

# Analog I/O

Standard

**PCI**

37-pin D-SUB | Analog Input 16ch | Analog Output 2ch | Digital I/O 4/4 | Counter 1ch | Memory on Board

Windows Driver | Linux Driver | C-LOGGER | MATLAB | LabVIEW

## Multi-function Analog I/O with High Gain Amplifier

**GAIO-121602AH-PCI**  
[AIO-121602AH-PCI]

- The various setting of input range enables the high-precision measurement
- 1K data buffer memory (FIFO or RING buffer)
- Digital filtering function to prevent input error caused by external signal chattering
- Features software-based calibration function



**PCI**

37-pin D-SUB | Analog Input 16ch | Analog Output 2ch | Digital I/O 4/4 | Counter 1ch | Memory on Board

Windows Driver | Linux Driver | C-LOGGER | MATLAB | LabVIEW

## Multi-function Analog I/O with Gain Amplifier

**GAIO-121602AL-PCI**  
[AIO-121602AL-PCI]

- The various setting of input range enables the high-precision measurement
- 1K data buffer memory (FIFO or RING buffer)
- Digital filtering function to prevent input error caused by external signal chattering
- Features software-based calibration function



**PCI**

37-pin D-SUB | Analog Input 16ch | Digital I/O 4/4 | Counter 1ch | Memory on Board

Windows Driver | Linux Driver | C-LOGGER | MATLAB | LabVIEW

## Analog Input with High Gain Amplifier

**GAI-1216AH-PCI**  
[AI-1216AH-PCI]

- The various setting of input range enables the high-precision measurement
- 1K data buffer memory (FIFO or RING buffer)
- Digital filtering function to prevent input error caused by external signal chattering
- Features software-based calibration function



**PCI**

37-pin D-SUB | Analog Input 16ch | Digital I/O 4/4 | Counter 1ch | Memory on Board

Windows Driver | Linux Driver | C-LOGGER | MATLAB | LabVIEW

## Analog Input with Gain Amplifier

**GAI-1216AL-PCI**  
[AI-1216AL-PCI]

- High-precision measurement can be achieved by various setting of input range
- 1K data buffer memory (FIFO or RING buffer)
- Digital filtering function to prevent input error caused by external signal chattering
- Features software-based calibration function



