Daughter Board Selection Guide
TABLE 1

Digital I/O daughter board selection guide

I/O Board	DB-16R	DB-24R	DB-24PR	DB-24C	DB-24OD	DB-24POR	DB-24SSR	DB-16P8R	DB-16P	DB-24P
Function	Digital Output							DI/O	Digital Input	
Din-Rail Mounting		Option	Option	Option	Option	Option	Option	Option	Option	
Page	4-7	4-7	4-8	4-9	4-9	4-10	4-11	4-10	4-6	4-6
PCI Bus Non-Isolated A/D D/A Board										
PCI-1802	●		★	★	★	★			●	
PCI-1800	●		★	★	★	★			●	
PCI-1602	●		★	★	★	★			●	
PCI-1202	●		★	★	★	★			●	
PCI-1002	●		★	★	★	★			●	
PIO-821	●		★	★	★	★			●	
PIO-DA16	●		★	★	★	★			●	
PIO-DA8	●		★	★	★	★			●	
PIO-DA4	●		★	★	★	★			●	
PCI Bus Digital I/O Board										
PCI-M512	●		★	★	★	★			●	
PIO-D168		●	●	●	●	●	●	●		●
PIO-D144		●	●	●	●	●	●	●		●
PIO-D96		●	●	●	●	●	●	●		●
PIO-D64	●		★	★	★	★			●	
PIO-D56	●	●	★	●	●	●	●	●	●	●
PIO-D48		●	●	●	●	●	●	●		●
PIO-D24		●	●	●	●	●	●	●		●
PISO-730/A	●		★	★	★	★			●	
PCI-TMC12A	●		★	★	★	★			●	
ISA Bus Non-Isolated A/D D/A Board										
A-826PG	●		★	★	★	★			●	
A-823PG	●		★	★	★	★			●	
A-822PG	●		★	★	★	★			●	
A-821PG	●		★	★	★	★			●	
A-812PG	●		★	★	★	★			●	
A-8111	●		★	★	★	★			●	
A-628	●		★	★	★	★			●	
A-626	●		★	★	★	★			●	
ISA Bus Isolated D/A Board										
ISO-DA16	●		★			★			●	
ISO-DA8	●		★			★			●	
ISA Bus Digital I/O Board										
DIO-144		●	●	●	●	●	●	●		●
DIO-96		●	●	●	●	●	●	●		●
DIO-64	●		★	★	★	★			●	
DIO-48		●	●	●	●	●	●	●		●
DIO-24		●	●	●	●	●	●	●		●
ISO-730	●		★	★	★	★			●	

● : Fully function support   ★ : Using 20-pin header, 16-channel support only (Cable Option: /F)

Daughter Board

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Daughter Board Selection Guide
TABLE 2

General purpose screw terminal board selection guide for PCI-bus I/O boards

PCI-Bus I/O Board	DB-32R DB-16P16R	DB-8025	DB-8125	DB-8225	DB-8325	DB-8425	DB-1825	DB-889D	DB-37	DN-20	DN-37	DN-50
Function	Relay Output	Analog Input Screw Terminal Board						MUX	General Purpose Screw Terminal Board			
Din-Rail Mounting	Option			Option			Option			Standard	Standard	Standard
Page	4-5	4-15	4-14	4-14	4-14	4-15	4-14	4-12	4-15	4-13	4-13	4-13
PCI Bus Non-Isolated A/D D/A Board												
PCI-1802		★	★				●		●	★	●	
PCI-1800		★	★	●				●	●	★	●	
PCI-1602		★	★				●		●	★	●	
PCI-1202		★	★				●		●	★	●	
PCI-1002		★	★				●		●	★	●	
PIO-821		★	★	●				●	●	★	●	
PIO-DA16		★	★						●	★	●	
PIO-DA8		★	★						●	★	●	
PIO-DA4		★	★						●	★	●	
PCI Bus Isolated A/D D/A Board												
PISO-813					●				●		●	
PISO-DA2						●						
PCI Bus Isolated Digital I/O Board												
PCI-P16R16									●		●	
PCI-P16C16									●		●	
PCI-P16POR16									●		●	
PISO-P8R8									●		●	
PISO-P8SSR8									●		●	
PISO-P32A32									●		●	
PISO-P32C32	●DB-16P16R								●		●	
PISO-P64									●		●	
PISO-A64									●		●	
PISO-C64	●DB-32R								●		●	
PISO-730		★	★						●	★	●	
PISO-730A		★	★						●	★	●	
PISO-725									●		●	
PCI Bus Non-Isolated Digital I/O Board												
PCI-M512		●	●							●		
PIO-D168									●		●	●
PIO-D144									●		●	●
PIO-D96									●		●	●
PIO-D64		●	●						●	●	●	
PIO-D56		★	★						●	★	●	●
PIO-D48									●		●	●
PIO-D24									●		●	
PCI Bus Timer/Counter Board												
PCI-TMC12A		★	★						●	★	●	

● : Recommended Daughter Board   ★ : Connect to 20-pin header Only (Digital I/O)

Daughter Board

4

4-2

Daughter Board Selection Guide
TABLE 3

General purpose screw terminal board selection guide for ISA-bus I/O boards

PCI-Bus I/O Board	DB-32R DB-16P16R	DB-8025	DB-8125	DB-8225	DB-8325	DB-1825	DB-889D	DB-37	DN-20	DN-25	DN-37	DN-50
Function	Relay Output	Analog Input Screw Terminal Board					MUX	General Purpose Screw Terminal Board				
Din-Rail Mounting	Option			Option		Option		Option	Standard	Standard	Standard	Standard
Page	4-5	4-15	4-14	4-14	4-14	4-14	4-12	4-15	4-13	4-13	4-13	4-13
ISA Bus Non-Isolated A/D D/A Board												
A-826PG		★	★	●			●	●	★		●	
A-823PG		★	★	●			●	●	★		●	
A-822PG		★	★	●			●	●	★		●	
A-821PG		★	★	●			●	●	★		●	
A-812PG		●	●						●			
A-8111		★	★	●			●	●	★		●	
A-628		★	★					●	★		●	
A-626		★	★					●	★		●	
ISA Bus Isolated A/D D/A Board												
ISO-AD32						●		●			●	
ISO-LD								●		●	●	
ISO-813					●			●			●	
ISO-DA16		★	★					●	★		●	
ISO-DA8		★	★					●	★		●	
ISA Bus Non-Isolated Digital I/O Board												
DIO-144												●
DIO-96												●
DIO-64		●	●						●	●		
DIO-48												●
DIO-24												●
ISA Bus Non-Isolated Digital I/O Board												
P16R16DIO								●			●	
P8R8DIO								●			●	
ISO-P32C32	●DB-16P16R							●			●	
ISO-P64								●			●	
ISO-C64	●DB-32R							●			●	
ISO-730		★	★					●	★		●	
ISA Bus Timer/Counter Board												
TMC-10								●			●	

