



## M-7058-16

## M-7059-16

16-channel Isolated AC/DC Digital Input and 2-channel Digital Output Module

### Features

- AC/DC Digital Input: 16 Channels
- Digital Output: 2 Channels
- All Channels Can be used as 16-bit Counters
- Channel-to-Channel Isolation
- $\pm 4$  kV ESD Protection
- 3750 VDC Isolation Voltage
- Dual Watchdog
- Wide Operating Temperature Range:  $-25$  to  $+75^{\circ}\text{C}$



### Introduction

The M-7058-16/M-7059-16 module offers 16 channels for AC/DC Digital Input, each of which features channel-to-channel Photocouple isolation. All DI channels are also able to be used as 16-bit counters. The module has 16 LED indicators that can be used to monitor the status of the DI channels. The M-7058-16/M-7059-16 also provides  $\pm 4$  kV ESD,  $\pm 4$  kV EFT and  $\pm 2$  kV Surge protection, as well as 3750 Vdc intra-module isolation to enhance noise protection capabilities in harsh industrial environments.

### System Specifications

Model	M-7058-16	M-7059-16
Communication		
Interface	RS-485	
Bias Resistor	Yes	
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, 16 LEDs as Digital Input Indicators	
7-segment LED Display	-	
Isolation		
Intra-module Isolation, Field-to-Logic	3750 Vdc	
EMS Protection		
ESD (IEC 61000-4-2)	$\pm 4$ kV Contact for each Terminal	
	$\pm 8$ kV Air for Random Point	
EFT (IEC 61000-4-4)	$\pm 4$ kV for Power Line	
Surge (IEC 61000-4-5)	$\pm 2$ kV for Power Line	
Power		
Reverse Polarity Protection	Yes	
Input Range	$+10 \sim +30$ Vdc	
Consumption	0.4 W	
Mechanical		
Dimensions (L x W x H)	121 mm x 76 mm x 42 mm	
Installation	DIN-Rail or Wall Mounting	
Environment		
Operating Temperature	$-25$ to $+75^{\circ}\text{C}$	
Storage Temperature	$-40$ to $+85^{\circ}\text{C}$	
Humidity	10 to 95% RH, Non-condensing	

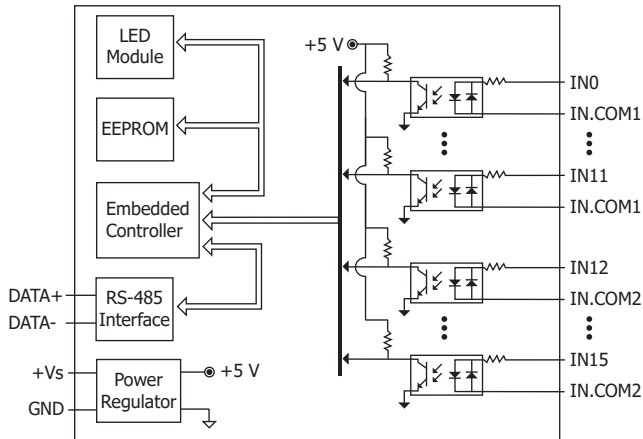
### Applications

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

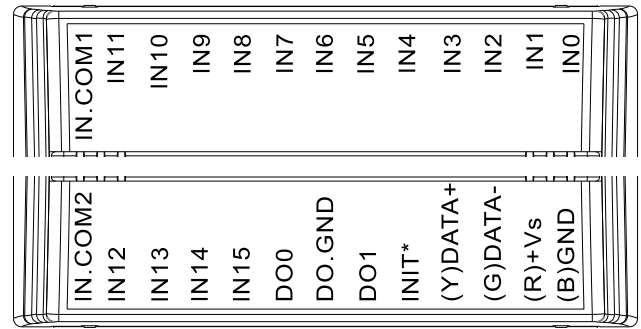
### I/O Specifications

Model	M-7058-16	M-7059-16
Digital Input/Counter		
Channels	16	
Type	Dry Contact	-
	Wet Contact	Sink/Source
Wet Contact	ON Voltage Level	80 ~ 250 VAC
	OFF Voltage Level	80 ~ 250 Vdc
Counters	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Input Impedance	150 k $\Omega$	10 k $\Omega$
Overvoltage Protection	300 VAC/Vdc Max.	120 VAC/Vdc Max.
Digital Output		
Channels	2	
Type	Isolated Open Collector	
Sink/Source (NPN/PNP)	Sink	
Max. Load Current	600 mA/Channel	
Load Voltage	$5$ Vdc ~ $50$ Vdc	
Overvoltage Protection	60 Vdc	
Overload Protection	1.4 A	
Short-circuit Protection	Yes	
Power-on Value	Yes, Programmable	
Safe Value	Yes, Programmable	

## Internal I/O Structure



## Pin Assignments



## Wire Connections

Input Type	ON State Readback as 1	OFF State Readback as 0
AC Input IN0 ~ IN11	Close to GND 	Open 
	AC Input IN12 ~ IN15	
DC Input IN0 ~ IN11		ON State Readback as 1 
	DC Input IN12 ~ IN15	
Digital Output		ON State Readback as 1
Open Collector (Sink)		

## Ordering Information

M-7058-16 CR	16-channel Isolated 80 ~ 250 VAC/VDC Digital Input and 2-channel Digital Output Module using the Modbus Protocol (Gray Cover) (RoHS)
M-7059-16 CR	16-channel Isolated 15 ~ 80 VAC/VDC Digital Input and 2-channel Digital Output Module using the Modbus Protocol (Gray Cover) (RoHS)

## Accessories

tM-7520U CR	RS-232 to RS-485 Converter (RoHS)	tM-SG4 CR	RS-485 Bias and Termination Resistor Module (RoHS)
tM-7561 CR	USB to RS-485 Converter (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		