



## I-8014W

250 kS/s, 16-bit, 16/8-channel  
Voltage/Current Input Module

## I-8014CW

250 kS/s, 16-bit, 8-channel  
Current Input Module

### Features

- Input Type
  - I-8014W: 16 single-ended/8 differential input channels
  - I-8014CW: 8 differential input channels
- Input Range
  - I-8014W:  $\pm 1.25$  V,  $\pm 2.5$  V,  $\pm 5$  V,  $\pm 10$  V,  $\pm 20$  mA
  - I-8014CW:  $\pm 20$  mA
- 16-bit, 250 kHz ADC converter
- 4 K-samples FIFO buffer
- External trigger mode: post-trigger
- Internal/external trigger start
- Magic Scan



### Introduction

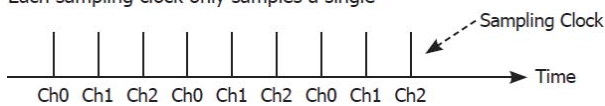
The I-8014W/I-8014CW is a high performance Analog Input module. The I-8014W provides up to 16 single-ended or 8 differential input channels, while the I-8014CW provides up to 8 differential input channels. Both modules feature 16-bit resolution, 250 kS/s sampling rate, and a 4 k sample FIFO buffer, as well as providing 2500 VDC isolation protection.

The I-8014W/I-8014CW module contains an impressive scan function called Magic Scan, which is able to improve many of the functions and meet the demands of high-end users. Magic Scan function can scan the individual input channels at different input range and when performing single channel scan, the sampling rate can be maintained at 250 kS/s.

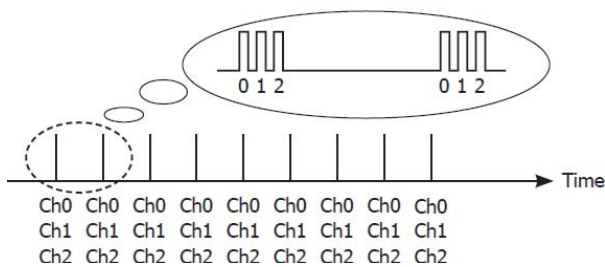
The Magic Scan function on the I-8014W/I-8014CW module can be operated in two ways. The first is a standard scan and the other is a Virtual Sample and Hold function. The cost of almost all AI Cards is high if it includes a Sample and Hold function, but ICP DAS can now offer a low-cost alternative.

#### Standard Mode

Each sampling clock only samples a single

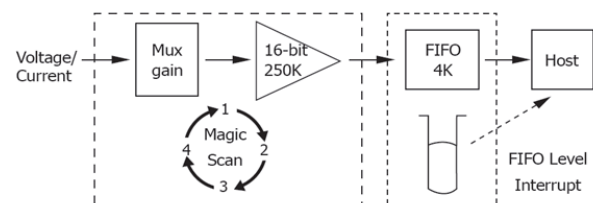


#### Virtual Sample and Hold Mode



The I-8014W/I-8014CW module includes a 4 k sample onboard FIFO buffer for A/D conversion. The new FIFO technology uses a trigger interrupt signal, meaning that if the sampled count is higher than the pre-defined FIFO level, an interrupt signal will notify the host.

With the Magic Scan function and 4 k FIFO buffer, the I-8014W/I-8014CW can easily implement high-accuracy, high-speed and time-critical data acquisition applications.