● : Recommended Daughter Board   ★ : Connect to 20-pin header Only (Digital I/O)

4 **Daughter Board**

Daughter Board Selection Guide
TABLE 4, TABLE 5, TABLE 6

Motion Control Daughter Board Selection Guide

TABLE 4

Motion Control Board	DB-8R	DB-200	DN-25	DN-68
Function	Relay Board	Encoder Interface Board	General Purpose Screw Terminal Board	
DIN-Rail Mount			●	●
PCI-Bus Motion Control Board				
PISO-PS300	●		●	
PISO-ENCODER300				●
PISO-ENCODER600				●
ISA-Bus Motion Control Board				
SERVO-300	●	●	●	
STEP-200			●	
ENCODER-300			●	

Optional Table for Digital I/O Daughter Board

TABLE 5

Model No.	Option Method ● ● ●	● Option 1 External Power Input (Relay Coil Voltage)		● Option 2 Cable Option CA-5015	CA-3710	CA-2010	● Option 3 Without DIN-Rail Mount	With DIN-Rail Mount
DB-24R	● ●	/12V	/24V	(Blank)			(Blank)	/DIN
DB-24RD	● ●	/12V	/24V		(Blank)		(Blank)	/DIN
DB-24PR	● ● ●	/12V	/24V	(Blank)		/F	(Blank)	/DIN
DB-24PRD	● ●	/12V	/24V		(Blank)		(Blank)	/DIN
DB-24C	● ●			(Blank)	/D	/F	(Blank)	/DIN
DB-24SSR	● ●			(Blank)	/D		(Blank)	/DIN
DB-24POR	● ●			(Blank)	/D	/F	(Blank)	/DIN
DB-16P8R	● ●			(Blank)	/D	/F	(Blank)	/DIN
DB-24P	●			(Blank)			(Blank)	/DIN
DB-24PD	●				(Blank)		(Blank)	/DIN
DB-32R-3A	● ● ●	10V ~ 30V		CA-3710 / CA-3710D			(Blank)	/DIN
DB-16P16R-3A				CA-3720 / CA-3720D				

Example: DB-24PRD/24V/D/DIN (DB-24PRD, 24V coil voltage, 37-pin D-sub cable, DIN-Rail Mounting)

　　　　DB-24PRD/12V   (DB-24PRD, 12V coil voltage, 50-pin flat cable, Without DIN-Rail Mounting)

Note: PIO-D168, PIO-D144, PIO-D96, PIO-D48 provide 37-pin D-sub connector and 50-pin header. Make sure of your selection first.

　　　PIO-D24 provides 37-pin D-sub connector only; PIO-D56 provides 37-pin D-sub connetor and 20-pin flat cable.

Optional Table for Screw Terminal Boards

TABLE 6

Model No.	Option Method ● ●	● Option 1 1 meter cable	2 meters cable	● Option 3 Without DIN-Rail Mount	With DIN-Rail Mount
DB-8225	●	/1	/2	(Blank)	/DIN
DB-1825	● ●	/1	/2	(Blank)	/DIN
DB-8325	● ●	/1	/2		
DB-8425	●			(Blank)	/DIN
DN-20	●	/1	/2	/N	(Blank)
DN-25	●			/N	(Blank)
DN-37	● ●	/1	/2	/N	(Blank)
DN-50	●			/N	(Blank)

Example:　DB-1825/2/DIN　(DB-1825, 2 Meters D-sub 37-pin cable, with DIN-Rail Mounting)

　　　　　DB-1825/1　　　(DB-1825, 1 Meter D-sub 37-pin cable, without DIN-Rail Mounting)

　　　　　DN-20/1　　　　(DN-37, 1 Meter 20-pin flat cable, with DIN-Rail Mounting)

　　　　　DN-37/2/N　　　(DN-37, 2 Meters D-sub 37-pin cable, without DIN-Rail Mounting)

Daughter Board

4

DB-32R / DB-16P16R

32-channel relay output board
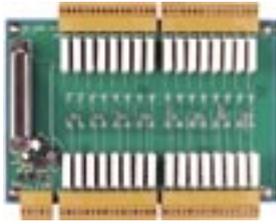
DB-32R
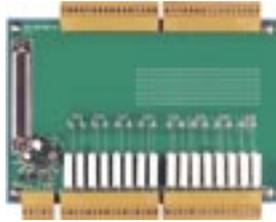
DB-16P16R

Features

■ Form A Signal Relay

■ The DB-32R accepts 37-pin connectors to control 32 form A relays for use with PISO-C64 and ISO-C64

■ The DB-16P16R accepts 37-pin connectors to control 16 form A relays and 16-channel input terminal for use with PISO-P32C32 and ISO-P32C32

■ Each LED is displayed when the corresponding relay is activated

■ Screw terminals for field wiring

Functional Description

The DB-32R is a 32-channel of Signal Relay Output Board, consisting of 32 form A relays for efficient programmable load switching. All connectors and functionalities are compatible with the PISO-C64 and ISO-C64 Open-collector output board.

The DB-32R has 33 of LED indicator functions; containing 32 LED's for Relay indication status and one to display power status.

The DB-16P16R is a 16-channel of Signal Relay Output Board, it also consisting of 16 form A relays and 16-channel of digital input terminal.

To avoid overload from your PC's power supply, the boards allows a power input range of 12~30V DC.

Specifications

● Contact Arrangement: SPST-NO (1 form A)
● Max. Switching Voltage: 125Vdc, 270Vac Rated
● Contact Current: 3A
● Max. Contact Current: 5A
● Max. Contact Capacity: 1250VA, 150W
● Operate Time (typical): 10ms
● Release Time (typical): 5ms
● Resistive load:
  250V ac/30V dc, 3A 100,000ops.min (10 ops. / minute)
● Resistive load:
  250V ac/30V dc, 5A 6,000ops.min (10 ops. / minute)
● Mechanically:
  20,000,000 ops. At no load. (300 ops. / minute)

General Specifications
● Power Requirements:
  DB-32R: 0.42A @ +12V
  DB-16P16R: 0.21A @ +12V
● Operating temperature: 0 ~ 60°C
● Operating humidity: 5 ~ 95%

● Storage temperature: -20 ~ 70°C
● Dimensions: 118 mm x 174 mm (DB-32R)
  118 mm x 174 mm (DB-16P16R)

Ordering Information

Standard

DB-32R:	32-channel relay output board Include : CA-3710D Male- Male D-sub cable 1M
DB-32R/DIN:	DB-32R with DIN-rail mounting kit
DB-16P16R:	16-channel input terminal and 16-channel relay output board Include : CA-3710D Male- Male D-sub cable 1M
DB-16P16R/DIN:	DB-16P16R with DIN-rail mounting kit

