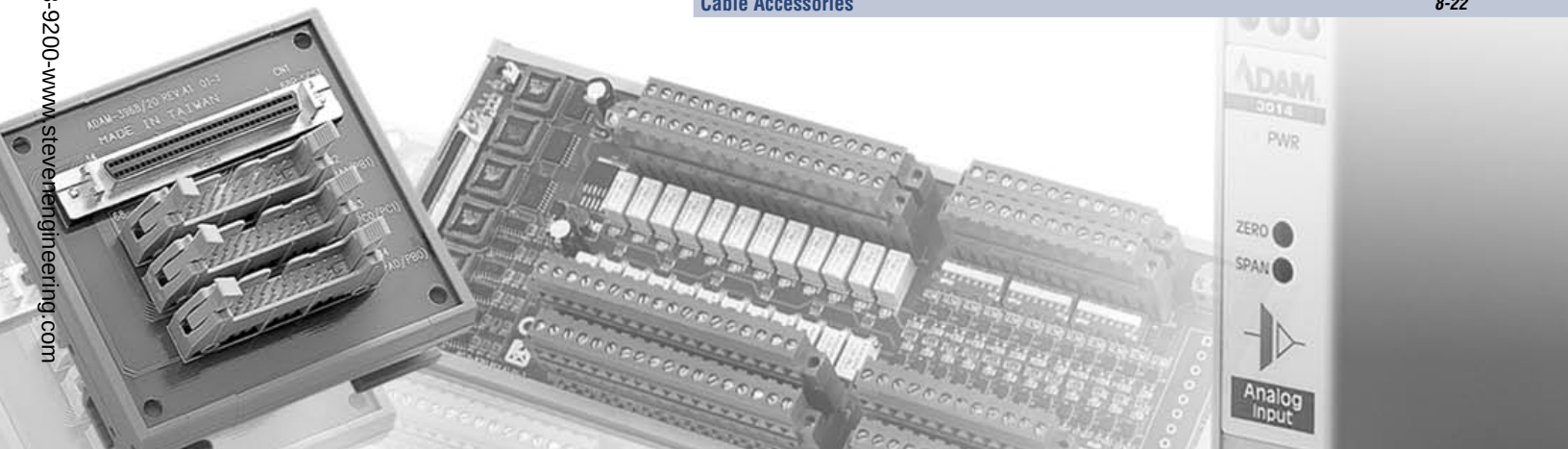
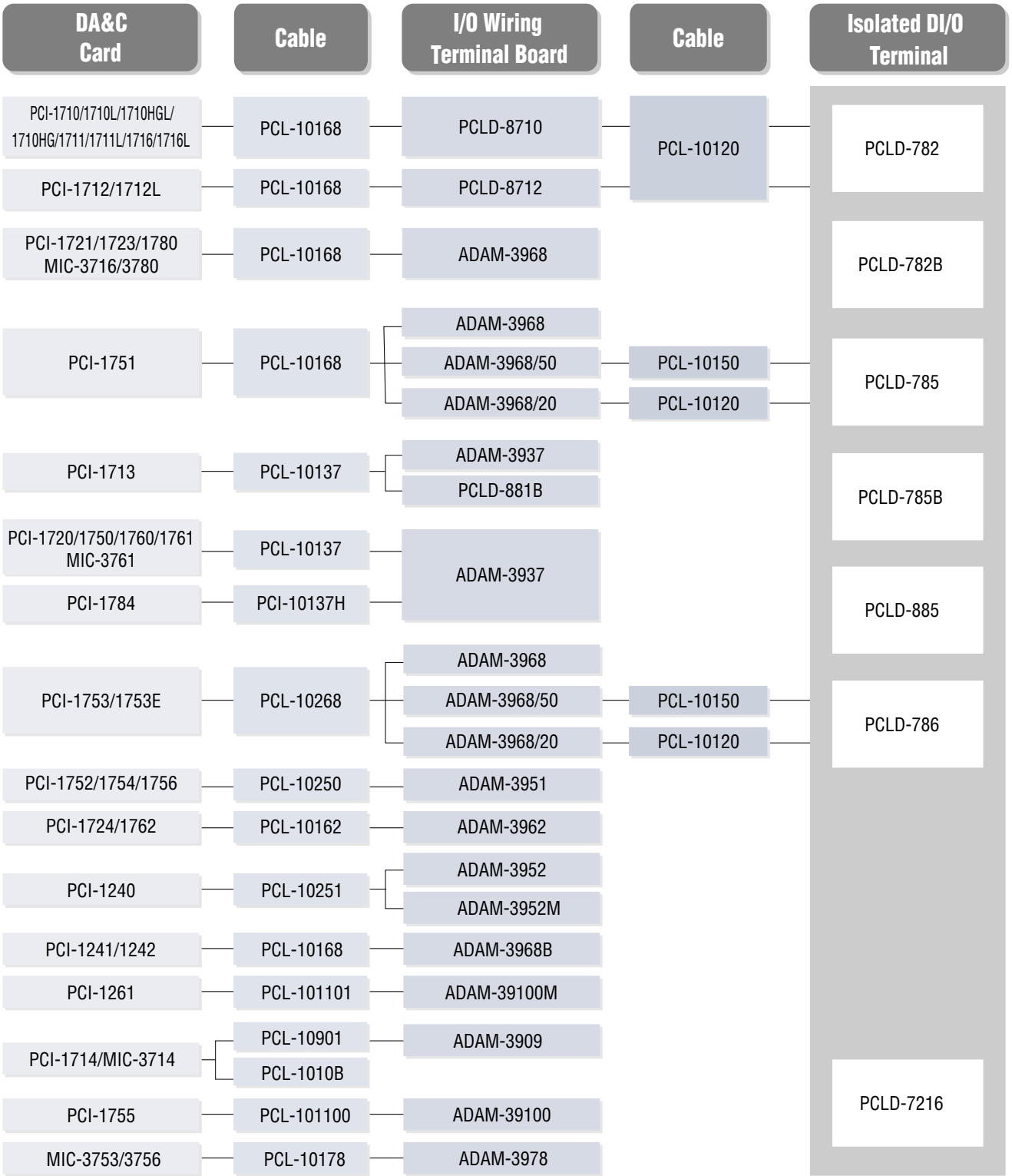
8

Signal Conditioning Modules and Terminal Boards ADAM-3000



Terminal Boards

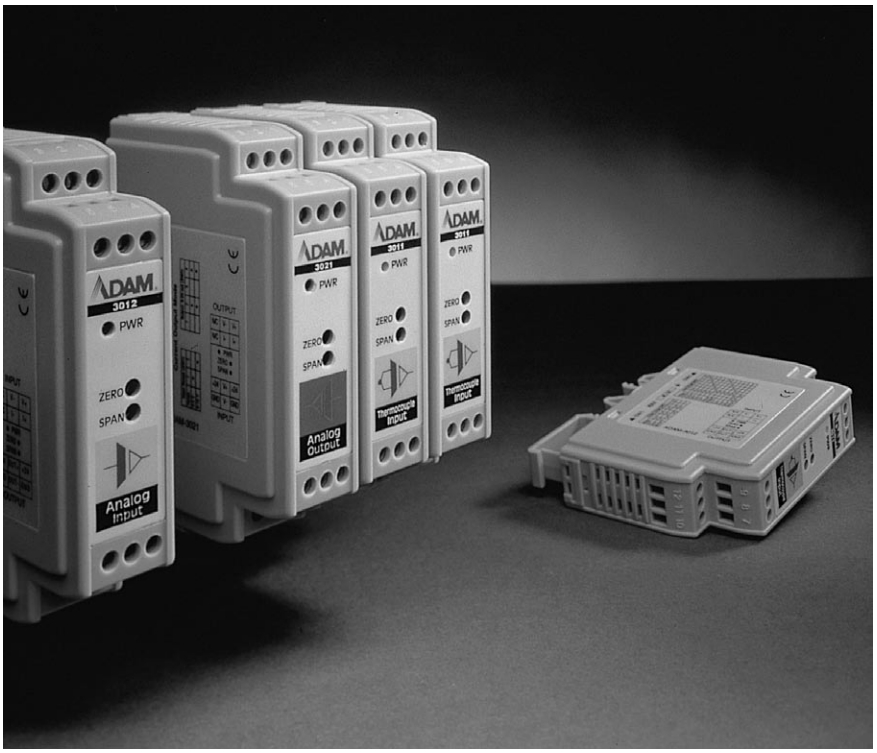
Recommended cables, I/O wiring terminal boards and isolated DI/O terminals for connecting PCI-buses with CompactPCI DA&C cards



Recommended cables, I/O wiring terminal boards and isolated DI/O terminals for connecting ISA-buses with DA&C cards

ISA-bus DA&C Card	Cable	I/O Wiring Terminal Board	Isolated DI/O Terminal
PCL-711B/S	PCL-10120	PCLD-7115	PCLD-782
	PCL-10120		
PCL-816/818L/818HD/ 818HG/1800	PCL-10137	PCLD-8115	PCLD-782B
	PCL-10120		
PCL-818H/812PG	PCL-10120	PCLD-8115	PCLD-785
	PCL-10120		
PCL-813B	PCL-10137	PCLD-881B	
PCL-726	PCL-10120	PCLD-780	PCLD-785B
	PCL-10120		
PCL-727/730/836/839	PCL-10137	PCLD-880	PCLD-885
	PCL-10120		
PCL-720+	PCL-10120		PCLD-786
PCL-722/724/731	PCL-10150		
PCL-725/733/734/735	PCL-10137	PCLD-880	PCLD-7216

The ADAM-3000 Series



Features

- 1,000 V_{DC} three-way isolation
- Easy input/output range configuration
- Flexible DIN-rail mounting
- Linearized thermocouple/RTD measurement
- Low power consumption
- Wide input bandwidth

Introduction

The ADAM-3000 Series consist of the most cost-efficient, field configurable, isolation-based, signal conditioners on the market today. The modules are easily installed to protect your instruments and process signals from the harmful effects of ground loops, motor noise, and other electrical interferences.

Affordable Signal Isolation Solution

Featuring optical isolation technology, the ADAM-3000 modules provide three-way (input/output/power) 1,000 V_{DC} isolation. Optical isolation provides pin-point accuracy and stability over a wide range of operations at minimal power consumption.

Flexible Analog Data Conversion

The input/output range for the ADAM-3000 modules can be configured through switches located inside the module. The modules accept voltage, current, thermocouple or RTD as input, and pass voltage or current as output.

Thermocouple input is handled by the built-in input thermocouple linearization circuitry and a cold junction compensation function. These ensure accurate temperature measurement and accurate conversion of this information to the voltage or current output.

Configuration

The ADAM-3000 modules use +24 V_{DC} power. This electrical power wiring can be aquired from adjacent modules, which greatly simplifies wiring and maintenance. The I/O configuration switches are located inside the modules. To reach the switches, simply remove the modules from the DIN-rail bracket by sliding the modules downward.

Modular Industrial Design

The ADAM-3000 modules can be easily mounted on a DIN-rail, and signal wires can be connected through screw terminals. The screw terminals and input/output configuration switches are built inside the industrial grade plastic casing. With simple two-wire input/output cables, wiring is easy and reliable in harsh industrial environments.