### System Specifications

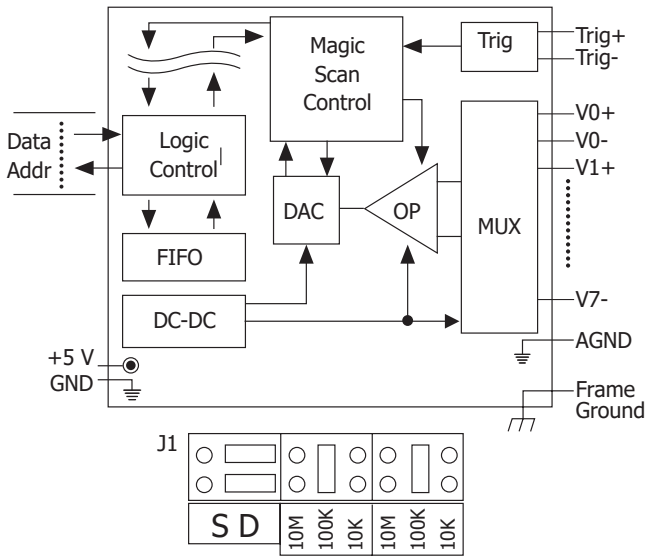
| Model                                  | I-8014W                              | I-8014CW |
|--|--------------------------------------|----------|
| <b>LED Display</b>                     |                                      |          |
| System LED Indicator                   | Yes                                  |          |
| <b>Isolation</b>                       |                                      |          |
| Intra-module Isolation, Field-to-Logic | 2500 VDC                             |          |
| <b>EMS Protection</b>                  |                                      |          |
| ESD (IEC 61000-4-2)                    | $\pm 4$ kV Contact for each Terminal |          |
| <b>Power</b>                           |                                      |          |
| Consumption                            | 2.5 W Max.                           |          |
| <b>Mechanical</b>                      |                                      |          |
| Dimensions (W x L x H)                 | 31 mm x 134 mm x 144 mm              |          |
| <b>Environment</b>                     |                                      |          |
| Operating Temperature                  | -25 ~ +75 °C                         |          |
| Storage Temperature                    | -30 ~ +85 °C                         |          |
| Humidity                               | 10 ~ 90 % RH, Non-condensing         |          |

### I/O Specifications

| Model                  | I-8014W                               | I-8014CW  |   |
|------------------------|---------------------------------------|---|---|
| <b>Analog Input</b>    |                                       |   |   |
| Channel                | Single-ended                          | 16  | - |
|                        | Differential                          | 8   |   |
| Input Range            | Voltage                               | $\pm 1.25$ V, $\pm 2.5$ V, $\pm 5$ V, $\pm 10$ V                        | - |
|                        | Current                               | -20 ~ +20 mA (I-8014W requires Optional External 125 $\Omega$ Resistor) |   |
| Resolution             | 16-bit                                |   |   |
| Sample Rate            | Single Channel Pacer Mode: 250 kS/s   |   |   |
| FIFO Size              | 4 k words                             |   |   |
| Accuracy               | 0.05 % of FSR                         |   |   |
| Trigger Mode           | Polling, Pacer (Magic Scan)           |   |   |
| Overvoltage protection | -45 ~ +60 VDC                         |   |   |
| Input Impedance        | 20 K, 200 K, 20 M (Jumper Selectable) | 125 $\Omega$  |   |

