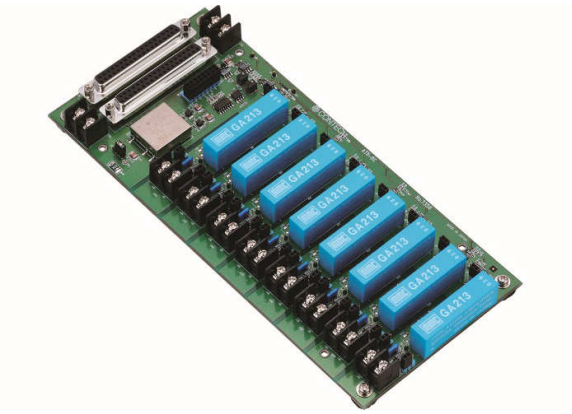
Isolation function extension accessories

ATII-8C



* Specifications, color and design of the products are subject to change without notice.

This product is an accessory board for electrically isolating external signals input to A/D converter interface boards.

*The contents in this document are subject to change without notice.

*Visit the CONTEC website to check the latest details

*The information in the data sheets is as of October, 2021.

Features

Isolated Amplifier Function is installed

This product contains eight isolation amplifier channels. The board provides isolation between the input and output signals and also between channels. The input gain can be set independently for each channel to either 1 or 200.

Cold Junction Compensation Circuit for Thermocouple Sensor is installed

This product has a cold junction compensation (CJC) circuit used for all eight channels. The CJC circuit is available when the 200 gain is selected. The circuit allows a thermocouple to be connected directly to this product.

Current Input Function is installed

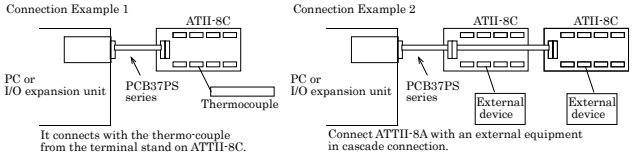
Each of this product channels has a 250Ω current monitor resistor. This enables a -40mA - +40mA current input to be converted to a -10V - +10V voltage input.

Easy connection to external signal with M3 screw type terminal blocks

This product has M3 screw-type terminals for connecting the analog input signals. The analog output signals for the analog E series boards also use M3 screw-type terminals. These terminals make it easy to connect external devices.

Other Features

Easy to connect with the analog E series board through a PCB37PS Series (option). This two products can be cascaded to provide a maximum of 16 isolated amplifier channels. Either PC power (via CN1) or an external power source can be used to supply power to this product. This product can be installed on the DIN rail using the optional DIN rail installation adapter (DIN-ADP1).



Packing List

Accessory Board [ATII-8C] ...1

User's Manual...1

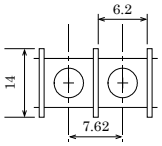
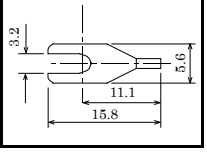
Specifications

Specifications

Item	Specifications
Number of input channels	8ch isolation input
Input range	-10V - +10V (Voltage input) -40mA - +40mA (Current input)
Input gain	1 or 200 (Jumper selectable)
Input impedance	1MΩ
Isolation voltage	Between input and output : 500VDC, Between channels : 500VDC
Accuracy *1	±0.025% of FSR (gain = 1) ±0.5% of FSR (gain = 200)
Bandwidth (-3dB)	1kHz (Gain =1) 1kHz (Gain=200)
Cold junction compensation circuit	8ch common
Cold junction compensation accuracy	±0.5°C (20 - 30°C)
Warm-up time	15 minutes or more
Current consumption	5VDC 730mA
Operating condition	0 - 50°C, 20 - 90% (No condensation)
Physical dimension (mm)	105(W) x 230(D) x 25.5(H)
Weight	400g
Supported board	Board for PCI Express AIO-161601UE3-PE, AIO-161601E3-PE, AIO-121601UE3-PE, AIO-121601E3-PE Board for PCI AD12-16(PCI)EV, AD16-16(PCI)EV, AD12-16U(PCI)EV, AD16-16U(PCI)EV,AD12-16(PCI)E, AD16-16(PCI)E, AD12-16U(PCI)EH, AD16-16U(PCI)EH, ADI12-16(PCI), AI-1216I2-PCI Board for ISA AD12-16(PC)EH, AD16-16(PC)EH, AD12-16U(PC)EH, AD16-16U(PC)EH

*1 For ambient temperatures of 0°C, 50°C, a full scale range error of 0.2% may occur. The error can be minimized by adjusting the board at the temperature at which it is to be used.