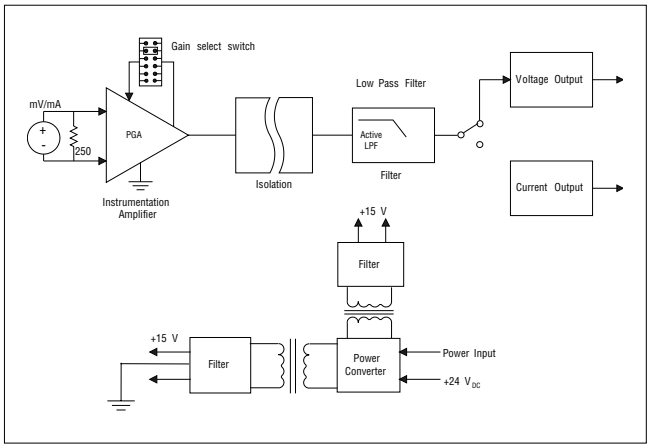
Applications

- Signal isolation
- Signal transmitters
- Thermocouple/RTD/strain gauge measurements
- Signal amplifiers
- Noise filter

Common Specifications

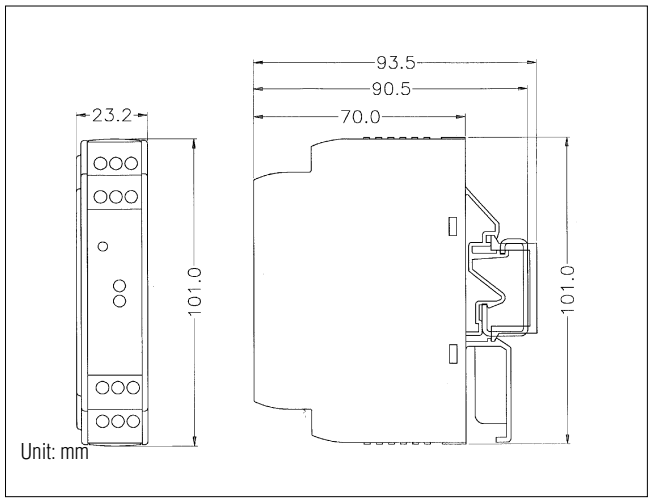
Isolation	1,000 V_{DC}
Indicator	Power LED indicator
Power Requirement	+24 V_{DC} ± 10%
Case	ABS
Screw Terminal	Accepts 0.5 mm^2 ~ 2.5 mm^2 1- #12 or 2- #14 ~ #22 AWG
Operating Temperature	0 ~ 70° C (32 ~ 158° F) (except ADAM-3011)
Storage Temperature	-25 ~ 85° C (-13~185° F)

Block Diagram



Block Diagram of ADAM-3014

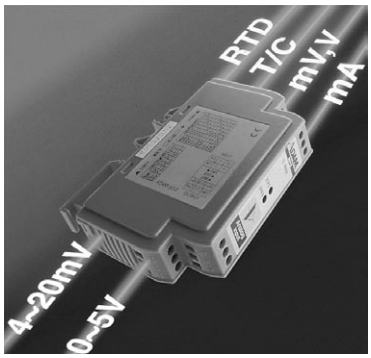
Dimensions



The ADAM-3000 Series Modules

3-Way Signal Isolation

3-way (input/output/power) 1,000 V_{DC} isolation.

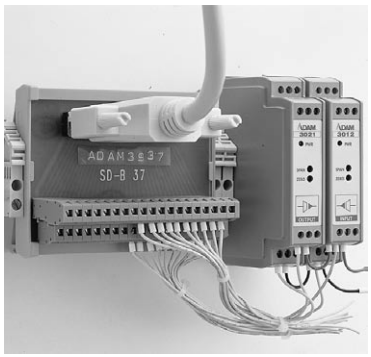


Field Configurable I/O Range

The I/O range can be configured on site with switches inside the module.

Easy Daisy Chain Power Wiring

Power can be connected conveniently from adjacent modules.



Interfacing to DA&C Card

A wiring adapter can connect modules to a data acquisition card.

ADAM-3011
ADAM-3013

Isolated Thermocouple Input Module

Isolated RTD Input Module

ADAM-3011

ADAM-3013

Specifications

- **Input Type**
  T/C type, temperature range and accuracy at 25° C:

J	-40°	~	760° C	(±2° C)
K	0°	~	1000° C	(±2° C)
T	-100°	~	400° C	(±2° C)
E	0°	~	1000° C	(±2° C)
S	500°	~	1750° C	(±4° C)
R	500°	~	1750° C	(±4° C)
B	500°	~	1800° C	(±4° C)

- **Voltage Output** 0 ~ 10 V
- **Output Impedance** 0.5 Ω
- **Isolation (three way)** 1,000 V_{DC}
- **Stability (temperature drift)** ±2° C
- **Common Mode Rejection** 115 dB min
- **Operating Temperature** 0 ~ 50° C (32 ~ 122° F)
- **Power Consumption** 1.4 W

Specifications

- **Input Type** Pt or Ni RTD
- **RTD Types and Temperature Ranges**

Pt	-100°	~	100° C	a=0.00385
Pt	0°	~	100° C	a=0.00385
Pt	0°	~	200° C	a=0.00385
Pt	0°	~	600° C	a=0.00385
Pt	-100°	~	0° C	a=0.00385
Pt	-100°	~	200° C	a=0.00385
Pt	-50°	~	50° C	a=0.00385
Pt	-50°	~	150° C	a=0.00385
Pt	-100°	~	100° C	a=0.00392
Pt	0°	~	100° C	a=0.00392
Pt	0°	~	200° C	a=0.00392
Pt	0°	~	600° C	a=0.00392
Ni	0°	~	100° C	
Ni	-80°	~	100° C	

- **Input Connections** 2, 3 or 4 wires
- **Output Range** 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA
- **Output Resistance** < 5 Ω
- **Accuracy** +/- 0.1% of full range (voltage) or +/- 0.15° C (voltage)
  +/- 0.2% of full range (current)
- **Temperature Drift** +/- 30 ppm of full range
- **Input CMR at DC** 92 dB mininum
- **Isolation** 1,000 V_{DC}
- **Supply Voltage** 24 V_{DC} +/- 10%
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Bandwidth** 4 Hz
- **Power Consumption** < 0.95 W

Ordering Information

- **ADAM-3011** Isolated Thermocouple Input Module

Ordering Information

- **ADAM-3013** Isolated RTD Input Module

ADAM-3014
ADAM-3016

Isolated DC Input/Output Module

Isolated Strain Gauge Input Module

ADAM-3014

ADAM-3016

Specifications

- **Voltage Input** — Bipolar input: ±10 mV, ±50 mV, ±100 mV, ±0.5 V, ±1.0 V, ±5 V, ±10 V; Unipolar input: 0 ~ 10 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 0.5 V, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V; Input impedance: 2 MΩ; Input bandwidth: 2.4 kHz (typical)
- **Current Input** — Bipolar: ±20 mA; Unipolar: 0 ~ 20 mA; Input impedance: 250 Ω
- **Voltage Output** — Bipolar: ±5 V, ±10 V; Unipolar: 0 ~ 10 V; Impedance: < 50 Ω; Drive: 10 mA max.
- **Current Output** — 0 ~ 20 mA
- **Isolation (three way)** — 1,000 V_{DC}
- **Accuracy** — ±0.1% of full range (typical)
- **Stability (temperature drift)** — 150 ppm (typical)
- **Common Mode Rejection** — > 100 dB @ 50 Hz/60 Hz
- **Power Consumption** — 0.85 W (voltage output); 1.2 W (current output)

Specifications

- **Voltage Specifications** — Electrical input: ±10 mV, ±20 mV, ±30 mV, ±100 mV; Excitation voltage: 1 ~ 10 V_{DC} (60 mA max)
- **Voltage Output** — Bipolar: ±5 V, ±10 V; Unipolar: 0 ~ 10 V; Impedance: < 50 Ω
- **Current Output** — Current: 0 ~ 20 mA; Current load resistor: 0 ~ 500 Ω (Source)
- **Isolation (three way)** — 1,000 V_{DC}
- **Accuracy** — ±0.1% of full range
- **Bandwidth** — 2.4 kHz (typical)
- **Stability (temperature drift)** — 150 ppm (typical)
- **Isolation Mode Rejection** — >100 dB @ 50 Hz/60 Hz
- **Operating Temperature** — -10~ 70° C (14~158° F)
- **Power** — Range: 24 V_{DC} ±10%; Consumption: ≤ 1.85 W (voltage output); ≤ 2.15 W (current output)

Ordering Information

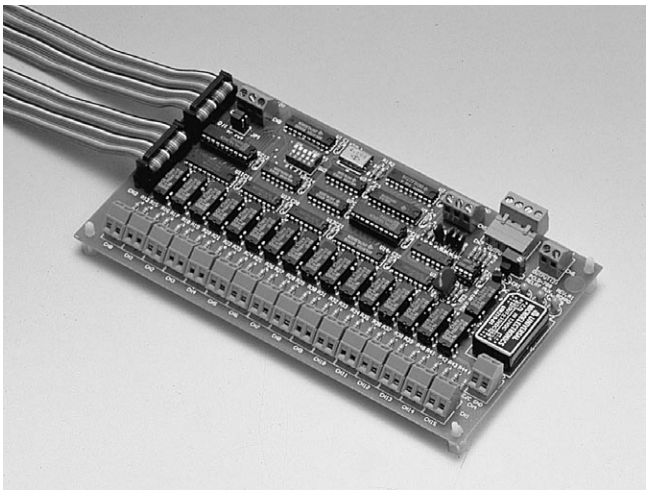
- **ADAM-3014** — Isolated DC Input/Output Module

Ordering Information

- **ADAM-3016** — Isolated Strain Gauge Input Module

PCLD-788

16-channel Relay Multiplexer Board



Features

- 16 to 1 channel expansion
- Differential and fully isolated multiplexing
- Break-before-make relay control
- "Channel closed" signal for precise A/D triggering
- Up to 16 PCLD-788s can be cascaded for 256 channels
- Easy wiring for large channel count configuration
- On-board cold-junction circuitry for thermocouple measurement

CE

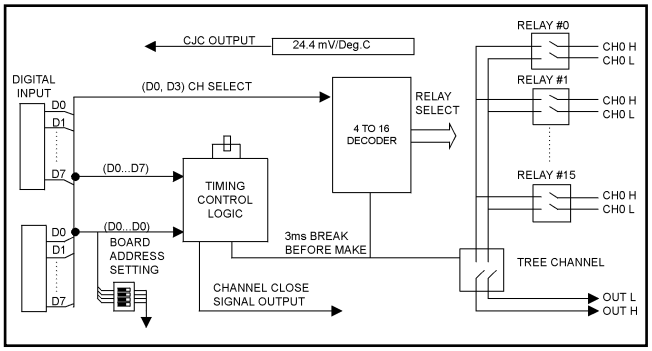
Introduction

The PCLD-788 multiplexes 16 channels into a single I/O channel of an A/D converter, voltmeter or IEEE-488-based instrument. Up to 16 PCLD-788s can be cascaded for a total of 256 fully-isolated differential channels. The PCLD-788 can be controlled by any PC-LabCard™ product via a 16-bit 20-pin digital output port, found on cards such as the PCL-711B, PCL-812PG or the PCL-818 series.

