



I-7005



M-7005

8-channel Thermistor Input and 6-channel Digital Output Module

Features

- 8 Thermistor Input channels
- Open Wire Detection
- User-defined Thermistor Types
- Individual Channel Configuration
- 120 Vdc Overvoltage Protection for Thermistor Input
- 6 Digital Output channels for Alarm Output
- 4 kV ESD and EFT Protection
- 3000 Vdc Intra-module Isolation
- Dual Watchdog
- Wide Operating Temperature Range: -25 to +75°C



Introduction

The I-7005 module is used for measuring temperatures using a thermistor. The module supports a wide range of thermistors, including support for user-defined thermistor types, which can be added by specifying the Steinhart coefficients, if necessary, and features individual channel configuration, meaning that each of the eight input channels can be individually configured for different kinds of thermistor. In addition, the I-7005 also provides 6 Digital Output channels that can be used for alarm output. The inclusion of 3000 VDC intra-module isolation and 120 Vdc overvoltage protection for the thermistors on the I-7005 ensures that the module operates at a higher reliability. The M-7005 supports both the Modbus RTU and DCON protocols, which can be configured via software, and all hardware specifications are the same as the I-7005.

System Specifications

Model	I-7005	M-7005
Communication		
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)	(N, 8, 1)
Baud Rate	1200 to 115200 bps	
Protocol	DCON	Modbus RTU, DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)	
LED Indicators/Display		
System LED Indicator	Yes, 1 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	
EFT (IEC 61000-4-4)	±4 kV for Power Line	
Surge (IEC 61000-4-5)	± 0.5 kV for Power Line	
Power		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +30 Vdc	
Consumption	1.3 W	
Mechanical		
Dimensions (L x W x H)	123 mm x 72 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
Environment		
Operating Temperature	-25 to +75°C	
Storage Temperature	-40 to +85°C	
Humidity	10 to 95% RH, Non-condensing	

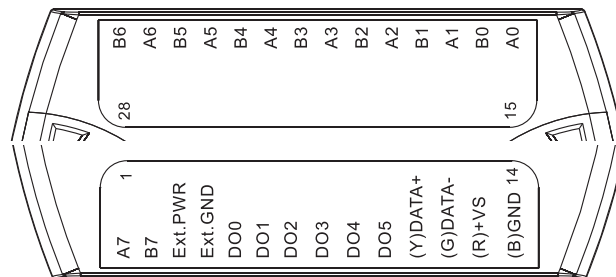
Applications

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

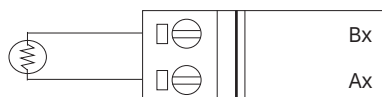
I/O Specifications

Model	I-7005	M-7005
Thermistor Input		
Channels	8	
Wiring	2-wire	
Sensor Types	Precon ST-A3, Fenwell U, YSI L100, YSI L300, YSI L1000, YSI B2252, YSI B3000, YSI B5000, YSI B6000, YSI B10000, YSI H10000, YSI H30000, User-defined	
Resolution	16-bit	
Accuracy	±0.1% of FSR	
Sampling Rate	8 Hz (Total)	
Individual Channel Configuration	Yes	
Overvoltage Protection	120 Vdc	
Open Wire Detection	Yes	
Resistance Measurement	200 kΩ Max.	
Digital Output		
Channels	6	
Type	Open Collector	
Sink/Source (NPN/PNP)	Sink	
Load Voltage	+3.5 ~ +50 Vdc	
Max. Load Current	650 mA/Channel	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A (with short-circuit protection)	
Power-on Value	Yes	
Safe Value	Yes	

Pin Assignments



Thermistor Input



Alarm Output	ON State Readback as 1	OFF State Readback as 0
Resistance Load		
Inductance Load		

I-7005 CR	8-channel Thermistor Input and 6-channel Digital Output Module Module using the DCON Protocol (Blue Cover) (RoHS)
I-7005-G CR	8-channel Thermistor Input and 6-channel Digital Output Module Module using the DCON Protocol (Gray Cover) (RoHS)
M-7005-G CR	8-channel Thermistor Input and 6-channel Digital Output Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)

 CA-TM-P100-L020 CR	NTC Thermistor, Epoxy Resin Cable, 2 M (-40 °C ~ +80 °C) (RoHS)	 CA-TM-P100-L050 CR	NTC Thermistor, Epoxy Resin Cable, 5 M (-40 °C ~ +80 °C) (RoHS)
 tM-7520U CR	RS-232 to RS-485 Converter (RoHS)	 I-7514U CR	4-channel RS-485 Hub (RoHS)
 tM-7561 CR	USB to RS-485 Converter (RoHS)	 SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)
 tM-SG4 CR	RS-485 Bias and Termination Resistor Module (RoHS)	 SG-3000 Series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers