

12

Industrial I/O Solutions

- ☞ 12-4 DAQ-Embedded Computers
- ☞ 12-5 Analog I/O and Multifunction Cards
- ☞ 12-9 Digital I/O and Multifunction Cards
- ☞ 12-15 USB I/O Modules and USB Hubs
- ☞ 12-18 Signal Conditioners and Terminal Boards
- ☞ 12-21 Serial Communication Cards



Advantech Data Acquisition and Control Solutions



As a leading supplier of data acquisition products worldwide, Advantech offers a wide range of I/O devices with various interfaces and functions based on PC technology, from legacy ISA to modern USB and from signal-conditioning to graphical software tools. Advantech's industrial I/O products are reliable, accurate, affordable, and suitable for many industrial automation applications (e.g., testing and measurement) and laboratory applications (e.g., monitoring, control, machine automation, and product testing).

Signal Sensing



Equipment

Sensor



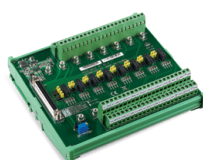
Physical Phenomenon

Signal Conditioning



Signal Conditioners

Advantech's signal conditioners provide sensor and signal conditioning on a per-module basis for various types of sensors or signals.



I/O Wiring Terminal Boards

I/O wiring terminal boards offer convenient and reliable signal wiring for a wide range of Advantech products.



Analog Signal

Data Acquisition



Embedded Computers

MIC-1800 series units are standalone embedded computers with integrated data acquisition modules and signal conditioning to provide digital I/O, analog I/O, and counter functions. The palm-sized design with built-in terminals is suitable for space-limited applications.



SuperSpeed USB 3.0 I/O Modules

SuperSpeed USB 3.0 I/O modules can be leveraged for a diverse range of industrial control applications.



Conditioned Signal



and Control



Data Acquisition and Communication Cards

Advantech offers dedicated products for USB, PCI, PCI Express, CompactPCI, PC/104, and PCI-104 interfaces. Thus, regardless of whether the platform is an IPC, embedded PC, desktop computer, or laptop, your project requirements are covered.



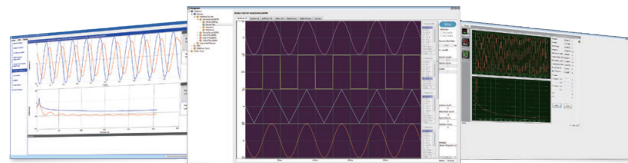
USB Data Acquisition Modules

Advantech's USB data acquisition modules are renowned for their user-friendly design and ability to replace traditional serial and parallel devices by eliminating the need for external power and allowing for hot-swapping.



Conditioned Signal

DAQNavi



DAQNavi

DAQNavi is a software package to enable edge intelligence of your DAQ device and joining the IoT world. It provides not only SDK (Software Development Kit) to get data from Advantech DAQ cards and modules, but also further data processing algorithms for customers to gain and integrate user's insight from measured data.

DAQNavi/SDK

Software development package for developers to design and realize the application with programming languages. It provides comprehensive testing tools, video tutorials, and manuals for developers to follow.

DAQNavi/MCM

A machine condition monitoring software that provides an easy procedure below for customers to realize condition monitoring systems:

1. Data Acquisition
2. Time/Frequency Domain data Pre-processing
3. Feature extraction
4. Interpretation and Output
5. External Device/Cloud Connectivity
6. Data Visualization



Digital Data

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

DAQ-Embedded Computer



Category		Multifunction Platform				
CPU		Intel Celeron 3955U	Intel Core™ i3-6100U	Intel Celeron 3955U	Intel Core™ i3-6100U	ARM Cortex™-A9 i.MX6
Memory		DDR3 4GB				DDR3 2GB
Part Number		MIC-1810-U0A1E	MIC-1810-U3A1E	MIC-1816-U0A1E	MIC-1816-U3A1E	MIC-1816R-AE
Analog Input	Resolution	12-bit	12-bit	16-bit	16-bit	16-bit
	Channels	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	4-ch IEPE and 8-ch general AI (Voltage/Current)
	Onboard FIFO	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples
	Sampling Rate	500 kS/s	500 kS/s	1MSPS	1MSPS	1MSPS
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V, 4~20mA
		Bipolar Inputs	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V
		Configurable Per Channel	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/External Pulse	✓	✓	✓	✓
		Analog Slope	✓	✓	✓	✓
		Advanced Trigger	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop
Data Transfer Modes	Software	✓	✓	✓	✓	✓
	DMA	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering
Analog Output	Resolution	12-bit	12-bit	16-bit	16-bit	16-bit
	Channels	2 (waveform output)	2 (waveform output)	2 (waveform output)	2 (waveform output)	2 (waveform output)
	Onboard FIFO	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples
	Output Range	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V, 4~20mA
	Output Rate	500 kHz	500 kHz	3 MHz	3 MHz	3 MHz (V), 20kHz (A)
	DMA Transfer	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering
Digital I/O	Input Channels	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)
	Output Channels	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)	8 (Isolated)
Timer/Counter	Channels	2	2	2	2	2
	Resolution	32-bit	32-bit	32-bit	32-bit	32-bit
	Max. Input Frequency	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz
Isolation Voltage		-	-	-	-	-
Auto Calibration		✓	✓	✓	✓	✓
Dimensions (L x H)		200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	200 x 156 x 58 mm (7.87" x 6.14" x 2.28")	165 x 65 x 130 mm (6.49" x 2.56" x 5.11")
Legacy Driver	Windows XP/2000	-	-	-	-	-
	WinCE	-	-	-	-	-
	Linux	-	-	-	-	-
DAQmapi Driver	Windows 7/8/10	✓	✓	✓	✓	-
	WinCE	-	-	-	-	-
	Linux	-	-	-	-	✓
LabVIEW Driver		✓	✓	✓	✓	-

* 80 kHz on Pentium® 4-based (or higher) systems.