Channel selection (0-15) and board selection (0-15) are done by programming the high-order four bits and low order four bits of a digital output byte from the main I/O card in use.

Specifications

- **Input Channels** 16 isolated differential inputs
- **Programming** D/O bit 0, 1, 2 and 3 for channel selection, D/O bit 4, 5, 6 and 7 for board selection. On-board DIP switches for board-address setting
- **Contact Rating** Break-before-make with 3 msec. minimum break time
- **Max. Input Voltage** 100 V_{DC} or 100 V peak AC
- **Max. Switching Current** 0.5 A
- **Max. Switching Power** 10 Ω
- **Relay Life Expectancy** 100 million cycles min. at 10 V_{DC} and 1 mA
- **Operating Time** 1 msec. max.
- **Release Time** 1 msec. max.
- **Contact Resistance** 200 Ω max.
- **Channel Closed Signal** TTL-level pulse
- **Cold-junction Sensor Output** +24.4 mV/° C, 0 V at 0° C
- **Power Consumption** +5 V @ 380 mA max.
- **Connectors for Digital Ports** Two 20-pin flat-cable connectors, second connector in parallel for daisy chaining
- **Dimensions (L x W)** 205 x 114 mm (8" x 4.5")



PCLD-788 Block Diagram

Pin Assignments

CN2 & CN3

C0	1	2	C1
C2	3	4	C3
C4	5	6	C5
C6	7	8	C7
	9	10	
	11	12	
	13	14	
	15	16	
GND	17	18	GND
+5V	19	20	+12V

Ordering Information

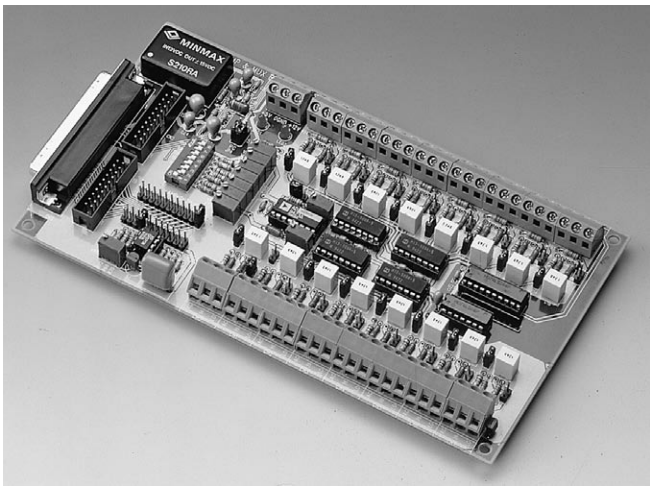
- **PCLD-788** 16-channel Relay Multiplexer Board, user's manual and two 1 meter 20-pin flat cables (P/N: PCL-10120-1)

Applications

- Channel multiplexing for analog input channels of PCL-711B, PCL-812PG or PCL-818 series cards

PCLD-789D

Amplifier and Multiplexer Board



Features

- Multiplexes 16 differential inputs to one A/D input
- Expands a PC-LabCard™ product's analog inputs to 128 channels
- High-grade instrumentation amplifier provides switch selectable gains of 1, 2, 10, 50, 100, 200, 1000
- On-board cold-junction compensation circuits for direct thermocouple measurement
- Built-in signal conditioning functions include filter, attenuator and current shunt
- Second connectors on-board allow daisy chaining
- Screw-clamp terminal blocks permit easy and reliable connections

CE

Introduction

The PCLD-789D is a front-end signal conditioning and channel multiplexing daughterboard for use with PC-LabCard™ product's analog input ports. It multiplexes 16 differential input channels into a single A/D converter input channel. You can cascade up to ten PCLD-789Ds, allowing a single data acquisition card to access 160 analog input channels.

The PCLD-789D has DB37 and 20-pin flat cable connectors and lets your PCL-818L or PCL-818HD access up to 128 channels without using an additional digital output cable to select channels.

The PCLD-789D uses a high-grade instrumentation amplifier that provides switch-selectable gains of 1, 2, 10, 50, 100, 200 and 1000. This amplifier lets you accurately measure low-level signals with your PC-LabCard™ product.

The board also contains a cold-junction sensing circuit that allows direct temperature measurement from thermocouple transducers. A wide variety of thermocouples are supported with software compensation and linearization.

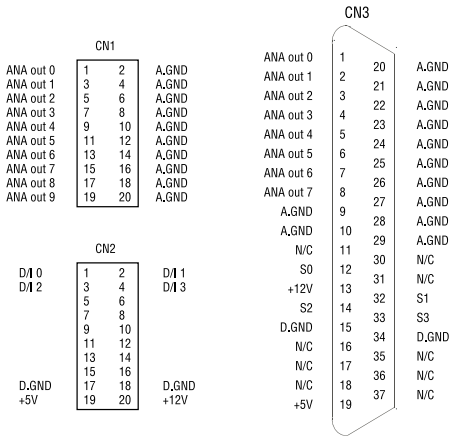
Specifications

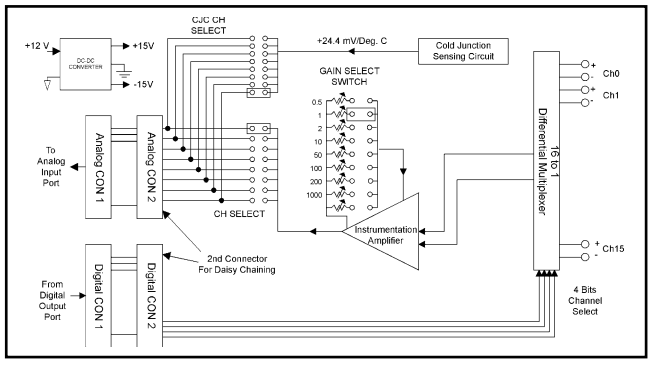
- **Input Channels** 16 differential
- **Input Range** ±10 V maximum, depending on the selected gain
- **Output Range** ±10 V maximum
- **Input Conditions**

Gains	CMRR	Nonlinearity	Setting Time
1000	125 dB	0.005% FSR	75 µsec.
100	115 dB	0.005% FSR	15 µsec.
10	105 dB	0.007% FSR	15 µsec.
1	85 dB	0.015% FSR	15 µsec.

- **Overvoltage Protection** ±30 V continuous
- **Cold-junction Compensation** +24.4 mV/° C, 0 V at 0° C
- **Power Consumption** +5 V @ 30 mA maximum
  +12 V @ 80 mA maximum
- **Connectors for Digital and Analog Buses** One DB37 connector, two 20-pin flat cable connectors for daisy chaining
- **Dimensions (L x W)** 205 x 114 mm (8.1" x 4.5")

Pin Assignments





Block Diagram

Ordering Information

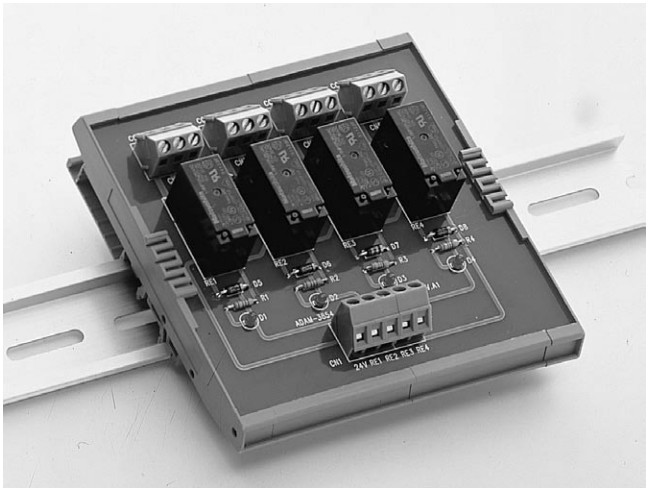
- **PCLD-789D** Amplifier and Multiplexer Board with DB37 connector and 20-pin flat-cable connectors. (Includes DB37 and 20-pin flat cable assemblies.)

Applications

- Channel expansion
- Low level signal measurement
- Thermocouple measurement
- Signal amplification and conditioning

ADAM-3854

4-channel DIN-rail Mounting Power Relay Module



Features

- High power relays can handle up to 5 A @ 250 V_{AC} and 5 A @ 30 V_{DC}
- 4 single-pole double-throw (SPDT) relays
- Industrial screw terminals for easy output wiring
- LED status indicators
- On-board varistor protects relay contact points
- DIN-rail mounting

Introduction

The ADAM-3854 features four industrial SPDT (Form C) electromechanical power relays and a DIN-rail mount. Each of the relays is controlled by a +24 V_{DC} digital signal and is equipped with an adjacent LED to display its status. Each output is equipped with a varistor that shunts the surge voltage of an inductive load or electromagnetic brake to protect the relay contact points.

All the relay outputs and relay controls are accessible through wiring terminals, allowing the ADAM-3854 to be easily connected to any item of equipment or device such as programmable logic controllers (PLCs).

Specifications

- **Channels** 4
- **Relay Type** SPDT (Form C)
- **Contact Rating** AC: 250 V @ 5 A
  DC: 30 V @ 5 A
- **Contact Resistance** 100 mΩ
- **Operation Time** 15 ms max.
- **Release Time** 5 ms max.
- **Life Expectancy** 1.7 x 10^5 at rated load
- **Power Requirements** +24 V_{DC}
- **Power Consumption** 2.2 W
- **Dimensions (L x W x H)** 112.5 x 118.4 x 46 mm (4.43" x 4.66" x 1.81")

Varistor

- **Maximum Applied Voltage** 300 V_{RMS}
- **Varistor Voltage** 470 V (current = 1 mA)
- **Clamping Voltage** 760 V (10 A)
- **Max. Peak Current** 1,200 A for 8 ms