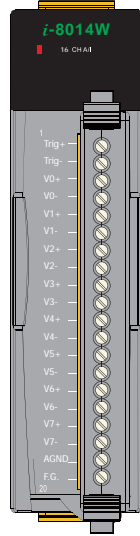
## Internal I/O Structure

### I-8014W



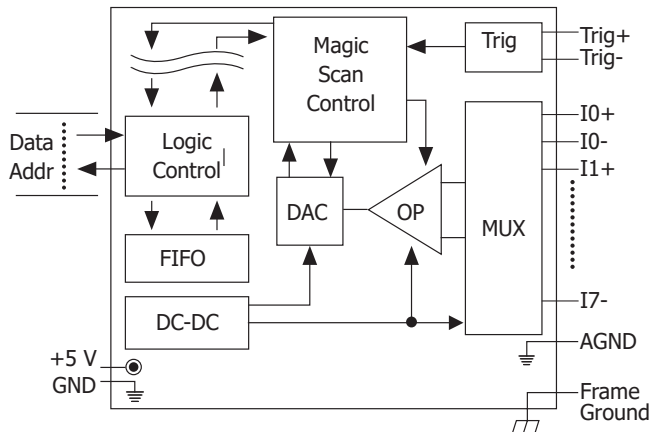
## Pin Assignments

### I-8014W

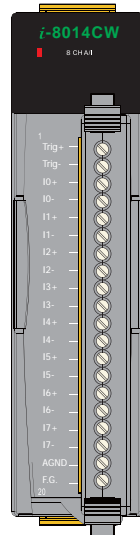


| Terminal No. | Pin Assignment |              |
|--------------|----------------|--------------|
|              | Differential   | Single-ended |
| 01           | Trig+          | Trig+        |
| 02           | Trig-          | Trig-        |
| 03           | V0+            | V0           |
| 04           | V0-            | V8           |
| 05           | V1+            | V1           |
| 06           | V1-            | V9           |
| 07           | V2+            | V2           |
| 08           | V2-            | V10          |
| 09           | V3+            | V3           |
| 10           | V3-            | V11          |
| 11           | V4+            | V4           |
| 12           | V4-            | V12          |
| 13           | V5+            | V5           |
| 14           | V5-            | V13          |
| 15           | V6+            | V6           |
| 16           | V6-            | V14          |
| 17           | V7+            | V7           |
| 18           | V7-            | V15          |
| 19           | AGND           | AGND         |
| 20           | F.G.           | F.G.         |

### I-8014CW



### I-8014CW



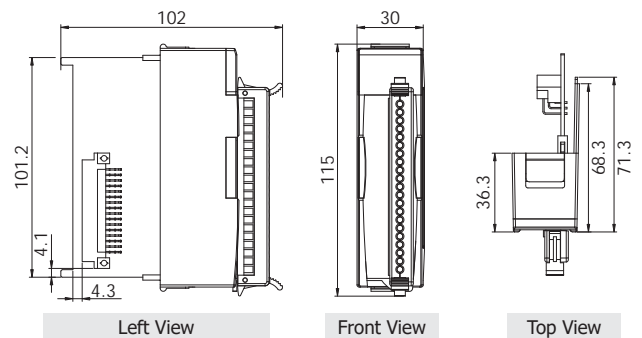
| Terminal No. | Pin Assignment |
|--------------|----------------|
| 01           | Trig+          |
| 02           | Trig-          |
| 03           | I0+            |
| 04           | I0-            |
| 05           | I1+            |
| 06           | I1-            |
| 07           | I2+            |
| 08           | I2-            |
| 09           | I3+            |
| 10           | I3-            |
| 11           | I4+            |
| 12           | I4-            |
| 13           | I5+            |
| 14           | I5-            |
| 15           | I6+            |
| 16           | I6-            |
| 17           | I7+            |
| 18           | I7-            |
| 19           | AGND           |
| 20           | F.G.           |

## Wire Connections

| I-8014W    |   |  |
|------------|---|--|
| Input Type | Differential  | Singled-ended  |
| Voltage    | mV/V $\left[ \begin{array}{c} + \\ \ominus \\ \ominus \\ + \end{array} \right]$ Vin+<br>Vin-                          | mV/V $\left[ \begin{array}{c} + \\ \ominus \\ \ominus \\ + \end{array} \right]$ Vin<br>AGND                          |
| Current    | $\left[ \begin{array}{c} \uparrow \\ \ominus \\ \ominus \\ \uparrow \end{array} \right]$ Vin+<br>Vin-<br>125 $\Omega$ | $\left[ \begin{array}{c} \uparrow \\ \ominus \\ \ominus \\ \uparrow \end{array} \right]$ Vin<br>AGND<br>125 $\Omega$ |

| I-8014CW   |   |
|------------|---|
| Input Type | Differential  |
| Current    | $\left[ \begin{array}{c} \uparrow \\ \ominus \\ \ominus \\ \uparrow \end{array} \right]$ I+<br>I- |

## Dimensions (Units: mm)



## Ordering Information

|                      |  |
|----------------------|--|
| <b>I-8014W-G CR</b>  | 16-bit, 250 K sampling rate, 16/8-channel Analog Input Module (RoHS) |
| <b>I-8014CW-G CR</b> | R 16-bit, 250 K sampling rate, 8-channel Analog Input Module (RoHS)  |