Optional

CA-3710:	Male-Male D-sub cable 1M (45°)
CA-3710D:	Male-Male D-sub cable 1M (180°)
CA-3720:	Male-Male D-sub cable 2M (45°)
CA-3720D:	Male-Male D-sub cable 2M (180°)

Daughter Board

4

DB-16P/24P/24PD

16/24-channel OPTO-isolated digital input board
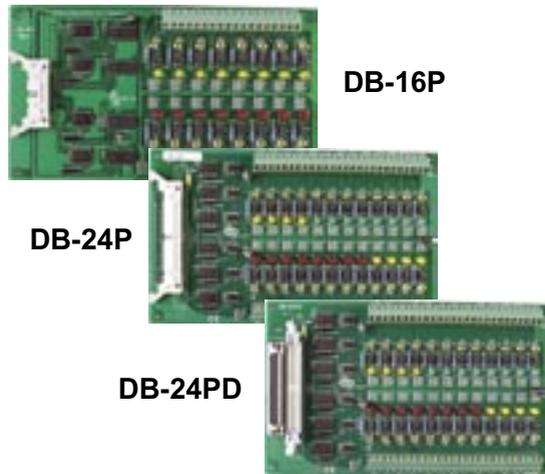
DB-16P

DB-24P

DB-24PD

Features

■ 16 optically isolated input channels (DB-16P)

■ 24 optically isolated input channels (DB-24P, DB-24PD)

■ AC/DC signal input

■ AC signal input with filter

■ Input buffer with voltage comparators

■ 3000V isolation voltage

■ LEDs indicate input status

Functional Description

The DB-16P is a 16-channel isolated digital input daughter board for A-82X DAS board or any 812PG, 711 series DAS Boards. The optically isolated input of the DB-16P consists of a bidirectional OPTO-coupler with a resistor for current sensing. You can use the DB-16P to sense DC signal from TTL levels up to 24V. You can also use DB-16P to sense a wide range of AC signals. The DB-16P registers a constant logic high if the frequency of the input AC signal is greater or equal to 1KHz, and the voltage of the AC signal is at lease 4Vrms. If you are using AC input signal, you should short the AC filter Jumper. You can use the board to isolated the computer from large common-mode voltages, ground loops and voltage spikes that often occur in industrial environments.

The general specification of DB-24P/PD is the same as DB-16P. But DB-24P/24PD can be connected to any OPTO-22 compatible DI/O Board and can be used for 24-channel photo-isolated digital input.

Specifications

I/O connector Electrical Specifications

● Configuration: optically isolated digital input

● Compatibility: TTL compatible

Digital Input

● Each channel with it's own ground reference isolated from other channels

● Maximum input voltage: 24VDC or 24VAC

Level	Minimum	Maximum
Input Low voltage (DC or peak AC)	0	±1
Input High voltage DC 1 KHz AC	±2.8VDC 4Vrms	±24VDC 24VAC

● Input impedance: 1.2KΩ/1W (default)

● Minimum input current: 5V inputs: 4 mA/channel
     24V inputs: 20 mA/channel

● Response Time: 20 μ s without filter; 2.2ms with filter

General Specifications

● Power requirements:
   +5V @ 224 mA max (DB-16P)
   +5V @ 336 mA max (DB-24P, DB-24PD)

● Operating temperature: 0 ~ 60°C

● Operating humidity: 0 ~ 90% non-condensing

● Storage temperature: -20 ~ 80°C

● Dimensions: 205 mm x 114 mm (DB-16P)
     205 mm x 114 mm (DB-24P, DB-24PD)

Ordering Information

Standard

DB-16P: 16-hannel isolated digital input board with CA-2010 cable

DB-24P: 24-channel OPTO-22 isolated input board with CA-5015 cable

DB-24P/DIN: DB-24P with DIN-rail mounting kit

DB-24PD: 24-channel OPTO-22 isolated input board with CA-3710 cable

DB-24PD/DIN: DB-24PD with DIN-rail mounting kit

Optional

CA-3720: 37-pin D-sub cable, 2m

Daughter Board

4

DB-16R/24R/24RD

16/24-channel relay output board

DB-16R

DB-24R

DB-24RD

Features

■ 16 Form C relays (DB-16R)

■ 24 Form C relays (DB-24R, DB-24RD)

■ LED indicated relay status

■ Screw terminals for field wiring
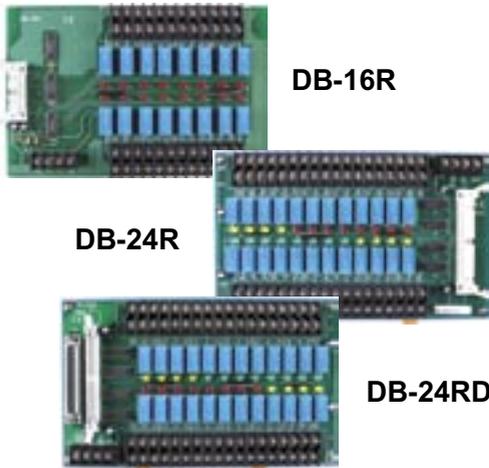
Functional Description

The DB-16R is a 16-channel Relay Output Board which consists of 16 Form C relays for efficient switch of load by programmed control. The DB-16R can be used by A-82x board or any other compatible board. The relays are energized by apply 5V signal to the appropriate relay channesl on the 20-pin flat cable connector. To avoid overloading your PC's power supply, this board needs a +12V DC external power supply.

The general specification of DB-24R/24RD is the same as DB-16R. But DB-24R/24RD can be used for 24-channel relay output. The coil rated voltage can be selected to +12VDC or +24VDC.