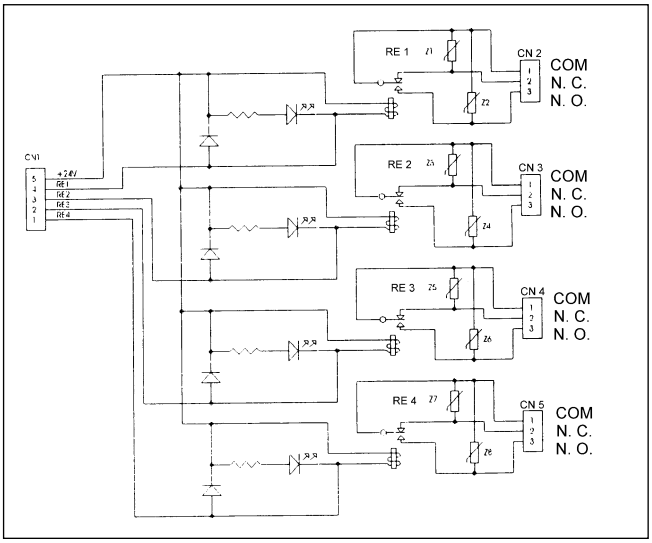
Ordering Information

- **ADAM-3854** 4-channel DIN-rail Mounting Power Relay Module

Applications

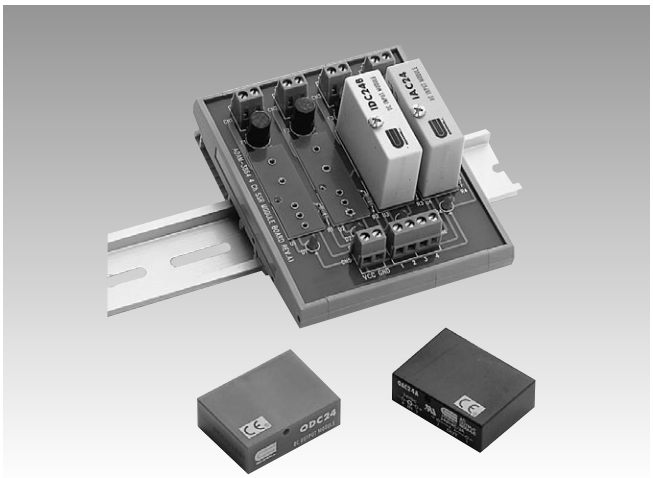
- Signal switching
- On/off control
- Valve/solenoid control
- Annunciation control
- Alarm activation

Basic Function Diagram



ADAM-3864

4-channel Solid State Digital I/O Module Carrier Backplane



Features

- 4-channel carrier backplane for any combination of AC or DC I/O modules
- 2,500 V_{RMS} optical isolation
- LED channel status indicator for easy monitoring
- On-board fuse protection
- DIN-rail mounting

Introduction

The ADAM-3864 is a solid state digital I/O module carrier backplane that accommodates any combination of up to four high-performance, low-cost, photocoupler-isolated solid state, digital I/O modules. This backplane can accept either 24 V_{DC} or 5 V_{DC} I/O modules, depending on the type of power supply.

Specifications

Input Modules

Field Side:

- **Turn on/off Time**: IAC24 series: 20 msec. max.; IAC24A series: 20 msec. max.; IDC24B series: 100 msec. max.
- **Input on/off Voltage Range**: IAC24 series: 90 ~ 140 V/45 V_{RMS}; IAC24A series: 180 ~ 280 V/80 V_{RMS}; IDC24B series: 3 ~ 32 V/1 V_{DC}
- **Input Resistance**: IAC24 series: 14 kΩ; IAC24A series: 44 kΩ; IDC24B series: 1.5 kΩ

Logic Side:

- **Supply Voltage**: 24 V_{DC}
- **Supply Current**: 12 mA max.
- **Output Current**: 100 mA max.
- **Output Voltage Drop**: 0.4 V max.
- **Breakdown Voltage**: 30 V_{DC}

Output Modules

Field Side:

- **Turn on/ Turn off Time**: OAC series: ½ AC cycle max.; ODC series: 100 msec./750 msec. max.
- **Current Rating**: 3 A max. (@ 25° C)
- **Contact Voltage Drop**: 1.6 V max.

Logic Side:

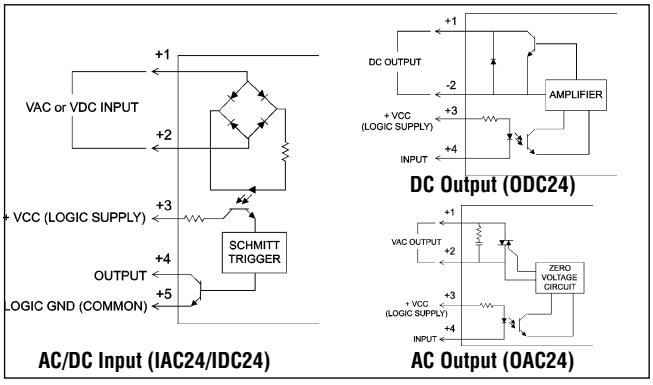
- **Supply Voltage**: 24 V
- **Supply Current**: 12 mA max.
- **Input Resistance**: 220 Ω
- **Dimensions (L x H x W)**: 118.4 x 90 x 59 mm (4.66" x 3.54" x 2.32")

Module type		Field side		Logic side
Output module		**Output voltage rating**	**Output current rating**	**Output logic and SSR status**
AC output	**OAC24A**	24 ~ 280 V_{AC}	3.0 A_{AC}	0 V (On)
DC output	**ODC24**	5 ~ 60 V_{DC}	3.0 A_{DC}	24 V (Off)
Input module		**Input on voltage**	**Input off voltage**	**Input logic and On/Off status**
AC input	**IAC24**	90 ~ 140 V_{AC}	< 45 V_{AC}	0 V (On)
	IAC24A	180 ~ 280 V_{AC}	< 80 V_{AC}	
DC input	**IDC24B**	3 ~ 32 V_{DC}	< 1 V_{DC}	24 V (Off)

Ordering Information

- **ADAM-3864**: 4-channel Solid State Digital I/O Module Carrier Backplane
- **OAC24A**: AC Output Module (24-280 V_{AC}, 3 A)
- **ODC24**: DC Output Module (5-60 V_{DC}, 3 A)
- **IAC24**: AC Input Module (90-140 V_{AC})
- **IAC24A**: AC Input Module (180-280 V_{AC})
- **IDC24B**: DC Input Module (3-32 V_{DC})

Block Diagrams

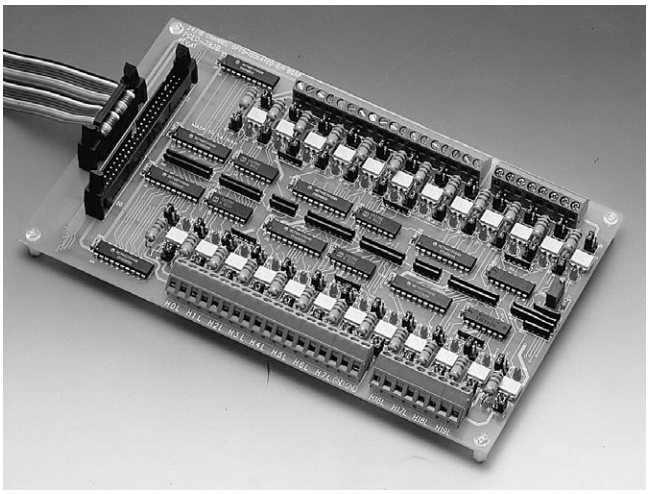


AC/DC Input (IAC24/IDC24) | DC Output (ODC24) | AC Output (OAC24)

PCLD-782
PCLD-782B

16-channel Opto-Isolated D/I Board

16/24-channel Opto-Isolated D/I Board



CE

Features

- Compatible with all PC-LabCard™ products with D/I channels on either 20-pin flat cable or 50-pin Opto-22 compatible connectors.
- 16 or 24 optically-isolated digital input channels
- Built-in screw terminals for easy input wiring
- LEDs indicate input logic status
- Inputs buffered with voltage comparators

Introduction

The PCLD-782 and PCLD-782B digital input daughterboards feature high-voltage (> 1500 V_{DC}) optical isolation on all inputs. The PCLD-782 provides 16 input channels accessible through one 20-pin flat cable connector, which is standard on most PC-LabCard™ products. The PCLD-782B provides either 16 or 24 channels, depending on what connector you use. The PCLD-782B's 20-pin connector lets you access 16 channels, similar to the PCLD-782, but also provides a 50-pin Opto-22 connector with access to 24 channels.

Both cards have onboard screw terminals for easy input wiring. Optically isolated signal conditioning provides isolation between separate channels, as well as between each input channel and the PC. This isolation prevents floating potential and ground loop problems while protecting the input lines from potentially damaging fault conditions.

A red LED on each input channel indicates its status. If the input signal is high, the LED is lit. You can configure each channel to work in either isolated or non-isolated mode. A variable resistor adjusts the threshold level for all 24 isolated input channels simultaneously.

Specifications

- **Input Channels** 24 (PCLD-782B), 16 (PCLD-782)
- **Input Range** 0 ~ 24 V_{DC}
- **Input Resistance** 560 Ω
- **Isolation Voltages** 1,500 V_{DC} min.
- **Threshold Voltage** 1.5 V_{DC} (VR adjustable)
- **Screw Terminals** Screw-clamp terminal blocks, accept #22 to #12 AWG wires
- **Connectors for Digital Bus** PCLD-782: one 20-pin flat cable connector (CN1)
  PCLD-782B: one 20-pin flat cable connector (CN1) and one 50-pin Opto-22 connector (CN2)
- **Dimensions (L x W)** PCLD-782: 3U– 205 x 114 mm (8.1" x 4.5")
  PCLD-782B: 4U– 220 x 132 mm (8.7" x 5.2")

Ordering Information

- **PCLD-782B** 16/24-channel Opto-isolated D/I Board, user's manual, one 1m
  20-pin flat cable assembly (P/N: PCL-10120-1) and one 1.2m 50-pin flat cable (P/N: PCL-10150-1.2)
- **PCLD-782** 16-channel Opto-isolated D/I Board, user's manual and one 1m
  20-pin flat cable assembly (P/N: PCL-10120-1)
- **PCL-10120-1** 20-pin flat cable assembly, 1m
- **PCL-10120-2** 20-pin flat cable assembly, 2m
- **PCL-10150-1.2** 50-pin flat cable, 1.2m (for connecting the PCL-722 or 724 to the PCLD-885, 782B or 785B)

Pin Assignments

CN1

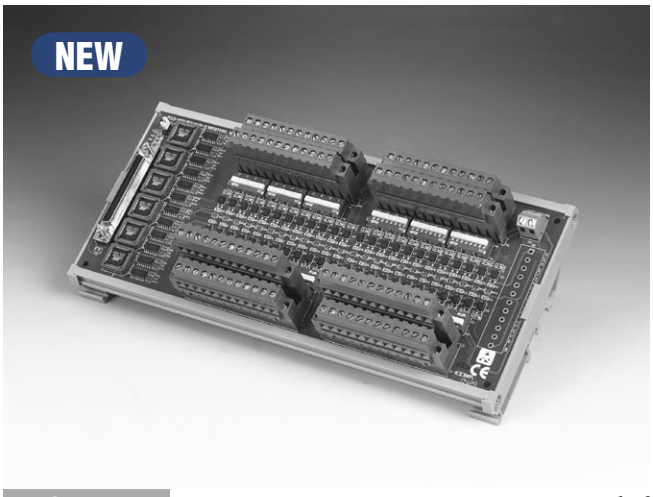
DI0	1	2	DI1
DI2	3	4	DI3
DI4	5	6	DI5
DI6	7	8	DI7
DI8	9	10	DI9
DI10	11	12	DI11
DI12	13	14	DI13
DI14	15	16	DI15
GND	17	18	GND
+5 V	19	20	+12 V