Terminal (CH0 - CH7) Specifications

Used terminal	ML-40S1BYF [mfd. by Sato Parts] equivalent	Compatible Y pin	C3A [mfd. by J.S.T.] equivalent
Pin screw	M3	Y pin dimension [mm]	
Terminal block dimension [mm]			

Interface Connector (CN1 and CN2) Specifications

Used connector	37-pin D-SUB connector [F (female) type] DC-37ST-N [mfd. by JAE] equivalent
Lock nut	Screw size #4-40UNC GM-25HU [mfd. by HONDA] equivalent
Compatible connector	37-pin D-SUB connector [M (male) type] (DCSP-JB37PF [mfd. by JAE] equivalent),(747306-1[mfd. by AMP] equivalent), etc

Cable & Connector

Cable (Option)

Shielded Cable with 37-pin D-SUB connectors at either ends
: PCB37PS-0.5P (0.5m), PCB37PS-1.5P (1.5m)

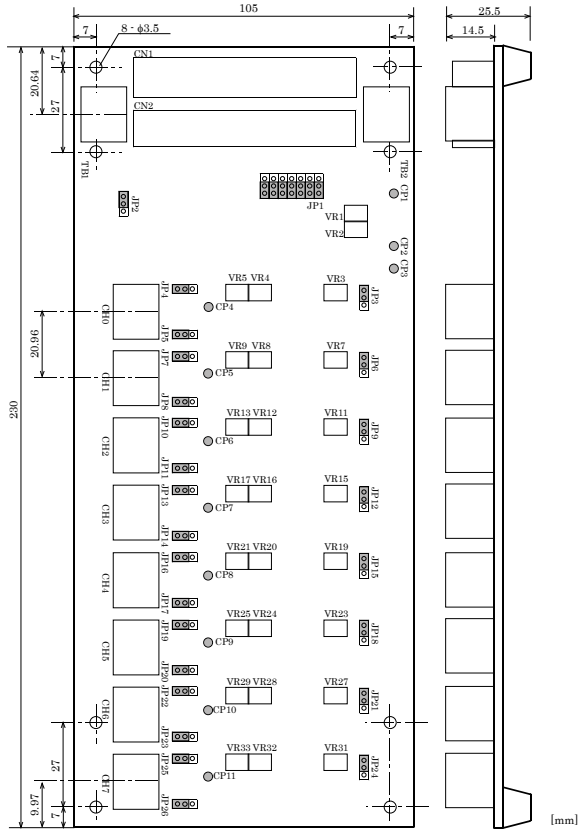
Accessories

Accessories (Option)

DIN rail adapter : DIN-ADP1

* Check the CONTEC's Web site for more information on these options.

Parts of the Board and Explanation



CN1 : Connector for connecting to an A/D converter board. A PCB37PS series cable can be used if connecting to an analog E series board.

CN2 : Connector for connecting another ATII-8C in cascade.

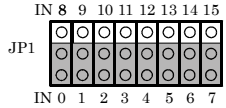
TB1 : Terminal for connecting external power supply (+5V - +9VDC). If JP2 is set to external power supply, connect the external power supply to this terminal.

TB2 : Terminal for analog output signal. Use to connect the analog output signal (OUT0) on analog E series boards to an external device.

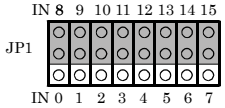
CH0 - CH7 : Terminals for analog input signals. Use to connect external devices or thermocouples.

JP1 : Jumper for selecting the signals connected to CN1.