** SS: Single DMA channel, single A/D channel scan.

✓: supported, -: not supported, △: optional

Analog I/O and Multifunction Cards



Category		Multifunction & Analog Input						
Sampling / Updating		Multiplexer						
Part Number		PCI-1710U/ 1710UL	PCI-1710HGU	PCI-1711U/ 1711UL	PCI-1712/ 1712L	PCI-1718HGU	PCI-1713U	PCI-1715U
Analog Input	Resolution	12-bit	12-bit	12-bit	12-bit	12-bit	12-bit	12-bit
	Channels	16 SE/8 diff.	16 SE/8 diff.	16 SE	16 SE/8 diff.	16 SE/8 diff.	32 SE/16 diff.	32 SE/16 diff.
	Onboard FIFO	4,096 samples	4,096 samples	1,024 samples	1,024 samples	1,024 samples	4,096 samples	1,024 samples
	Sampling Rate	100 kS/s	100 kS/s	100 kS/s	1 MS/s	100 kS/s	100 kS/s	500 kS/s
	Input Ranges	Unipolar Inputs	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 1, 0 ~ 0.1, 0 ~ 0.01 V	-	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V
		Bipolar Inputs	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 1, 0.5, 0.1, 0.05, 0.01, 0.005 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V
		Configurable Per Channel	✓	✓	✓	✓	✓	✓
	Trigger Modes	Pacer/Software/External Pulse	✓	✓	✓	✓	✓	✓
		Analog Slope	-	-	-	✓	-	-
		Advanced Trigger	-	-	-	✓	-	-
Data Transfer Modes	Software	✓	✓	✓	✓	✓	✓	✓
	DMA	-	-	-	Bus mastering	-	-	Bus mastering
Analog Output	Resolution	12-bit	12-bit	12-bit	12-bit	12-bit	-	-
	Channels	2 (PCI-1710U only)	2	2 (PCI-1711U only)	2 (PCI-1712 only)	1	-	-
	Onboard FIFO	-	-	-	32,768 samples	-	-	-
	Output Range	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10 V	-	-
	Output Rate	Static update	Static update	Static update	1 MHz	Static update	-	-
	DMA Transfer	-	-	-	✓	-	-	-
Digital I/O	Input Channels	16	16	16	16 (shared)	16	-	-
	Output Channels	16	16	16	-	16	-	-
Timer/Counter	Channels	1	1	1	3	1	-	-
	Resolution	16-bit	16-bit	16-bit	16-bit	16-bit	-	-
	Max. Input Frequency	10 MHz	10 MHz	10 MHz	10 MHz	10 MHz	-	-
Isolation Voltage		-	-	-	-	-	2,500 V _{bdc}	2,500 V _{bdc}
Auto Calibration		-	-	-	✓	-	-	-
Board ID Switch		✓	✓	✓	-	✓	-	✓
Dimensions (L x H)		175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector		68-pin SCSI	68-pin SCSI	68-pin SCSI	68-pin SCSI	DB37	DB37	DB37
DAQ/NAVI Driver	Windows 7/8/10	✓	✓	✓	✓	✓	✓	✓
	Linux	-	-	✓	-	-	✓	✓
LabVIEW Driver		✓	✓	✓	✓	✓	✓	✓

* All channels should be set to the same range.

✓ : supported, - : not supported, △ : optional

1
IoT Software Solutions

2
Edge AI and SKY Servers

3
Intelligent Systems

4
Machine Vision Solutions

5
Intelligent HMI and Monitors

6
Automation Computers

7
DAQ and Communication Gateways

8
Industrial Communication

9
Remote I/O, Wireless Sensing Modules and Converters

10
Intelligent Motion Control Solutions

11
EtherCAT Solutions and Automation Controllers

12
Industrial I/O Solutions

13
Intelligent Transportation Platforms

14
Utility and Energy Solutions

Analog I/O and Multifunction Cards



Category		Multifunction & Analog Input					
Sampling / Updating		Multiplexer				Simultaneous Sampling	
Part Number		PCI-1716/ 1716L	PCI-1718H DU	PCI-1742U	PCI-1747U	PCI-1714U/ 1714UL	PCI-1706U
Analog Input	Resolution	16-bit	12-bit	16-bit	16-bit	12-bit	16-bit
	Channels	16 SE/8 diff.	16 SE/8 diff.	16 SE/8 diff.	64 SE/32 diff.	4 SE	8 diff.
	Onboard FIFO	1,024 samples	1,024 samples	1,024 samples	1,024 samples	32,768/8,192 samples	8,192 samples
	Sampling Rate	250 kS/s	100 kS/s	1 MS/s	250 kS/s	30/10 MS/s	250 kS/s
	Input Ranges	Unipolar Inputs		0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	-	-
		Bipolar Inputs		±10, 5, 2.5, 1.25, 0.625 V	±10, 5, 2.5, 1.25, 0.625 V	±5, 2.5, 1, 0.5 V	±10, 5, 2.5, 1.25 V
		Configurable Per Channel		✓	✓	✓	✓
	Trigger Modes	Pacer/Software/External Pulse		✓	Pacer/software	✓	✓
		Analog Slope		-	-	✓	✓
		Advanced Trigger		-	-	✓	✓
	Data Transfer Modes	Software		✓	✓	✓	✓
		DMA		Bus mastering	Bus mastering	Bus mastering	✓
Analog Output	Resolution	16-bit	12-bit	16-bit	-	-	12-bit
	Channels	2 (PCI-1716 only)	1	2	-	-	2
	Onboard FIFO	-	-	-	-	-	-
	Output Range	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	-	-	0 ~ 5, 0 ~ 10, ±5, ±10, 0 ~ 20, 0 ~ 24, 4 ~ 20 mA
	Output Rate	Static update	Static update	Static update	-	-	Static update
	DMA Transfer	-	-	-	-	-	-
Digital I/O	Input Channels	16	16	16	-	-	16 (shared)
	Output Channels	16	16	16	-	-	
Timer/Counter	Channels	1	1	1	-	-	2
	Resolution	16-bit	16-bit	16-bit	-	-	32-bit
	Max. Input Frequency	10 MHz	10 MHz	10 MHz	-	-	10 MHz
Isolation Voltage		-	-	-	-	-	-
Auto Calibration		✓	-	✓	✓	✓	✓
Board ID Switch		✓	✓	✓	✓	✓	✓
Dimensions (L x H)		175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector		68-pin SCSI	DB37	68-pin SCSI	68-pin SCSI	4 x BNC	68-pin SCSI
DAQ/Analog Driver	Windows 7/8/10	✓	✓	✓	✓	✓	✓
	Linux	✓	-	-	✓	✓	✓
LabVIEW Driver		✓	✓	✓	✓	✓	✓

* All channels should be set to the same range.