CN2

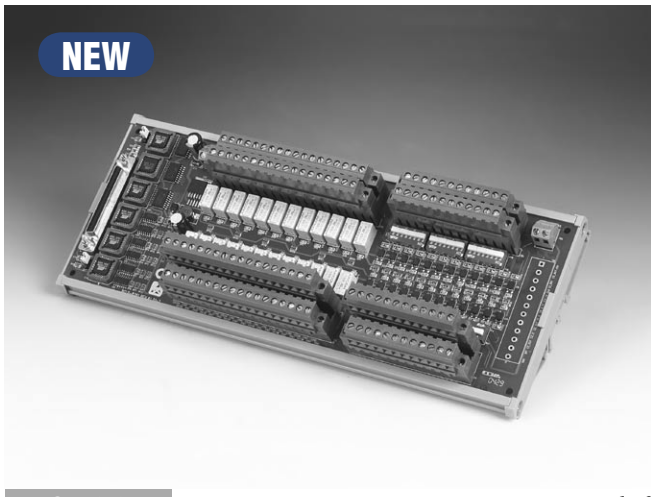
DI23	1	2	GND
DI22	3	4	GND
DI21	5	6	GND
DI20	7	8	GND
DI19	9	10	GND
DI18	11	12	GND
DI17	13	14	GND
DI16	15	16	GND
DI15	17	18	GND
DI14	19	20	GND
DI13	21	22	GND
DI12	23	24	GND
DI11	25	26	GND
DI10	27	28	GND
DI9	29	30	GND
DI8	31	32	GND
DI7	33	34	GND
DI6	35	36	GND
DI5	37	38	GND
DI4	39	40	GND
DI3	41	42	GND
DI2	43	44	GND
DI1	45	46	GND
DI0	47	48	GND
+5 V	49	50	GND

PCLD-8751
PCLD-8761

48-Channel Opto-Isolated Digital Input Boards
24-Channel Opto-Isolated D/I and 24-Channel Relay Output Board



PCLD-8751



PCLD-8761

Features

- 48 optically-isolated digital input channels
- Built-in pluggable screw terminals for easy input wiring
- LEDs indicate input logic status
- Input buffered with voltage comparators
- Wet/Dry contact set by DIP switches
- Input logic set by jumper
- Wide input range from 5 to 30 V

Specifications

- **Isolation Voltage** 3500 V
- **Channels** 48 IDI with LED
- **Contact Mode** Wet contact
Dry contact (set by switch)
- **Logic Mode** Positive Logic
Negative Logic (set by jumper)
- **Digital Input** 0 ~ 30 V
VIH (MIN) : 4 V, VIL (MAX) : 1 V
- **Connector** SCSI-68
- **Case Dimensions** 255 x 121 mm
- **Screw Terminals** Accepts 14 to 24 AWG wires

Ordering Information

- **PCLD-8751** 48-Channel Opto-isolated Digital Input Board

Features

- 24 optically-isolated digital input channels
- 24 relay outputs (SPDT)
- Built-in detachable screw terminals for easy input wiring
- LED status indicators for D/I and relay output
- Digital inputs buffered with voltage comparators
- Wet/Dry contact set by DIP switches for D/I
- Wide input range from 5 to 30 V
- INT/EXT Power selection by jumper

Specifications

- **Isolation Voltage** 3500 V (Isolated DI), 1500V (RELAY)
- **Channels** 24 IDI with LED and 24 Relay (SPDT) Form C with LED
- **Contact Mode** Wet contact and dry contact for each IDI (set by switch)
- **Logic Mode (IDI and Relay are independent)** Positive Logic
Negative Logic (set by jumper)
- **Digital Input** 0~30V
VIH(MIN):4V, VIL(MAX): 1V
- **Connector** SCSI-68
- **Screw Terminal** Accept 14 to 24 AGP wires
- **Contact Resistance** < 100 ohm
- **Operation Time** 5 ms Max
- **Release Time** 6 ms Max
- **Contact Rating** 30 V_{DC} @ 1 A, 120 V_{AC} @ 0.5 A
- **Power Selection** PCI Bus or External power(7~30V) by jumper
- **Mechanical Endurance** 10^8 times
- **Electrical Endurance** $5*10^7$ times at 12V/10mA
- **Dimensions** 285 x 121 mm
- **Power Consumption** +5 V @ <380 mA
+50*n (mA) (*n indicate the number of relays)
+12 V @ <240 mA
+70*n (mA) (*n indicate the number of relays)

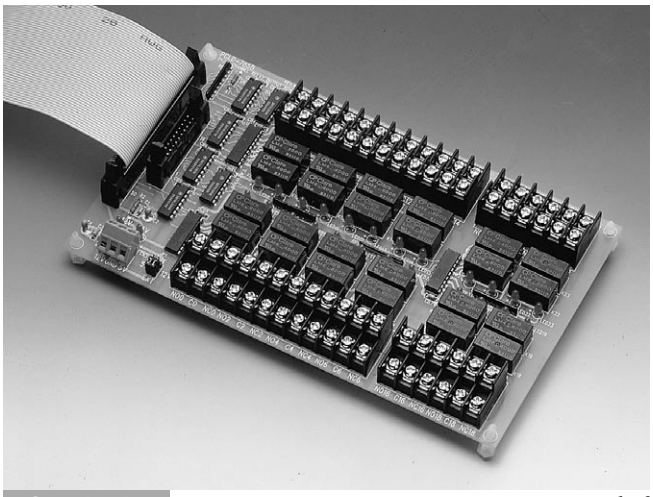
Ordering Information

- **PCLD-8761** 24-Channel Opto-isolated D/I and 24-Channel Relay (SPDT) output Board

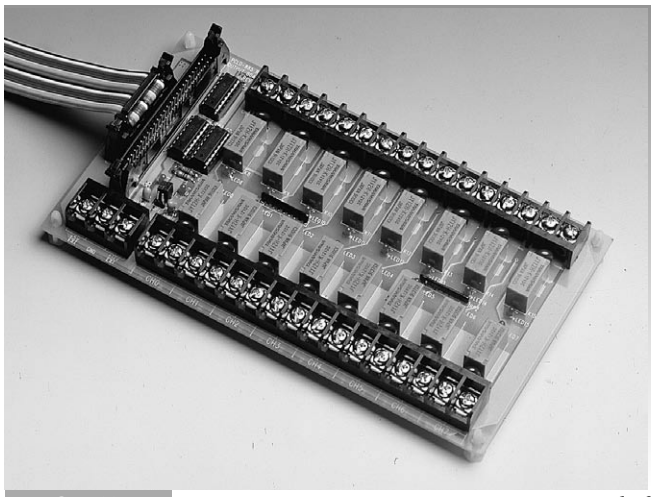
PCLD-785/785B
PCLD-885

16/24-channel Relay Output Board

16-channel Power Relay utput Board



PCLD-785/785B



PCLD-885

Features

- Compatible with PC-LabCard™ products with 20-pin digital output connector and 50-pin Opto-22 digital output connector (PCLD-785B only)
- Automatic selection of control logic (PLCD-785B only): Negative logic for the Opto-22 connector Positive logic for the 20-pin flat cable connector
- Relays: PCLD-785: 16 SPDT, PCLD-785B: 16 or 24 SPDT
- On-board relay driver circuits
- Screw terminals for easy output wiring
- LED status indicators
- Cable and mounting accessories

Specifications

- **PCLD-785** — Input connector: 20-pin flat cable
Channels: 16 (CN1, 20-pin conn.)
- **PCLD-785B** — Input connectors: 50-pin Opto-22, 20-pin flat cable
Channels: 24 (CN2, 50-pin conn.), 16 (CN1, 20-pin conn.)
- **Relay Type** — SPDT (Single-Pole Double-Throw) Form C
- **Contact Ratings** — 120 V_{AC} @ 0.5 A, 30 V_{DC} @ 1 A
- **Contact Resistance** — < 100 mΩ
- **Operation Time** — 5 ms max.
- **Release Time** — 5 ms max.
- **Insulation Resistance** — 100 MΩ
- **Life Expectancy** — AC: 5 x 10^5 @ 110 V/0.3 A
DC: 5 x 10^5 @ 24 V/1.25 A
- **Output Connector** — Screw clamp terminal block (PCLD-785)
Barrier strip terminal block (PCLD-785B)
- **Power Requirements** — Using the 20-pin connector:
+5 V_{DC} : Jumper select either PC bus or external supply
+12 V_{DC} : Jumper select either PC bus or external supply
You must use an external 12 V supply when you use the 50-pin connector.
- **Control Logic** — 20-pin flat cable conn.: Input TTL high (+5 V) = Relay on
50-pin Opto-22 conn.: Input TTL low (0 V) = Relay on
- **Power Consumption** — +5 V @ < 100 mA; +12 V @ 33 mA for each relay
- **Dimensions (L x W)** — PCLD-785: 114 x 220 mm (4.5" x 8.7")
PCLD-785B: 132 x 220 mm (5.2" x 8.7")

Ordering Information

- **PCLD-785B** — 24-channel Relay Output Board, user's manual, 1m 20-pin flat cable assembly (P/N: PCL-10120-1) and 1.2m 50-pin flat cable assembly (P/N: PCL-10150-1.2)
- **PCLD-785** — 16-channel Relay Output Board, user's manual, 1m 20-pin flat cable assembly (P/N: PCL-10120-1)
- **PCL-10120-1** — 20-pin flat cable assembly, 1m
- **PCL-10120-2** — 20-pin flat cable assembly, 2m
- **PCL-10150-1.2** — 50-pin flat cable, 1.2m (connects the PCL-722 or 724 to the PCLD-885, 782B or 785B)

Features

- Accepts 20-pin or 50-pin (Opto-22 compatible) connectors
- 16 single-pole single-throw (SPST) relays
- High-power relay handles up to 5 A @ 250 V_{AC}
- Onboard varistors protect all relay contact points
- Industrial screw terminals for ease of wiring
- LED On/Off status indication for each relay
- +5 V/+12 V power/status LED indicator

Specifications

Relay

- **Relay Type** — SPST (Form A), normally open
- **Contact Rating** — AC: 250 V @ 5 A
DC: 30 V @ 5 A
- **Contact Resistance** — 30 mΩ max.
- **Relay on Time** — 6 ms max.
- **Relay off Time** — 3 ms max.
- **Breakdown Voltage** — 750 V_{AC} for 1 minute, between open contacts
2500 V_{AC} for 1 minute, between coil and contacts
- **Insulation Resistance** — 1000 mΩ @ 500 V_{DC}
- **Life Expectancy** — >100,000 cycles at rated load

Varistor

- **Varistor Voltage** — 470 V (current = 1 mA)
- **Clamping Voltage** — 760 V (10 A)
- **Max. Peak Current** — 1200 A for 8 msec.
- **Max. Applied Coltage** — 300 V_{RMS} AC continuous

General

- **Power Consumption** — 12 V @ 22 mA for each relay,
352 mA if all relays energized; 5 V @ 200 mA max.
- **Input Connectors** — 20-pin flat cable or 50-pin Opto-22 compatible connector
- **Output Connectors** — Barrier strip terminal blocks
- **Dimensions (L x W)** — 205 x 114 mm (8" x 4.5")

