



## SG-3011-G/SG-3011H-G

Thermocouple Input Signal Conditioner

### Introduction

The SG-3011/SG-3011H module is a thermocouple input signal conditioner that uses a microprocessor-controlled high-resolution 24-bit integrated A/D converter to acquire the thermocouple signal and the cold junction compensation input. Temperature measurement is performed using the thermocouple linearization and cold junction compensation function. The range of thermocouple types supported by the SG-3011/SG-3011H module include J, K, T, E, R, S, B, N, C, L, M, L2 (DIN43710). The response time for the SG-3011 module is 100 ms. the response time for the SG-3011H is switch selectable and can be set to either 0.5 ms or 100 ms. The power supply that drives the input and output circuitry in the module is internally isolated, enabling the SG-3011/SG-3011H to offer true channel-to-channel isolation. The SG-3011/SG-3011H module is easily mounted on a standard DIN rail, and the module can operate in harsh environments with a wide temperature range.

### Applications

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

### System Specifications

Model Name	SG-3011	SG-3011H
<b>Isolation</b>		
Three-way Isolation	1000 VDC	
<b>Power</b>		
Reverse Polarity Protection	Yes	
Input Range	+10 ~ +30 VDC	
Consumption	1.44 W	
<b>Mechanical</b>		
Dimensions (W x L x H)	25 mm x 114 mm x 70 mm	
<b>Environment</b>		
Operating Temperature	-25 ~ +75 °C	
Storage Temperature	-40 ~ +85 °C	
Humidity	10 ~ 95% RH, Non-condensing	

### Features

- Configurable for a Wide Range of Thermocouple Types
- Adjustable CJC Offset
- Open Thermocouple Detection
- Three-way Isolation: 1000 VDC
- High-speed Response Time: 0.5 ms (SG-3011H)



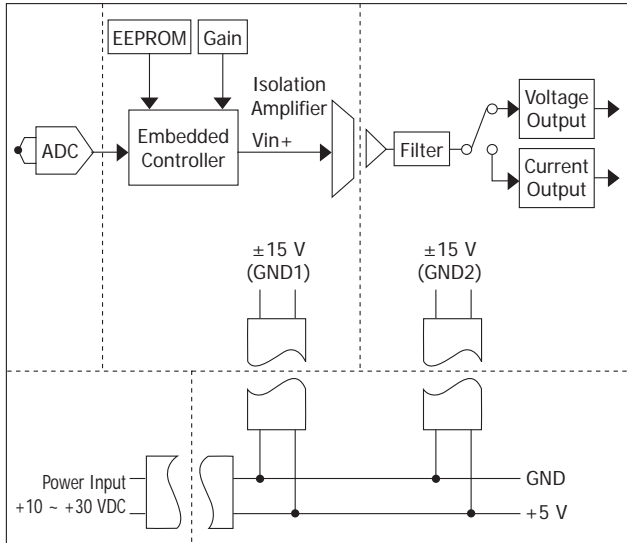
### Thermocouple Type

Type	Temperature Range (°C)	
	SG-3011	SG-3011H
J	-40 ~ +760	-40 ~ +760, -210 ~ +760
K	0 ~ +1000	0 ~ +1000, -270 ~ +1372
T	-100 ~ +400	-100 ~ +400, -270 ~ +400
E	0 ~ +1000	0 ~ +1000, -270 ~ +1000
R	+500 ~ +1750	
S	+500 ~ +1750	
B	+500 ~ +1800	
N	-100 ~ +1300	
C	0 ~ +2000	
L	-200 ~ +800	
M	-200 ~ +100	
L2 (DIN 43710)	-200 ~ +900	

### I/O Specifications

Model Name	SG-3011	SG-3011H
<b>Analog Input</b>		
Channels	1	
Type	J, K, T, E, R, S, B, N, C, L, M, L2	
Resolution	24-bit	
Accuracy	±0.2% of FSR	±0.1% of FSR
Input Impedance	1.8 MΩ	1.6 MΩ
Offset Mode	Adjustable CJC Offset	
Response Time	100 ms	0.5 ms or 100 ms (Switch Selectable)
Open Thermocouple Detection	Yes	
<b>Analog Output</b>		
Channels	1	
Type	0 ~ 10 VDC, 0 ~ 20 mA	
Resolution	12-bit	
Accuracy	±0.1% of FSR	
Current Load Resistance	<50 Ω	