✓: supported, -: not supported, △: optional



Category		Multifunction & Analog Output				
Sampling / Updating		Static Update				Dynamic Update
Part Number		PCI-1720U	PCI-1727U	PCI-1724U	PCI-1723	PCI-1721
Analog Input	Resolution	-	-	-	-	-
	Channels	-	-	-	-	-
	Onboard FIFO	-	-	-	-	-
	Sampling Rate	-	-	-	-	-
	Input Ranges	Unipolar Inputs	-	-	-	-
		Bipolar Inputs	-	-	-	-
		Configurable Per Channel	-	-	-	-
	Trigger Modes	Pacer/ Software/ External Pulse	-	-	-	-
		Analog Slope	-	-	-	-
		Advanced Trigger	-	-	-	-
	Data Transfer Modes	Software	-	-	-	-
		DMA	-	-	-	-
Analog Output	Resolution	12-bit	14-bit	14-bit	16-bit	16-bit
	Channels	4	12	32	8	4 (waveform output)
	Onboard FIFO	-	-	-	-	1,024 samples
	Output Range	0 ~ 5, 0 ~ 10, ± 5 , ± 10 , 0 ~ 20, 4 ~ 20 mA	± 10 , 0 ~ 20 mA	± 10 , 0 ~ 20 mA	± 10 , 0 ~ 20, 4 ~ 20 mA	0 ~ 5, 0 ~ 10, ± 5 , ± 10 , 0 ~ 20, 4 ~ 20 mA
	Output Rate	Static update	Static update	Static update	Static update	10 MHz
	DMA Transfer	-	-	-	-	Bus mastering
Digital I/O	Input Channels	-	16	-	16 (shared)	16
	Output Channels	-	16	-		(shared)
Timer/Counter	Channels	-	-	-	-	1
	Resolution	-	-	-	-	16-bit
	Max. Input Frequency	-	-	-	-	10 MHz
Isolation Voltage		2,500 V _{DC}	-	1,500 V _{DC}	-	-
Auto Calibration		-	-	-	✓	✓
Board ID Switch		✓	✓	✓	✓	✓
Dimensions (L x H)		175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector		DB37	2 x 2-pin DB37	DB62	68-pin SCSI	68-pin SCSI
DAQ/NI Driver	Windows 7/8/10	✓	✓	✓	✓	✓
	Linux	✓	✓	✓	-	✓
	LabVIEW Driver	✓	✓	✓	✓	✓

* 80 kHz on Pentium® 4-based (or higher) systems.

** SS: Single DMA channel, single A/D channel scan.

✓: supported, -: not supported, Δ : optional

1
IoT Software Solutions

2
Edge AI and SKY Servers

3
Intelligent Systems

4
Machine Vision Solutions

5
Intelligent HMI and Monitors

6
Automation Computers

7
DAQ and Communication Gateways

8
Industrial Communication

9
Remote I/O, Wireless Sensing Modules and Converters

10
Intelligent Motion Control Solutions

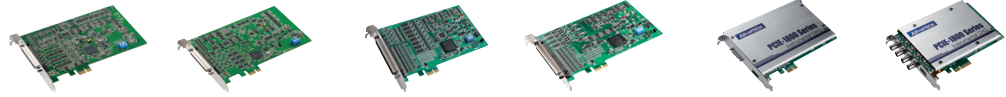
11
EtherCAT Solutions and Automation Controllers

12
Industrial I/O Solutions

13
Intelligent Transportation Platforms

14
Utility and Energy Solutions

Analog I/O and Multifunction Cards



Category		Multifunction & Analog Input					
Sampling / Updating		Multiplexer		Simultaneous Sampling			
Part Number		PCIE-1810	PCIE-1816/H	PCIE-1812	PCIE-1813	PCIE-1802/1802L	PCIE-1840/1840L
Analog Input	Resolution	12-bit	16-bit	16-bit	26-bit	24-bit	16-bit
	Channels	16 SE/8 diff.	16 SE/8 diff.	8 diff.	4 diff.	8 diff./ 4 diff.	4 SE
	Onboard FIFO	4,096 samples	4,096 samples	4,096 samples	4,096 samples	4,096 samples	1 G samples
	Sampling Rate	500 kS/s	500 KSPS/ 1MSPS	250 kS/s	38.4 kS/s	216 kS/s	125/80 MSPS
	Input Ranges	Unipolar Inputs 0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V	±31.25 mV/V, ±62.5 mV/V, ±125 mV/V, ±250 mV/V, and ±1 V/V (bridge inputs)	-	-
	Trigger Modes	Bipolar Inputs	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±10, ±5, 2.5, 1.25, 0.625 V	±0.2, ±0.5, ±1, ±2, ±5, ±10 V	0.2, 0.4, 1, 2, 4, 10, 20 Vpp
		Configurable Per Channel	✓	✓	✓	✓	✓
		Pacer/ Software/ External Pulse	✓	✓	✓	✓	✓
	Data Transfer Modes	Advanced Trigger	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop	Start/Stop/Delayed Start/Delayed Stop
		Software	✓	✓	✓	✓	✓
Analog Output	DMA	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering	Bus mastering
	Resolution	12-bit	16-bit	16-bit	16-bit	-	-
	Channels	2 (waveform output)	2 (waveform output)	2 (waveform output)	2 (waveform output)	-	-
	Onboard FIFO	4,096 samples	4,096 samples	4,096 samples	4,096 samples	-	-
	Output Range	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	-	-
Digital I/O	Output Rate	500 kS/s	3 MHz	3 MHz	3 MHz	-	-
	DMA Transfer	Bus mastering	Bus mastering	Bus mastering	Bus mastering	-	-
Timer/Counter	Input Channels	24 (shared)	24 (shared)	32 (shared)	32 (shared)	1	-
	Output Channels					2	-
	Channels	2	2	4 (encoder included)	4 (encoder included)	-	-
Isolation Voltage	Resolution	32-bit	32-bit	32-bit	32-bit	-	-
	Max. Input Frequency	10 MHz	10 MHz	10 MHz	10 MHz	-	-
	Isolation Voltage	-	-	-	-	-	-
Auto Calibration	Auto Calibration	✓	✓	✓	✓	✓	✓
	Board ID Switch	✓	✓	✓	✓	✓	✓
	Dimensions (L x H)	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector	Connector	68-pin SCSI	68-pin SCSI	100-pin SCSI (female)	100-pin SCSI (female)	1 x 19-pin MINI SCSI (for AI) 1 x HDMI (for Ext. clock and trigger)	4 x BNC (for AI) 1 x HDMI (for Ext. clock and trigger)
DAQ/NI Driver	Windows 7/8/10	✓	✓	✓	✓	-	-
	Linux	✓	✓	-	-	✓	-
	LabVIEW Driver	✓	✓	✓	✓	✓	✓

* 80 kHz on Pentium® 4-based (or higher) systems.