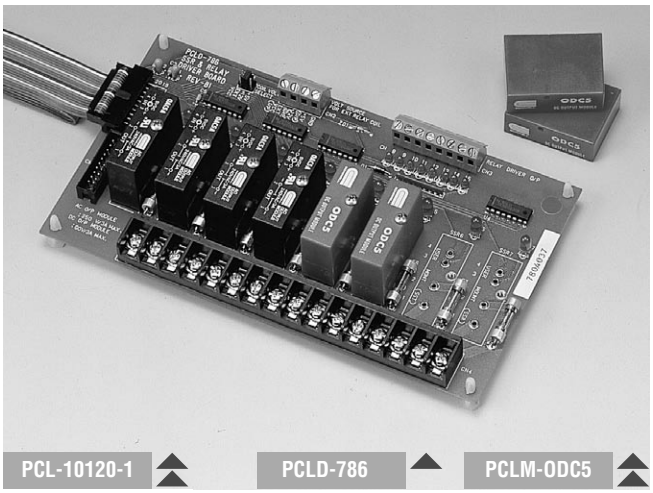
Ordering Information

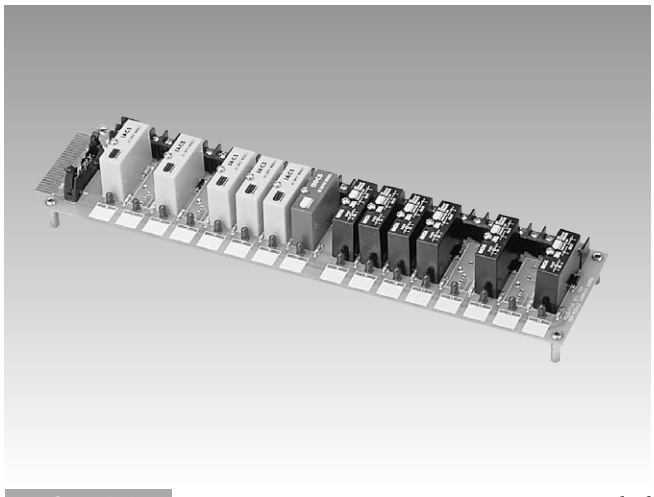
- **PCLD-885** — 16-channel Power Relay Output Board, one 1m 20-pin flat cable assembly (P/N: PCL-10120-1) and a 1.2m 50-pin flat cable assembly (P/N: PCL-10150-1.2)

PCLD-786
PCLD-7216

8-channel SSR I/O Module Carrier Board

16-channel SSR I/O Module Carrier Board





Features

- Up to eight AC or DC solid state relay modules
- Photo-coupler isolated operation
- Eight external relay drivers
- Built-in screw terminals for easy wiring
- LED status indicators

Specifications

AC Solid State Relays

- **Type** PCLM-OAC5A
- **Output Rating** 24 ~ 280 V_{AC} @ 3.0 A
- **Blocking Voltage** ±600 V min.
- **OFF Leakage Current** 8 mA max.
- **ON-state Voltage** 1.6 V max.
- **Turn On** zero volts
- **Turn On/Turn Off Time** < ½ cycle
- **1 Cycle Surge** 40 A

DC Solid State Relays

- **Type** PCLM-ODC5
- **Output Rating** 5 ~ 60 V_{DC} @ 3.0 A
- **OFF Leakage Current** 1 mA max.
- **ON-state Voltage** 1.4 V max.
- **Turn On/Turn Off Time** 750 ms max.
- **1 Second Surge** 5 A

External Relay Drivers

- **Channels** 8 channels
- **Driver Type** ULN2003, open collector type
- **Max. Driving Current** 125 mA each channel
- **Coil Driving Voltage** +5 V, +12 V from PC or external source
- **Dimensions (L x W)** 205 x 114 mm (8.1" x 4.5")

Ordering Information

- **PCLD-786** 8-channel SSR I/O Module Carrier Board, user's manual and one 1m 20-pin flat cable assembly (P/N: PCL-10120-1)

Note:
The PCLD-786 does not include SSRs. They must be ordered by selecting single piece SSR modules according to your requirements.

- **PCLM-OAC5A** Single piece AC SSR module (280 V_{AC}, 3 A)
- **PCLM-ODC5** Single piece DC SSR module (60 V_{DC}, 3 A)

Features

- Optically isolated inputs and outputs between computer and field devices
- Channel status reflected by on-board LED for easy monitoring
- On-board fuse protection

Specifications

Board

- Logic side connectors: 50-pin edge connector, Opto-22 compatible
- Dimensions (L x W x H): 367 x 111 x 56 mm (14.4" x 4.4" x 2.2")

Module type		Field side		Logic side
Output modules	Part No.	Output voltage rating	Output current rating	Input logic and SSR status
AC output	PCLM-OAC5A	24 ~ 280 V_{AC}	3.0 A_{AC}	TTL low (On)
		12 ~ 280 V_{AC}		TTL high (Off)
DC output	PCLM-ODC5	5 ~ 60 V_{AC}	3.0 A_C	TTL low (On)
				TTL high (Off)
Input modules	Part No.	Input On voltage	Input Off voltage	Output logic & On/Off status
AC input	PCLM-IAC5	90 ~ 140 V_{AC}	< 45 V_{AC}	TTL low (On)
				TTL high (Off)
	PCLM-IAC5A	180 ~ 280 V_{AC}	< 80 V_{AC}	TTL low (On)
				TTL high (Off)
DC input	PCLM-IDC5B	3 ~ 32 V_{AC}	< 1 V_{AC}	TTL low (On)
				TTL high (Off)

Input Modules

Field Side

- **Turn on/off Time** IAC5 series: 20 msec. max., IAC5A series: 20 msec. max.
  IDC5B series: 100 msec. max.
- **Input on/off Voltage Range** IAC5 series: 90 ~ 140 V/45 V_{RMS}
  IAC5A series: 180 ~ 280 V/80 V_{RMS}
  IDC5B series: 3 ~ 32 V/1 V_{DC}
- **Input Resistance** IAC5 series: 14 kΩ, IAC5A series: 44 kΩ,
  IDC5B series: 1.5 kΩ

Logic Side

- **Supply Voltage** 4 ~ 6 V
- **Supply Current** 12 mA max.
- **Output Current** 100 mA max.
- **Output Voltage Drop** 0.4 V max.
- **Breakdown Voltage** 30 V_{DC}

Output Modules

Field Side

- **Turn on/off Time** OAC series: ½ AC cycle max.
  ODC series: 100 µsec/750 µsec. max.
- **Current Rating** 3 A max. (@ 25° C)
- **Contact Voltage Drop** 1.6 V max.

Logic Side

- **Supply Voltage** 4 ~ 6 V
- **Supply Current** 12 mA max.
- **Input Resistance** 220 Ω

Ordering Information

- **PCLD-7216** 16-channel SSR I/O Module Carrier Board, one 1.2m, 50-pin flat cable (PCL-10151-1.2), one 1m 20-pin flat cable (PCL-10120-1) and user's manual

ADAM-3900 Series

Wiring Terminal for DIN-rail Mounting

ADAM-3909

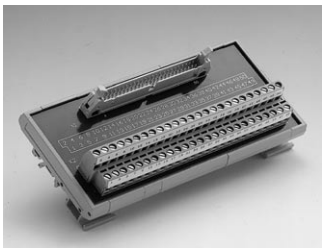
DB9 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with DB9 connector.
- Case dimensions (W x L x H): 77.5 x 45 x 51 mm (3.1" x 1.8" x 2.0")

To Be Used With

PCL-728, PCL-740, PCL-741, PCL-743B, PCL-745B, PCL-832



ADAM-3950

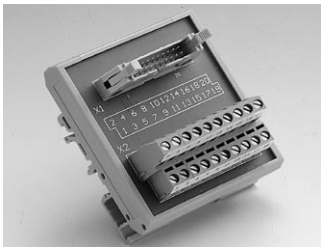
50-pin Flat Cable Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 50-pin flat cable connector.
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

PCL-722, PCL-724, PCL-731



ADAM-3920

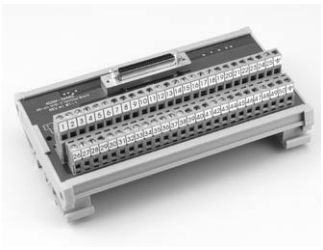
20-pin Flat Cable Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard products with 20-pin connector
- Case dimensions (W x L x H): 77.5 x 67.5 x 51 mm (3.1" x 2.7" x 2.0")

To Be Used With

PCL-711B/S, PCL-720+, PCL-726, PCL-727, PCL-730, PCL-812PG, PCL-816, PCL-818 Series, PCL-836, PCL-1800



ADAM-3950S

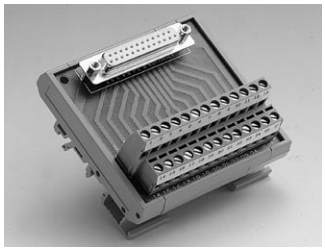
50-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 50-pin SCSI-II female connector
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

PCI-1752, PCI-1754, PCI-1756



ADAM-3925

DB25 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard products with DB25 connector
- Screw-clamp terminal blocks allow easy and reliable connections
- Case dimensions (W x L x H): 77.5 x 56.3 x 51 mm (3.1" x 2.2" x 2.0")

To Be Used With

PCL-725, PCL-740, PCL-746+, PCL-833

ADAM-3950D

Dual 50-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with dual 50-pin SCSI-II female connectors
- Case dimensions (W x L x H): 77.5 x 179.5 x 51 mm (3.1" x 7.1" x 2.0")

To Be Used With

PCI-1240, PCI-1752, PCI-1754, PCI-1756

ADAM-3900 Series

Wiring Terminals for DIN-rail Mounting

ADAM-3937

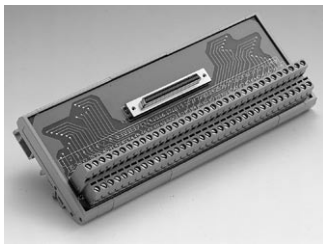
DB37 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for DA&C cards with DB37 female connector
- Case dimensions (W x L x H): 77.5 x 146.3 x 51 mm (3.1" x 5.8" x 2.0")

To Be Used With

PCI-1730, PCI-1733, PCI-1734, PCI-1750, PCI-1761



ADAM-3968

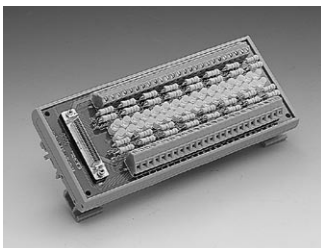
68-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 68-pin SCSI-II female connector
- Case dimensions (W x L x H): 77.5 x 191.2 x 51 mm (3.1" x 8.4" x 2.0")

To Be Used With

PCI-1710/1710L, PCI-1710HG/1710HGL, PCI-1711/1711L, PCI-1712/1712L, PCI-1716/1716L, PCI-1721, PCI-1751, PCI-1753/1753E, PCI-1723, PCI-1780