Specifications

Relay Output

● Type: SPDT (Form C)
● Nominal load: 120VAC@0.5A, 24VDC@1A
● Max. switching power: 60VA, 24W
● Max. switching Voltage:120VAC, 60VDC
● Max. switching Current: 1A
● Life Expectancy: Mechanical (2×10^7)

Electrical (2×10^5)

● Operate time: 6ms
● Release time: 3ms
● Control Logic: Input TTL high (+5V), relay on

General Specifications

● Power Requirements:

Device	+5V	+12V	+24V
DB-16R	120 mA	528 mA	-
DB-24R/24RD	200 mA	800 mA	350 mA

● Operating temperature: 0 ~ 60°C
● Operating humidity: 0 ~ 90% non-condensing
● Storage temperature: -20 ~ 80°C
● Dimensions: 205 mm x 114 mm (DB-16R)

225 mm x 132 mm (DB-24R, DB-24RD)

Ordering Information

Standard

|	
DB-16R:	16-channel relay board with CA-2010 cable
DB-24R/12:	24-channel OPTO-22 relay board with CA-5015 cable (12 V coil voltage)
DB-24R/12/DIN:	DB-24PR/12 with DIN-rail mounting kit
DB-24R/24:	24-channel OPTO-22 relay board with CA-5015 cable (24V coil voltage)
DB-24R/24/DIN:	DB-24PR/24 with DIN-rail mounting kit
DB-24RD/12:	24-channel OPTO-22 relay board with CA-5015 cable (12V coil voltage)
DB-24RD/12/DIN:	DB-24PRD/12 with DIN-rail mounting kit
DB-24RD/24:	24-channel OPTO-22 relay board with CA-5015 cable (12V coil voltage)
DB-24RD/24/DIN:	DB-24PRD/24 with DIN-rail mounting kit

Optional

CA-3720:	37-pin D-sub cable, 2m

DB-24PR/24PRD

24-channel power relay output board
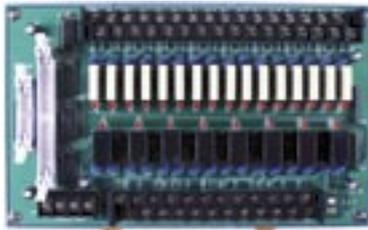
DB-24PR
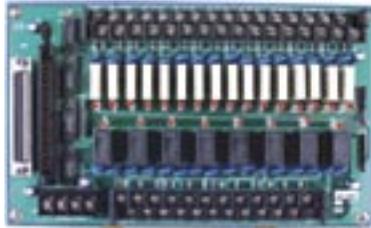
DB-24PRD

Features

- 8 Form C Relays and 16 Form A Relays
- DB-24PR: Accept 50-pin connector to control 8 Form C and 16 Form A relay or accept 20-pin connector to control 8 Form C and 8 Form A relay
- DB-24PRD: Accept 37-pin connector and 50-pin connector to control 8 From C and 16 Form A relay
- Switch up to 5A at 250A VAC or 30VDC
- LEDs indicate relay status
- Designed varistor to protect each channel's high voltage spike
- Screw terminals for easy field wiring

Functional Description

The DB-24PR/24PRD is a 24-Channel power relay output board which consists of 8 form C and 16 form A electromechanical relays for efficient switching of load by programmed control. The contact of each relay can control a 5 A load at 250VAC/30VDC. The relays are energized by applying a 50-pin OPTO-22 compatible connector , a 37-pin D-sub connector or a 20-pin flat cable connector. Twenty-four enunciative LEDs, one for each relay, light when their associated relays are activated. To avoid overlading your PC's power supply, this board needs a +12VDC or +24VDC external power supply.

Specifications

Form A Relay Output

- Nominal load: 250VAC@5A, 30VDC@5A
- Max. switching power: 1250VA; 150W
- Max. switching Voltage: 270VAC,150VDC
- Max. switching Current: 5A
- Life Expectancy: 20 millions operations (Mechanical)
- Operate time: 10ms
- Release time: 5ms

Form C Relay Output

- Nominal load: 250VAC@5A, 30VDC@5A
- Max. switching power: 1250VA(NO), 750VA(NC)
- Max. switching Voltage: 250VAC, 150VDC
- Max. switching Current: 5A
- Life expectancy: 10 millions operations (Mechanical)
- Operate time: 10ms
- Release time: 5ms
- Control Logic: Input TTL high (+5V), relay on

General Specifications

- Power Requirements: 24V@0.8A max; 5V@0.2A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 5 ~ 90% non-condensing
- Storage temperature: -20 ~ 70°C
- Dimensions: 132 mm x 210 mm

Ordering Information

Standard

DB-24PR/12:	24-channel OPTO-22 power relay board with CA-5015 cable (12V coil voltage)
DB-24PR/12/DIN:	DB-24PR/12 with DIN-rail mounting kit
DB-24PR/24:	24-channel OPTO-22 power relay board with CA-5015 cable(24V coil voltage)
DB-24PR/24/DIN:	DB-24PR/24 with DIN-rail mounting kit
DB-24PRD/12:	24-channel OPTO-22 power relay board with CA-3710 cable (12V coil voltage)
DB-24PRD/12/DIN:	DB-24PRD/12 with DIN-rail mounting kit
DB-24PRD/24:	24-channel OPTO-22 power relay board with CA-3710 cable (24V coil voltage)
DB-24PRD/24/DIN:	DB-24PRD/24 with DIN-rail mounting kit

Optional

CA-2010:	20-pin flat cable, 1m
CA-2020:	20-pin flat cable, 2m
CA-3720:	37-pin D-sub cable, 2m

DIO Terminal Board

DB-24C

24-channel open-collector output board

Features

- 8-channel high current open-collector output
- 16-channel low current open-collector output
- 3750V isolation voltage
- 5VDC logical levels
- LEDs indicate output status
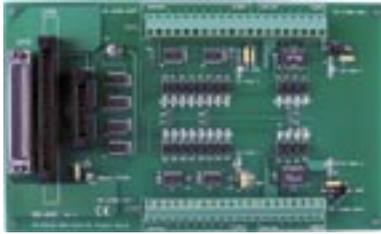
Specifications

● Max. loading current:

	Low nibble	High nibble
Group A	600 mA	100 mA
Group B	100 mA	600 mA
Group C	100 mA	100 mA

● Max. loading voltage: 30VDC

Generail Specifications

- Power requirements: 5V@0.4A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 80°C
- Dimensions: 132 mm x 220 mm

Ordering Information

Standard

DB-24C: 24-channel OPTO-22 open-collector output board with CA-5015 cable

DB-24C/DIN: DB-24C with DIN-rail mountiing kit

DB-24C/D: 24-channel OPTO-22 open-collector output board with CA-3710 cable

DB-24C/D/DIN: 24-channel OPTO-22 open-collector output board with CA-3710 cable and DIN-rail mountiing kit

Optional

CA-2010: 20-pin flat cable, 1m

CA-2020: 20-pin flat cable, 2m

CA-3720: 37-pin D-sub cable, 2m

DB-24OD

24-channel open-drain output board

Features

- 24 Open-Drain output
- Max. load current: 400mA/channel
- Max. load voltage: 35VDC
- LEDs indicate output status
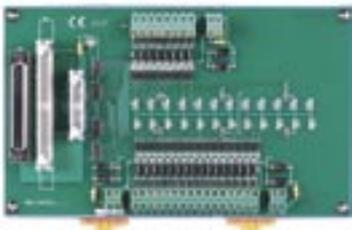
General Specifications

- Power requirements: 5V@0.4A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temp: -20 ~ 80°C
- Dimensions: 130 mm x 220 mm

