



## I-87017DW

8-channel Differential/16-channel Single-Ended Analog Input Module with High Voltage Protection

### Introduction

The I-87017DW is a 8-channel differential/16-channel single-ended analog input module. The analog input range is software selectable and supports  $\pm 10$  V,  $\pm 5$  V,  $\pm 1$  V,  $\pm 500$  mV,  $\pm 150$  mV,  $0 \sim +20$  mA,  $+4 \sim +20$  mA, and  $\pm 20$  mA. And all channels support 240 Vrms overvoltage protection in differential mode. Differential mode and single-ended mode is selected via jumper selectable jumpers.

### 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	3000 Vdc
EMS Protection	
ESD (IEC 61000-4-2)	$\pm 4$ kV Contact for each Terminal
	$\pm 8$ kV Air for Random Point
Power	
Power Consumption	1.3 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 Differential/16-channel Single-ended Analog Input
- D-Sub 37-Pin Connector
- 4 kV ESD Protection
- Dual Watchdog
- 3000 VDC Intra-module Isolation, Field-to-Logic
- RoHS Compliant
- Wide Operating Temperature Range: -25 to +75°C



### Applications

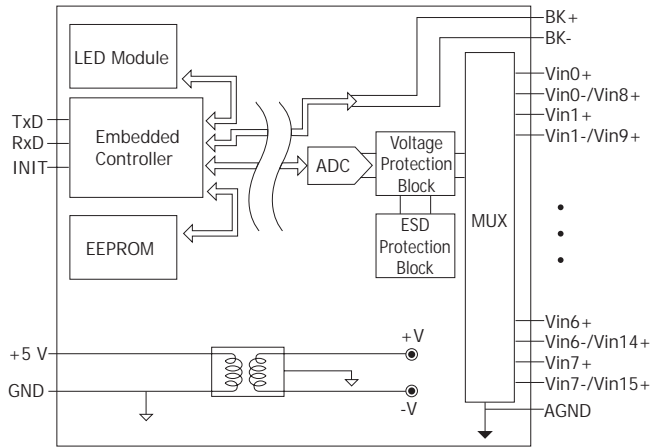
- Building Automation
- Factory Automation
- Machine Automation
- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

### I/O Specifications

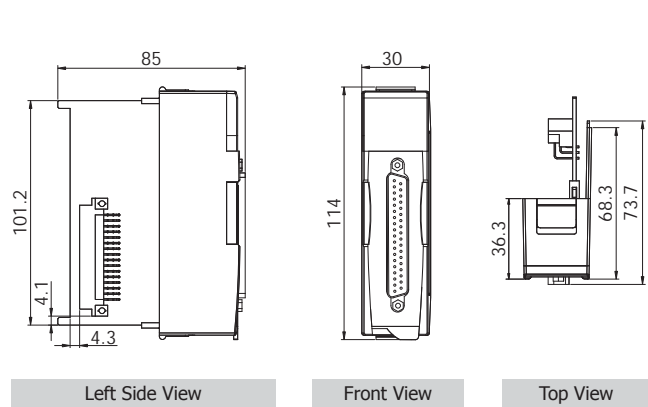
Analog Input		
Channels	8 Differential or 16 Single-ended, (See Note 1), Jumper Selectable	
Range	$\pm 10$ VDC, $\pm 5$ VDC, $\pm 1$ VDC, $\pm 500$ mV, $\pm 150$ mV, $0 \sim +20$ mA, $+4 \sim +20$ mA, $-20$ mA $\sim +20$ mA (Requires Optional External 125 $\Omega$ Resistor)	
Resolution	Normal Mode	16-bit
	Fast Mode	12-bit
Accuracy	Normal Mode	$\pm 0.1\%$ of FSR
	Fast Mode	$\pm 0.5\%$ of FSR
Sampling Rate	Normal Mode	16-bit, 10 Hz (Total)
	Fast Mode	12-bit, 50 Hz (Total)
-3dB Bandwidth	15.7 Hz	
Zero Drift	$\pm 20$ $\mu$ V/°C	
Span Drift	$\pm 25$ ppm/°C	
Common Mode Rejection	86 dB	
Normal Mode Rejection	100 dB	
Input Impedance	Differential	2 M $\Omega$
	Single-ended	1 M $\Omega$
Individual Channel Configurable	Yes	
Open Daughter Board Detection	Yes	
Overvoltage Protection	Differential	240 Vrms
	Single-ended	150 Vrms

Note 1: Differential mode can be used for voltage input and current input. Single-Ended mode can be used for voltage input only.

### Internal I/O Structure



### Dimensions (Units: mm)



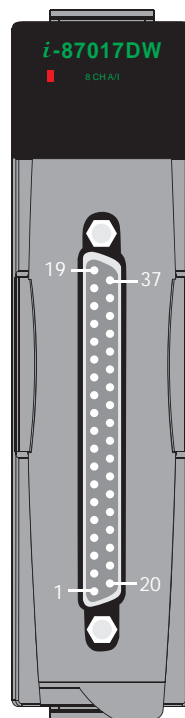
### Wire Connections

Input Type	Differential	Single-ended
JP4 Jumper		
Voltage Input Wiring		
Current Input Wiring		

Note: When connecting to a current source, an optional external 125Ω resistor is required.

Daughter Board Detection	
Connect	Open

### Pin Assignments



Pin Assignment	Terminal	No.	Pin Assignment
AGND	19	37	BK+
AGND	18	36	N/A
V7-/V15+	17	35	N/A
V7+	16	34	N/A
V6-/V14+	15	33	N/A
V6+	14	32	N/A
V5-/V13+	13	31	N/A
V5+	12	30	N/A
V4-/V12+	11	29	N/A
V4+	10	28	N/A
V3-/V11+	09	27	N/A
V3+	08	26	N/A
V2-/V10+	07	25	N/A
V2+	06	24	N/A
V1-/V9+	05	23	N/A
V1+	04	22	N/A
V0-/V8+	03	21	N/A
V0+	02	20	N/A
BK-	01		

37-pin Male D-Sub Connector

### Ordering Information

I-87017DW-G CR	8-channel Analog Input Module (Gray Cover) (RoHS)
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### Accessories

DN-37-A	I/O Connector Block with DIN-Rail Mounting and 37-pin D-sub Connector (pitch: 5.08 mm)
DN-37-381-A	I/O Connector Block with DIN-Rail Mounting and 37-pin D-sub Connector (pitch: 3.81 mm)
CA-3705A	Male-Female D-sub Cable 0.5 m
CA-3710A	Male-Female D-sub Cable 1 m

CA-3715A	Male-Female D-sub Cable 1.5 m
125Ω, 0.1% DIP Resistors	Resistor used for Current Type I-87017/ I-87018 Series Modules
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