ADAM-3951

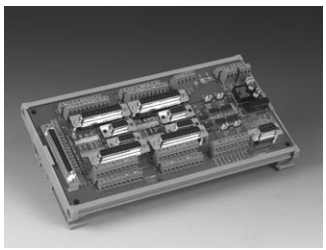
Wiring Terminal Module with LED indicators for DIN-rail Mounting

Features

- Low-cost DIN-rail mounting wiring terminal module for PCI-1752/1754/1756 with 50-pin SCSI-II female connector.
- Screw-clamp terminal blocks allow easy and reliable connections.
- Each LED indicates its current bi-directional I/O logic status with either green or red light.
- Case dimensions (W x L x H): 77.5 x 179.5 x 41.5 mm (3.1" x 7.1" x 1.6")

To Be Used With

PCI-1752, PCI-1754, PCI-1756



ADAM-3968M

PCI-1241/1242 Wiring Terminal with LED

Features

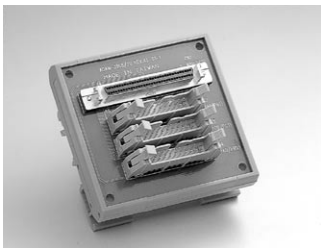
- DIN-rail mounting screw terminal module for PCI-1241/1242 applications with 68-pin SCSI-II female connector.
- Status indicating LED for limit/home/server-on/in-position/pulse-output/EMS.
- Over-current protection for external power up to 1.1A.
- Case dimensions (W x L x H): 77.5 x 191.2 x 51 mm (3.1" x 8.4" x 2.0")

To Be Used With

PCI-1241, PCI-1242

ADAM-3900 Series

Wiring Terminals for DIN-rail Mounting



ADAM-3968/20

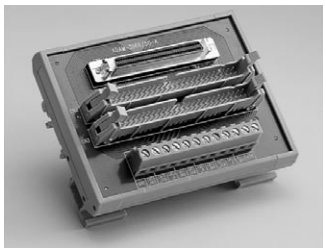
68-pin SCSI-II to Three 20-pin Wiring Terminal Module for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 68-pin SCSI-II connectors
- Converts one 68-pin SCSI-II connector to three 20-pin connectors
- Case dimensions (W x L x H): 77.5 x 80 x 54.3 mm (3.1" X 3.2" X 2.1")

To Be Used With

PCI-1751, PCI-1753, PCI-1753E



ADAM-3968/50

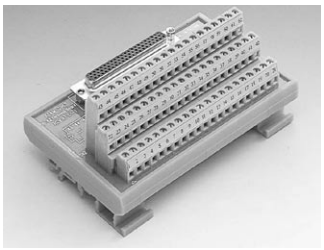
68-pin SCSI-II to Two 50-pin Box Header for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for PC-LabCard™ products with 68-pin SCSI-II connectors
- Converts one 68-pin SCSI-II connector to two 50-pin Opto-22 compatible box headers
- Case dimensions (W x L x H): 77.0 x 101.0 x 54.3 mm (3.0" x 4.0" x 2.1")

To Be Used With

PCI-1751, PCI-1753, PCI-1753E



ADAM-3962

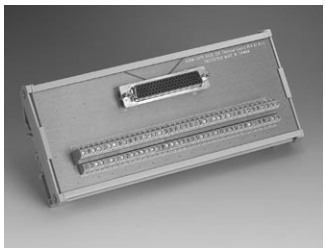
DB62 Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for DA&C cards with DB62 female connector
- Screw-clamp terminal blocks allow easy and reliable connections
- Case dimensions (W x L x H): 77.5 x 124.5 x 63.5 mm (3.1" x 4.9" x 2.5")

To Be Used With

PCI-1762



ADAM-3978

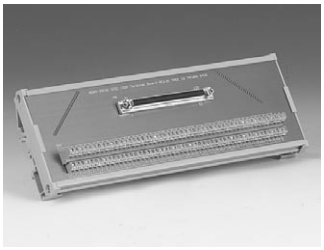
DB78 Wiring Terminal for DIN-rail Mounting

Features

- Mounting — Low cost universal DIN-rail mounting screw terminal module for industrial applications with DB78 female connector
- Case dimensions (W x L x H): 86 x 191 x 42 mm (3.39" x 7.51" x 1.65")

To Be Used With

MIC-3753, PCI-3756



ADAM-39100

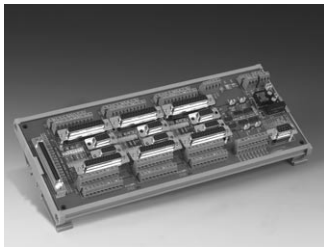
100-pin SCSI-II Wiring Terminal for DIN-rail Mounting

Features

- Low cost universal DIN-rail mounting screw terminal module for industrial applications with 100 pin SCSI-II female connetor
- Case dimensions (W x L x H): 80 x 230 x 42 mm (3.14" x 9.05" x 1.65")

To Be Used With

PCI-1755



ADAM-39100M

PCI-1261 Wiring Terminal with LED

Features

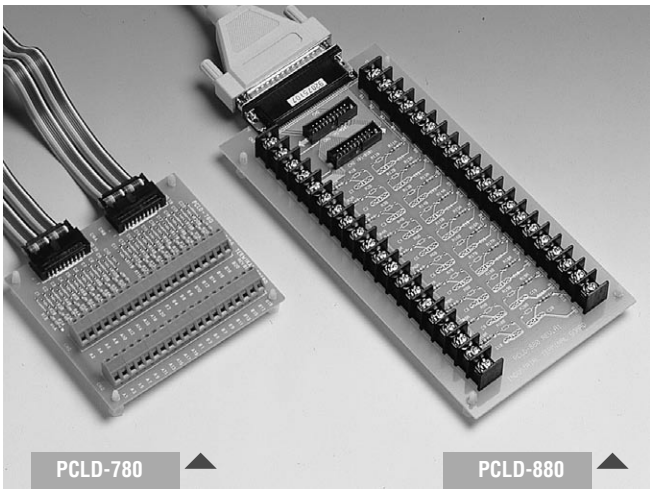
- DIN-rail mounting screw terminal module for PCI-1261 applications with 100 pin SCSI-II female connector.
- Status indicating LED for limit/home/server-on/in-position/pulse-output/EMS.
- Over-current protection for external power up to 1.1A.
- Case dimensions (W x L x H): 80 x 230 x 42 mm (H) (3.14" x 9.05" x 1.65")

To Be Used With

PCI-1261

PCLD-780
PCLD-880

Screw Terminal Board
Industrial Wiring Terminal Board w/Adapter



Features

- Pin to Pin design
- Low-cost universal screw-terminal boards for industrial applications
- 40 terminal points for two 20-pin flat cable connector ports
- Reserved space for signal-conditioning circuits such as low-pass filter, voltage attenuator and current-to-voltage conversion
- Table-top mounting using nylon standoffs. Screws and washers provided for panel or wall mounting

PCLD-780 only

- Screw-clamp terminal-blocks allow easy and reliable connections
- Dimensions: 102 x 114 mm (4.0" x 4.5")

PCLD-880 only

- Supports PC-LabCard™ products with DB-37 connectors
- Industrial-grade terminal blocks (barrier-strip) permit heavy-duty and reliable connections
- Dimensions: 221 x 115 mm (8.7" x 4.5")

Introduction

The PCLD-780 and PCLD-880 universal screw-terminal boards provide convenient and reliable signal wiring for PC-LabCard™ products with 20-pin flat-cable connectors. The PCLD-880 is also equipped with a DB-37 connector to support PC-LabCard™ products with DB-37 connectors.

The PCLD-780 and PCLD-880 let you install passive components on the special PCB layout to construct your own signal-conditioning circuits.

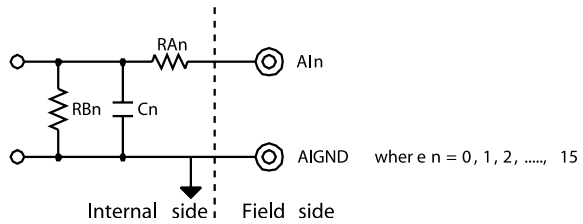
You can easily construct a low-pass filter, attenuator or current-to-voltage converter by adding resistors and capacitors onto the board's circuit pads.

Applications

- Field wiring for analog and digital I/O channels of PC-LabCard™ products which employ the standard 20-pin flat cable connectors or DB37 connectors (only PCLD-880)
- Signal conditioning circuits can be implemented as illustrated in the following examples:

a) Straight-through connection (factory setting)

RAn = 0Ω jumper



RBn = none

Cn = none

b) 1.6 KHz (3dB) low pass filter

RAn = 10 KΩ

RBn = none

Cn = 0.01ΩF

$$f_{3dB} = \frac{1}{2\pi RAnCn}$$

c) 10 : 1 voltage attenuator:

RAn = 9 KΩ

RBn = 1 KΩ

Cn = none

$$\text{Attenuation} = \frac{RBn}{RAn + RBn}$$

(Assume source impedance << 10 KΩ)

d) 4 ~ 20 mA to 1 ~ 5 VDC signal converter:

RAn = 0 Ω (short)

RBn = 250 Ω (0.1% precision resistor)

Cn = none

Pin Assignments

CN1

A1	1	2	A2
A3	3	4	A4
A5	5	6	A6
A7	7	8	A8
A9	9	10	A10
A11	11	12	A12
A13	13	14	A14
A15	15	16	A16
A17	17	18	A18
A19	19	20	A20

CN2

B1	1	2	B2
B3	3	4	B4
B5	5	6	B6
B7	7	8	B8
B9	9	10	B10
B11	11	12	B12
B13	13	14	B14
B15	15	16	B16
B17	17	18	B18
B19	19	20	B20

CN5 (PCLD-880 only)

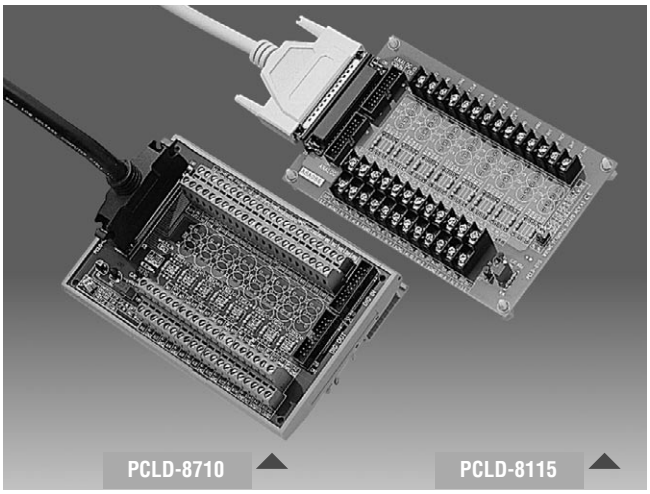
A1	1	20	A2
A3	2	21	A4
A5	3	22	A6
A7	4	23	A8
A9	5	24	A10
A11	6	25	A12
A13	7	26	A14
A15	8	27	A16
A17	9	28	A18
A19	10	29	A20
B1	11	30	B2
B3	12	31	B4
B5	13	32	B6
B7	14	33	B8
B9	15	34	B10
B11	16	35	B12
B13	17	36	B14
B15	18	37	B16
B17	19		

Ordering Information

- **PCLD-780** Screw terminal Board, two 1m 20-pin flat cables (PCL-10120-1)
- **PCLD-880** Industrial Wiring Terminal Board, two 1m 20-pin flat cables (PCL-10120-1), and one PCL-10501 adapter (20-pin analog flat connector to DB37 connector)
- **PCL-10137-1** DB37 cable assembly, 1m
- **PCL-10137-2** DB37 cable assembly, 2m
- **PCL-10137-3** DB37 cable assembly, 3m

PCLD-8115
PCLD-8710

Industrial Wiring Terminal With CJC Circuit



Features

- Low-cost screw-terminal boards
- On-board CJC (Cold Junction Compensation) circuits for direct thermocouple measurement.
- Reserved space for signal-conditioning circuits such as low-pass filter, voltage attenuator and current shunt.
- Industrial-grade screw-clamp terminal blocks for heavy-duty and reliable connections.

