



M-7013P

1-channel RTD Input Module

Features

- RTD Input
- Lead Resistance Elimination for 3/4-wire Connection
- Open Wire Detection
- 4 kV ESD Protection
- High/Low Alarm for Digital Output
- 50 Hz Event Counter for Digital Input
- 3000 Vdc Intra-module Isolation
- Dual Watchdog
- Wide Operating Temperature Range: -25 ~ +75°C



Introduction

M-7013P is used for measuring temperature by RTD and provide PT100. It supports 2/3/4 wire RTD and features open wire detection and lead resistance elimination for 3/4-wire connection. Besides, it provides 1-channel digital input as 50 Hz event counter and 2-channel digital output as high/low alarm. M-7013P also has qualification for 3000 Vdc intra-module isolation.

Applications

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

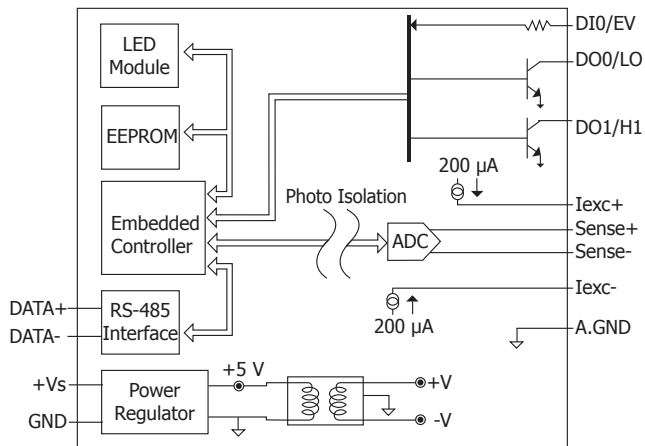
System Specifications

Model	M-7013P
Communication	
Interface	RS-485
RS-485 Bias Resistor	No (An RS-485 master is required to provide the bias.)
Format	(N, 8, 1)
Baud Rate	1200 ~ 115200 bps
Protocol	Modbus RTU, DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicator	Yes, 1 LED as Power/Communication Indicator
I/O LED Indicators	-
7-Segment LED Display	-
Isolation	
Intra-module Isolation, Field-to-Logic	3000 Vdc
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for the Power Line ±2 kV for the RS-485 Port
Surge (IEC 61000-4-5)	±0.5 kV for Power Line
Power	
Reverse Polarity Protection	Yes
Input Range	10 ~ 30 Vdc
Consumption	1.0 W
Mechanical	
Dimensions (W x L x H)	72 mm x 123 mm x 35 mm
Installation	DIN-Rail or Wall Mounting
Environment	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-40 ~ +85°C
Humidity	10 ~ 95% RH, Non-condensing

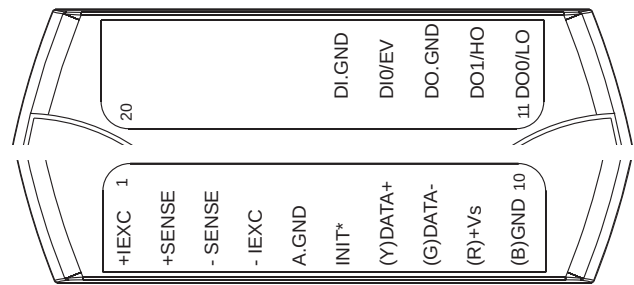
I/O Specifications

Model	M-7013P
RTD Input Module	
Channels	1
Wiring	2/3/4 Wire
Sensor Type	Pt100
Resolution	16-bit
Accuracy	±0.05%
Sampling Rate	10 Hz
Open Wire Detection	Yes
3-wire RTD Lead Resistance Elimination	Yes
Digital Input	
Channels	1
Sink/Source (NPN/PNP)	Source, Dry Contact
On Voltage Level	Close to GND
Off Voltage Level	Open
Counter (50 Hz, 16-bit)	Yes
Overvoltage Protection	±30 Vdc
Digital Output	
Channels	2
Type	Open Collector, MOSFET
Sink/Source (NPN/PNP)	Sink
Load Voltage	3.5 ~ 50 Vdc
Max. Load Current	700 mA/Channel
Overvoltage Protection	60 Vdc
Overload Protection	1.4 A (with Short-circuit Protection)
Power-on Value	Yes
Safe Value	Yes

Internal I/O Structure



Pin Assignments



Wire Connections

2-wire RTD Connection		3-wire RTD Connection		4-wire RTD Connection	
Digital Input/Counter		Readback as 1		Readback as 0	
Dry Contact		Closed to GND		Open	
Digital Output		ON State Readback as 1		OFF State Readback as 0	
Resistance Load					
Inductance Load					

Ordering Information

M-7013P-G CR	1-channel RTD Input Module Using the DCON Protocol (Gray Cover) (RoHS)
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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