Buffer Amplifier Box for Analog Input Boards

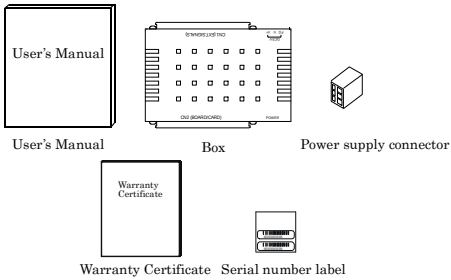
ATBA-32F, ATBA-8F User's Manual

CONTEC CO.,LTD.

Thank you for purchasing the CONTEC product.
The product consists of the items listed below. Check, with the following list, that your package is complete. If you discover damaged or missing items, contact your retailer.

Product Configuration List

- Termination Panel (One of the following)…1
  [ATBA-32F or ATBA-8F]
- Power supply connector (MC1,5/3-ST-3,5)…1
- This User's Manual…1
- Warranty Certificate …1
- Serial number label …1



⚠ CAUTION

- Use this product in the specified environment (temperature and humidity).
- Do not use or store the product in a location exposed to extremely high or low temperature or susceptible to rapid temperature changes.
  For example: - Do not exposure to direct sunlight
  - In the vicinity of a heat source
- Clean the ATBA-32F/ATBA-8F by wiping lightly with a soft cloth moistened with water or a cleaning solution.
  Take care to avoid the use of benzene, thinners or other volatile solutions which may cause deformation or discoloration.
- CONTEC will bear no responsibility for any problems, etc., resulting from modifying this product.
- When carrying the product, be careful not to apply direct vibration or shock to the product.
- The information in this document is subject to change without notice.
- All relevant issues have been considered in the preparation of this document. Should you notice an omission or any questionable item in this document, please feel free to notify CONTEC CO., LTD.
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About the Terminal

ATBA-32F, ATBA-8F is purposed to add-buffer amplifier-function to CONTEC analog input board/card.

This product reduces signal-crosstalk in case of inputted analog signals are low response speed.

Moreover, ATBA-32F, ATBA-8F enables steady signal measurement, since the buffer amplifier can reduce possible signal noise that may come from a long connection cable.

Features

Buffered by high speed high accuracy amplifiers

This terminal has equipped high response speed high accuracy amplifiers, the inputted analog signals can be truthfully transferred to our analog input board/card. And because of the high input impedance of buffer amplifiers, the influence applied to the output impedance of signal source can be limited to a very low level.

Crosstalk Prevention

This product is used to prevent the crosstalk while analog signals of low response speed sources are being inputted to the analog input board/card.

Compact designing

With its compact designing, you can carry it easily after simply removed the connection cables.

Aluminum Dustproof Cover-Box

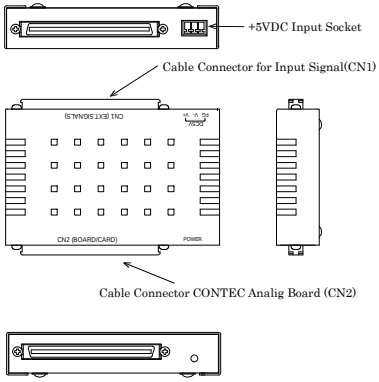
The cover-box is lightly designed by using aluminum in consideration of portability.

Setup Hardware

This section explains the components of the terminal and how to set up.

Parts of the Terminal

Figure 1 shows the major parts of the terminal.



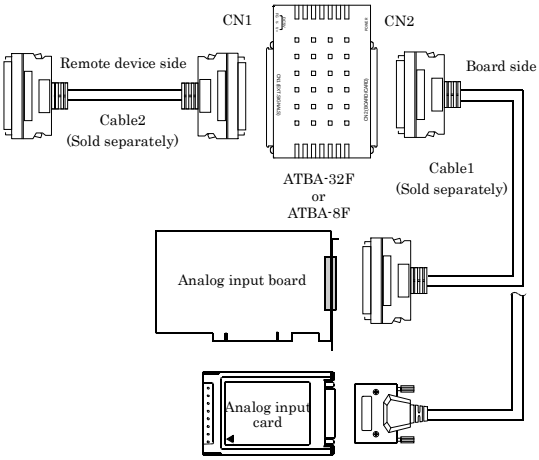
CN1: The connector used to connect analog input signal sources. (For connector pin assignment, refer to "Connector Pin As signment.")

