SG-3011 Isolated Thermocouple Input Module
User's Manual

Introduction

The SG-3011 is a thermocouple input signal conditioner.   SG-3011 uses microprocessor-controlled high-resolution 24-bit dual-slope,integrating A/D converter to acquire thermocouple signal and cold junction compensation input. Temperature measurement is handled by thermocouple linearization and cold junction compensation function.   The supported thermocouple types are J, K, T, E, R, S, B, N, C, L, M,L2(DIN 43710).

The SG-3011 features optical isolation technique providing 3000Vdc isolation. The power supply that drives the module`s input and output circuitry is internally isolated,enabling SG-3011 to offer true channel - to - channel isolation.

It's easy to mount the SG-3011 on a standard DIN rail and can operate in environment with wide temperature range.

Specifications

Thermocouple Type:

Thermocouple Type	Temperature Range ℃
Type J	-40 ~ +760
Type K	0 ~ +1000
Type T	-100 ~ +400
Type E	0 ~ +1000
Type R	+500 ~ +1750
Type S	+500 ~ +1750
Type B	+500 ~ +1800
Type N	-100 ~ +1300
Type C	0 ~ +2000
Type L	-200 ~ +800
Type M	-200 ~ +100
Type L2 (DIN 43710)	-200 ~ +900

Voltage Output:
- Unipolar: 0~10V
- Output impedance: <50Ω

Current Output:
- Current: 0~20mA
- Current load resistor:0~450Ω (Source)

General
- Three-way isolation: 3000 Vdc
- Overload protection: 240 Vrms
- CJC offset adjustable
- Open thermocouple detection
- Accuracy: ±0.2% of full range
- Operating temperature range:-25℃～75℃
- Storage temperature range:-30℃～85℃

Supply Voltage
- Input range: 10～30 Vdc ±10﹪

Configuration

The terminal wiring for the SG-3011 is shown in Figure A.   The SG-3011 uses a power input range of 10~30Vdc.

Figures D and E show the switch positions used to configure the input and output range. The I/O configuration switches are located inside the module and can be accessed by removing the DIN-rail bracket covers by sliding them in the direction shown in Figure B.

PIN Assignment

Figure A: Pin assignment

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-

Figure B: Switch location

Wire Connection

Current Output : 0~20mA

Voltage Output : 0~10V

Power Supply : 10~30V
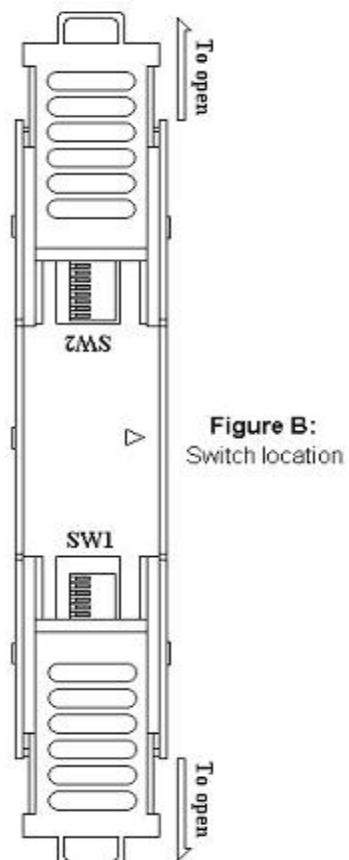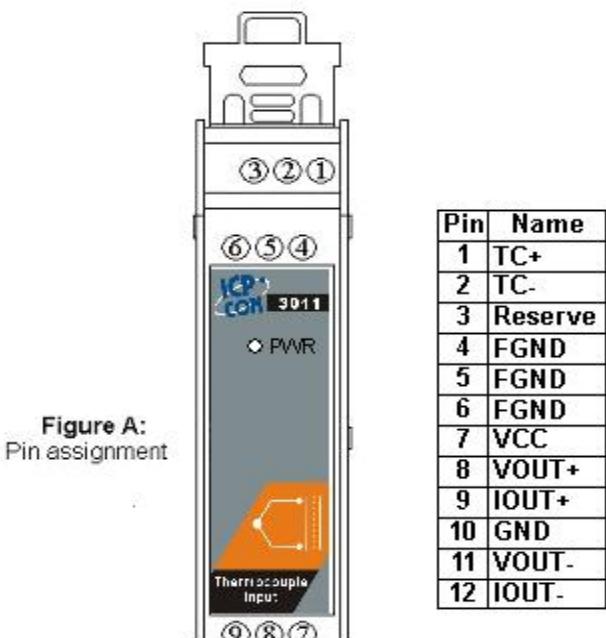
SG-3011