Model	GAIO-121602AH-PCI	GAIO-121602AL-PCI	GAI-1216AH-PCI	GAI-1216AL-PCI
Channels	16 single-ended	-	-	-
Range	Bipolar: ±10V, ±1V, ±0.1V, ±0.01V; Unipolar: 0~+10V, 0~+1V, 0~+0.1V, 0~+0.01V	Bipolar: ±10V, ±5V, ±2.5V, ±1.25V; Unipolar: 0~+10V, 0~+5V, 0~+2.5V, 0~+1.25V	Bipolar: ±10V, ±0.1V, ±0.01V; Unipolar: 0~+10V, 0~+1V, 0~+0.1V, 0~+0.01V	Bipolar: ±10V, ±5V, ±2.5V, ±1.25V; Unipolar: 0~+10V, 0~+5V, 0~+2.5V, 0~+1.25V
Impedance	1MΩ or more	-	-	-
Analog Input	Resolution: 12bit Conversion Speed: 150μsec/ch (Max.) Conversion Accuracy <sup>1)</sup> : ±2LSB (±10V, ±1V, 0~+10V, 0~+1V), ±5LSB (±0.1V, 0~+0.1V), ±10LSB (±0.01V, 0~+0.01V)	Resolution: 10μsec/ch (Max.) Conversion Speed: 10μsec/ch (Max.) Conversion Accuracy <sup>1)</sup> : ±2LSB (±10V, ±5V, 0~+10V, 0~+5V), ±3LSB (±2.5V, 0~+2.5V), ±5LSB (±1.25V, 0~+1.25V)	Resolution: 10μsec/ch (Max.) Conversion Speed: 10μsec/ch (Max.) Conversion Accuracy <sup>1)</sup> : ±2LSB (±10V, ±1V, 0~+10V, 0~+1V), ±3LSB (±2.5V, 0~+2.5V), ±5LSB (±1.25V, 0~+1.25V)	Resolution: 10μsec/ch (Max.) Conversion Speed: 10μsec/ch (Max.) Conversion Accuracy <sup>1)</sup> : ±2LSB (±10V, ±5V, 0~+10V, 0~+5V), ±3LSB (±2.5V, 0~+2.5V), ±5LSB (±1.25V, 0~+1.25V)
Buffer Memory	1K word	-	-	-
Analog Output	Channels: 2ch Range: Bipolar: ±10V Impedance: 1Ω or less Resolution: 12bit Conversion Speed: 10μsec (Max.) Conversion Accuracy <sup>1)</sup> : ±1LSB Buffer Memory: 1k-word	-	-	-
Digital I/O	Input: 4 Non-isolated TTL-level input (positive logic) Output: 4 Non-isolated TTL-level output (positive logic)	-	-	-
Counter	Channels: 1ch Counting: 32-bit Up count Max. count: 32-bit (binary data)	-	-	-
Interrupts	1 level	-	-	-
I/O Address	Occupies 64 ports	-	-	-
Power Consumption (Max.)	5VDC 600mA	-	5VDC 450mA	5VDC 400mA
Bus / Dimensions (mm)	PCI (32bit, 33MHz or 3.3V <sup>2)</sup> ) / 176.4(L)×105.68(H)	-	-	-
Connector	CN1(AIO): 37-pin female D-type, DCLC-J37SAF-20L9E [JAE] or equivalent CN2(DIO): Box Header 30-pin, PS-30PE-D4TIPNI [JAE] or equivalent Software: ACX-PAC(W32)	-	-	-
Options	Accessories: EPD-37A <sup>3)</sup> , EPD-37S, DTP-3A <sup>4)</sup> , DTP-4A <sup>4)</sup> , DICT-37S <sup>5)</sup> , DICT-37F <sup>5)</sup> Cables/Connectors: PCA37P-1.5, PCA37PS-0.5P/1.5P, PCB37P-1.5, PCB37PS-0.5P/1.5P, CN5-D37M	-	-	-
Notes	<sup>1)</sup> If operating temperature becomes close to 0°C or 50°C, ±0.1% LSB non-linearity error may occur. <sup>2)</sup> When using a signal source with a high-speed built-in operational amplifier. <sup>3)</sup> This board requires +5V power supply from an expansion slot (it does not work on a machine with a +3.3V power supply only). <sup>4)</sup> Accuracy value of bipolar setting. When unipolar setting applied, the value becomes twice. <sup>5)</sup> Requires optional cable PCB37P-1.5 (0.5m is recommended). <sup>6)</sup> The screw-up terminal block is used, whose screw does not falling off.			

As shown on the side of product's images, RoHS Compliant is a CONTEC original marking for RoHS-compliant products.

# Analog I/O

Standard

**PCI**

37-pin D-SUB | Analog Input 16ch | Digital I/O 8/8

Windows Driver

## Uni-polar 12bit Analog Input

**GAI-1216B-RU1-PCI**  
[AI-1216B-RU1-PCI] **NEW**

- Analog input: 0~10V range, 16 12-bit single end, 20μsec/ch conversion speed
- Perform AD conversion at each software command
- 8 TTL-level digital input, 8 TTL-level digital output
- Windows Driver Library bundled



**PCI**

37-pin D-SUB | Analog Input 16ch | Digital I/O 8/8

Windows Driver

## Bi-polar 12bit Analog Input

**GAI-1216B-RB1-PCI**  
[AI-1216B-RB1-PCI] **NEW**

- Analog input: ±10V range, 16 12-bit single end, 20μsec/ch conversion speed
- Perform AD conversion at each software command
- 8 TTL-level digital input, 8 TTL-level digital output
- Windows Driver Library bundled



**PCI**

37-pin D-SUB | Analog Input 4ch | Individual Isolated | High Precision

Windows Driver | Linux Driver

## Individual Isolated Analog Input

**AI-1604CI2-PCI** **NEW**

- Individual isolation among the bus lines to PCs, the channels with photocouplers, and even between the signals of the both
- The start/stop of sampling can be performed at arbitrary fixed intervals by software command or the internal sampling clock on the board or an external sampling clock signal



