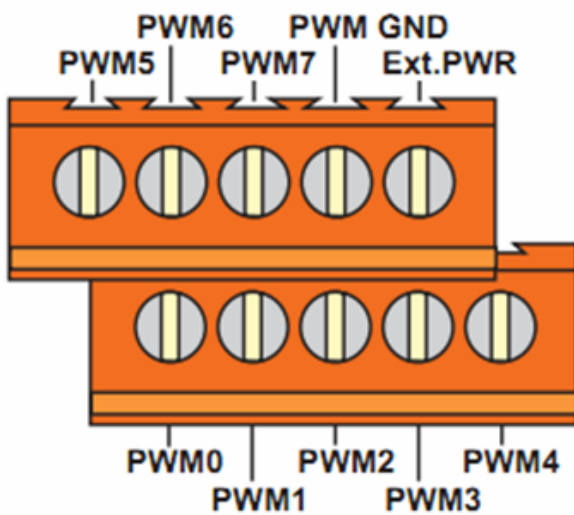
The CON2 is used to for I-7088 and M-7088 PWM Output  
 CON3 Assignments for I-7088 and M-7088 Counter Input



PIN	1	2	3	4	5	6	7	8	9
CON2	i_PWM0	i_PWM1	i_PWM2	i_PWM3	i_PWM4	i_PWM5	i_PWM6	i_PWM7	PWMGND
CON3	i_DI0	i_DI1	i_DI2	i_DI3	i_DI4	i_DI5	i_DI6	i_DI7	DI.COM

## 1.6.3 CN1 and CN2 Assignments

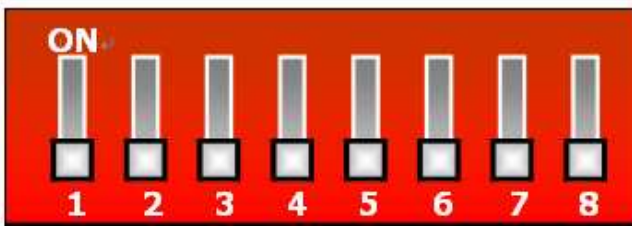
CN1 Assignments for PWM Output  
 CN2 Assignments for Counter Input



### 1.6.4 LED Mapping

PWM Output	LED (Red)
PWM0	LED1
PWM1	LED2
PWM2	LED3
PWM3	LED4
PWM4	LED13
PWM5	LED14
PWM6	LED15
PWM7	LED16
Counter Input	LED (Green)
DI0	LED5
DI1	LED6
DI2	LED7
DI3	LED8
DI4	LED9
DI5	LED10
DI6	LED11
DI7	LED12
DI0	LED5

### 1.6.5 SW1



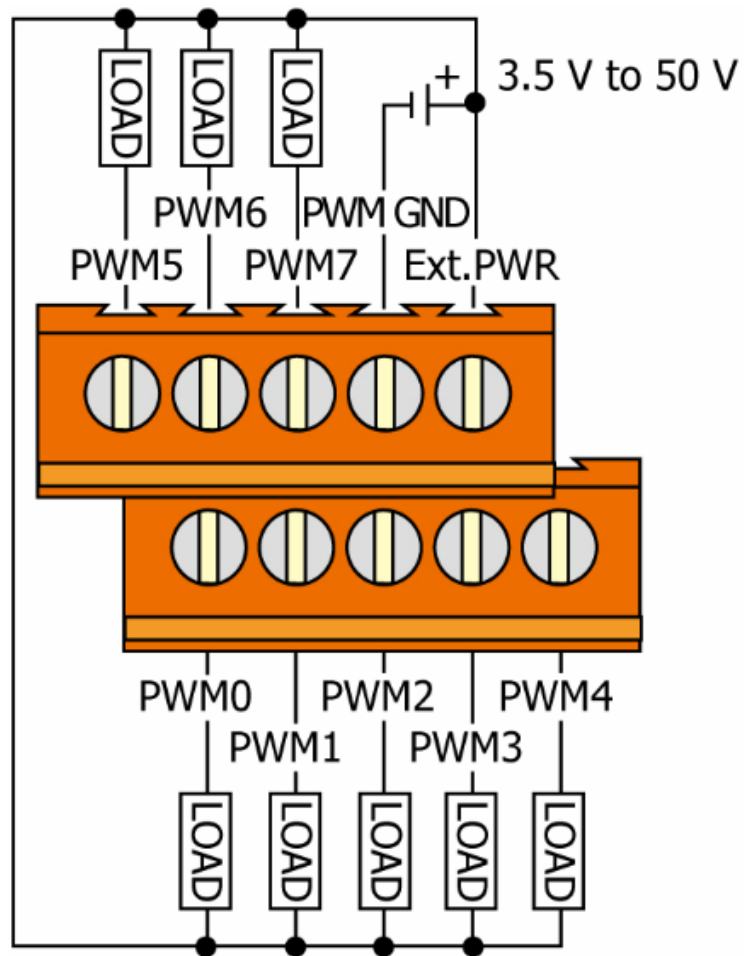
SW1								
Number	1	2	3	4	5	6	7	8
Item	DI0	DI1	DI2	DI3	DI4	DI5	DI6	DI7

