



**I-7055(D)**

**M-7055(D)**

**I-7055(D)-NPN**

**M-7055(D)-NPN**

8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module

## Features

- I-7055(D)/M-7055(D)
  - Source-type Digital Output Channels with Overload Protection
- I-7055(D)-NPN/M-7055(D)-NPN
  - Sink-type Digital Output Channels with Overload Protection
- All Digital Input Channels can be used as 16-bit Counters
- Short Circuit Protection
- 4 kV ESD Protection
- 3750 Vdc Intra-module Isolation
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Wide Operating Temperature Range: -25 to +75°C



## Introduction

The I-7055 offers 8 isolated channels for digital input and 8 isolated channels for digital output. Either sink-type or source-type digital input can be selected via wire connections. All digital input channels are also able to be used as 16-bit counters. The I-7055 supports source-type output with short circuit protection.

## System Specifications

Model	I-7055	I-7055D	I-7055-NPN	I-7055D-NPN
	M-7055	M-7055D	M-7055-NPN	M-7055D-NPN
<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 (For I-7055 series) Modbus RTU, DCON (For M-7055 series)			
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	-	Yes, 8 LEDs as Digital Input & 8 LEDs as Digital Output Indicators	-	Yes, 8 LEDs as Digital Input & 8 LEDs as Digital Output Indicators
7-segment LED Display	-			
<b>Isolation</b>				
Intra-module Isolation, Field-to-Logic	3750 Vdc			
<b>EMS Protection</b>				
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 Power Line			
Surge (IEC 61000-4-5)	±3 kV for Power Line			
<b>Power</b>				
Reverse Polarity Protection	Yes			
Input Range	+10 ~ +30 Vdc			
Consumption	0.8 W	1.6 W	1.2 W	2.2 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			

There are options to enable both power-on and safe values. The I-7055D has 16 LED indicators that can be used to monitor the status of the digital input and digital output channels. 4 kV ESD protection and 3750 VDC intra-module isolation are standard. The M-7055 has the same hardware specifications as the I-7055, but provides additional support for the Modbus RTU protocol as well as the DCON protocol.

## Applications

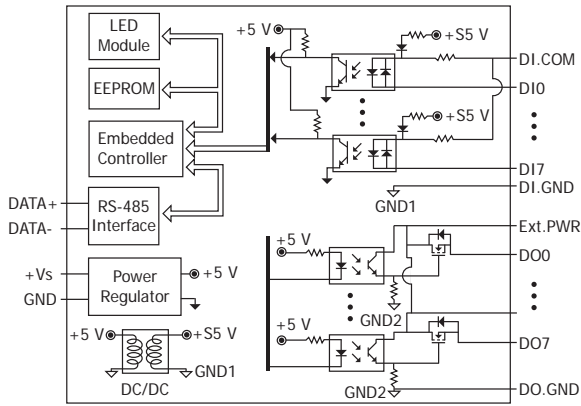
Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment.

## I/O Specifications

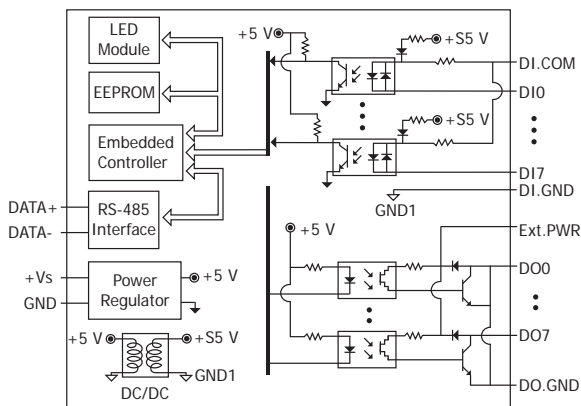
Model	I-7055	I-7055D	I-7055-NPN	I-7055D-NPN
	M-7055	M-7055D	M-7055-NPN	M-7055D-NPN
<b>Digital Input/Counter</b>				
Channels	8			
Type	Dry Contact: Source Wet Contact: Sink/Source			
Wet Contact	ON Voltage Level	+10 ~ 50 Vdc		
	OFF Voltage Level	+4 Vdc Max.		
Dry Contact	ON Voltage Level	Close to GND		
	OFF Voltage Level	Open		
	Effective Distance for Dry Contact	500 m Max.		
Counters	Max. Count	65535 (16-bit)		
	Max. Input Frequency	100 Hz		
	Min. Pulse Width	5 ms		
Input Impedance	10 kΩ			
Channel-to-Channel Isolation	-			
Overvoltage Protection	±70 VDC			
<b>Digital Output</b>				
Channels	8			
Type	Open Source		Open Collector	
Sink/Source (NPN/PNP)	Source		Sink	
Load Voltage	+10 ~ 40 Vdc		+3.5 ~ 50 Vdc	
Max. Load Current	650 mA/Channel		700 mA/Channel	
Overvoltage Protection	47 Vdc		60 Vdc	
Overload Protection	1.4 A (with short-circuit protection)			
Power-on Value	Yes			
Safe Value	Yes			

## Internal I/O Structure

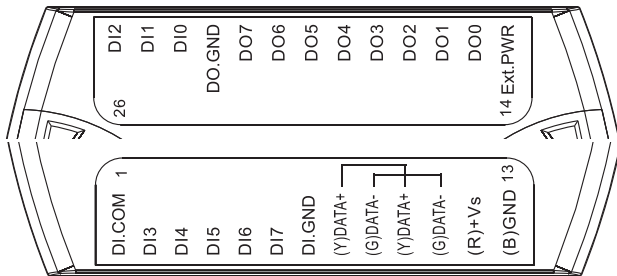
### I-7055(D)/M-7055(D)



### I-7055(D)-NPN/M-7055(D)-NPN



## Pin Assignments



## Ordering Information

<b>I-7055 CR</b>	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module using the DCON Protocol (Blue Cover) (RoHS)
<b>I-7055-G CR</b>	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module using the DCON Protocol (Gray Cover) (RoHS)
<b>I-7055D CR</b>	I-7055 with LED Display (Blue Cover) (RoHS)
<b>I-7055D-G CR</b>	I-7055 with LED Display (Gray Cover) (RoHS)
<b>M-7055-G CR</b>	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)
<b>M-7055D-G CR</b>	M-7055 with LED Display (Gray Cover) (RoHS)
<b>I-7055-NPN-G CR</b>	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module (Gray Cover) (RoHS)
<b>I-7055D-NPN-G CR</b>	I-7055-NPN with LED Display (Gray Cover) (RoHS)
<b>M-7055-NPN-G CR</b>	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)
<b>M-7055D-NPN-G CR</b>	M-7055-NPN with LED Display (Gray Cover) (RoHS)

## Wire Connections

I-7055(D)/I-7055(D)-NPN/M-7055(D)/M-7055(D)-NPN		
Input Type	ON State Readback as 1	OFF State Readback as 0
Dry Contact	Close to GND 	Open 
Wet Contact (Sink)	+10 ~ +50 VDC 	+4 VDC Max. 
Wet Contact (Source)	+10 ~ +50 VDC 	+4 VDC Max. 

I-7055(D)/M-7055(D)		
Output Type	ON State Readback as 1	OFF State Readback as 0
Digital Output (Resistance Load)		
Digital Output (Inductive Load)		

I-7055(D)-NPN/M-7055(D)-NPN		
Output Type	ON State Readback as 1	OFF State Readback as 0
Digital Output (Resistance Load)		
Digital Output (Inductive Load)		

## 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