**PCI**

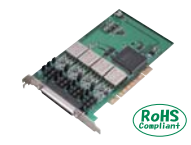
37-pin D-SUB | Analog Output 4ch | Individual Isolated | High Precision

Windows Driver | Linux Driver

## Individual Isolated Analog Output

**AO-1604CI2-PCI** **NEW**

- Individual isolation among the bus lines to PCs, the channels with photocouplers, and even between the signals of the both
- Digital signals of the specified channel or all the channels can be converted to analog voltages simultaneously
- The start/stop of sampling can be performed at arbitrary fixed intervals by software command or the internal sampling clock on the board or an external sampling clock signal



Model	GAI-1216B-RU1-PCI	GAI-1216B-RB1-PCI	AI-1604CI2-PCI	AO-1604CI2-PCI
Input channels	16 single-ended	-	4 single-ended	-
Output channels	-	-	-	4ch
Resolution	12bit	-	16bit	-
Analog Input	Range: Unipolar: 0~+10V Gain: - Conversion Speed: 20μsec/ch (Max.) Conversion Accuracy <sup>1)</sup> : ±3LSB	Range: Bipolar: ±10V	Range: Bipolar: ±10V, ±5V; Unipolar: 0~+10V, 0~+5V; 4~20mA (Input range can be set by both jumper and software)	-
Impedance	1MΩ or more	-	1MΩ or more (Voltage input, Power on) 1kΩ or more (Voltage input, Power off)	-
Analog Output	Range: - Rating: - Conversion Speed: - Conversion Accuracy: - Impedance: -	-	-	Range: Bipolar: ±10V; Unipolar: 0~+10V, 0~20mA (jumper setting per channel) ±5mA (Voltage output) ±10V, 0~10V, 500Ω (Current output) 20μsec (Max.) ±5LSB (±10V, 0~+10V), ±15LSB (0~20mA) 10Ω or less
External trigger signal	Start trigger: Software command	-	Opto-isolated input (for sink current output)	Software command, External trigger
Stop trigger	-	-	End-count, External trigger, Software command	-
Isolation type	-	-	Channel isolation	Individual isolation
Timer	-	-	500~1,073,741,824,000 nsec (selectable in 250nsec intervals)	-
Digital I/O	8 TTL-level output (positive logic), 8 TTL-level input (positive logic)	-	-	-
Interrupts	1 level	-	-	-
I/O Address	Occupies 32 ports	-	-	-
Power Consumption (Max.)	+5V 200mA	-	+5V 1100mA	+5V 2400mA
Bus / Dimensions (mm)	PCI (32bit, 33MHz or 3.3V <sup>2)</sup> ) / 121.69(L)×88.00(H)	-	PCI (32bit, 33MHz or 3.3V <sup>2)</sup> ) / 176.4(L)×106.68(H)	-
Connector	37-pin female D-type, DCLC-J37SAF-20L9E [JAE] or equivalent Software: ACX-PAC(W32)	-	-	-
Options	Accessories: EPD-37A <sup>3)</sup> , EPD-37S, DTP-3A <sup>4)</sup> , DTP-4A <sup>4)</sup> Cables/Connectors: PCA37P-1.5, PCA37PS-0.5P/1.5P, PCB37P-1.5, PCB37PS-0.5P/1.5P, CN5-D37M	-	-	-
Notes	<sup>1)</sup> If operating temperature becomes close to 0°C or 50°C, ±0.1% LSB non-linearity error may occur. <sup>2)</sup> When using a signal source with a high-speed built-in operational amplifier (only for AI-1216B-RB1-PCI, AI-1216B-RU1-PCI) <sup>3)</sup> This board requires power supply at +5V from an expansion slot (it does not work on a machine with a +3.3V power supply only). <sup>4)</sup> Requires optional cable PCB37P-1.5 or PCB37PS-0.5P/1.5P. <sup>5)</sup> The screw-up terminal block is used, whose screw does not falling off.			

As shown on the side of product's images, RoHS Compliant is a CONTEC original marking for RoHS-compliant products.