#### \*Voltage Level Switch

Input Impedance	SW1 OFF	SW1 ON
ON Voltage Level	+12 to +50 V <sub>DC</sub>	+3.5 to +5 V <sub>DC</sub>
OFF Voltage Level	+4 V <sub>DC</sub> Max	+1 V <sub>DC</sub> Max

## 1.7 I/O Wire Connections

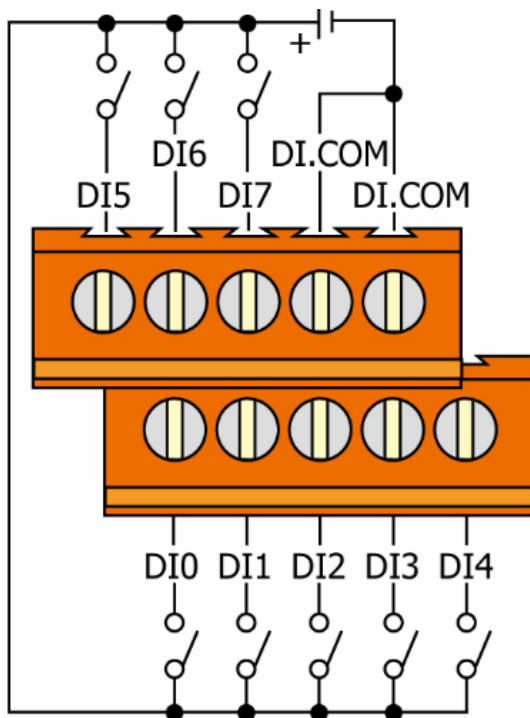
### 1.7.1 The Wire Connection of PWM Output



