



Digital Input & Digital Output

RS-485 Remote I/O Modules



Introduction

The I-87054W module offers 8 isolated Digital Input channels and 8 isolated Digital Output channels. Either sink- or source-type Digital Input can be selected via the wire connections, and all Digital Input channels are also able to be used as 16-bit counters. The I-87054W supports sink-type output with short circuit protection. The I-87054W includes 16 LED indicators that can be used to monitor the status of the Digital Input and Digital Output channels, and options are available for configuring both power-on and safe values. 4 kV ESD protection and 3750 Vdc intra-module isolation are provided as standard.

System Specifications

Communication	
Interface	RS-485
Format	N, 8, 1
Baud Rate	1200 to 115200 bps
Protocol	DCON
Dual Watchdog	Yes, Module (1.6 Seconds), Communication (Programmable)
LED Indicators/Display	
System LED Indicators	Yes, 1 as Power/Communication Indicator
I/O LED Indicators	16 as High/Low Alarm Signals
Isolation	
Intra-module Isolation, Field-to-Logic	3750 Vrms
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each Terminal ±8 kV Air for Random Point
Power	
Power Consumption	0.7 W Max.
Mechanical	
Dimensions (L x W x H)	115 mm x 30 mm x 102 mm
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-40 to +85°C
Humidity	10 to 95% RH, Non-condensing

Features

- 8-channel Isolated Digital Input and 8-channel Isolated Digital Output
- Sink-type Digital Output Channels with Overload Protection
- All Digital Input Channels can be used as 16-bit Counters
- Short-circuit and Overcurrent Protection
- 4 kV ESD Protection
- 3750 Vdc Intra-module Isolation
- Configurable Power-on Value
- Configurable Safe Value
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C



Applications

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

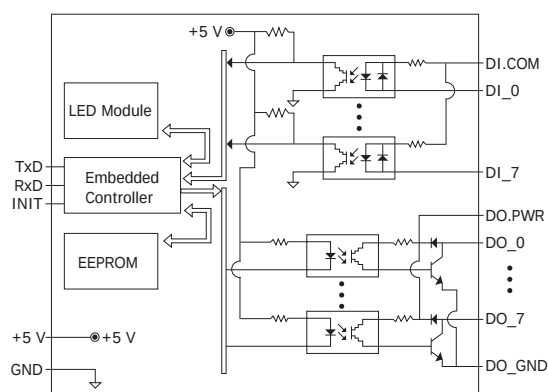
I/O Specifications

Digital Input		
Channels	8	
Type	Wet Contact	
Sink/Source (NPN/PNP)	Sink, Source	
ON Voltage Level	+3.5 Vdc ~ +50 Vdc	
OFF Voltage Level	+1 Vdc Max.	
Input Impedance	10 kΩ, 0.66 W	
Counters	Channels	8
	Max. Count	16-bit (65535)
	Max. Input Frequency	100 Hz
	Min. Pulse Width	5 ms
Channel-to-Channel Isolation		Yes
Low Pass Filter		Yes
Effective Distance for Dry Contact		-
Digital Output		
Channels		8
Type		Open Collector
Sink/Source (NPN/PNP)		Sink
Load Voltage		+5 Vdc ~ +50 Vdc
Max. Load Current		700 mA/channel
Overvoltage Protection		60 Vdc
Overload Protection		Yes
Short-circuit and Overcurrent Protection		Yes, 1.4 A
Power-on Value		Yes
Safe Value		Yes

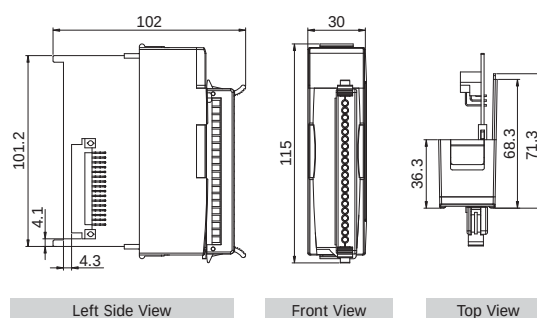
I-87KW Series

I-87054W

Internal I/O Structure



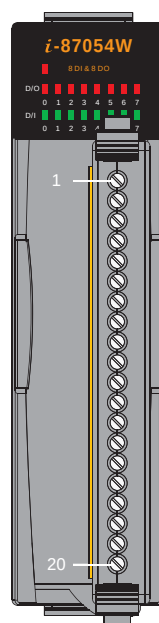
📏 Dimensions (Units: mm)



Wire Connections

Digital Input / Counter	ON State Readback as 1	OFF State Readback as 0
Sink	OPEN or $< +1$ V_{DC}	$+4 \sim +30$ V_{DC}
Source	OPEN or $< +1$ V_{DC}	$+4 \sim +30$ V_{DC}
Output Type	ON State Readback as 1	OFF State Readback as 0
Digital Output (Resistance Load)		
Digital Output (Inductive Load)		

Pin Assignments



Terminal No.	Pin Assignment
	01 DI.COM
	02 DI0
	03 DI1
	04 DI2
	05 DI3
	06 DI4
	07 DI5
	08 DI6
	09 DI7
	10 DO0
	11 DO1
	12 DO2
	13 DO3
	14 DO4
	15 DO5
	16 DO6
	17 DO7
	18 DO.GND
	19 DO.GND
	20 DO.PWR

Ordering Information

I-87054W-G	8-channel Isolated Digital Input and 8-channel Isolated Digital Output Module using the DCON Protocol (Gray Cover) (RoHS)
------------	---

Accessories

	RM-104/108/116	4/8/16-channel 16 A Power Relay Board, 1 Form C
	RM-204/208/216	4/8/16-channel 8 A Power Relay Board, 2 Form C
	DN-SSR4	4-channel 1A Solid-state Relay Board, 1 Form A

	RM-22.22	1-channel 20 A Power Relay for Direct 35 mm Rail (EN 50022) Mounting, 2 Form A
	SG-770 CR	7-channel Differential or 14-channel Single-ended Surge Protector (RoHS)