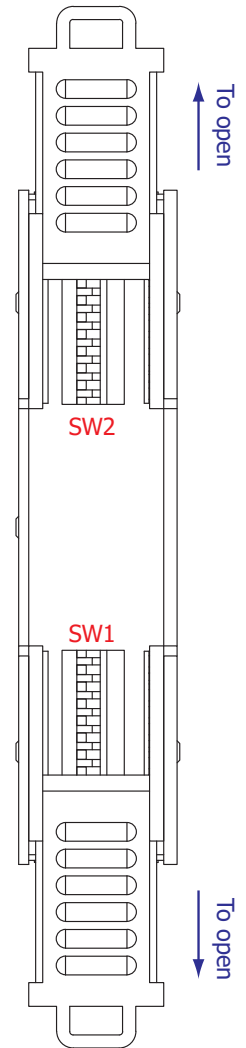
## Internal I/O Structure



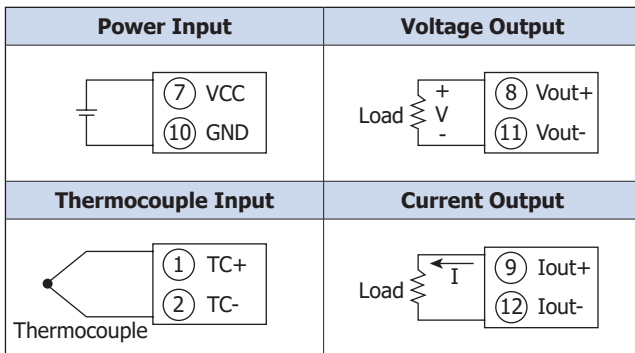
## PIN Assignments



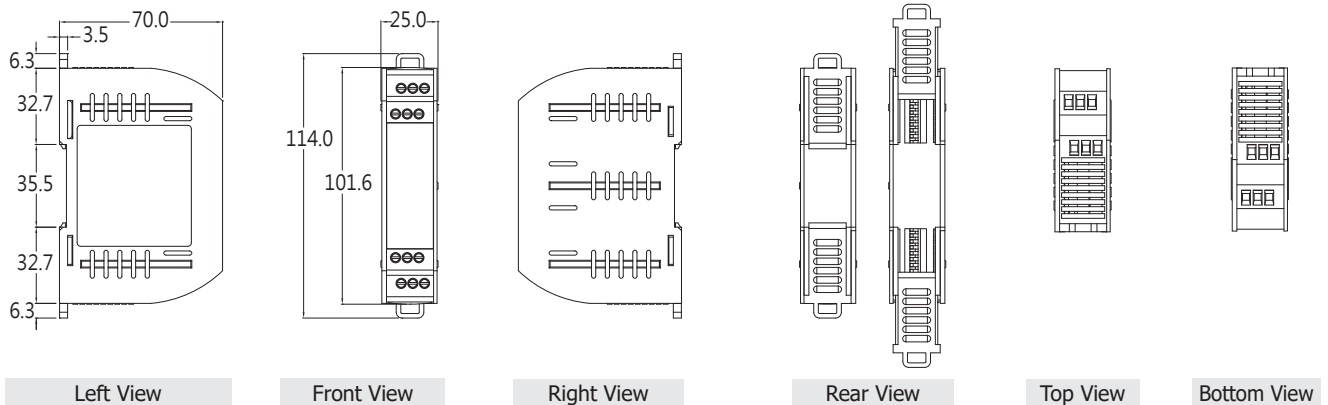
Pin	Name
1	TC+
2	TC-
3	Reserve
4	FGND
5	FGND
6	FGND
7	VCC
8	Vout+
9	Iout+
10	GND
11	Vout-
12	Iout-



## Wire Connections



## Dimensions (Units: mm)



## Ordering Information

<b>SG-3011-G CR</b>	Thermocouple Input Signal Conditioner (RoHS)
<b>SG-3011H-G CR</b>	Thermocouple Input Signal Conditioner with High-speed Response Time (RoHS)