



## M-7084

4/8-ch Counter/Frequency/Encoder Input Module

### Features

- 8 Up Counter/Frequency or 4 Encoder Inputs
- Programmable Digital Filter
- Supports 32-bit Counter
- Individual Channel Configuration
- Built-in Virtual Battery Backup to Preserve Counter Values
- Preset Values for Counter Input



### Introduction

The M-7084 is a 32-bit high-speed Counter/Frequency/Encoder input module that offers a variety of mode options, including "Up Counter", "Frequency Input", "Up/Down Counter", "Direct/Pulse Counter" and "A/B Phase Counter" modes. The mode combinations can be individual set for all 8 channels, where some channels can be set to "Up Counter" mode and other channels can be simultaneously set to "Frequency", "Up/Down Counter" or "Encoder input" mode. The built-in digital filter can filter out noise where the high/low pulse width is smaller than the minimum high/low width of the digital filter. The M-7084W provides a virtual battery backup function in counter mode.

### System Specifications

Model	M-7084
<b>CPU Module</b>	
Watchdog Timer	Module, Communication (Programmable)
<b>Memory</b>	
Battery Backup	Yes
<b>Isolation</b>	
Intra-module Isolation	3000 VDC
<b>EMS Protection</b>	
EFT (IEC 61000-4-4)	±4 kV for Power Line
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal
Surge (IEC 61000-4-5)	±3 kV for Power Line
<b>LED Indicators</b>	
Status	1 x Power and Communication
<b>COM Ports</b>	
Ports	1 x RS-485
Baud Rate	1200 ~ 115200 bps
Data Format	(N, 8, 1), (N, 8, 2), (E, 8, 1), (O, 8, 1)
Protocol	Modbus RTU, DCON
<b>Power</b>	
Reverse Polarity Protection	Yes
Input Range	+10 ~ +30 VDC
Consumption	1.32 W Max.
<b>Mechanical</b>	
Dimensions (mm)	72 x 123 x 35 (W x L x H)
Installation	DIN-Rail Mounting
<b>Environment</b>	
Operating Temperature	-25 ~ +75 °C
Storage Temperature	-30 ~ +80 °C
Humidity	10 ~ 90% RH, Non-condensing

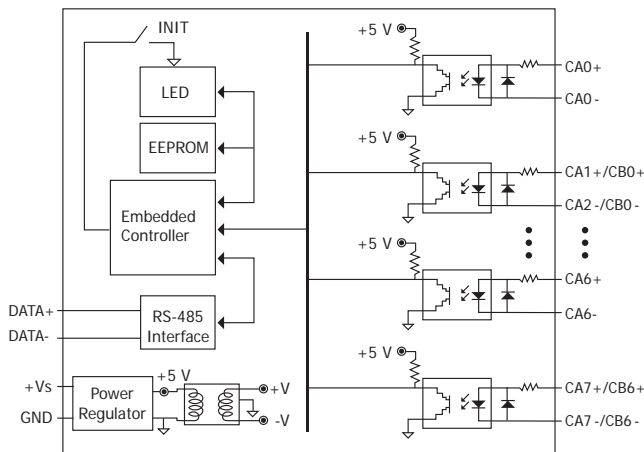
### I/O Specifications

Model	M-7084
<b>Counter/Frequency/Encoder Input</b>	
Channels	4-channel Up/Down Counter (CW/CCW)
	4-channel Dir/Pulse Counter (Bi-direction)
	4-channel A/B Phase (Quadrature Counting)
	8-channel Up Counter
	8-channel Frequency
Type	Counter, Frequency, or Encoder
Counter Mode	Up or Up/Down
Encoder Mode	CW/CCW, Dir/Pulse, AB Phase
Frequency Mode	Yes
Counter/Encoder Bits	32-bit
Sink/Source (NPN/PNP)	Sink
ON Voltage Level	+3.5 VDC ~ +30 VDC
OFF Voltage Level	+1 VDC Max.
Frequency Accuracy	1 Hz ~ 200 kHz = ±0.025% of Input Frequency (*Note1)
Individual Channel Configuration	Yes
Max. Speed	+3.5 ~ +10 VDC: 200 kHz
	+10 ~ +30 VDC: 150 kHz
Low Pass Filter	1 ~ 32767 μs

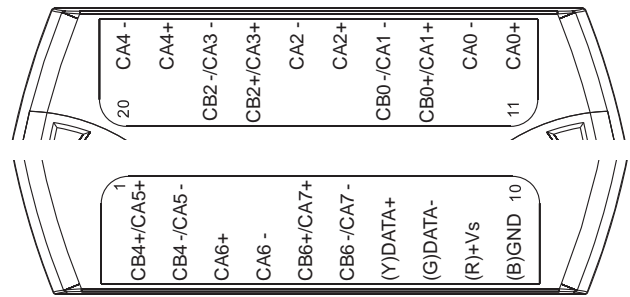
Note1:

Frequency Range	Frequency Error (typical)
1 Hz ~ 10 Hz	0.01 Hz
10 Hz ~ 10 KHz	0.5 Hz
10 KHz ~ 100 KHz	15 Hz
100 KHz ~ 200 KHz	30 Hz

## Internal I/O Structure



## Pin Assignments



## Applications

- Counter Measurement
- Frequency Measurement and Encoder Motion Control

## Wire Connections

	Counter Type
Up	Up+  CAX+ Up-  CAX-
Up/Down	Up+  CAX+ Up-  CAX- Down+  CBx+ Down-  CBx-
Dir/Pulse	Pulse+  CAX+ Pulse-  CAX- Dir+  CBx+ Dir-  CBx-
A/B Phase	A0+  CAX+ A0-  CAX- B0+  CBx+ B0-  CBx-
	Frequency Type
Frequency	Freq+  CAX+ Freq-  CAX-

## Ordering Information

<b>M-7084-G CR</b>	4/8-ch Counter/Frequency/Encoder Input Module using DCON and Modbus Protocols (Gray Cover) (RoHS)
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## Accessories

<b>SG-770 CR</b>	7/14 channel Surge Protector (RoHS)
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