** SS: Single DMA channel, single A/D channel scan.

✓: supported, -: not supported, △: optional

Digital I/O and Multifunction Cards



Category			Non-Isolated Digital I/O					
Bus			PCI					
Part Number			🔌 PCI-1735U	🔌 PCI-1737U	🔌 PCI-1739U	🔌 PCI-1751	🔌 PCI-1753	🔌 PCI-1757UP
TTL DI/O	Input Channels		32	24 (shared)	48 (shared)	48 (shared)	96 (shared)	24 (shared)
	Output Channels		32					
	Output Channel	Sink Current	24 mA @ 0.5 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.4 V	24 mA @ 0.44 V	24 mA @ 0.5 V
		Source Current	15 mA @ 2.0 V	15 mA @ 2.4 V	15 mA @ 2.4 V	15 mA @ 2.4 V	24 mA @ 3.76 V	24 mA @ 3.7 V
Isolated Digital I/O	Input	Channels	-	-	-	-	-	-
		Isolation Voltage	-					
		Input Range	-	-	-	-	-	-
	Output	Channels	-	-	-	-	-	-
		Isolation Voltage	-	-	-	-	-	-
		Output Range	-	-	-	-	-	-
		Max. Sink Current	-	-	-	-	-	-
Timer/Counter	Channels		3	-	-	3	-	-
	Resolution		16-bit	-	-	16-bit	-	-
	Max. Input Frequency		10 MHz	-	-	10 MHz	-	-
Advanced Function	Pattern Match		-	-	-	-	✓	-
	Change of State		-	-	-	-	✓	-
	Board ID Switch		✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		-	-	-	-	-	-
	Output Status Read Back		✓	✓	✓	✓	✓	✓
	Dry/Wet Contact*		-	✓	✓	✓	✓	✓
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	120 x 65 mm (4.7" x 2.5")
Connector			5 x 20-pin	1 x 50-pin	2 x 50-pin	68-pin SCSI	100-pin SCSI	1 x DB25
DAQ/Analog Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		-	✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, -: not supported, △: optional

1
IoT Software Solutions

2
Edge AI and SKY Servers

3
Intelligent Systems

4
Machine Vision Solutions

5
Intelligent HMI and Monitors

6
Automation Computers

7
DAQ and Communication Gateways

8
Industrial Communication

9
Remote I/O, Wireless Sensing Modules and Converters

10
Intelligent Motion Control Solutions

11
EtherCAT Solutions and Automation Controllers

12
Industrial I/O Solutions

13
Intelligent Transportation Platforms

14
Utility and Energy Solutions

Digital I/O and Multifunction Cards



Category			Isolated Digital I/O						
Bus			PCI Express						
Part Number			 PCIE-1730/ 1730H	 PCIE-1752	 PCIE-1754	 PCIE-1756/ 1756H	 PCIE- 1758UDI	 PCIE- 1758UDO	 PCIE- 1758UDIO
TTL DI/O	Input Channels		16	-	-	-	-	-	-
	Output Channels		16	-	-	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.5 V	-	-	-	-	-	-
		Source Current	15 mA @ 2.4 V	-	-	-	-	-	-
Isolated Digital I/O	Input	Channels	16	-	64	32	128	-	64
		Isolation Voltage	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-	2,500 V _{DC}
		Input Range	10 ~ 30 V _{DC}	-	10 ~ 30 V _{DC}	10 ~ 30 V _{DC}	10 ~ 30 V _{DC}	-	10 ~ 30 V _{DC}
	Output	Channels	16 (sink)	64 (sink)	-	32 (sink)	-	128	64
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	-	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}
		Output Range	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}
		Max. Sink Current	500 mA	500 mA	-	500 mA	-	90 mA	90 mA
	Timer/ Counter	Channels		-	-	-	-	-	-
Resolution		-	-	-	-	-	-		
Max. Input Frequency		-	-	-	-	-	-		
Advanced Function	Pattern Match		-	-	-	-	-	-	
	Change of State		-	-	-	-	-	-	
	Board ID Switch		✓	✓	✓	✓	✓	✓	
	Channel-Freeze Function		✓	✓	-	✓	-	-	
	Output Status Read Back		✓	✓	-	✓	-	✓	
	Dry/Wet Contact*		✓	-	-	-	-	-	
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	
Connector			1 x DB37 4 x 20-pin	100-pin SCSI	100-pin SCSI	100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	
DAQNav Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	
	Linux		✓	✓	-	✓	-	-	
LabVIEW Driver			✓	✓	✓	✓	✓	✓	

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, -: not supported, △: optional



Category			Relay Output				Non-Isolated Digital I/O	
Bus			PCI Express					
Part Number			 PCIE-1760	 PCIE-1761H	 PCIE-1762H	 PCIE-1765	 PCIE-1751	 PCIE-1753
TTL D/I/O	Input Channels		-	-	-	-	48	96
	Output Channels		-	-	-	-	(shared)	(shared)
	Output Channel	Sink Current	-	-	-	-	15 mA @ 0.8 V	15 mA @ 0.8 V
		Source Current	-	-	-	-	15 mA @ 2.0 V	15 mA @ 2.0 V
Isolated Digital I/O	Input	Channels	8	8	16	-	-	-
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-	-	-
		Input Range	4.5 ~ 12 V _{DC}	4.5 ~ 12 V _{DC}	10 ~ 50 V _{DC}	-	-	-
	Output	Channels	6 x Form A 2 x Form C	6 x Form A 2 x Form C	16**	12 Form C	-	-
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-	-
		Output Range	0.5 A @ 125 V _{AC}	2 A @ 250 V _{AC}	0.25 A @ 250 V _{AC}	2 A @ 250 V _{AC}	-	-
		Max. Sink Current	1 A @ 30 V _{DC}	2 A @ 30 V _{DC}	0.5 A @ 30 V _{DC}	2A @ 30 V _{DC}	-	-
	Timer/Counter	Channels	8 x UP CTR 2 x PWM	8 x CTR 2 x PWM	-	-	3	-
Resolution		16-bit	16-bit (2,500 isolation)	-	-	32-bit	-	
Max. Input Frequency		500 Hz	500 Hz for CTR	-	-	10 MHz	-	
Advanced Function	Pattern Match	✓	✓	-	-	✓	✓	
	Change of State	✓	✓	-	-	✓	✓	
	Board ID Switch	✓	✓	✓	-	✓	✓	
	Channel-Freeze Function	-	-	✓	-	-	-	
	Output Status Read Back	✓	✓	✓	-	✓	✓	
	Dry/Wet Contact*	-	-	-	-	✓	✓	
Dimensions (L x H)		175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	168 x 100 mm (6.6" x 3.9")	168 x 100 mm (6.6" x 3.9")	
Connector		1 x DB37	1 x DB37	1 x DB62	1 x DB37	68-pin SCSI	68-pin SCSI	
DAQ/Analog Driver	Windows 7/8/10	✓	✓	✓	✓	✓	✓	
	WinCE	-	-	-	-	-	-	
	Linux	✓	-	✓	-	-	-	
LabVIEW Driver		✓	✓	✓	✓	✓	✓	

* Simultaneous dry/wet contact within a group is acceptable.