### Ordering Information

Standard

DB-24OD: 24-channel open-drain output board

Optional

CA-2010: 20-pin flat cable, 1m

CA-2020: 20-pin flat cable, 2m

CA-3710: 37-pin D-sub cable, 1m

CA-3720: 37-pin D-sub cable, 2m

CA-5015: 50-pin flat cable, 1.5m

Daughter Board

4

DB-24POR

24-channel PhotoMos output board

Features

- 24 Form A PhotoMos Relays
- Switch up to max. 0.13A at max. 350VAC
- 5VDC logic levels
- 5,000V optical isolation
- LEDs indicate relay status
- Built-in fuses and diodes to protect the board from wrong connection of external power supply
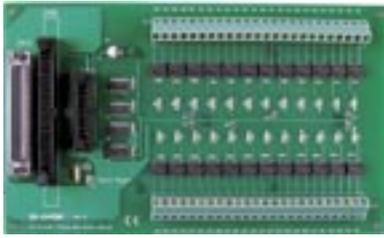
Specifications

PhotoMos Relay Output
- Turn on time: Ton = 0.7ms (Typical)
- Turn off time: Toff =0.05ms(Typical)
- Output on resistance= 23(typical)
- Power dissipation: 500mW

General Specifications
- Power requirements: 5V @ 0.3A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 80°C
- Dimensions: 220 mm x 132 mm

Ordering Information

Standard

DB-24POR: 24-channel OPTO-22 PhotoMos relay output board with CA-5015 cable
DB-24POR/DIN: DB-24POR with DIN-rail mounting kit
DB-24POR/D: 24-channel OPTO-22 PhotoMos relay board with CA-3710 cable
DB-24POR/D/DIN: DB-24POR/D with DIN-rail mounting kit

Optional

CA-2010: 20-pin flat cable, 1m
CA-2020: 20-pin flat cable, 2m
CA-3720 37-pin D-sub cable, 2m

DB-16P8R

16-channel OPTO-isolated digital input & 8-channel relay output board

Features

- 16 OPTO-isolated digital inputs
- 8 Form C Relays (SPDT)
- Switch up to 5A at 250VAC/5A or 30VDC
- LEDs indicate input and output status
- Optional Varistor to protect each channel's high voltage spike
- Voltage input or dry contact input mode

Specifications

Relay Output
- Number of channels: 8
- Electronics characteristics: refer to the DB-24P's specifications

Isolated Digital Input
- Number of channels: 16
- Electronics characteristics: refer to the DB-24PR's specifications

General Specifications
- Power requirements: 24V @ 0.3A max; 5V @ 0.1A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 80°C
- Dimensions: 130 mm x 210 mm

Ordering Information

Standard

DB-16P8R: 16 OPTO-isolated digital input & 8-channel power relay output board with CA-5015 cable
DB-16P8R/DIN: DB-16P8R with DIN-rail mounting kit
DB-16P8R/D: 16 OPTO-isolated digital input & 8-channel power relay output board with CA-3710 cable
DB-16P8R/D/DIN: DB-16P8R/D with DIN-rail mounting kit

Optional

CA-3720: 37-pin D-sub cable, 2m

Daughter Board

4

DIO Terminal Board

DB-24SSR

24-channel solid state relay output board

Features

- 24 Form A solid-state relays
- Switch up to 4A at 250VAC
- 5VDC logic levels
- 2,500V optical isolation
- LEDs indicate relay status
- Screw terminal for easy field wiring
- Plug-in screw-terminal blocks,ensuring simple installation, modification and maintenance

Functional Description

The DB-24SSR includes 24 normally open, Form A, solid- state relays. The board acts as an interface to field logic signals and can eliminate ground-loop problems and isolate the host computer from damaging voltages. The user can use the DB-24SSR to switch high voltage load which can be up to 250VAC and up to 4 A. The relay is energized by appling a 5 volt signal to the appropriate relay channel via a 50-pin OPTO-22 compatible connector or a 37-pin D-Sub connective. Twenty-four enunicator LEDs, one for each relay, light when their associated relays are activated.

Specifications

Solid State Relay Output
- Load voltage: 50~250VAC
- Repetitive peak OFF voltage: 600V
- Surge current: 50 A
- Max. load current: 4 A
- Min. load current: 20 mA
- Max. "OFF-state" leakage current: 50 mA
- Operate time: 1/2 cycle of voltage sine wave 1 ms max (Zero-cross)

General Specifications
- Power requirements: 5V@0.4A max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 80°C
- Dimensions: 130 mm x 220 mm

Ordering Information

Standard

DB-24SSR:	24-channel OPTO-22 solid state relay output board with CA-5015 cable
DB-24SSR/DIN:	DB-24SSR with DIN-rail mounting kit
DB-24SSR/D:	24-channel OPTO-22 solid state relay output board with CA-3710 cable
DB-24SSR/D/DIN:	DB-24SSR/D with DIN-rail mounting kit
DB-12SSR:	12-channel OPTO-22 solid state relay output board with CA-5015 cable
DB-12SSR/DIN:	DB-12SSR with DIN-rail mounting kit
DB-12SSR/D:	12-channel OPTO-22 solid state relay output board with CA-3710 cable
DB-12SSR/D/DIN:	DB-12SSR/D with DIN-rail mounting kit

Optional

CA-3720:	37-pin D-sub cable, 2m

DB-889D
16-channel analog multiplexer board

Features

■ Connects directly to A-82X, PCI-1800 series DAS board

■ Cold-junction compensation for thermocouples, thermocouple open detection

■ Input filtering

■ Software-programmable instrumentation amplifier gain of 0.5, 1, 5, 10, 50, 100,500 and 1000

■ Daisy chain to eight DB-889D

Functional Description

The DB-889D is an expansion multiplexer / amplifier board for use with A-82X and PCI-1800 series. Each DB-889D multiplexes 16 differential analog input channels into one analog input of the DAS board. It provides software programmable gains of 0.5 ,1,5 ,10,50, 100, 500 and 1000. Thermocouple measurements are handled easily with 889D. The board includes cold-junction sensing and compensation circuitry that provides a scaling of 24.4mV/°C. Biasing resistors are included for open thermocouple detection. The 889D can be cascaded to a total of 128-channel of voltage measurements or 112-channel of thermocouple measurements.