Thermocouple Input
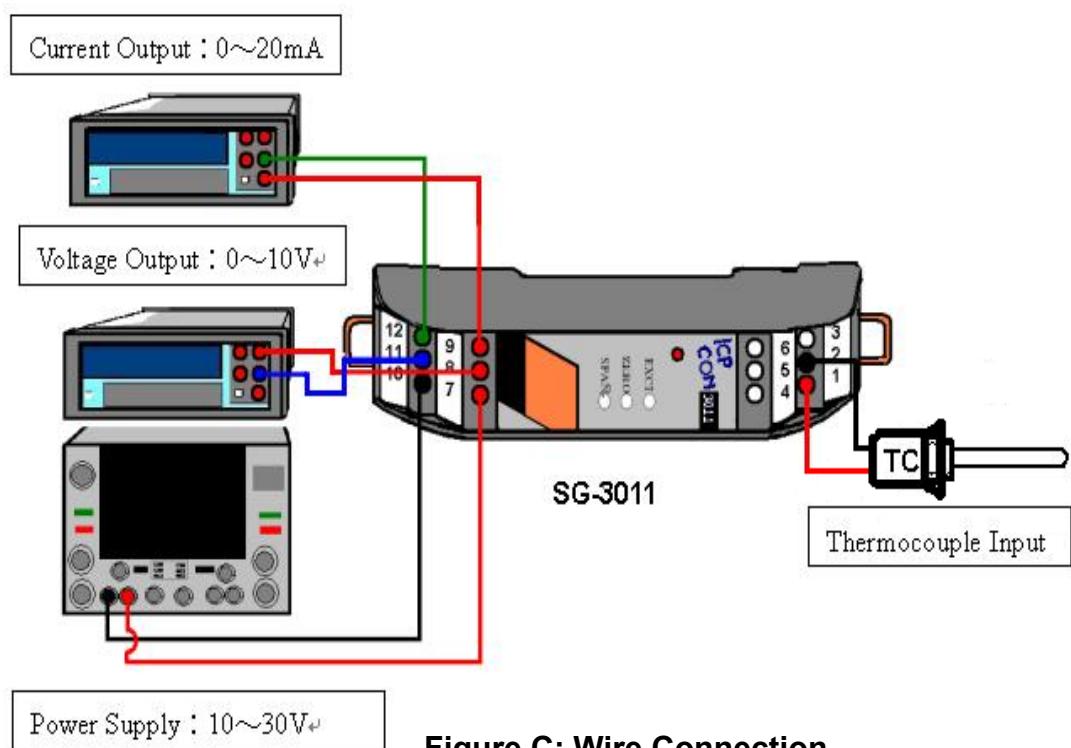
Figure C: Wire Connection

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Switch Configuration
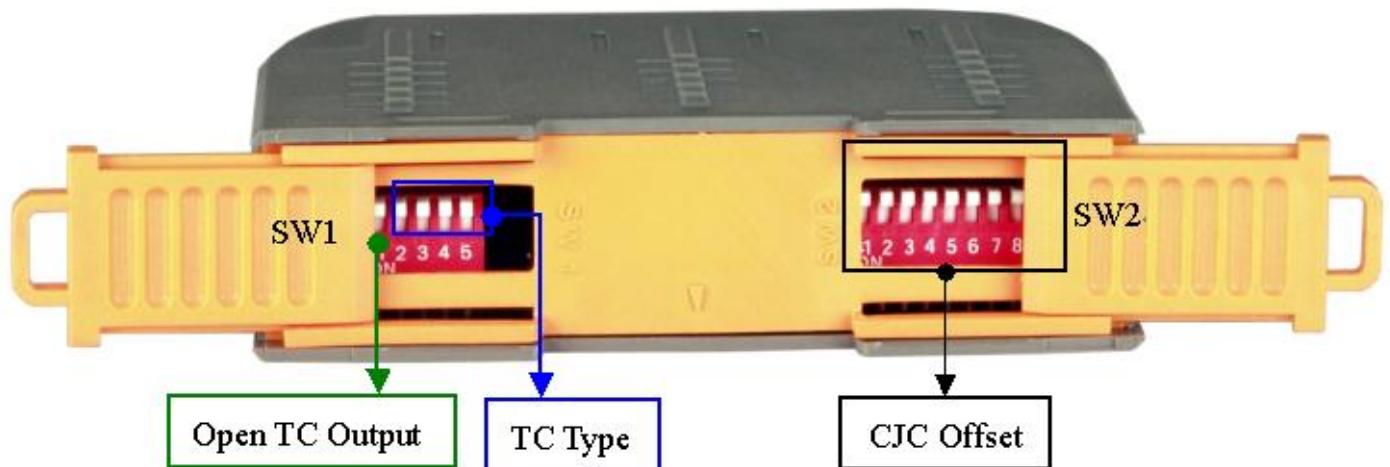
※The SW1-1 is used to specify the output value when open thermocouple is detected.