CN2: The connector used to connect the CONTEC analog input board/card.

Figure 1. Component Locations

Connect a Board/Card

Board/Card Connection



*1: To obtain an effective buffer amp connection, connect this unit near to the analog input board. Using a 0.5 m Shield Cable is recommended.

Figure 2. Board/Card Connection

Correspondence Products (Optional)

Board for PCI Express : AIO-163202F-PE

Board for PCI : ADA16-32/2(PCI)F

USB I/O Unit : AIO-163202FX-USB

Cables (Optional)

Shielded cable with a 96-pin half-pitch connectors on 2 Ends
: PCB96PS-0.5P (0.5m)
: PCB96PS-1.5P (1.5m)

Flat cable with a 96-pin half-pitch connectors on 2 Ends
: PCB96P-1.5 (1.5m)

Shielded cable with a 96-pin half-pitch connector to open-ended
: PCA96PS-0.5P (0.5m)
: PCA96PS-1.5P (1.5m)

Flat able with a 96-pin half-pitch connector to open-ended
: PCA96P-1.5 (1.5m)

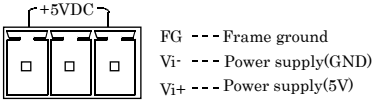
68/96-pin conversion shielded cable for analog input/output : ADC-68M/96F (0.5m) *2

*2: ATBA-32F, ATBA-8F uses this cable when connecting the PC card.

Connecting an External Power Supply

Because the corresponding analog board/card have not voltage output, an external power supply is required to make the terminal work.

Table 1. Specification of External Power Supply



Items	Specification
Power Voltage	5VDC
Voltage Tolerance	±5%
Current Capacity	0.85A or larger

Figure 3. Pin Assignment of +5 VDC input Socket

A bundled connector plug (MC1,5/3-ST-3,5, Phoenix Contact. Suitable wire: AWG28 - 16) can help you to connect the external power supply.

When you using this MC1,5/3-ST-3,5 plug to connect the external power supply, please strip the end of the corresponding-wire, insert it into the connector plug, then fix the screw to secure.

There is an optional AC adapter-available from CONTEC.

Accessories (Optional):

AC adapter (Input: 90 - 264VAC, Output: 5VDC 2.0A): POA200-20

- When using the external power supply:
  The terminal can provide the maximum power supply of 5VDC, 2A.

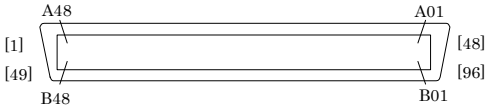
⚠ CAUTION

- To use the AC adapter, please connect it to the terminal first, then plug the AC adapter-into a outlet.
- When the terminal is not used, please leave the AC adapter unplugged.
- Continuously using the AC adapter under high temperature environment will affect its life.
- Use the AC adapter not in a closed place but in a well-ventilated place. The AC adapter heats up itself when loaded heavily. If the AC adapter is exposed to high temperature or used continuously, you should keep the load at about 80% of the maximum load.