## 1.7.2 The Wire Connection of Counter Input

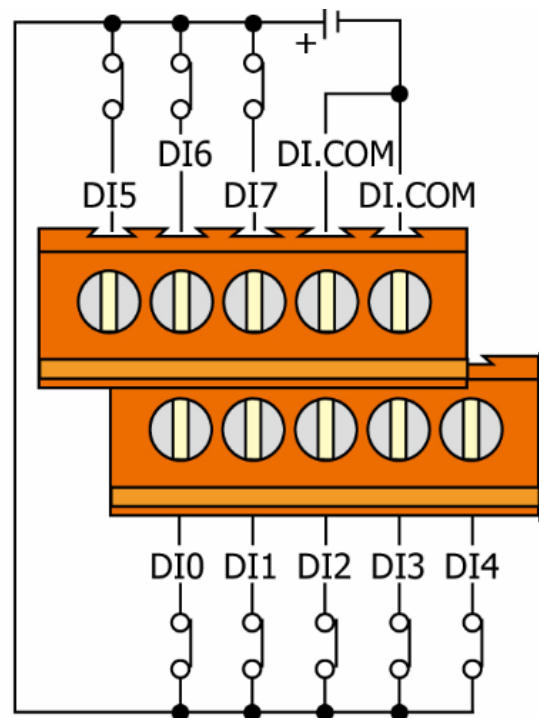
OFF State

Readback as 0






ON State

Readback as 1



# 1.8 Hardware Installation

## 1.8.1 DN-8P8C-CA Installation

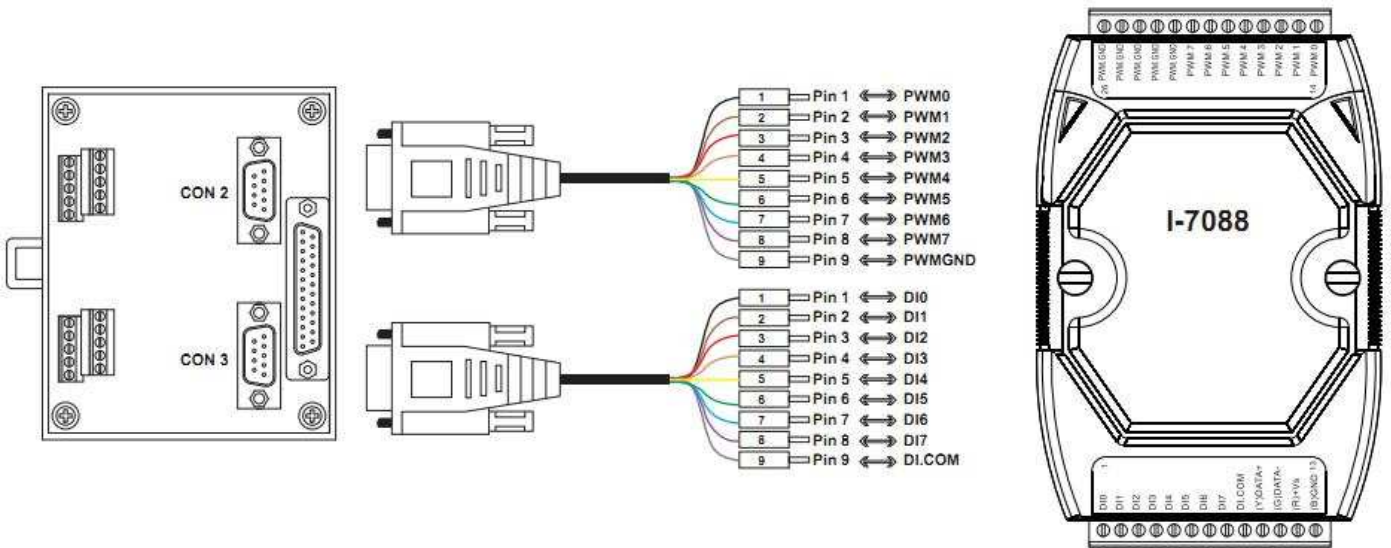
DN-8P8C/S is included		
	<b>CA-090910-A*2pcs</b>	9-pin Female D-sub cable for I/M-7088 connector, 1 M
	<b>CA-3813 *2pcs</b>	Connector Casing for 13-pin, 3.81 mm Pitch or 14-pin, 3.5 mm Pitch
	<b>DN-8P8C *1pcs</b>	8-channel Digital output and 8-channel counter input Board

The DN-8P8C/S is equipped with two 9-pin interfaces, and two 9-pin Female D-sub connectors (CA-090910-A and CA-3813). The demo will simply use a CA-090910-A connector to connect an I-7088 module to a PWM Output and a counter input, as shown below.






DN-8P8C-CA with an I-7088 Module

Step: CA-090910-A for I-7088 connector as shown below.



