# I-87051W

16-channel Non-isolated Digital Input Module

## Features

- 16-channel Digital Input
- Dry Contact Digital Input Channels
- All Channels can be used as 16-bit Counters
- All Channels Non-isolated
- ±4 kV ESD Protection
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C

## Introduction

The I-87051W is a 16-channel Digital Input module for dry contact wire connections with an effective distance of up to 100 meters. All channels can be used as 16-bit counters and 4 kV ESD protection is provided. The I-87051W also includes 16 LED indicators that can be used to monitor the status of the Digital Input channels.

## Applications

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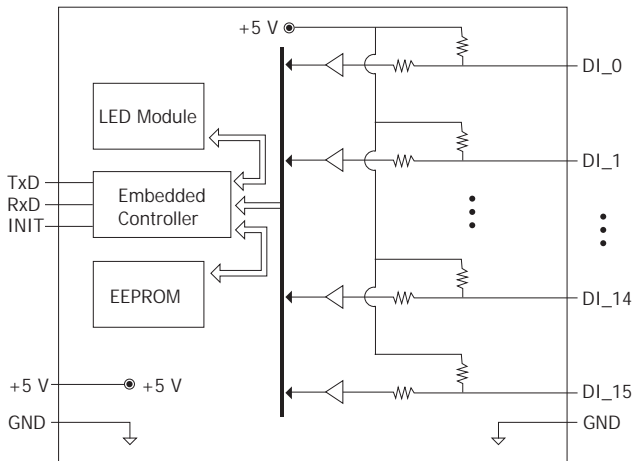- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

## 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 Indictors | Yes, 1 as Power/Communication Indicator |
| I/O LED Indicators | 16 as High/Low Alarm Signals |
| **Isolation** | |
| Intra-module Isolation, Field-to-Logic | - |
| **EMS Protection** | |
| ESD (IEC 61000-4-2) | ±4 kV Contact for each Terminal |
| | ±8 kV Air for Random Point |
| **Power** | |
| Power Consumption | 0.5 W Max. |
| **Mechanical** | |
| Dimensions (L × W × H) | 115 mm × 30 mm × 102 mm |
| **Environment** | |
| Operating Temperature | -25 to +75°C |
| Storage Temperature | -40 to +85°C |
| Humidity | 10 to 95% RH, Non-condensing |

## I/O Specifications

| Digital Input | | |
|---|---|---|
| Channels | | 16 |
| Type | | Dry Contact |
| Sink/Source (NPN/PNP) | | Source |
| ON Voltage Level | | Close to GND |
| OFF Voltage Level | | Open |
| Counters | Channels | 16 |
| | Max. Count | 16-bit (65535) |
| | Max. Input Frequency | 100 Hz |
| | Min. Pulse Width | 5 ms |
| Channel-to-Channel Isolation | | - |
| Low Pass Filter | | Yes |
| Effective Distance for Dry Contact | | 100 m Max. |

I-87051W

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## Internal I/O Structure



## Dimensions (Units: mm)



Left View  Front View  Top View
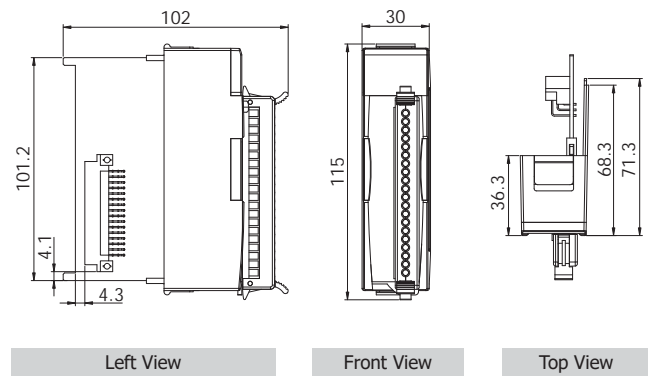
## Wire Connections

| Digital Input/Counter | ON State Readback as 1 | OFF State Readback as 0 |
|---|---|---|
| | Close to GND (+1 $V_{DC}$ Max.) | OPEN (+4 $V_{DC}$ ~ +30 $V_{DC}$) |
| Dry Contact | DIx (B)GND | DIx (B)GND |
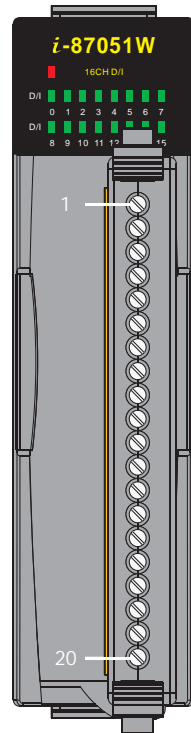
## Pin Assignments



| Terminal No. | Pin Assignment |
|---|---|
| 01 | DI0 |
| 02 | DI1 |
| 03 | DI2 |
| 04 | DI3 |
| 05 | DI4 |
| 06 | DI5 |
| 07 | DI6 |
| 08 | DI7 |
| 09 | DI8 |
| 10 | DI9 |
| 11 | DI10 |
| 12 | DI11 |
| 13 | DI12 |
| 14 | DI13 |
| 15 | DI14 |
| 16 | DI15 |
| 17 | GND |
| 18 | GND |
| 19 | GND |
| 20 | GND |

## Ordering Information

| I-87051W-G CR | 16-channel Non-isolated Digital Input Module using the DCON Protocol (Gray Cover) (RoHS) |
|---|---|

## Accessories

| SG-770 CR | 7-channel Differential or 14-channel Single-ended Surge Protector (RoHS) |
|---|---|