Connector Pin Assignment

Pin Assignments of Interface Connector (CN1)

CN1



Pin	Function	Pin	Function
B48	N.C.	A48	Analog Output 00
B47	N.C.	A47	Analog Ground
B46	N.C.	A46	Analog Output 01
B45	N.C.	A45	Analog Ground
B44	Analog Input 08 < 08[+] >	A44	Analog Input 00 < 00[+] >
B43	Analog Input 24 < 08[-] >	A43	Analog Input 16 < 00[-] >
B42	Analog Input 09 < 09[+] >	A42	Analog Input 01 < 01[+] >
B41	Analog Input 25 < 09[-] >	A41	Analog Input 17 < 01[-] >
B40	N.C.	A40	N.C.
B39	N.C.	A39	N.C.
B38	Analog Input 10 < 10[+] >	A38	Analog Input 02 < 02[+] >
B37	Analog Input 26 < 10[-] >	A37	Analog Input 18 < 02[-] >
B36	Analog Input 11 < 11[+] >	A36	Analog Input 03 < 03[+] >
B35	Analog Input 27 < 11[-] >	A35	Analog Input 19 < 03[-] >
B34	Analog Ground	A34	Analog Ground
B33	Analog Ground	A33	Analog Ground
B32	Analog Input 12 < 12[+] >	A32	Analog Input 04 < 04[+] >
B31	Analog Input 28 < 12[-] >	A31	Analog Input 20 < 04[-] >
B30	Analog Input 13 < 13[+] >	A30	Analog Input 05 < 05[+] >
B29	Analog Input 29 < 13[-] >	A29	Analog Input 21 < 05[-] >
B28	N.C.	A28	N.C.
B27	N.C.	A27	N.C.
B26	Analog Input 14 < 14[+] >	A26	Analog Input 06 < 06[+] >
B25	Analog Input 30 < 14[-] >	A25	Analog Input 22 < 06[-] >
B24	Analog Input 15 < 15[+] >	A24	Analog Input 07 < 07[+] >
B23	Analog Input 31 < 15[-] >	A23	Analog Input 23 < 07[-] >
B22	Analog Ground	A22	Analog Ground
B21	Analog Ground	A21	Analog Ground
B20	N.C.	A20	N.C.
B19	N.C.	A19	N.C.
B18	Digital Output 00	A18	Digital Input 00
B17	Digital Output 01	A17	Digital Input 01
B16	Digital Output 02	A16	Digital Input 02
B15	Digital Output 03	A15	Digital Input 03
B14	Digital Output 04 (N.C.*1)	A14	Digital Input 04 (N.C.*1)
B13	Digital Output 05 (N.C.*1)	A13	Digital Input 05 (N.C.*1)
B12	Digital Output 06 (N.C.*1)	A12	Digital Input 06 (N.C.*1)
B11	Digital Output 07 (N.C.*1)	A11	Digital Input 07 (N.C.*1)
B10	AO Control Signal Output 00	A10	AI Control Signal Output 00
B09	AO Control Signal Output 01	A09	AI Control Signal Output 01
B08	Digital Ground	A08	Digital Ground
B07	AO External Sampling Clock Input	A07	AI External Sampling Clock Input
B06	AO External Stop Trigger Input	A06	AI External Stop Trigger Input
B05	AO External Start Trigger Input	A05	AI External Start Trigger Input
B04	Counter UP Clock Input 01 (N.C.*1)	A04	Counter UP Clock Input 00
B03	Reserved (N.C.*1)	A03	Reserved
B02	Counter Gate Control Input 01 (N.C.*1)	A02	Counter Gate Control Input 00
B01	Control Output 01 (N.C.*1)	A01	Counter Output 00

The numbers in square brackets [ ] are pin numbers designated by HONDA TSUSHIN KOGYO CO., LTD.

- The number in <> indicates the channel number for differential input.

*1: When connected to ADA16-32/2(CB)F, this becomes a N.C. pin.