## 1.8.2 DN-8P8C/S Installation

DN-8P8C/S2 is included		
	<b>DB-8820 *1pcs</b>	The 20 pin terminal converts to D-Sub 25 pin Connector
	<b>CA-2520D</b>	25-pin Male-Male D-sub flat cable,2M
	<b>DN-8P8C *1pcs</b>	8-channel Digital output and 8-channel counter input Board

The DN-8P8C/S2 is equipped with a 25-pin interface, a 25-pin connector (CA-2520D) and a daughterboard (DB-8820). The demo will simply use a CA-2520D (25-pin male to 25-pin male) connector to connect and can be used for I-87088W, I-8088W, CAN-2088C, CAN-2088D and USB-2088 modules, as shown below.



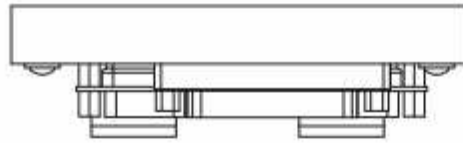
DN-8P8C/S2 with an I-87088W Module

## 1.9 Ordering Information

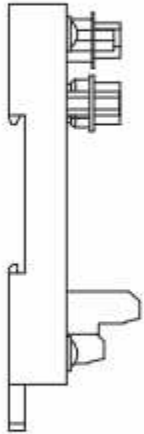
<b>DN-8P8C/S CR</b>	8-channel Digital Output and 8-channel Counter Input Board, including two CA-090910-A Cable and two CA-3813 Connector Casing.
<b>DN-8P8C/S2 CR</b>	8-channel Digital Output and 8-channel Counter Input Board, including DB-8820 Daughterboard and a CA-2520D Cable.



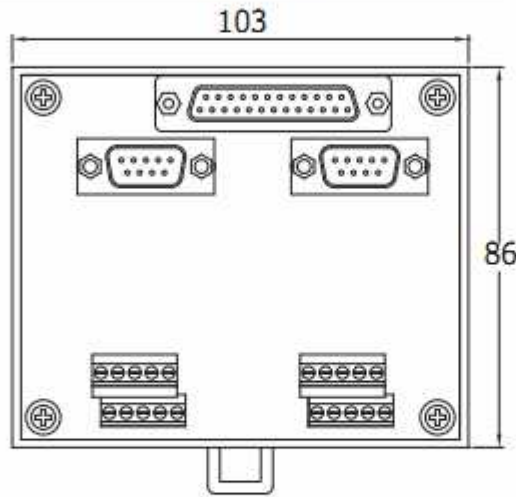
## 1.10 Dimensions (Units: mm)



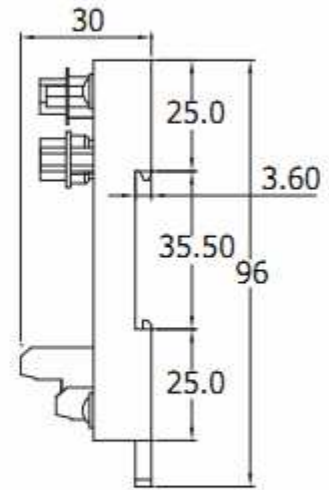
Top View



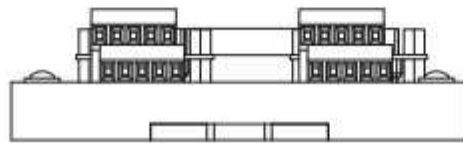
Left View



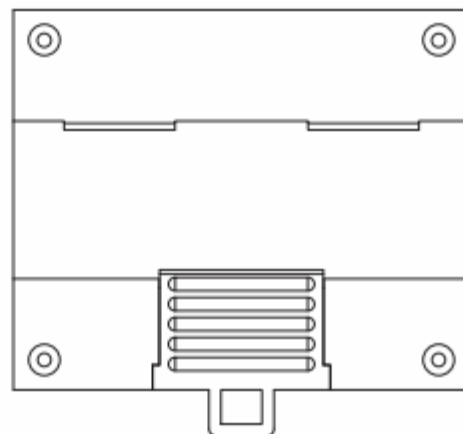
Front View



Right View



Bottom View



Rear View