Applications

● Energy Management
● Signal Conditioning
● Analog Multiplexer

Specifications

● Accepts thermocouple type: J, K, T, E, S, R, B
● Cold-junction compensation:
  +24.4 mV/°C(1°C/bit), 0.0V at 0.0°C

Gain	Common Mode Rejection	Nonlinearity % of FSR	Setting Time
0.5	99dB	±0.0004	23μs
1	99dB	±0.0004	23μs
5	114dB	±0.0004	28μs
10	114dB	±0.0004	28μs
50	123dB	±0.0004	140μs
100	123dB	±0.0004	140μs
500	123dB	±0.0008	1300μs
1000	123dB	±0.0008	1300μs

● Over voltage protection: ± 30V Continuous
● Common mode voltage: ±10V max
● Analog output voltage: ±10V

General Specifications

● Power requirements: +5V@120 mA
● Operating temperature: 0 ~ 60°C
● Operating humidity: 0 ~ 90% non-condensing
● Storage temperature: -20 ~ 80°C
● Dimensions: 114 mm x 204 mm
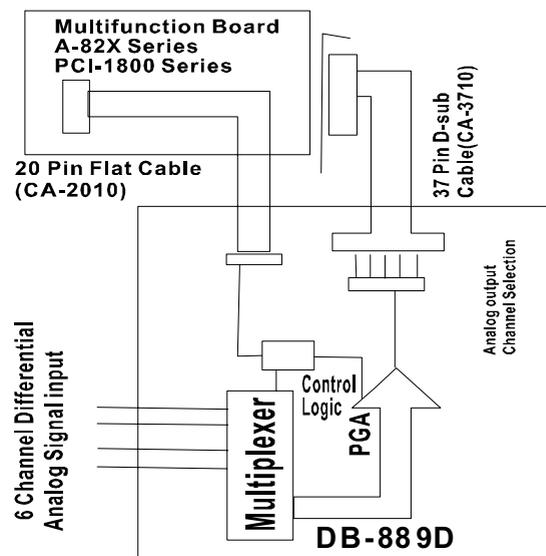
Multifunction Board A-82X Series PCI-1800 Series

37 Pin D-sub Cable(CA-3710)

20 Pin Flat Cable (CA-2010)

6 Channel Differential Analog Signal input

Analog output Channel Selection

Multiplexer | **PGA** | Control Logic

DB-889D

### Ordering Information

DIN-Rail Mounting Terminal Board

Daughter Board

4
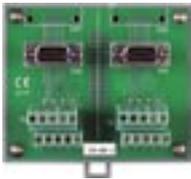
DN-09-2
Two 9-pin male D-sub connector
Pitch: 5.08 mm
Dimensions: 103 mm x 86 mm
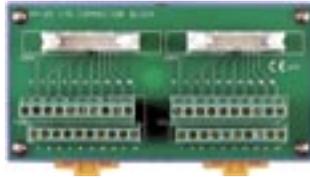
DN-20
Two 20-pin header
Pitch: 5.08 mm
Dimensions: 147 mm x 75 mm
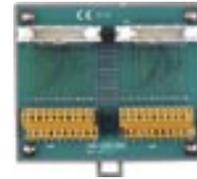
DN-20-381
Two 20-pin header
Pitch: 3.81 mm
Dimensions: 103 mm x 86 mm
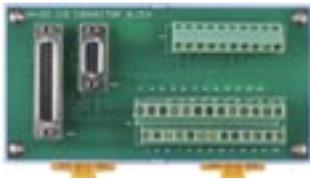
DN-25
One 9-pin D-sub connector
One 25-pin D-sub connector
Pitch: 5.08 mm
Dimensions: 147 mm x 75 mm

DN-37
Two 37-pin D-sub connector (One for expansion)
Pitch: 5.08mm
Dimensions: 147 mm x 75 mm

DN-37-381
One 37-pin D-sub Connector
Pitch: 5.08 mm
Dimensions: 103 mm x 86 mm

DN-50
One 50-pin header
Pitch: 5.08 mm
Dimensions: 147 mm x 75 mm

DN-50-381
One 50-pin header
Pitch: 3.81 mm
Dimensions: 103 mm x 86 mm
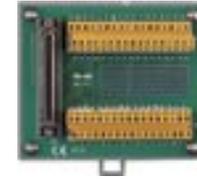
DN-68
One 68-pin SCSI-Ⅱ connector
Pitch: 3.81 mm
Dimensions: 103 mm x 86 mm

Common Features:
I/O connector block with DIN-Rail mounting, pin to pin screw terminal for I/O connected

### Ordering Information

Standard

DN-09-02: DIN-rail mounting terminal board for PISO-DA2 with two CA-0915 cables, 1.5m

DN-20: DIN-rail mounting terminal board with two
(Pitch:5.08 mm) CA-2010 cable, 1m

DN-20-381: DIN-rail mounting terminal board with two
(Pitch:3.81 mm) CA-2010 cable, 1m

Optional DIN-rail mounting terminal board with CA-
DN-25: 0920 & CA-2520 cable, 2m

DN-37: DIN-rail mounting terminal board with CA-3710 cable, 1m

DN-37-381: DIN-rail mounting terminal board with CA-3710 cable, 1m

DN-50: DIN-rail mounting terminal board with CA-5015 cable, 1.5m

DN-50-381: DIN-rail mounting terminal board with CA-5015 cable, 1.5m

DN-68 DIN-rail mounting terminal board with CA-SCSI15 cable, 1.5m

Screw Terminal Board
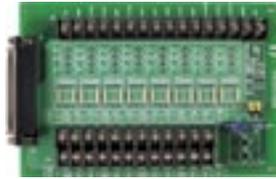
DB-8225 Screw Terminal Board With CJC

Screw terminal board using 37-pin cable I/O ports for
A-82X series and PCI-1800 series
16-channel single-ended or 8-channel differential
Blank pads for break detection, low-pass filter, current
shut and voltage attenuation
On board cold junction circuit in analog input channel 1
(Jumper selectable single-ended or differential mode)
Dimensions: 114 mm x 170 mm

Ordering Information
Standard
DB-8225/1: Screw terminal board with CA-3710 cable
DB-8225/2: Screw terminal board with CA-3720 cable
Optional
CA-3710: 37-pin D-sub cable, 1m
CA-3720: 37-pin D-sub cable, 2m
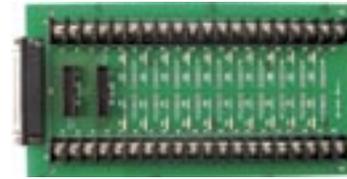
DB-8125 Screw Terminal Board

DB-8125 is equipped with a DB-37 connector and
two 20-pin flat-cable connectors
Blank pads for break detection, low-pass filter, current
shut and voltage attenuation
Compatible to 880 series daughter board
Dimensions: 221 mm x 115 mm

Ordering Information
Standard
DB-8125: Screw terminal board with CA-3710 cable
Optional
CA-3710: 37-pin D-sub cable, 1m
CA-2020: 20-pin flat cable, 2m
CA-3720: 37-pin D-sub cable, 2m

