



## I-87042W-G

16-channel Isolated Digital Input &  
16-channel Isolated Digital Output Module

### Introduction

I-87042W offers 16 channels for digital input and 16 channels for digital output. Each of which features Photo-couple isolation. I-87042W supports sink type output with short-circuits protection. There are option for Power-on value and safe value for your consideration. About Input, you can chose sink type or source type input by wire connection. All channels are able to be used as 16-bit counter. I-87042W also has 32 LED indicators for channel status. 4 kV ESD protection and 3750 Vdc intra-module isolation are standard.

### Applications

- Industrial Automation
- Industrial Machinery
- Building Automation
- Food and Beverage Systems
- Semiconductor Fabrication
- Control Systems

### 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),<br>Communication (Programmable) |
| Safe Value (When Host Fail<br>or Communication Fail) | Yes  |
| Power-on Preset Value                                | Yes  |
| LED Indicators/Display                               |  |
| System LED Indicators                                | Yes, 1 as Power/Communication Indicator                    |
| I/O LED Indicators                                   | 32 as Digital Input and Output Indicators                  |
| Isolation  |  |
| Intra-module Isolation,<br>Field-to-Logic            | 3750 VDC   |
| EMS Protection                                       |  |
| ESD (IEC 61000-4-2)                                  | ±4 kV Contact for each Terminal                            |
|  | ±8 kV Air for Random Point                                 |
| Power  |  |
| Power Consumption                                    | 1.25 W ,±5% For Hardware                                   |
| Mechanical   |  |
| Dimensions (W × L × H)                               | 30 mm × 114 mm × 85 mm                                     |
| Environment  |  |
| Operating Temperature                                | -25 to +75°C   |
| Storage Temperature                                  | -40 to +85°C   |
| Humidity   | 10 to 95% RH, Non-condensing                               |

### Features

- Digital Input for Sink Type or Source Type
- Digital Outputs for Sink Type
- Power-on Value Setting
- Safe Value Setting
- Photocouple Isolation
- 4 kV ESD Protection
- 3750 Vdc Intra-module Isolation



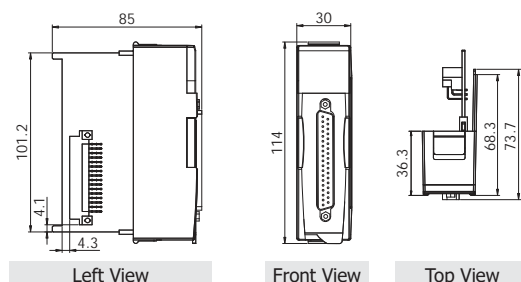
I-87042W and I-87042W  
with DN-8K16P16R &  
DB37 Male to Female Cable  
(Optional)

I-8017DW, I-8040W, I-8040PW,  
I-8041W, I-8041AW, I-8041PW, I-8042W,  
I-87017DW, I-87024DW, I-87028CDW,  
I-87040W, I-87040PW, I-87041W, I-87041PW and I-87042W  
with DN-37-381-A & DB37 Male to Female Cable  
(Optional)

### I/O Specifications

| Digital Input                |                           |
|------------------------------|---------------------------|
| Channels                     | 16                        |
| Type                         | One common for all Inputs |
| Sink/Source (NPN/PNP)        | Sink, Source              |
| ON Voltage Level             | +3.5 VDC ~ 30 VDC         |
| OFF Voltage Level            | +1 VDC Max.               |
| Input Impedance              | 3 kΩ                      |
| Counter (100 Hz, 16-bit)     | Yes                       |
| Channel-to-Channel Isolation | Yes                       |
| Digital Output               |                           |
| Channels                     | 16                        |
| Type                         | Open Collector            |
| Sink/Source (NPN/PNP)        | Sink                      |
| Load Voltage                 | +5 VDC ~ +30 VDC          |
| Max. Load Current            | 100 mA/Channel            |
| Overload Protection          | Yes                       |
| Short Circuit Protection     | -                         |
| Power-on Value               | Yes                       |
| Safe Value                   | Yes                       |

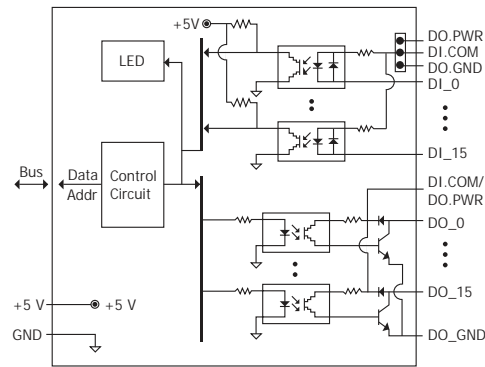
### Dimensions (Units: mm)