** Jumper selectable Form A / Form B type relay output

✓: supported, -: not supported, △: optional

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

Digital I/O and Multifunction Cards



Category			Isolated Digital I/O					
Bus			PCI					
Part Number			🔗 PCI-1730U	🔗 PCI-1733	🔗 PCI-1734	🔗 PCI-1750/ 1750SQ	🔗 PCI-1752U/ 1752USQ	🔗 PCI-1754
TTL D/I/O	Input Channels		16	-	-	-	-	-
	Output Channels		16	-	-	-	-	-
	Output Channel	Sink Current	24 mA @ 0.5 V	-	-	-	-	-
		Source Current	15 mA @ 2.4 V	-	-	-	-	-
Isolated Digital I/O	Input	Channels	16	32	-	16	-	64
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	-	2,500 V _{DC}	-	2,500 V _{DC}
		Input Range	5 ~ 30 V _{DC}	5 ~ 30 V _{DC}	-	5 ~ 50 V _{DC}	-	10 ~ 50 V _{DC}
	Output	Channels	16 (sink)	-	32 (sink)	16 (sink/source)	64 (sink/source)	-
		Isolation Voltage	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	-
		Output Range	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	-
		Max. Current	300 mA	-	200 mA	200 mA	200 mA	-
Timer/ Counter	Channels		-	-	-	1	-	-
	Resolution		-	-	-	16-bit	-	-
	Max. Input Frequency		-	-	-	1 MHz	-	-
Advanced Function	Pattern Match		-	-	-	-	-	-
	Change of State		-	-	-	-	-	-
	Board ID Switch		✓	✓	✓	-	✓	✓
	Channel-Freeze Function		✓	-	-	-	✓	-
	Output Status Read Back		✓	-	✓	-	✓	-
	Dry/Wet Contact*		✓	✓	-	✓	-	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			1 x DB37 4 x 20-pin	1 x DB37	1 x DB37	1 x DB37	100-pin SCSI	100-pin SCSI
DAQ/Analog Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	✓	✓
LabVIEW Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

✓: supported, -: not supported, △: optional



Category			Isolated Digital I/O						
Bus			PCI						
Part Number			PCI-1756	PCI-1758UDI	PCI-1758UDO	PCI-1758UDIO	PCI-1760U	PCI-1761	PCI-1762
TTL DI/O	Input Channels		-	-	-	-	-	-	-
	Output Channels		-	-	-	-	-	-	-
	Output Channel	Sink Current	-	-	-	-	-	-	-
		Source Current	-	-	-	-	-	-	-
Isolated Digital I/O	Input	Channels	32	128	-	64	8	8	16**
		Isolation Voltage	2,500 V _{DC}	2,500 V _{RMS}	-	2,500 V _{DC}	2,500 V _{DC}	3,750 V _{DC}	2,500 V _{DC}
		Input Range	10 ~ 50 V _{DC}	5 ~ 25 V _{DC}	-	5 ~ 25 V _{DC}	4.5 ~ 12 V _{DC}	5 ~ 50 V _{DC}	10 ~ 50 V _{DC}
	Output	Channels	32 (Sink)	-	128	64	6 x Form A 2 x Form C	4 x Form A 4 x Form C	16
		Isolation Voltage	2,500 V _{DC}	-	2,500 V _{RMS}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}
		Output Range	5 ~ 40 V _{DC}	-	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	0.5 A @ 125 V _{AC} 1 A @ 30 V _{DC}	2 A @ 250 V _{AC} 2 A @ 30 V _{DC}	0.5 A @ 250 V _{AC} 0.5 A @ 30 V _{DC}
		Max. Sink Current	200 mA	-	90 mA	90 mA			
Timer/Counter	Channels		-	-	-	-	8 x CTR 2 x PWM	-	-
	Resolution		-	-	-	-	16-bit (2,500 isolation)	-	-
	Max. Input Frequency		-	-	-	-	500 Hz for CTR	-	-
Advanced Function	Pattern Match		-	-	-	-	✓	-	-
	Change of State		-	-	-	-	✓	-	-
	Board ID Switch		✓	✓	✓	✓	✓	✓	✓
	Channel-Freeze Function		✓	-	-	-	-	-	✓
	Output Status Read Back		✓	-	✓	✓	✓	✓	✓
	Dry/Wet Contact*		-	-	-	-	-	-	-
Dimensions (L x H)			175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector			100-pin SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	Dual 100-pin mini SCSI	1 x DB37	1 x DB37	1 x DB62
DAQ/Analog Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓	✓
	Linux		✓	✓	✓	✓	-	✓	✓
	LabVIEW Driver		✓	✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

** Jumper selectable Form A / Form B type relay output

✓: supported, -: not supported, △: optional

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

Digital I/O and Multifunction Cards



Category			Isolated Digital I/O		Counter		Encoder	
Bus			PCI-104		PCI	PC/104	PCI	PCIE
Part Number			 PCM-3730I	 PCM-3761I	 PCI-1780U	 PCM-3780	 PCI-1784U	 PCIE-1884U
TTL D/I/O	Input Channels		-	-	8	24 (shared)	-	-
	Output Channels		-	-	8		-	-
	Output Channel	Sink Current	-	-	24 mA @ 0.5 V	24 mA @ 0.5 V	-	-
		Source Current	-	-	15 mA @ 2.4 V	15 mA @ 2.0 V	-	-
Isolated Digital I/O	Input	Channels	16	8	-	-	4	4
		Isolation Voltage	2,500 V _{DC}	2,500 V _{DC}	-	-	2,500 V _{DC}	2,500 V _{DC}
		Input Range	5 ~ 30 V _{DC}	5 ~ 30 V _{DC}	-	-	10 ~ 30 V _{DC}	5 ~ 50 V _{DC}
	Output	Channels	16	8 x Form C	-	-	4	4
		Isolation Voltage	2,500 V _{DC}	2,000 V _{DC}	-	-	2,500 V _{DC}	2,500 V _{DC}
		Output Range	5 ~ 30 V _{DC}	0.25 A @ 250 V _{AC} 2 A @ 30 V _{DC}	-	-	TTL level	TTL level
		Max. Sink Current	300 mA		-	-	50mA	24mA
Timer/ Counter	Channels		-	-	8 x CTR	2	4	4
	Resolution		-	-	16-bit	16-bit	32-bit	32-bit
	Max. Input Frequency		-	-	20 MHz	20 MHz	2 MHz (8 MHz for quadrature X4)	10 MHz (40 MHz for quadrature X4)
Advanced Function	Pattern Match		-	-	-	-	-	-
	Change of State		-	-	-	-	-	-
	Board ID Switch		-	✓	✓	-	✓	✓
	Channel-Freeze Function		-	-	-	-	-	-
	Output Status Read Back		-	✓	-	-	-	-
	Dry/Wet Contact*		-	-	-	-	-	-
	Dimensions (L x H)		96 x 90 mm (3.8" x 3.5")	96 x 90 mm (3.8" x 3.5")	175 x 100 mm (6.9" x 3.9")	96 x 90 mm (3.8" x 3.5")	175 x 100 mm (6.9" x 3.9")	175 x 100 mm (6.9" x 3.9")
Connector		2 x 20-pin	1 x 20-pin 1 x 50-pin	68-pin SCSI	1 x 50-pin 1 x 20-pin	1 x DB37	1 x DB37	
DAQnavi Driver	Windows 7/8/10		✓	✓	✓	✓	✓	✓
	Linux		-	✓	✓	-	✓	-
LabVIEW I/O Driver			✓	✓	✓	✓	✓	✓

* Simultaneous dry/wet contact within a group is acceptable.

