



## M-7054(D)

## M-7054P(D)

16-channel Isolated Universal Digital Input/Output Module

### Features

- 16-channel Universal Digital Input/Output
- M-7054(D)
  - 100 mA Load Current per Channel
  - $\pm 4$  kV ESD Protection
- M-7054P(D)
  - 500 mA Load Current per Channel with Short Circuit Protection
  - $\pm 8$  kV ESD Protection
  - $\pm 3$  kV Surge Protection for Power Line
- All Digital Input Channels can be used as 16-bit Counters
- $\pm 4$  kV EFT Protection
- 3750 VDC Intra-module Isolation
- Configurable Power-on Value Settings
- Configurable Safe Value Settings
- Wide Operating Temperature Range:  $-25$  to  $+75^{\circ}\text{C}$



### Introduction

The M-7054(P) provides 16 channels for universal Digital Input/Output, which can be selected via wire connections. The Digital Input channels are dry contact and can be used as 16-bit counters, while the Digital Output channels are sink type with short circuit protection and options for configuring power-on and safe Digital Output values. The M-7054(P) also provides  $\pm 8$  kV ESD,  $\pm 4$  kV EFT and  $\pm 3$  kV surge protection and 3750 VDC intra-module isolation to enhance noise protection capabilities in industrial environments.

### Applications

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

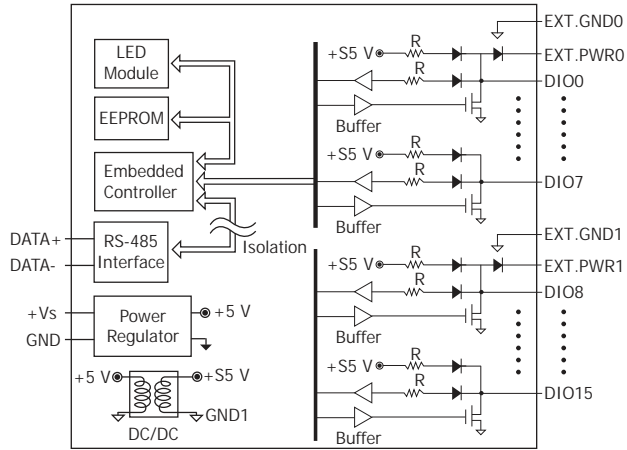
### System Specifications

Model	M-7054	M-7054D	M-7054P	M-7054PD
<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	Modbus RTU, DCON			
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	-	Yes
7-segment LED Display	-			
<b>Isolation</b>				
Intra-module Isolation, Field-to-Logic	3750 Vdc			
<b>EMS Protection</b>				
ESD (IEC 61000-4-2)	$\pm 4$ kV Contact for each Terminal		$\pm 8$ kV Contact for each Terminal	
	$\pm 8$ kV Air for Random Point		$\pm 16$ kV Air for Random Point	
EFT (IEC 61000-4-4)	$\pm 4$ kV for Power Line			
Surge (IEC 61000-4-5)	-		$\pm 3$ kV for Power Line	
<b>Power</b>				
Reverse Polarity Protection	Yes			
Input Range	$+10 \sim +30$ Vdc			
Consumption	1.2 W	1.3 W	1.2 W	1.3 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 $+75^{\circ}\text{C}$			
Storage Temperature	$-40$ to $+85^{\circ}\text{C}$			
Humidity	10 to 95% RH, Non-condensing			

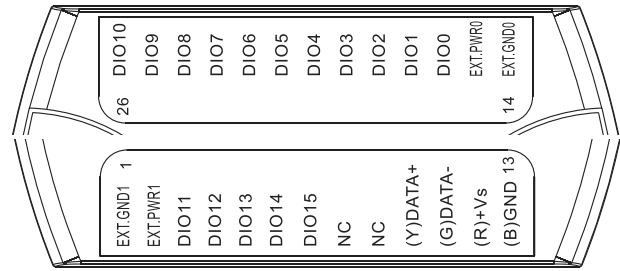
### I/O Specifications

Model		M-7054 M-7054D	M-7054P M-7054PD
<b>Universal Digital Input/Output</b>			
Channels		16-channel Isolated Universal Digital Input/Output (Configurable via Wire Connection)	
Digital Input	Dry Contact	ON Voltage Level	Close to GND
		OFF Voltage Level	Open
	Counters	Max. Count	16-bit (0~65535)
		Max. Input Frequency	100 Hz
	Min. Pulse Width	10 ms	
	Overvoltage Protection	$\pm 35$ Vdc	$\pm 60$ Vdc
Digital Output	Output Type	Sink	
	Max. Load Current	100 mA	500 mA
	Load Voltage	$+5 \sim 30$ Vdc	$+5 \sim 50$ Vdc
	Overvoltage Protection	-	60 Vdc
	Overload Protection	-	Yes
	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 LED ON Readback as 1	OFF State LED OFF Readback as 0
	Close to GND	Open
Dry Contact DIO0 ~ DIO7		
Dry Contact DIO8 ~ DIO15		
Output Type	ON State Readback as 1	OFF State Readback as 0
Drive Relay DIO0 ~ DIO7		
Drive Relay DIO8 ~ DIO15		

## Ordering Information

<b>M-7054-G CR</b>	16-channel Isolated Universal Digital Input/Output Module using the DCON and Modbus Protocols (Gray Cover) (RoHS)
<b>M-7054D-G CR</b>	M-7054 with LED Display (Gray Cover) (RoHS)
<b>M-7054P-G CR</b>	M-7054 with High Load Current Output (Gray Cover) (RoHS)
<b>M-7054PD-G CR</b>	M-7054P with LED Display (Gray Cover) (RoHS)

## 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