

**M-7055U**

**M-7055UD**

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

## Features

- Digital Input and Digital Output selectable as either sink- or source-type via wire connection.
- All Digital Input Channels can be used as 16-bit Counters
- Built-in Dual Watchdog
- 8 kV ESD Protection
- 2000 Vdc Intra-module Isolation
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Wide Operating Temperature Range: -25 to +75°C



## Introduction

The M-7055U module provides 8 isolated channels for Digital Input and 8 isolated channels for Digital Output. Digital Input and Digital Output can be selected as either sink- or source-type via wire connection. All Digital Input channels are also able to be used as 16-bit counters. There are options to enable both power-on and safe values. The M-7055UD has 16 LED indicators that can be used to monitor the status of the Digital Input and Digital Output channels. The M-7055U(D) also provides  $\pm 8$  kV ESD,  $\pm 4$  kV EFT and  $\pm 2$  kV surge protection, as well as 2000 Vdc intra-module isolation to enhance noise protection capabilities in harsh industrial environments.

## Applications

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

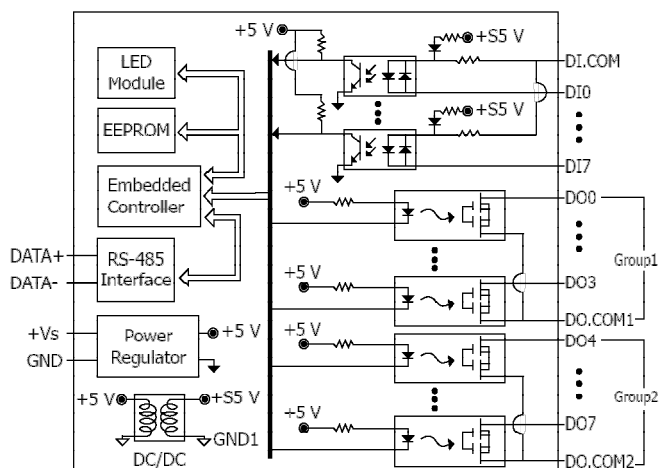
## System Specifications

Model	M-7055U	M-7055UD
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)	
Baud Rate	1200 to 115200 bps	
Protocol	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	-	Yes, 8 as Digital Input Indicators and 8 as Digital Output Indicators
7-segment LED Display	-	
Isolation		
Intra-module Isolation, Field-to-Logic	2000 Vdc	
EMS Protection		
ESD (IEC 61000-4-2)	±8 kV Contact for each Terminal	
	±15 kV Air for Random Point	
EFT (IEC 61000-4-4)	±4 kV for Power Line	
Surge (IEC 61000-4-5)	±2 kV	
Power		
Reverse Polarity Protection	Yes	
Input Range	10 ~ 48 Vdc	
Consumption	0.9 W (Max.)	1.0 W (Max.)
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	

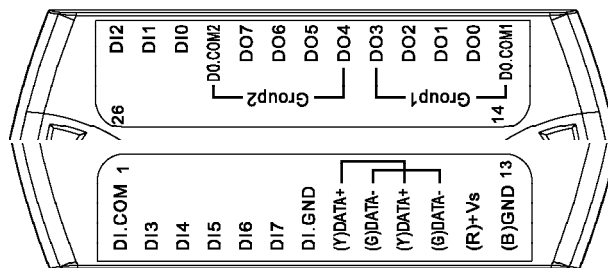
## I/O Specifications

Model		M-7055U	M-7055UD
Digital Input/Counter			
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	
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	
Digital Output			
Channels		8	
Type		Push-Pull	
Sink/Source (NPN/PNP)		Sink/Source	
Load Voltage		+3.5 ~ 80 Vdc	
Max. Load Current		500 mA / Channel	
Overvoltage Protection		-	
Short Circuit Protection		-	
Power-on Value		Yes	
Safe Value		Yes	

## Internal I/O Structure



## Pin Assignments



## Wire Connections

Input Type	ON State Readback as 1	OFF State Readback as 0
	Close to GND	Open
Dry Contact		
	+10 ~ +50 VDC	+4 VDC Max.
Wet Contact (Sink)		
	+10 ~ +50 Vdc	+4 VDC Max.
Wet Contact (Source)		

DO Group1	ON State Readback as 1	OFF State Readback as 0
DO0 ~ DO3 (Sink)		
DO0 ~ DO3 (Source)		
DO Group2	ON State Readback as 1	OFF State Readback as 0
DO4 ~ DO7 (Sink)		
DO4 ~ DO7 (Source)		

## Ordering Information

M-7055U CR	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module, Sink- or Source-type selectable via Wire Connection (RoHS)
M-7055UD CR	M-7055U with LED Display (RoHS)

## Accessories

	tM-7520U CR	RS-232 to RS-485 Converter (RoHS)
	tM-7561 CR	USB to RS-485 Converter (RoHS)

	I-7514U CR	4-channel RS-485 Hub (RoHS)
	SG-3000 Series	Signal Conditioning Modules for Thermocouple, RTD, DC Voltage, DC Current and Power Input Transformers