** Jumper-selectable Form A/B-type relay output.

✓: supported, -: not supported, △: optional

USB I/O Modules and USB Hubs



Category			USB 3.0 Isolated Digital I/O					
Model			USB-5830-AE	USB-5856-AE	USB-5850-AE	USB-5855-AE	USB-5860-AE	USB-5862-AE
Isolated Digital I/O	Input	Channels	16	32	16	32	8	16
		Input Range	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)
		Isolation Protection	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}
	Output	Channels	16	32	-	-	-	-
		Load Voltage	5 ~ 40 V _{DC}	5 ~ 40 V _{DC}	-	-	-	-
		Load Current	350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C	350mA/ch (sink) @ 25°C 250mA/ch (sink) @ 60°C	-	-	-	-
		Isolation Protection	2,500 V _{DC}	2,500 V _{DC}	-	-	-	-
Relay Output	PhotoMOS SPST (Form A)	Opto-Isolator Response Time	100 µs	100 µs	-	-	-	-
		Channels	-	-	8	16	-	-
		Load Voltage	-	-	60V (AC peak or DC)	60V (AC peak or DC)	-	-
		Load Current	-	-	1.2A/ch	1.2A/ch	-	-
		Isolation Protection	-	-	1,500 V _{DC}	1,500 V _{DC}	-	-
	Relay Output Form A	Response Time	-	-	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	Turn-on: 1 ms (typical) Turn-off: 0.6 ms (typical)	-	-
		Channels	-	-	-	-	8	16
		Contact Rating (resistive)	-	-	-	-	2A @ 250 V _{AC} , 2A @ 30 V _{DC}	2A @ 250 V _{AC} , 2A @ 30 V _{DC}
		Max. Switching Power	-	-	-	-	500 VA, 60 W	500 VA, 60 W
		Max. Switching Voltage	-	-	-	-	270 V _{AC} , 125 V _{DC}	270 V _{AC} , 125 V _{DC}
		Response Time	-	-	-	-	Operating time: 10 ms (max.) Release time: 5 ms (max.)	Operating time: 10 ms (max.) Release time: 5 ms (max.)
	Dimensions		120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	168 x 120 x 40 mm (6.61" x 4.72" x 1.57")
	Board ID Switch		✓	✓	✓	✓	✓	✓
	Operating Temperature		0 ~ 60 °C (32 ~ 140 °F)					
	Supported Operating Systems		Windows XP/7/8/10 and Linux					

✓: supported, -: not supported, △: optional

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

USB I/O Modules and USB Hubs



Category			USB 3.0 Analog Input Modules		
Model			 USB-5801	 USB-5817	 USB-5820
Analog Input	Resolution		24	16	-
	Channels		4 diff./pseudo-diff.	8 diff.	-
	Sampling Rate		192KS/s, Simultaneous	200kS/s, Multiplexed	-
	IEPE		2mA	-	-
	Value Range	Unipolar	-	-	-
		Bipolar	±1 V, ±10 V	0- 20mA, ±10V	-
		Configurable Per Channel	✓	✓	-
	Trigger Modes	Pacer/ Software	✓	✓	-
		External Pulse	✓	✓	-
Analog Output	Resolution		24	-	16
	Channels		2	-	4
	Updating Rate		192KS/s, Simultaneous	-	200kS/s, Multiplexed
	Output Range		±1 V, ±10 V	-	0-5V, 0-10V, ±5V, ±10V, 0-20mA, 4-20 mA
Tachometer	Channels		2	-	-
	Input Range		Logic 0: 3 V max. Logic 1: 10 V min. (30 V max.)	-	-
	Input Frequency		5kHz	-	-
Isolated Digital I/O	Input Channels		4	-	-
	Output Channels		4	-	-
	Opto-Isolator Response Time		100us	-	-
	Isolation Protection		2,500 V _b c	-	-
Dimensions			168 x 120 x 40 mm (6.61" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")	120 x 120 x 40 mm (4.72" x 4.72" x 1.57")
Board ID Switch			✓	✓	✓
Operating Temperature			0 ~ 60 °C (32 ~ 140 °F)		
Supported Operating Systems			Windows XP/7/8/10 and Linux		

✓: supported, -: not supported, △: optional



Category		USB 2.0 Multifunction				
Part Number		USB-4702-AE	USB-4704-AE	USB-4711A-AE	USB-4716-AE	USB-4718
Analog Input	Resolution	12-bit	14-bit	12-bit	16-bit	16-bit
	Channels	8 SE/4 diff.	8 SE/4 diff.	16 SE/8 diff.	16 SE/8 diff.	8 diff.
	Onboard FIFO	512 samples	512 samples	1,024 samples	1,024 samples	-
	Sampling Rate	10 kS/s	48 kS/s	150 kS/s	200 kS/s	10 S/s
	Input Ranges	Unipolar Inputs		0 ~ 10, 0 ~ 5, 0 ~ 2.5, 0 ~ 1.25 V		0 ~ 20, 4 ~ 20 mA Thermocouple J, K, T, E, R, S, B 0 ~ 1, 0 ~ 2.5, 0 ~ 0.015, 0 ~ 0.05, 0 ~ 0.1, 0 ~ 0.5 V
		Bipolar Inputs		±10, 5, 4, 2.5, 1.25, 1 V		-
		Configurable Per Channel		✓		✓
	Trigger Modes	Pacer/Software		✓		✓
		External Pulse		✓		✓
	Data Transfer	Software		✓		✓
Analog Output	Resolution	12-bit	12-bit	12-bit	16-bit	-
	Channels	2	2	2	2	-
	Output Range	0 ~ 5 V	0 ~ 5, 0 ~ 10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	0 ~ 5, 0 ~ 10, ±5, ±10 V	-
	Output Rate	Static update	Static update	Static update	Static update	-
Digital I/O	Input Channels	8	8	8	8	8 (isolated)
	Output Channels	8	8	8	8	8 (isolated)
Timer/Counter	Channels	1	1	1	1	-
	Resolution	32-bit	16-bit	16-bit	16-bit	-
	Max. Input Frequency	5 MHz	10 MHz	1 KHz	1 KHz	-
Auto Calibration		✓	✓	✓	✓	-
Dimensions (L x H)		70 x 70 mm (2.76" x 2.76")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")
Connector		DB37	Onboard screw terminal	Onboard screw terminal	Onboard screw terminal	Onboard screw terminal
Supported Operating Systems		Windows XP/7/8/10 and Linux				
LabVIEW Driver		✓	✓	✓	✓	✓