Figure D: Switch 1 & Switch 2

SG-3011 Configuration		SW1-1	■Open TC: 10V/20mA □Open TC: 0V/ 0mA		
Switch Setting: ■ON □OFF		Type Switch (SW1-)	CJC Offset Switch (SW2-)		CJC Offest (°C)
TC Type	TC Range(°C)	2 3 4 5	1 2 3 4 5 6 7 8		
J	-40~+760	□ □ □ □	■ ■ ■ ■ ■ ■ ■ ■		25.4
K	0~+1000	■ □ □ □	■ ■ ■ ■ ■ ■ ■ □		25.2
T	-100~+400	□ ■ □ □	⋮		⋮
E	0~+1000	■ ■ □ □	■ □ □ □ □ □ ■ ■		0.6
R	+500~+1750	□ □ ■ □			0.4
					0.2
S	+500~+1750	■ □ ■ □			0.0
B	+500~+1800	□ ■ ■ □			-0.2
N	-100~+1300	■ ■ ■ □			-0.4
					-0.6
C	0~+2000	□ □ □ ■			-0.8
L	-200~+800	■ □ □ ■	⋮		⋮
M	-200~+100	□ ■ □ ■			-25.4
L2 (DIN 43710)	-200~+900	■ ■ □ ■			-25.6

Pin Assignment:

12 IOUT-	9 IOUT+	6 FGND	3 Reserve
11 VOUT-	8 VOUT+	5 FGND	2 TC-
10 GND	7 VCC	4 FGND	1 TC+

Block Diagram

Dimensions

Units:mm
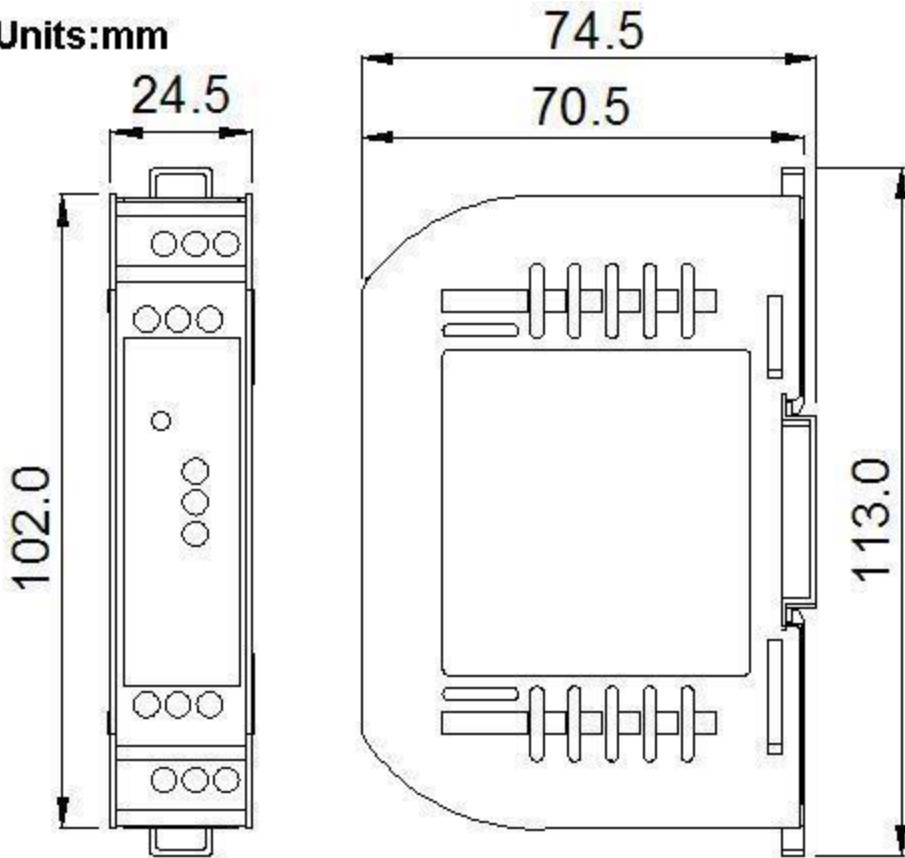
Technical Service

Please E-mail your problem description to service@icpdas.com if you have any questions.

More detail information :WWW.icpdas.com