2.2-5. Counter/Frequency/PWM

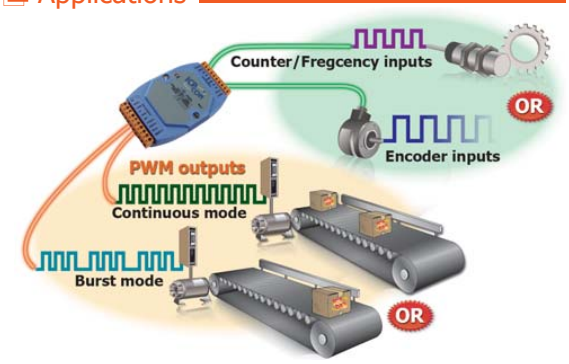
PWM Introduction

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 develop 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.

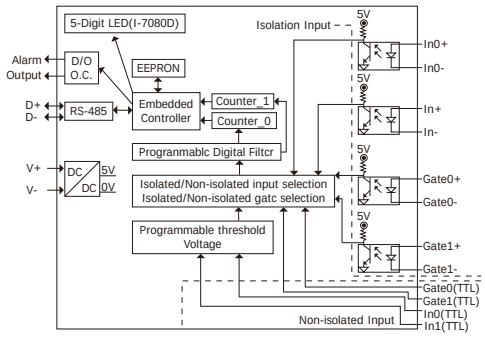
Applications



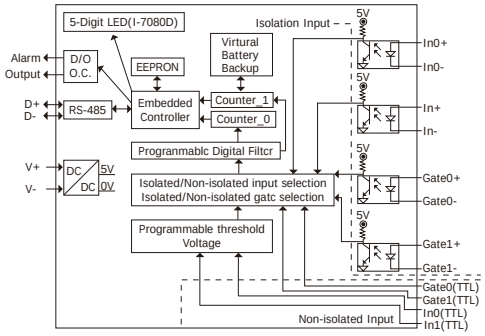
Counter/Frequency/PWM Module						
Model Name		I-7080(D) M-7080(D)	I-7080B(D) M-7080B(D)	I-7083(D)	I-7083B(D)	I-7088 M-7088
Pictures						
Digital Input						
Channel		2		3		8
Contact		Wet				
Sink/Source (NPN/PNP)		Sink				
On Voltage Level		+3.5 ~ +30 VDC		5 V: +3.5 ~ +5 VDC 12 V with 1 kΩ external resistor: +5 ~ +12 VDC 24 V with 2 kΩ external resistor: +7 ~ +24 VDC		+3.5 ~ +5 VDC
Off Voltage Level		+1 VDC Max.		+2 VDC Max.		+1 VDC Max.
Programmable Filter		2 us to 65 ms		-		
Programmable Threshold Voltage		+0.1 ~ +5 VDC		-		
Counter/Encoder Bits		32-bit				
Counter Mode		Up		-		Up
Encoder Mode		-		CW/CCW, Pulse/Dir., AB Phase		-
Frequency Mode		Yes		-		
Virtual Battery Backup		-	Yes	-	Yes	-
Frequency Accuracy		1 Hz or 10 Hz		-		
Max. Speed		100 KHz		1 MHz		
Digital Output						
Channel		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		2500 Vrms
Power Consumption		2 W; 2.2 W for (D) version		1 W; 1.5 W for (D) version		2.4 W

Internal I/O Structure

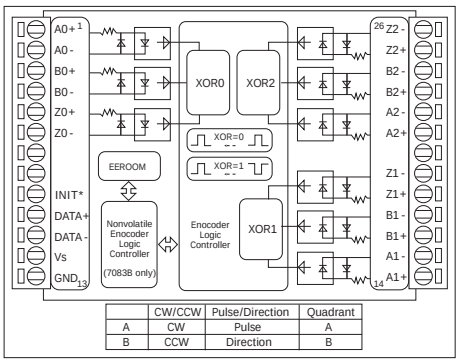
I-7080(D)/M-7080(D)



I-7080B(D)/M-7080B(D)

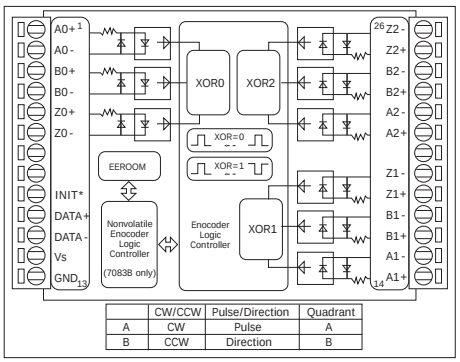


I-7083(D)



	CW/CCW	Pulse/Direction	Quadrant
A	CW	Pulse	A
B	CCW	Direction	B

I-7083B(D)



	CW/CCW	Pulse/Direction	Quadrant
A	CW	Pulse	A
B	CCW	Direction	B

I-7088(D)/M-7088(D)