Category		Industrial USB Hub		
Model		USB-4620-AE	USB-4622-BE	USB-4630-AE
Connectivity	Ports	1 x Upstream (Type B) 5 x Downstream (Type A)	1 x Upstream (Type B) 5 x Downstream (Type A)	1 x Upstream (Type B) 4 x Downstream (Type A)
	Compatibility	USB 2.0 Full Speed	USB 2.0 High Speed	USB 3.0 SuperSpeed
	Transfer Speed	12 Mbps	480 Mbps	5 Gbps shared by all downstream ports
	Supply Current	500 mA max. per port	500 mA max. per port	External power: 900 mA max. per port USB bus power: 700 mA max. shared by all ports
Isolation Protection		3,000 V _{DC}	-	2,500 V _{DC}
General	Dimensions	132 x 80 x 32 mm (5.2" x 3.15" x 1.26")		
	DC Input	10 ~ 30 V _{DC}		
	Operating Temperature	0 ~ 60°C (32 ~ 140°F)	0 ~ 60°C (32 ~ 140°F)	0 ~ 70°C (32 ~ 158°F)

✓: supported, -: not supported, △: optional

Signal Conditioners and Terminal Boards

Signal Conditioners



Model		ADAM-3011	ADAM-3013	ADAM-3014
Signal Type		Thermocouple	RTD	DC input
Channel		1	1	1
Input Type	Voltage	-	-	± 10 mV, ± 50 mV, ± 100 mV, ± 0.5 V, ± 1 V, ± 5 V, ± 10 V, $0 \sim 10$ mV, $0 \sim 50$ mV, $0 \sim 100$ mV, $0 \sim 0.5$ V, $0 \sim 1$ V, $0 \sim 5$ V, $0 \sim 10$ V
	Current	-	-	$0 \sim 20$, ± 20 mA
	Others	J, K, T, E, S, R, B Type	Pt or Ni	-
Output	Voltage	$0 \sim 10$ V	$0 \sim 5$, $0 \sim 10$ V	$0 \sim 10$, ± 5 , ± 10 V
	Current	-	$0 \sim 20$ mA	-



Model		ADAM-3016	ADAM-3017	ADAM-3112	ADAM-3114
Signal Type		Strain Gauge	IEPE input	AC/DC input	Current input
Channel		1	1	1	1
Input Type	Voltage	± 10 , ± 20 , ± 30 , ± 100 mV (electrical voltage)	$4 \sim 24$ V (IEPE sensor with up to 10 mA current source)	AC: $0 \sim 120$, $0 \sim 250$, $0 \sim 400$ V DC: $0 \sim 120$, $0 \sim 250$, $0 \sim 400$ V	-
	Current	-	-	-	AC: $0 \sim 5$ A _{rms} DC: $0 \sim 5$ A
	Others	-	-	-	-
Output	Voltage	$0 \sim 10$, ± 5 , ± 10 V	DC Couple: $4 \sim 24$ V AC Couple: ± 11 V	$0 \sim 5$ V _{DC}	$0 \sim 5$ V _{DC}
	Current	-	-	-	-

Signal Conditioners and Terminal Boards

Recommended Cables, I/O Wiring Terminal Boards, and Isolated Digital I/O Terminals for Connecting to PC/104 and PCI-104 DAQ Products

PCI and USB Product	Cable	I/O Wiring Terminal Board
PCI-1710U/1710UL/1710HGU PCI-1711U/1711UL PCI-1716/1716L PCI-1706U/ PCI-1742U PCIE-1810/ PCIE-1816/ PCIE-1816H PCI-1712/PCI-1712L	PCL-10168 PCL-10168H	PCLD-8710/ 8810/ 8810E
PCI-1718H DU	PCL-10137	ADAM-3968
PCI-1727U PCI-1730U PCIE-1730	PCL-10120	ADAM-3937
PCI-1751/ PCIE-1751 PCI-1747U/PCI-1721 PCI-1723/PCI-1780U	PCL-10168	ADAM-3920
PCI-1753/ PCIE-1753	PCL-10268	ADAM-3968
PCI-1720U, PCI-1733, PCI-1734 PCI-1750, PCIE-1760, PCI-1760U, PCI-1761, USB-4702, PCI-1713U/PCI-1715U	PCL-10137	ADAM-3937
PCI-1784U	PCI-10137H	ADAM-3951
PCI-1752U, PCI-1754, PCI-1756 PCIE-1752, PCIE-1754, PCIE-1756	PCL-10250	ADAM-39100
PCIE-1812, PCIE-1813	PCL-101100M	ADAM-3962
PCI-1758UDI/1758UDO/1758UDIO	PCL-101100R	ADAM-3950
PCI-1724U, PCI-1762	PCL-101100S	ADAM-3909
PCI-1737U PCI-1739U USB-4751/L	PCL-10162	ADAM-3925
PCI-1714U/1714UL	PCL-10150	ADAM-3920
	PCL-10901	
	PCL-1010B	
PCI-1757UP	PCL-10125	
PCI-1735U	PCL-10120	
PCI-1671UP, USB-4671	PCL-10488	

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

Signal Conditioners and Terminal Boards

Recommended Cables, I/O Wiring Terminal Boards, and Isolated Digital I/O Terminals for Connecting to PC/104 and PCI-104 DAQ Products

PC/104 and PCI-104 Product	Cable	I/O Wiring Terminal Board
PCM-3718H/HO/HG PCM-3730 PCM-3730I	PCL-10120	ADAM-3920
PCM-3724 PCM-3753I	PCL-10150	ADAM-3950
PCM-3725 PCM-3780 PCM-3761I	PCL-10120	ADAM-3920
	PCL-10150	ADAM-3950