Analog Input00 - Analog Input31	Analog input signal. The numbers correspond to channel numbers.
Analog Output00 - Analog Output01	Analog output signal. The numbers correspond to channel numbers.
Analog Ground	Common analog ground for analog I/O signals.
AI External Start Trigger Input	External trigger input for starting analog input sampling.
AI External Stop Trigger Input	External trigger input for stopping analog input sampling.
AI External Sampling Clock Input	External sampling clock input for analog input.
AI Control Signal Output 00	External sampling clock output signal for analog input.
AI Control Signal Output 01	External output signal for analog input status. Not currently connected.
AO External Start Trigger Input	External trigger input for starting analog output sampling.
AO External Stop Trigger Input	External trigger input for stopping analog output sampling.
AO External Sampling Clock Input	External sampling clock input for analog output.
AO Control Signal Output 00	External sampling clock output signal for analog output.
AO Control Signal Output 01	External output signal for analog output status. Not currently connected.
Digital Input00 - Digital Input07	Digital input signal.
Digital Output00 - Digital Output07	Digital output signal.
Counter Gate Control Input00 - Counter Gate Control Input01	Gate control input signal for counter.
Counter Up Clock Input00 - Counter Up Clock Input01	Count-up clock input signal for counter.
Counter Output00 - Counter Output01	Count match output signal for counter.
Digital Ground	Common digital ground for digital I/O signals, external trigger inputs, external sampling clock inputs, and counter I/O signals.
Reserved	Reserved pin
N.C.	No connection to this pin.

Figure 4. Pin Assignments of Interface Connector (CN1)

⚠ CAUTION

- Do not connect any of the outputs and power outputs to the analog or digital ground. Neither connect outputs to each other. Doing either can result in a fault.
- If analog and digital ground are shorted together, noise on the digital signals may affect th e analog signals. Accordingly, analog and digital ground should be separated.
- Leave "Reserved" pins unconnected. Connecting these pins may cause a fault in the board.

Dimensions

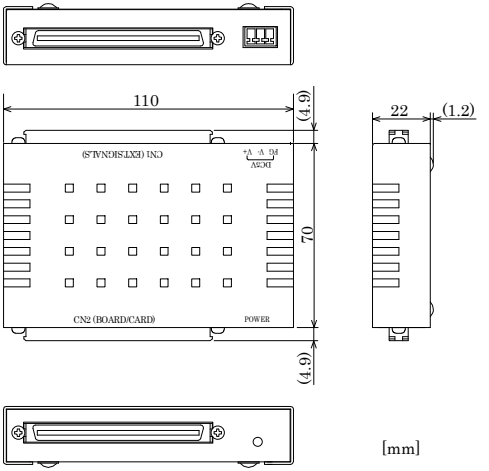


Figure 5. Dimensions

Specifications

Table 2. Specifications of ATBA-32F/ATBA-8F

Item		ATBA-32F	ATBA-8F
Analog Input (Buffer Amplifier Part)			
	Insulated specification	Un-Isolated	
	Absolute max. input voltage	±15V	
	Number of Input Channels *1	Single-Ended Input: 32ch or Differential Input: 16ch	Single-Ended Input: 8ch
	Input voltage range	-10V - +10V	
	Input Impedance	1MΩ or more	
	Non-Linearity error *2	±0.03% of FSR	
CN1 Connector Assignment		The same definition as the used AD board/card ATBA-8F: only CH0 - CH7 have buffer amplifier. (other 24 channels are straight-connected).	
External power supply		5VDC 0.85A (Max.)	5VDC 0.3A (Max.)
Operating Conditions		0 - 50°C, 10 - 90%RH (No condensation)	
Dimensions (mm)		110(W) x 70(D) x 22(H) (No protrusion)	
Weight		150g	
Supported Products		AIO-163202F-PE, ADA16-32/2(PCI)F, ADA16-32/2(CB)F, AIO-163202FX-USB	

*1: It depends on the number of AD board's/card's input channels.

*2: When the environment temperature is 0°C or 50°C, the maximum non-linearity error is-0.04% of full input range.

Table 3. Specifications of Interface Connector CN1, CN 2

Type of Connector	PCR-E96LMD (mfd. by HONDA)
Type of mating connector (option)	PCR-E96FA (mfd. by HONDA)
Connecting Cable (option)	PCB96PS-0.5P, PCB96PS-1.5P, PCB96P-1.5, PCA96PS-0.5P, PCA96PS-1.5P, PCA96P-1.5, ADC-68M/96F

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