PCLD-8115 only

- Supports PCL-818 series multifunction cards
- Nylon standoffs, screws and washers included for easy mounting
- Dimensions (W x L): 169 x 112 mm (6.7" x 4.4")

PCLD-8710 only

- Supports PCI-1710/1710L/1710HG/1710HGL/1711/1711L/1716/1716L cards
- DIN-rail mounting case for easy mounting
- Dimensions (W x L x H): 169 x 112 x 51 mm (6.7" x 4.4" x 2.0")

Introduction

The PCLD-8115 screw-terminal board offers convenient and reliable signal wiring for multifunction cards with 20-pin flat cable connectors or DB37 connectors, such as the PCL-818 series cards. PCLD-8710 is designed to match multifunction cards with 68-pin SCSI-II connectors, such as the PCI-1710/1710L/1710HG/1710HGL/1711/1711L/1716/1716L cards.

This screw-terminal board also includes cold junction sensing circuitry that allows direct measurements from thermocouple transducers. Together with software compensation and linearization, every thermocouple type can be accommodated.

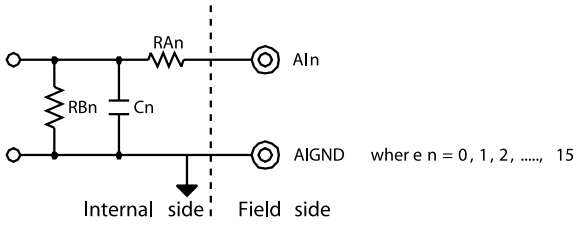
Due to its special PCB layout, you can install passive components to construct your own signal-conditioning circuits. So you can easily construct a low-pass filter, attenuator or current shunt converter by adding resistors and capacitors onto the board circuit pads.

Applications

- Field wiring for analog and digital I/O channels of PC-LabCard™ products.
- Signal conditioning circuits can be implemented as illustrated in the following examples:

a) Straight-through connection (factory setting)

RAn = 0 Ω (short)
RBn = none
Cn = none



b) 1.6 kHz (3dB) low pass filter

RAn = 10 KΩ
RBn = none
Cn = 0.01Ω F

$$f_{3dB} = \frac{RBn}{RAn + RBn}$$

c) 10 : 1 voltage attenuator:

RAn = 9 KΩ
RBn = 1 KΩ
Cn = none
Attenuation = $\frac{RBn}{RAn + RBn}$

(Assume source impedance << 10 KΩ)

d) 4 ~ 20 mA to 1 ~ 5 V_{DC} signal converter:

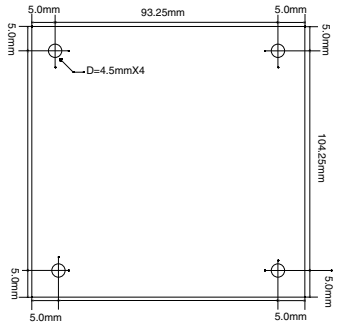
RAn = 0 Ω (short)
RBn = 250 Ω (0.1% precision resistor)
Cn = none

Ordering Information

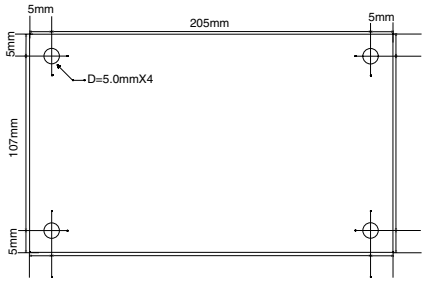
PCLD-8115	Industrial Wiring Terminal Board with CJC circuit and DB37 cable assembly
PCLD-8710	Industrial Wiring Terminal Board with CJC circuit for DIN-rail mounting (cable not included)
PCL-10137-1	DB37 cable assembly, 1m
PCL-10137-2	DB37 cable assembly, 2m
PCL-10137-3	DB37 cable assembly, 3m
PCL-10168-1	68-pin SCSI-II cable with special shielding for noise reduction, 1m
PCL-10168-2	68-pin SCSI-II cable with special shielding for noise reduction, 2m

Terminal Boards Dimensions

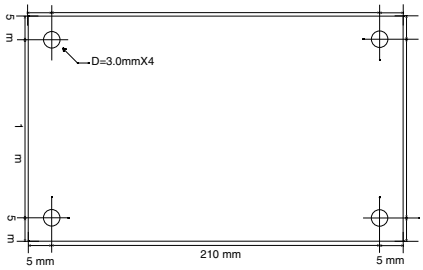
PCLD-780



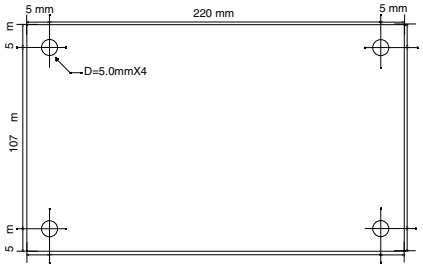
PCLD-782



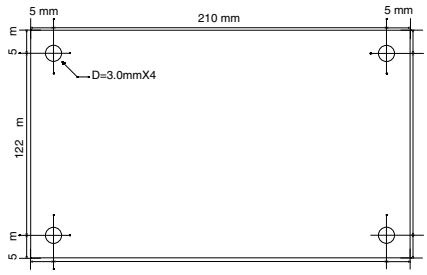
PCLD-782B



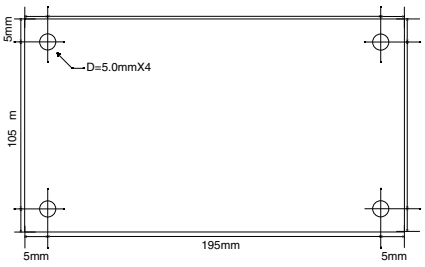
PCLD-785



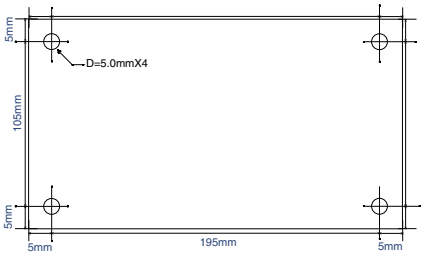
PCLD-785B



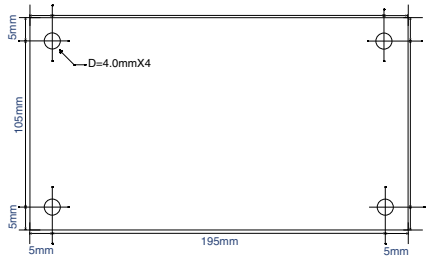
PCLD-786



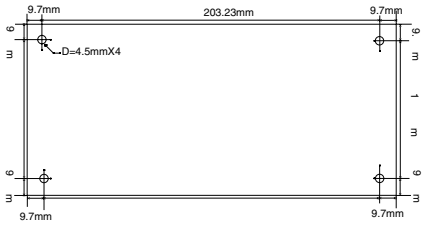
PCLD-788



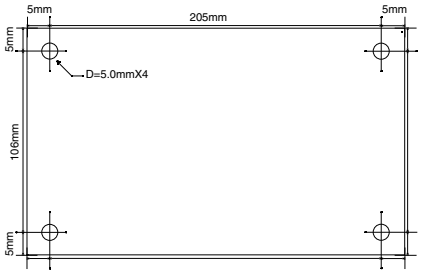
PCLD-789D



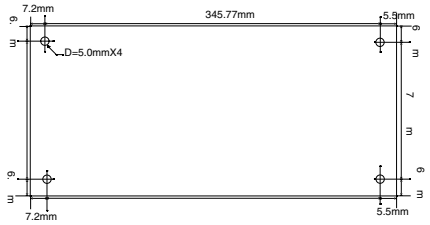
PCLD-880



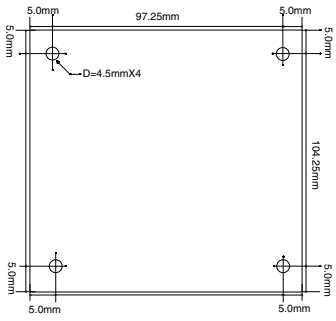
PCLD-885



PCLD-7216



PCLD-8115



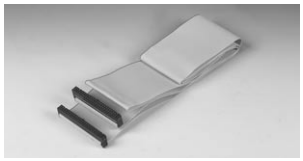
Cable Accessories

PCL-1010B-1
BNC to BNC Cable, Male, 1m

PCL-10137H-3
High-speed DB37 Cable Assembly, 3m

PCL-10250
100-Pin SCSI to Two 50-Pin SCSI Cable, 1m

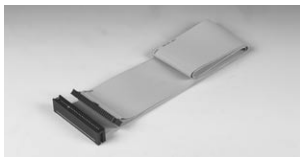
PCL-101100-1
SCSI Cable 100P Male 1m w/ Bolt Screw



PCL-10150-1.2
50-Pin Flat Cable, 1.2m

PCL-10250-2
100-Pin SCSI to Two 50-Pin SCSI Cable, 2m

PCL-10120-1
20-Pin Flat Cable, 1m



PCL-10151-1.2
50-Pin Flat Cable Assembly with Edge

PCL-10251-1
100-Pin to Two 50-Pin SCSI Cable for PCI-1240, 1m

PCL-10121-1
20-Pin Shielded Cable, 1m

PCL-10162-1
DB62 Cable Assembly, 1m

PCL-12250-1
100-Pin to Two 50-Pin Flat Cable for PCM-3240, 1m

PCL-10125-1
DB25 Cable Assembly, 1m

PCL-10162-3
DB62 Cable Assembly, 3m

PCL-10268
100-Pin to Two 68-Pin SCSI Cable, 1m

PCL-10137-1
DB37 Cable Assembly, 1m

PCL-10168
68-Pin SCSI Cable, 1m

PCL-10268-2
100-Pin to Two 68-Pin SCSI Cable, 2m

PCL-10137H-1
High-speed DB37 Cable Assembly, 1m

PCL-10168-2
68-Pin SCSI Cable, 2m

PCL-10901-1
DB9 to PS/2 Cable Assembly with Shielding,1m