



M-7058-16 M-7058D-16 M-7059-16 M-7059D-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 Digital Input Channels Can be used as 16-bit Counters
- Channel-to-Channel Isolation
- ± 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, and two channels for digital output. All digital input channels are also able to be used as 16-bit counters. The M-7058D-16/M-7059D-16 module has 16 LED indicators that can be used to monitor the status of the digital input channels. The M-7058(D)-16/M-7059(D)-16 also provides ± 4 kV ESD, ± 4 kV EFT and ± 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-7058D-16	M-7059-16	M-7059D-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	-	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)	± 4 kV Contact for each Terminal			
	± 8 kV Air for Random Point			
EFT (IEC 61000-4-4)	± 2 kV for Power Line			
Surge (IEC 61000-4-5)	± 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			

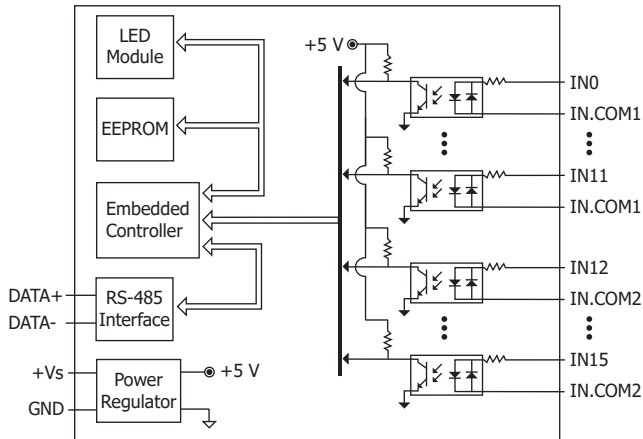
Applications

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

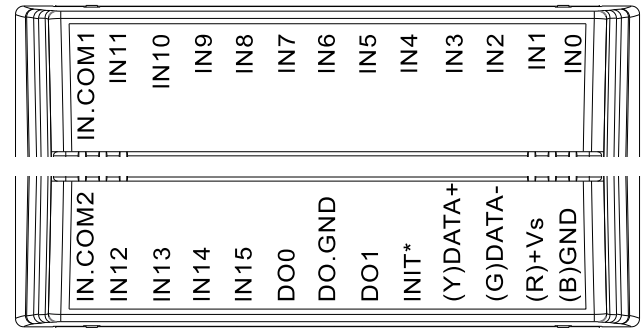
I/O Specifications

Model	M-7058-16	M-7059-16
	M-7058D-16	M-7059D-16
Digital Input/Counter		
Channels	16	
Type	Dry Contact	-
	Wet Contact	Sink/Source
Wet Contact	ON Voltage Level	80 ~ 250 VAC 100 ~ 250 VDC
	OFF Voltage Level	30 VAC/VDC Max. 3 VAC/VDC Max.
Counters	Max. Count	65535 (16-bit)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Input Impedance	150 k Ω	10 k Ω
Overvoltage Protection	300 VAC/VDC Max.	100 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



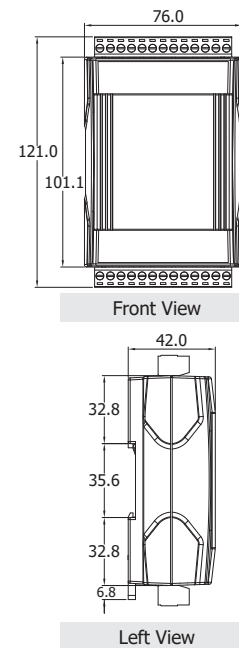
Pin Assignments



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	OFF State Readback as 0
Open Collector (Sink)		

Dimensions (Units: mm)



Ordering Information

M-7058-16-G CR	16-ch Isolated DI (Wet, 80~250 VAC/VDC) 2-ch DO (Sink, NPN) Module using DCON and Modbus Protocols (Gray Cover) (RoHS)
M-7058D-16-G CR	16-ch Isolated DI (Wet, 80~250 VAC/VDC) 2-ch DO (Sink, NPN) Module with LED Display using DCON and Modbus Protocols (Gray Cover) (RoHS)
M-7059-16-G CR	16-ch Isolated DI (Wet, 10~80 VAC/15~80 VDC) 2-ch DO (Sink, NPN) Module using DCON and Modbus Protocols (Gray Cover) (RoHS)
M-7059D-16-G CR	16-ch Isolated DI (Wet, 10~80 VAC/15~80 VDC) 2-ch DO (Sink, NPN) Module with LED Display using DCON and Modbus Protocols (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		