



## I-7012(D)

## I-7012F(D)

1-channel Analog Input Module

### Features

- Current or Voltage Input
- High Resolution: 16-bit
- High/Low Alarm (Digital Output)
- 50 Hz Event Counter (Digital Input)
- 100 Hz High Sampling Rate
- 3000 Vdc Intra-module Isolation
- Dual Watchdog
- Wide Operating Temperature Range: -25 to +75°C



### Introduction

The I-7012 is an Analog Input module that is designed for both voltage and current input types. In addition, the module provides 1 Digital Input channel as a 50 Hz event counter and 2 Digital Output channels that can be used as a high/low alarm. The I-7012 also features 3000 Vdc intra-module isolation.

The I-7012F is an Analog Input module that is designed for both voltage and current input types. The sampling rate for the I-7012F is adjustable and can be switched between fast mode and normal mode depending on your requirements. In addition, the module provides 1 Digital Input channel as a 50 Hz event counter and 2 Digital Output channels that can be used as a high/low alarm. The I-7012F also features 3000 Vdc intra-module isolation.

### System Specifications

Model	I-7012	I-7012D	I-7012F	I-7012FD
<b>Communication</b>				
Interface	RS-485			
Bias Resistor	No (Usually supplied by the RS-485 Master. Alternatively, add a tM-SG4 or SG-785.)			
Format	N, 8, 1			
Baud Rate	1200 to 115200 bps			
Protocol	DCON			
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)			
<b>LED Indicators/Display</b>				
System LED Indicator	Yes, 1 as Power/Communication Indicator			
I/O LED Indicators	-			
7-segment LED Display	-	Yes	-	Yes
<b>Isolation</b>				
Intra-module Isolation, Field-to-Logic	3000 Vdc			
<b>EMS Protection</b>				
ESD (IEC 61000-4-2)	±2 kV Contact for each Terminal			
EFT (IEC 61000-4-4)	±4 kV to Power Line			
Surge (IEC 61000-4-5)	±0.5 kV for Power Line			
<b>Power</b>				
Reverse Polarity Protection	Yes			
Input Range	+10 ~ +30 Vdc			
Consumption	1.3 W	1.9 W	1.3 W	1.9 W
<b>Mechanical</b>				
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm			
Installation	DIN-Rail or Wall Mounting			
<b>Environment</b>				
Operating Temperature	-25 to +75°C			
Storage Temperature	-40 to +85°C			
Humidity	10 to 95% RH, Non-condensing			

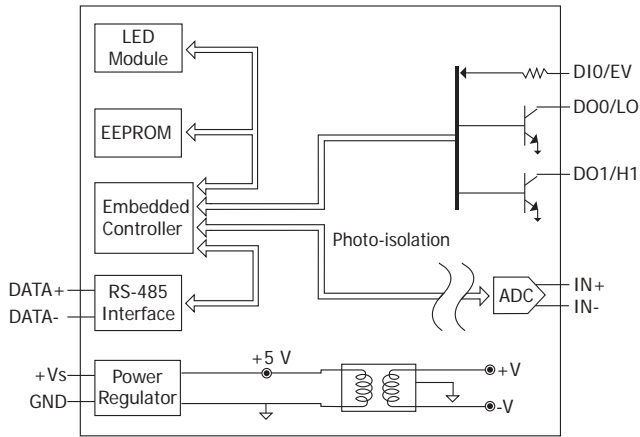
### Applications

- Building Automation
- Machine Automation
- Remote Diagnosis
- Factory Automation
- Remote Maintenance
- Testing Equipment

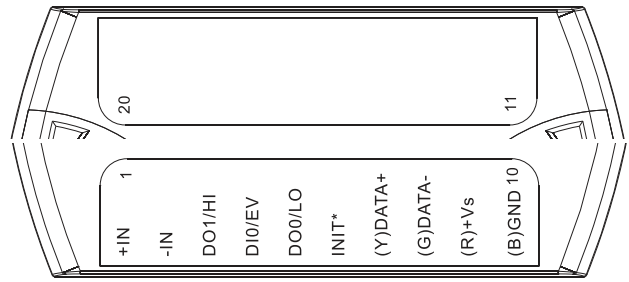
### I/O Specifications

Model	I-7012	I-7012D	I-7012F	I-7012FD
<b>Analog Input</b>				
Channels	1			
Wiring	Differential			
Input Range	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±20 mA (requires optional external 125 Ω resistor)			
Resolution	16-bit		16-bit	
Accuracy	Normal Mode	0.1%		
	Fast Mode	-	0.5%	
Sampling Rate	Normal Mode	10 Hz		
	Fast Mode	-	100 Hz	
Input Impedance	20 MΩ			
Common Voltage Protection	±100 Vdc			
Individual Channel Configuration	-			
Overvoltage Protection	±120 Vdc			
<b>Digital Input</b>				
Channels	1			
Contact	Dry			
Sink/Source (NPN/PNP)	Source			
ON Voltage Level	Close to GND			
OFF Voltage Level	Open			
Counter	Yes, 50 Hz, 16-bit			
Input Impedance	3 kΩ			
Overvoltage Protection	±30 Vdc			
<b>Digital Output</b>				
Channels	2			
Type	Open Collector			
Sink/Source (NPN/PNP)	Sink			
Load Voltage	+3.5 ~ +30 Vdc			
Max. Load Current	30 mA/Channel			
Power-on Value	Yes			
Safe Value	Yes			

## Internal I/O Structure



## Pin Assignments



## Wire Connections

Voltage Input Wire Connection	Current Input Wire Connection
	<p>Requires an Optional External 125 Ω Resistor</p>

Digital Input/Counter	Readback as 1	Readback as 0
	Open	Closed to GND
Dry Contact		
Digital Output	ON State Readback as 1	OFF State Readback as 0
Resistance Load		
Inductance Load		

## Ordering Information

<b>I-7012 CR</b>	1-channel Analog Input Module using the DCON Protocol (Blue Cover) (RoHS)
<b>I-7012-G CR</b>	1-channel Analog Input Module using the DCON Protocol (Gray Cover) (RoHS)
<b>I-7012D CR</b>	I-7012 with 7-segment LED Display (Blue Cover) (RoHS)
<b>I-7012F CR</b>	1-channel High Speed Analog Input Module using the DCON Protocol (16-bit) (Blue Cover) (RoHS)
<b>I-7012FD CR</b>	I-7012F with 7-segment LED Display (16-bit) (Blue 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 Bias 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 Input Transformers