Daughter Board

4

DB-1825 Screw Terminal Board

Screw terminal board using 37-pin cable I/O ports for
PCI-1802, PCI-1002, PCI-1202, ISO-AD32 series
32-channel single-ended, 16-channel differential
Blank pads for break detection, low-pass filter, current
shut and voltage attenuation
Dimensions: 114 mm x 170 mm

Ordering Information
Standard
**DB-1825/1:** Screw terminal board with CA-3710 cable
DB-1825/2: Screw terminal board with CA-3720 cable
Optional
CA-3710: 37-pin D-sub cable, 1m
CA-3720: 37-pin D-sub cable, 2m
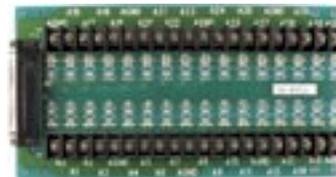
DB-8325 Screw Terminal Board

Screw terminal board using 37-pin cable for ISO-813
or other 813 series boards
Blank pads for break detection, low-pass filter, current
shut and voltage attenuation
Dimensions: 220 mm x 114 mm

Ordering Information
Standard
DB-8325/1: Screw terminal board with CA-3710 cable
DB-8325/2: Screw terminal board with CA-3720 cable
Optional
CA-3710: 37-pin D-sub cable, 1m
CA-3720: 37-pin D-sub cable, 2m

Screw Terminal Board
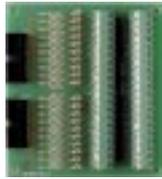
DB-8025 Screw Terminal Board

DB-8025 is equipped with two 20-pin flat-cable connectors
Blank pads for break detection, low-pass filter, current
shut and voltage attenuation
Compatible to 780 series daughter board
Dimensions: 102 mm x 114 mm

Ordering Information
Standard
DB-8025: Screw terminal board with two CA-2010 cable
Optional
CA-2020: 20-pin flat cable, 2m
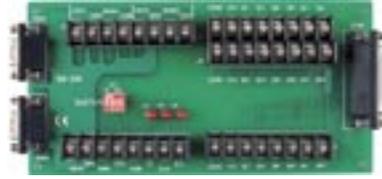
DB-200

DB-200 is equipped with one 25-pin D-Sub connector
and two 9-pin D-Sub connectors
Dimensions: 190 mm x 75 mm

Ordering Information
Standard
DB-200: Encoder interface board for SERVO-300
with one CA-0915, CA-2520 cable &
CA-0920 cable
Optional
CA-2520: 25-pin Male-Male D-sub flat cable, 2m
CA-0920: 9-pin Male-Male D-sub cable, 2m
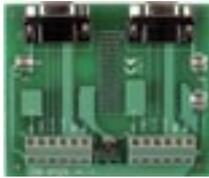
DB-8425 Screw Terminal Board

9-pin D-Sub connector pin-to-pin screw terminal for
PISO-DA2
Dimensions: 103 mm x 86 mm

Ordering Information
Standard
DB-8425: Screw terminal board for PISO-DA2 with two
CA-0920 cable
Optional
CA-0920: 9-pin Male-Male D-sub cable, 2m
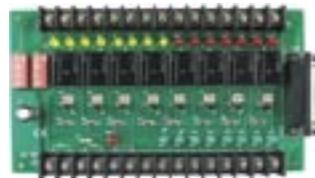
DB-8R

DB-8R is equipped with one 25-pin D-Sub connector
7-relay output, 8 isolated digital input X, Y limit
switch input, emergency input
Dimensions: 190 mm x 105 mm

Ordering Information
Standard
DB-8R: Motion interface I/O board with CA-2520 cable
Optional
CA-2520: 25-pin Male-Male D-sub flat cable, 2m

DB-37 Screw Terminal Board

37-pin D-sub connector pin-to-pin screw terminal for
any 37-pin D-sub connector of I/O board
Dimensions: 130 mm x 78 mm

Ordering Information
Standard
DB-37: Direct connection board

DB-3R

DB-3R is equipped with one 9-pin D-Sub connector
and 3-relay outputs
Dimensions: 103 mm x 86 mm

Ordering Information
Standard
DB-3R: Daughter board for WDT-03 with one
CA-0915 cable
Optional
CA-0915: 9-pin Male-Female D-sub cable, 1.5m

Daughter Board

4

DN-PR4

4-channel DIN-rail mounting power relay module

Functional Description

The DN-PR4 features a DIN-Rail mount and four form C electromechanical power relays for efficient switching of loads by programmed control. The contact of each relay can control a 5 A load at 250VAC / 30VDC. The relay is energized by applying a +24V voltage signal to the appropriate relay channel. Each output is equipped with a LED to display its status. Each output is equipped with a varistor that shunts the surge voltage of the inductive load or electromagnetic brake to protect the relay contact point. All relay control and relay outputs are accessible through the wiring terminals

Specifications
- Nominal load: 250VAC @ 5A, 30VDC @ 5A
- Max. switching power: 1250VA(NO), 750VA(NC)
- Max. switching Voltage: 250VAC, 150VDC
- Max. switching Current: 5A
- Life Expectancy: 10 millions operations (Mechanical)
- Operate time: 10ms
- Release time: 5ms
- Control Logic: Input +24V, relay off
- Power requirements: 24VDC @ 100 mA max
- Dimensions: 77 mm x 101 mm x 46 mm

Varistor
- Maximum applied voltage: 300Vrms
- Clamping voltage: 760 V(10A)
- Varistor voltage: 470 V(current =1 mA)
- Max. peak current: 1200A for 8 msec.

Ordering Information
Standard
DN-PR4: 4-channel DIN-rail mounting power relay module

Optional
ACE-540A: 24V/2A output power supply 85V~264VAC input range

DN-SSR4

4-channel DIN-rail mounting solid state relay module

Functional Description

The DN-SSR4 includes 4 normally open, Form A, solid-state relays. The user can use the DN-SSR4 to switch high voltage load which can be up to 240VAC and up to 4 A. Four enunciative LEDs, one for each relay, light when their associated relay are activated. Each output equipped with a varistor that shunts the surge voltage of the inductive load or electromagnetic brake to protect the relay contact point. All relay control and relay outputs are accessible through the wiring terminals.

