

2.2.10. Counter/Frequency/PWM Module

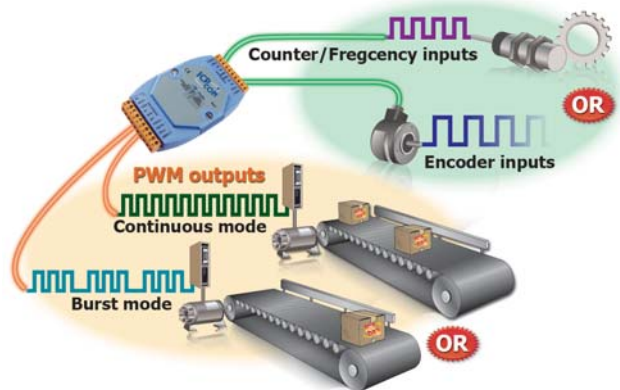
■ PWM Introduction

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. I-8088W and I-87088W have 8 PWM output channels and 8 digital inputs. It can be used to implement powerful and cost effective analog control system.

■ PWM Features

- Automatic generation of PWM outputs by hardware, without software intervention.
- Software and hardware trigger mode for PWM output
- Individual and synchronous PWM output
- Burst mode PWM operation for standby
- DI channel can be configured as simple digital input channel or hardware trigger source of the PWM output.

■ Applications



Counter/Frequency/PWM Module						
Model Name	I-7080(D)	I-7080B(D)	I-7083(D)	I-7083B(D)		I-7088
	M-7080(D)	M-7080B(D)			M-7084	M-7088
Pictures						
Digital Input						
Channels	2		3		4 Up/Down Counter or 8 Up Counter	
Contact	Wet					
Sink/Source (NPN/PNP)	Sink					
On Voltage Level	Isolated	+3.5 ~ +30 Vdc		5 V: +3.5 ~ +5 VDC 12 V with 1 kΩ external resistor: +5 ~ +12 VDC 24 V with 2 kΩ external resistor: +7 ~ +24 VDC		+3.5 ~ +30 VDC
	Non-isolated	+2.4 ~ +5 VDC		-		+2.4 ~ +5 VDC
Off Voltage Level	+1 Vdc Max.		+2 Vdc Max.		+1 Vdc Max.	
Programmable Filter	2 us to 65 ms		-		1 ~ 32767 us	
Programmable Threshold Voltage	+0.1 ~ +5 Vdc		-		-	
Counter/Encoder Bits	32-bit					
★ Counter Mode	Up		-		Up, Up/Down	
★ Encoder Mode	-		CW/CCW, Pulse/Dir., AB Phase		-	
★ Frequency Mode	Yes		-		Yes	
★ Virtual Battery Backup	-	Yes	-	Yes	Yes	
Frequency Accuracy	1 Hz or 10 Hz		-		0.4% of Input Frequency	
Max. Speed	100 KHz		1 MHz		200 KHz	
Digital Output						
Channels	2				8	
Type	Open Collector				PWM, TTL	
Sink/Source (NPN/PNP)	Sink				Sink	
Load Voltage	+3.5 ~ +30 Vdc				+3.5 ~ +5 VDC	
★ Max. Load Current	30 mA/Channel				10 mA/Channel	
★ Power-on Value	Yes				-	
★ Safe Value	Yes				-	
PWM	Frequency					1 Hz ~ 500 KHz
	Duty Cycle					0.1 ~ 99.9%
	Mode	-				Burst, Continuous
	Burst Count					1 ~ 65535
	Trigger Start					Hardware or Software
System						
★ Dual Watchdog			Yes			
ESD (IEC 61000-4-2)			±4 kV			
EFT (IEC 61000-4-4)			±4 kV			
Intra-Module Isolation, Field-to-Logic	3000 Vdc				2500 Vrms	
Power Consumption	2 W; 2.2 W for (D) version		1 W; 1.5 W for (D) version		2.0 W	
					2.4 W	