



## I-7088(D)

## M-7088(D)

8-Channel PWM Output and 8-Channel High Speed Counter Module

### Features

- 8-channel PWM Outputs and 8-channel Counter Inputs
- Burst Mode & Continuous Mode for PWM Output
- Software and Hardware Trigger Mode for PWM Output
- Individual and Synchronous PWM Output
- High Speed Counters
- 4 kV ESD and EFT Protection
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C



### Introduction

I-7088 provides 8-channel PWM output channels and 8-channel counter inputs. It can be used to develop powerful and cost effective analog control system. PWM (Pulse width modulation) is a powerful technique for controlling analog circuits. It uses digital outputs to generate a waveform with variant duty cycle and frequency to control analog circuits. It can be used to controlling the position/speed of motors, dimming the brightness of lamps, controlling the speed of fans... etc. There are burst mode and continuous mode for PWM outputs based on your situation. In addition, all digital input channels can be used as high-speed counters and up to 1MHz. M-7088 supports Modbus RTU and DCON protocols which can be configured via software and all hardware specifications are the same as I-7088.

### Applications

- Controlling the position/speed of motors
- Dimming the brightness of lamps
- Controlling the speed of fans

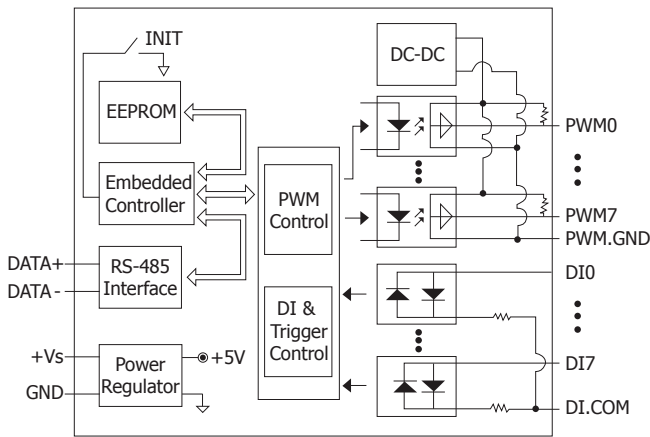
### System Specifications

Models	I-7088	M-7088	I-7088D	M-7088D
<b>Communication</b>				
Interface	RS-485			
Format	(N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1)			
Baud Rate	1200 ~ 115200 bps			
Protocol	DCON		Modbus RTU, DCON	
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)			
<b>LED Indicator/Display</b>				
System LED Indicator	Yes, 1 LED as Power/Communication Indicator			
I/O LED Indicator	-			
7-Segment LED Display	-	Yes	-	Yes
<b>Isolation</b>				
Intra-Module Isolation, Field-to-Logic	2500 V <sub>dc</sub>			
<b>EMS Protection</b>				
ESD (IEC 61000-4-2)	+/-4 kV			
EFT (IEC 61000-4-4)	+/-4 kV			
<b>Power</b>				
Reverse Polarity Protection	Yes			
Input Range	10 ~ 30 V <sub>dc</sub>			
Consumption	2.4 W			
<b>Mechanical</b>				
Dimensions (W x L x H)	72 mm x 123 mm x 35 mm			
Installation	DIN-Rail or Wall Mounting			
<b>Environment</b>				
Operating Temperature	-25 ~ +75°C			
Storage Temperature	-40 ~ +85°C			
Humidity	10 ~ 95% RH, Non-condensing			

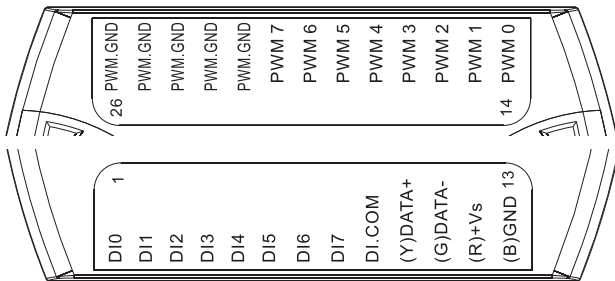
### I/O Specifications

Models	I-7088	M-7088	I-7088D	M-7088D
<b>Digital Input</b>				
Channels	8			
Contact	Wet			
Sink/Source (NPN/PNP)	Sink			
On Voltage Level	Isolated	+3.5 ~ +5 V <sub>dc</sub>		
	Non-isolated	-		
Off Voltage Level	+1 V <sub>dc</sub> Max.			
Programmable Filter	-			
Programmable Threshold Voltage	-			
Counter/Encoder-bits	32-bit			
Counter Mode	Up			
Encoder Mode	-			
Frequency Mode	-			
Virtual Battery Backup	Yes			
Frequency Accuracy	-			
Max. Speed	1 MHz			
<b>Digital Output</b>				
Channels	8			
Type	PWM, TTL			
Sink/Source (NPN/PNP)	Sink			
Load Voltage	+3.5 ~ +5 V <sub>dc</sub>			
Max. Load Current	10 mA/Channel			
Power-on Value	-			
Safe Value	-			
PWM	Frequency	1 Hz ~ 500 KHz		
	Duty Cycle	0.1 ~ 99.9%		
	Mode	Burst, Continuous		
	Burst Count	1 ~ 65535		
	Trigger Start	Hardware or Software		

### Internal I/O Structure



### Pin Assignments



### Wire Connections

Input Type	ON State Readback as 1	OFF State Readback as 0
	Relay ON	Relay Off
Relay Contact		
TTL/ CMOS Logic	Voltage > 5 V	Voltage < 0.8 V
Output Type	ON State Readback as 1	OFF State Readback as 0
	Relay ON	Relay Off
Drive Relay		
Resistance Load	ON State	OFF State

### Ordering Information

<b>I-7088-G CR</b>	8-Channel PWM Output and 8-Channel High Speed Counter Module with DCON Protocol (Gray Cover) (RoHS)
<b>I-7088D-G CR</b>	I-7088 with 7-Segment LED Display (Gray Cover) (RoHS)
<b>M-7088-G CR</b>	8-Channel PWM Output and 8-Channel High Speed Counter Module with DCON and Modbus Protocol (Gray Cover) (RoHS)
<b>M-7088D-G CR</b>	M-7088 with 7-Segment LED Display (Gray Cover) (RoHS)

### Accessories

	tM-7520U CR	RS-232 to RS-485 converter (RoHS)
	tM-7561 CR	USB to RS-485 converter (RoHS)
	tM-SG4 CR	RS-485 Pull-high/Pull-low and Termination Resistor Module (RoHS)
	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-770 CR	7 channel differential or 14 channel single-ended surge protector (RoHS)
	SG-3000 series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Inputs