Specifications
- Load Voltage: 50 @ 250VAC
- Repetitive peak OFF voltage: 600V
- Surge current: 50 A
- Max. Load current: 4 A
- Min. load current: 20 mA
- Max. "OFF-state" leakage current: 50 mA
- Operate time: 1/2 cycle of voltage sine wave 1 ms max. (Zero-cross)
- Control Logic: Input +24V, relay off

General Specifications
- Power requirements: external +24V @ 100 mA max
- Operating temperature: 0 ~ 60°C
- Operating humidity: 0 ~ 90% non-condensing
- Storage temperature: -20 ~ 80°C
- Dimensions: 77 mm x 101 mm x 66 mm

Ordering Information
Standard
DN-SSR4: 4-channel DIN-rail mounting solid state relay module

Optional
ACE-540A: 24V/2A output power supply 85V~264VAC input range

Daughter Board

4

RM-10X/20X Series

DIN-rail mounting power relay modules

RM-20x series

Specifications
- Rated current for each relay: 5A
- Provide two N.C. and two N.O. for each channel
- Maxi. Peak current: 10A
- Maxi. Switching voltage: 400V AC
- Standard contact material: Ag Nt
- Input Voltage : DC 24 V

Functional Description

RM series relay modules are designed to be mounted on DIN RAIL TS-15, TS-32 or TS-35. RM-10X contains 1 Form C relays, while RM-20X contains 2 Form C relays. In order to prevent improper operation, reverse polarity protection is provided. An LED indicates the status of each channel. Those modules provide 4-channel relays, 8-channel relays, and 16-channel relays version.

RM-10x series

Specifications
- Rated current for each relay: 16A
- Provide one N.C. and one N.O. for each channel
- Maxi. Peak current: 30A
- Maxi. Switching voltage: 400V AC
- Standard contact material: Ag Cd0
- Input Voltage: DC 24 V

Ordering Information
Standard

RM-104:	4-channel power relay modules
RM-108:	8-channel power relay modules
RM-116:	16-channel power relay modules
RM-204:	4-channel power relay modules
RM-208:	8-channel power relay modules
RM-216:	16-channel power relay modules

I-950-ENC Series

Industrial Enclosure

Specifications
- Built-in DIN-Rail for easy mounting
- Sidewall knockouts offer easy wire positioning
- Seal design provides anti-leak protection
- Dimensions:
  I-950-ENC: 254 mm x 180 mm x 90 mm
  I-3625-ENC: 360 mm x 254 mm x 165 mm

Ordering Information
Standard

I-950-ENC: IP66 industrial enclosure
I-3625-ENC: IP66 industrial enclosure

Includes
Case
Accessory
2 x polyamide cable glands
4 x captive lid screws
1 x DIN-rail (21 cm)

Functional Description

The I-950-ENC IP66 industrial enclosure is designed for use in industrial environments. It provides space for one or two I-7000 modules. It has a rugged housing to protect modules from Moisture, UV radiation... etc.

Accessories

ADP-20

ADP-37

ADP-50
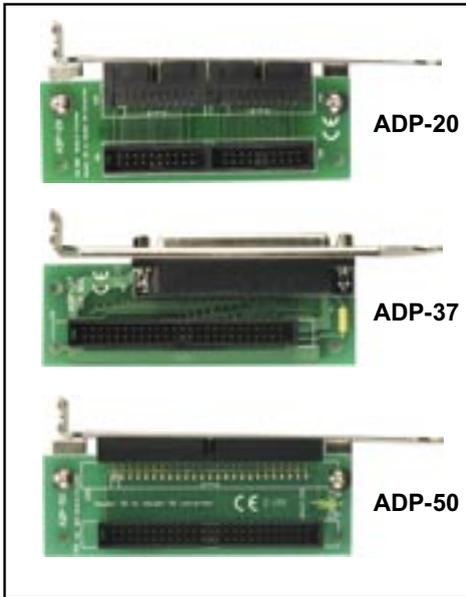
Introduction

Industrial I/O board normally requires cable and accessories to complete a package. Please refer to the following items.

Ordering Information
Standard

ADP-20: Extender, extends dual 20-pin flat cable connectors to PC slot windows, for AT bus I/O board

ADP-20/PCI: Extender, extends dual 20-pin flat cable connectors to PC slot windows, for PCI bus I/O board

ADP-37: Adapter, 50-pin OPTO-22 ports to DB-37, for AT bus I/O board

ADP-37/PCI: Adapter, 50-pin OPTO-22 ports to DB-37, for PCI bus I/O board

ADP-50: Extender, extends 50-pin flat cable connectors to PC slot windows, for AT bus I/O board

ADP-50/PCI: Extender, extends 50-pin flat-cable connectors to PC slot window, for PCI bus I/O board

Daughter Board

4

1C013	3S004/5/6	CA-0101	CA-0205	CA-03015
SJ-904 PT100	HDF 200 cable, 1/3/5 meter long 3S004 3S006 3S005	Ground wire for DP-640/660/665 use	2-pin Black & Red cable, 0.5m	3-pin connector cable
CA-0602	**CA-0802**	**CA-0903**	**CA-090910**	**CA-0910/0910F**
6-pin connector cable	8-pin connector cable	9-pin Female D-Sub & RS-232 connector cable, 30cm	9-pin Female D-Sub cable for RS-422 connector, 1m	9-pin Female D-Sub & RS-485 / Female-Female D-Sub connector cable, 0.5m CA-0910 CA-0910F
CA-0915/0920	**CA-1509**	**CA-20006**	**CA-2002**	**CA-2010/2020**
9-pin Male-Female D-Sub cable, 1.5m/2m CA-0915 CA-0920	15-pin Male & 9-pin Male-Female D-Sub, power connector cable	20-pin flat-cable pitch 0.2mm, 6cm x 2	20-pin flat cable 20cm x 2	20-pin flat cable, 1m/2m CA-2010 CA-2020

Accessories

CA-2520/2520D	CA-3705A/3710A	CA-3710/3720	CA-3710D/3720D	CA-3715A
25-pin Male-Male D-Sub flat Cable, 2m (45° / 180°)	37-pin Male-Female D-Sub cable, 0.5m/1m	37-pin Male-Male D-Sub cable, 1m/2m(45°)	37-pin Male-Male D-Sub cable, 1m/2m (180°)	37-pin Male-Female D-sub cable, 1.5m

CA-4002/4002F	CA-4037W/4037B	CA-4440	CA-5002/5015	CA-9-2502
37-pin Male/Female D-Sub connector with plastic cover	40-pin flat to D-Sub 37-pin Female, 24cm	44-pin flat & 40-pin flat cable	50-pin flat cable, 20cm/1.5m	9-pin Male & 25-pin Female D-Sub cable, 20cm

CA-GPIB10/20/40	CA-PC09M	CA-PC09F	CA-PC25M	CA-P716
GPIB cable, 1m/2m/4m	9-pin Male D-Sub connector with plastic cover	9-pin Female D-Sub connector with plastic cover	25-pin Male D-Sub connector with plastic cover	cable for ACE-716P Power Supply

CA-RJ0903	CA-RJ1003	CA-SCSI15	CA-USB18	CA-M910
9-pin Male D-Sub & RJ-45 cable, 30cm	10-pin cable & RJ-45, 30cm	68-pin Male-Male SCSI II connector cable	USB connector cable	PS/2 connector & external lines cable