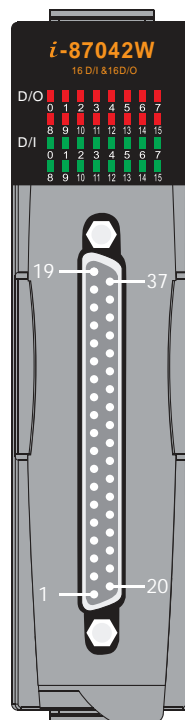
## Wire Connections

| Select Type             |                                  |                                    |
|-------------------------|----------------------------------|------------------------------------|
| Source Type             | Sink Type                        |                                    |
|                         |                                  |                                    |
| Input Type              | ON State LED ON<br>Readback as 1 | OFF State LED OFF<br>Readback as 0 |
| Relay Contact (Sink)    | Relay ON<br>                     | Relay OFF<br>                      |
| TTL/CMOS Logic (Sink)   | Voltage > +3.5 V<br>             | Voltage < +1 V<br>                 |
| NPN Output (Sink)       | Open Collector ON<br>            | Open Collector OFF<br>             |
| PNP Output (Sink)       | Open Collector ON<br>            | Open Collector OFF<br>             |
| Input Type              | ON State LED ON<br>Readback as 1 | OFF State LED OFF<br>Readback as 0 |
| Relay Contact (Source)  | Relay ON<br>                     | Relay OFF<br>                      |
| TTL/CMOS Logic (Source) | Voltage > +3.5 V<br>             | Voltage < +1 V<br>                 |
| NPN Output (Source)     | Open Collector ON<br>            | Open Collector OFF<br>             |
| PNP Output (Source)     | Open Collector ON<br>            | Open Collector OFF<br>             |
| Output Type             | ON State LED ON<br>Readback as 1 | OFF State LED OFF<br>Readback as 0 |
| Drive Relay             | Relay ON<br>                     | Relay OFF<br>                      |
| Resistance Load         |                                  |                                    |

## Internal I/O Structure



## Pin Assignments



| Pin Assignment | Terminal | No. | Pin Assignment |
|----------------|----------|-----|----------------|
| DI.COM/DO.PWR  | 19       | 37  | DI.COM/DO.PWR  |
| DO.GND         | 18       | 36  | DO.GND         |
| DO.GND         | 17       | 35  | DO_15          |
| DI_15          | 16       | 34  | DO_14          |
| DI_14          | 15       | 33  | DO_13          |
| DI_13          | 14       | 32  | DO_12          |
| DI_12          | 13       | 31  | DO_11          |
| DI_11          | 12       | 30  | DO_10          |
| DI_10          | 11       | 29  | DO_9           |
| DI_9           | 10       | 28  | DO_8           |
| DI_8           | 09       | 27  | DO_7           |
| DI_7           | 08       | 26  | DO_6           |
| DI_6           | 07       | 25  | DO_5           |
| DI_5           | 06       | 24  | DO_4           |
| DI_4           | 05       | 23  | DO_3           |
| DI_3           | 04       | 22  | DO_2           |
| DI_2           | 03       | 21  | DO_1           |
| DI_1           | 02       | 20  | DO_0           |
| DI_0           | 01       |     |                |

37-pin Male D-Sub Connector

## Ordering Information

|                      |   |
|----------------------|---|
| <b>I-87042W-G CR</b> | 16-ch Isolated DI & 16-channel Isolated DO (Sink, NPN) Module (Gray Cover) (RoHS)<br>Includes CA-4002F (DB37 connector Female with plastic cover) |
|----------------------|---|

## Accessories

|  |   |  |
|--|---|--|
|  | DN-8K16P16R CR  | 16-channel digital input terminal and 16-channel relay output board<br>Female DB37 to Screw Terminal Board (Pitch= 3.81 mm) with DIN-rail Mounting (RoHS)<br>Include: CA-3705A (DB37 Male to Female Cable, 90°, 50 CM) |
|  | DN-37-A CR  | Female DB37 to Screw Terminal Board (Pitch= 5.08 mm) with DIN-rail Mounting (RoHS)<br>Include: CA-3710A (DB37 Male to Female Cable, 90°, 1 M)  |
|  | DN-37-381-A CR  | Female DB37 to Screw Terminal Board (Pitch=3.81 mm) with DIN-rail Mounting (RoHS)<br>Include: CA-3710A (DB37 Male to Female Cable, 90°, 1 M)   |
|  | CA-3705A CR<br>CA-3710A CR<br>CA-3715A CR                                     | DB37 Male to Female Cable, 90°, 0.5 M/1 M/1.5 M (RoHS)   |
|  | CA-3710AM CR<br>CA-3720AM CR<br>CA-3730AM CR<br>CA-3750AM CR<br>CA-37100AM CR | DB37 Male to Female, with Molded Cable, 45°, 1 M/2 M/3 M/5 M/10 M (RoHS)   |