



**I-7033(D)**

**M-7033(D)**

3-channel RTD Input Module

## Features

- 3-channel RTD Input
- Lead Resistance Elimination for 3/4-wire Connections
- Open Wire Detection
- 4 kV ESD Protection
- 3000 Vdc Intra-module Isolation
- Dual Watchdog
- Wide Operating Temperature Range: -25 to +75°C



## Introduction

The I-7033 is a 3-channel RTD Input module that is used for measuring temperatures via an RTD sensor and supports Pt100, Ni120, and Pt1000 type sensors. The module allows 2/3/4-wire RTD connections and features open wire detection. In addition, the I-7033 also includes 3000 VDC intra-module isolation, and supports lead resistance elimination for 3/4-wire connections.

## Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment.

## System Specifications

Model	I-7033	I-7033D	M-7033	M-7033D
<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) (N, 8, 2) (E, 8, 1) (O, 8, 1)			
Baud Rate	1200 to 115200 bps			
Protocol	DCON		Modbus RTU, 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	1.0 W	1.6 W	1.0 W	1.6 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			

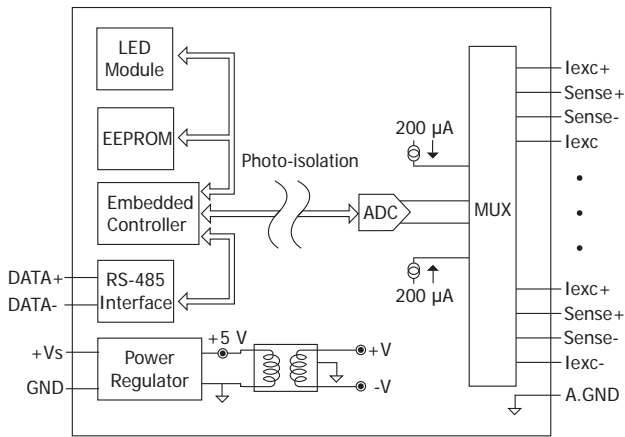
## I/O Specifications

Model	I-7033	I-7033D	M-7033	M-7033D
<b>RTD Input</b>				
Channels	3			
Wiring	2/3/4-wire			
Sensor Types	Pt100, Pt1000, Ni120			
Resolution	16-bit			
Accuracy	±0.1%			
Sampling Rate	15 Hz			
Individual Channel Configuration	-			
Overvoltage Protection	±25 Vdc			
Open Wire Detection	Yes			
3/4-wire RTD Lead Resistance Elimination	Yes			
Resistance Measurement	3.2 kΩ Max.			

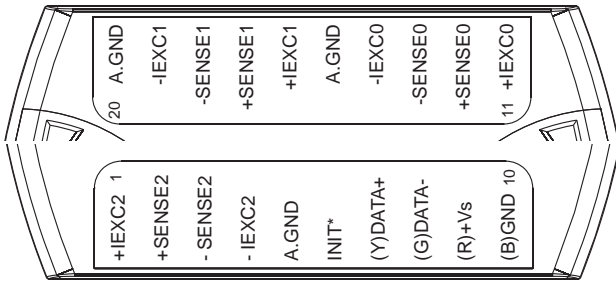
## RTD Type Settings (TT)

Type Code	RTD Type	Temperature Range
20	Platinum 100, α= 0.00385	-100 to +100°C
21	Platinum 100, α= 0.00385	0 to +100°C
22	Platinum 100, α= 0.00385	0 to +200°C
23	Platinum 100, α= 0.00385	0 to +600°C
24	Platinum 100, α= 0.003916	-100 to +100°C
25	Platinum 100, α= 0.003916	0 to +100°C
26	Platinum 100, α= 0.003916	0 to +200°C
27	Platinum 100, α= 0.003916	0 to +600°C
28	Nickel 120	-80 to +100°C
29	Nickel 120	0 to +100°C
2A	Platinum 1000, α= 0.00385	-200 to +600°C
2E	Platinum 100, α= 0.00385	-200 to +200°C
2F	Platinum 100, α= 0.003916	-200 to +200°C
80	Platinum 100, α= 0.00385	-200 to +600°C
81	Platinum 100, α= 0.003916	-200 to +600°C
82	Cu 50 at 0°C	-50 to +150°C

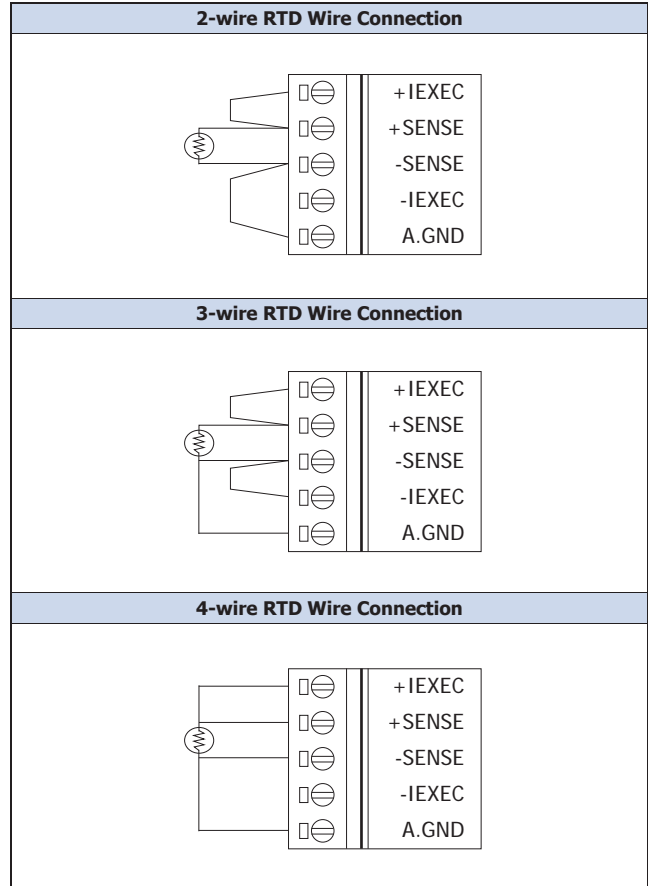
## Internal I/O Structure



## Pin Assignments









## Wire Connections



## Ordering Information

<b>I-7033 CR</b>	3-channel RTD Input Module using the DCON Protocol (Blue Cover) (RoHS)
<b>I-7033D CR</b>	I-7033 with 7-segment LED Display (Blue Cover) (RoHS)
<b>I-7033D-G CR</b>	I-7033 with 7-segment LED Display (Gray Cover) (RoHS)
<b>M-7033-G CR</b>	3-channel RTD Input Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)
<b>M-7033D-G CR</b>	M-7033 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 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