Connect CH0 - CH7 outputs to CN1 Analog Input 0 - Analog Input 7.



Connect CH0 - CH7 outputs to CN1 Analog Input 8 - Analog Input 15.



JP2 : Jumper for the power supply setting.
JP2 specifies the power supply for this product.

Supply +5VDC from the A/D converter board via CN1.
This is only available when using the analog E series.
Set JP2 to 1 - 2.

Supply +5V - +9VDC from an external power supply.
Set JP2 to 2 - 3 when using an external power supply.

<From CN1> <External power supply>

JP3 - JP26 : Jumpers for voltage or current input selection, input gain selection, and CJC selection

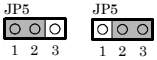
	CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7
Voltage / current input selection	JP4	JP7	JP10	JP13	JP16	JP19	JP22	JP25
Input gain selection	JP5	JP8	JP11	JP14	JP17	JP20	JP23	JP26
Cold junction compensation selection	JP3	JP6	JP9	JP12	JP15	JP18	JP21	JP24

Voltage or current input selection (CH0)

<Voltage input> <Current input>

Input gain selection (CH0)

<Gain = 1> <Gain = 200>



CJC selection (CH0)

<Without CJC> <With CJC>

VR1 : Offset voltage adjustment trimmer for CJC circuit.

VR2 : Gain adjustment trimmer for CJC circuit.

Other VR : Trimmers for adjusting offset and gain for each channel.

	CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7
Input Amp. Gain	VR5	VR9	VR13	VR17	VR21	VR25	VR29	VR33
Isolated Amp. Offset	VR3	VR7	VR11	VR15	VR19	VR23	VR27	VR31
Isolated Amp. Gain	VR4	VR8	VR12	VR16	VR20	VR24	VR28	VR32

CP1 : Check pin for adjusting the offset of the CJC circuit.

CP2 : Check pin for adjusting the gain of the CJC circuit.

CP3 : Analog ground.

CP4 - CP11 : Check pins for adjusting the input amplifier gains.

	CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7
Input Amp. Output	CP4	CP5	CP6	CP7	CP8	CP9	CP10	CP11

Accessories

This product is not upper compatible with the ATII-8, ATII-8A.
The differences in specification are listed below.

Parameter	ATII-8 Specification	ATII-8A Specification	ATII-8C Specification
Number of input channels	8 isolation input channels	← Same as ATII-8	← Same as ATII-8A
Input range	-10V - +10V (Voltage input) -40mA - +40mA (Current input)	← Same as ATII-8	← Same as ATII-8A
Input gain	1 or 25 - 200 (Adjustable by trimmer) (Jumper selectable)	1 or 200 (Jumper selectable)	← Same as ATII-8A
Input impedance	1MΩ or more	1MΩ or more (Voltage input selected) (Power supply ON) 1kΩ or more (Voltage input selected) (Power supply OFF)	← Same as ATII-8A
Isolation voltage	Between input and output : DC500V, Between channels : DC500V	← Same as ATII-8	← Same as ATII-8A
Accuracy	0.0005	±0.1% of FSR (Max.)	±0.025% of FSR (gain = 1) ±0.5% of FSR (gain = 200)
Bandwidth (-3dB)	60kHz	3kHz	1kHz (Gain =1) 1kHz (Gain=200)
Cold junction compensation circuit	8 channels common	← Same as ATII-8	← Same as ATII-8A
Cold junction compensation accuracy	±0.5°C (20 - 30°C)	← Same as ATII-8	← Same as ATII-8A
Warm-up time	15 minutes or more	← Same as ATII-8	← Same as ATII-8A
Current consumption	+5VDC 2000mA	+5VDC 700mA	+5VDC 730mA
External power supply requirement	+5V - +6VDC	← Same as ATII-8	+5V - +9VDC
Operating condition	0 - 50°C, 20 - 90% (No condensation)	← Same as ATII-8	← Same as ATII-8A
Physical dimension (mm)	105mm x 230mm x 25.5mm	← Same as ATII-8	← Same as ATII-8A
Weight	300g	350g	400g