Functional Wiring Board Accessories

Part Number	Description
PCLD-780-BE	Screw Terminal Board with Flat Cables
PCLD-782B-AE	16/24-ch Opto-isolated DI Board
PCLD-782-BE	Opto-Isolated D/I Board
PCLD-785-AE	16-ch Relay Output wiring board
PCLD-785B-AE	24-ch Relay Output wiring board
PCLD-8762-AE	48-ch Relay Output wiring board
PCLD-788-AE	Relay Scanner/multiplexer Board
PCLD-789D-AE	Amplifier and Multiplexer Board
PCLD-8115-AE	Industrial Wiring Terminal Board with CJC Circuit
PCLD-8710-AE	DIN-rail Wiring Terminal Board with CJC Circuit
PCLD-8712-AE	DIN-rail Wiring Terminal for PCI-1712/L
PCLD-8751-AE	48-ch Opto-isolated DI Board
PCLD-8761-AE	24/24-ch Relay Output/Isolated DI Board
PCLD-880-AE	Wiring Terminal Board with Flat Cables and Adapter
PCLD-8810E-AE	Screw terminal board with CJC for PCIE-18 Series
PCLD-8810I-AE	Screw terminal board with CJC for PCI-17 Series
PCLD-8811	Low-Pass Active Filter Board
PCLD-8813-AE	Advanced Signal Conditioning Board for PCIE-1812/PCIE-1813
PCLD-881B-AE	Wiring Terminal Board for PCI-1713 & PCL-813L
PCLD-8840-AE	20-pin DIN-rail HDMI Cable Wiring Board
PCLD-885-AE	16-ch Power Relay Output wiring board

Part Number	Description
PCL-10137H-3E	DB37 high-speed cable, 3 m
PCL-10141-0.2E	40-pin to DB37(f) flat cable, 0.2 m
PCL-10150-1.2E	50-pin flat cable, 1.2 m
PCL-10162-1E	DB62 cable, 1 m
PCL-10162-3E	DB62 cable, 3 m
PCL-10168-1E	68-pin SCSI shielded cable, 1 m
PCL-10168-2E	68-pin SCSI shielded cable, 2 m
PCL-10168H-1E	68-pin SCSI shielded cable with noise rejection, 1 m
PCL-10168H-2E	68-pin SCSI shielded cable with noise rejection, 2 m
PCL-10250-1E	100-pin SCSI to 2 x 50-pin SCSI cable, 1 m
PCL-10250-2E	100-pin SCSI to 2 x 50-pin SCSI cable, 2 m
PCL-10268-1E	100-pin SCSI to 2 x 68-pin SCSI cable, 1 m
PCL-10268-2E	100-pin SCSI to 2 x 68-pin SCSI cable, 2 m
PCL-10488-2	IEEE-488 cable, 2 m
PCL-10502-AE	Dual 20-pin to PC slot plate extender
PCL-10503-AE	Dual 20-pin to DB37 adapter
PCL-10901-3E	DB9 to PS/2 cable, 3 m

Serial Communication Cards

Serial Communication Cards



Bus		PCI Express								
Part Number		 PCI-1602	 PCI-1602UP	 PCI-1604	 PCI-1604L	 PCI-1610	 PCI-1612	 PCI-1620	 PCI-1622	 PCI-1680U
I/O Ports		2	2	2	2	4	4	8	8	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	✓	✓	-
	RS-422	✓	✓	-	-	-	✓	-	✓	-
	RS-485	✓	✓	-	-	-	✓	-	✓	-
	CAN	-	-	-	-	-	-	-	-	✓
Drivers		Windows XP/7/8/10 and Linux								
Protection	ESD	15 kV (air), 8 kV (contact) 8 kV (air), 4 kV (contact)								
	Isolation	3,000 V _{DC}	2,500 V _{DC}	3,000 V _{DC}	-	3,000 V _{DC}	3,000 V _{DC}	-	3,000 V _{DC}	1,000 V _{DC}



Bus		PCI Express						
Part Number		PCIE-1602	PCIE-1604	PCIE-1610	PCIE-1612	PCIE-1620	PCIE-1622	PCIE-1680
I/O Ports		2	2	4	4	8	8	2
Communication Interfaces	RS-232	✓	✓	✓	✓	✓	✓	-
	RS-422	✓	-	-	✓	-	✓	-
	RS-485	✓	-	-	✓	-	✓	-
	CAN	-	-	-	-	-	-	✓
Drivers		Windows XP/7/8/10 and Linux						
Protection	ESD	15 kV (air), 8 kV (contact)						
	Isolation	3,000 V _{DC}	3,000 V _{DC}	-	3,000 V _{DC}	-	3,000 V _{DC}	2,500 V _{DC}

✓: supported, -: not supported, △: optional

1

IoT Software Solutions

2

Edge AI and SKY Servers

3

Intelligent Systems

4

Machine Vision Solutions

5

Intelligent HMI and Monitors

6

Automation Computers

7

DAQ and Communication Gateways

8

Industrial Communication

9

Remote I/O, Wireless Sensing Modules and Converters

10

Intelligent Motion Control Solutions

11

EtherCAT Solutions and Automation Controllers

12

Industrial I/O Solutions

13

Intelligent Transportation Platforms

14

Utility and Energy Solutions

Serial Communication Cards

PC/104 Communication Modules



Bus		PC/104						
Part Number		PCM-3680	PCM-3660	PCM-3610	PCM-3612	PCM-3614	PCM-3618	PCM-3641
I/O Ports		2	2	2	2	4	8	4
Communication Interfaces	Ethernet	-	✓	-	-	-	-	-
	RS-232	-	-	✓	-	-	-	✓
	RS-422	-	-	✓	✓	✓	✓	-
	RS-485	-	-	✓	✓	✓	✓	-
	CAN	✓	-	-	-	-	-	-
Protection	ESD	8 kV (air), 4 kV (contact)						
	Isolation	2,500 V _{DC}	-	2,500 V _{DC}	-	-	-	-

PCI-104 Communication Modules



Bus		PCI-104	
Part Number		PCM-3680I	PCM-3612I
I/O Ports		2	4
Communication Interfaces	Current Loop	-	-
	RS-232	-	✓
	RS-422	-	✓
	RS-485	-	✓
	CAN	✓	-
Protection	ESD	8 kV (air), 4 kV (contact)	15 kV (air), 8 kV (contact)
	Isolation	2,500 V _{DC}	-

Bus	MIOe PCI Express
Part Number	MIOE-3680-AE
Protocol	CAN 2.0 A/B
Ports	2
Protection	8 kV (air), 4 kV (contact) Isolation 2,500 V _{DC}

Accessories



Part Number		1700018791	OPT4A	OPT8C	OPT8H	OPT8J	OPT1-DB9E
Length		30 cm	30 cm	1 m	1 m	1 m	-
Communication Interfaces	Connector Type	DB37 Male	DB37 Male	DB62 Male	DB62 Male	DB78	DB9
	Qty	1	1	1	1	1	1
	Connector Type	DB25 Male	DB9 Male	DB25 Male	DB9 Male	DB9 Male	10pin Terminal
	Qty	4	4	8	8	8	1
Applications		PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C	PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C	PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B	PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B	PCI-1622C, PCIE-1622C	PCI-1610B, PCI-1610C, PCI-1612B, PCI-1612C, PCIE-1610B, PCIE-1612B, PCIE-1612C, PCI-1620A, PCI-1620B, PCIE-1620A, PCIE-1622B, PCI-1680, PCIE-1680, MIOE-3680

✓: supported, -: not supported, △: optional