# Wiring Termination

## 100-pin, 68-pin, and 50-pin SCSI-II Connectors P. 9-5 P. 9-1 P. 9-5 P. 9-5 P 9-5 DIN-68S/1S (Includes ACL-10569-1) DIN-96DI/DO **DIN-100S DIN-50S DIN-502S** (Includes ACL-10250) (Includes ACL-10252) (Includes ACL-102100) (Includes ACL-102100) DIN-68S/1M (Includes ACL-10568-1) 50-pin Ribbon Connectors P. 9-2 P. 9-3 P. 9-2 P. 9-3 HUNDHESEN.



DIN-24G

(for Grayhill IO modules)

DIN-50P



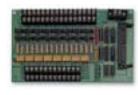
**TB-24R** (Includes ACL-10150-1.5)



P. 9-2

(Includes ACL-10150-1.5)

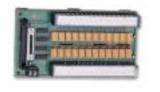




**TB-16P8R** (Includes ACL-10150-1.5)



(Includes ACL-10150-1.5)



DIN-24R/12, DIN-24R/24 (Includes ACL-10150-1.5)

P. 9-6

P. 9-6



DIN-24P (Includes ACL-10150-1.5)



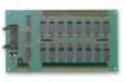
**TB-24** (Includes ACL-10150-1.5)

## 20-pin Header Connectors



P. 9-4

ACLD-9182A (Includes ACL-10120-1)



P. 9-4

P. 9-2

ACLD-9185 (Includes ACL-10120-1)



ACLD-9881 (Includes ACL-10137-1)

37-pin D-type Connectors



**ACLD-9178** (Includes 2 ACL-10120-1)



DIN-20P (Includes ACL-10120-1)



**ACLD-9137** (male) ACLD-9137F (female)



ACLD-9138 (Includes ACL-10237-1)



ACLD-8125 (Includes ACL-10137-1)



ACLD-9188 (Includes 2 ACL-10120-1)



DIN-37D (Includes ACL-10137-1)



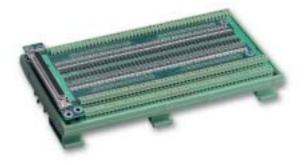
P. 9-6

# DIN-96DI

## 96-CH Isolated DI Termination Board with DIN-Rail Mounting

### **Features**

- 96-CH isolated digital inputs
- For use with PCI-7396
- Isolated input voltage up to 24 V
- 2500 VRMs optical isolation
- Screw terminals for easy field wiring



## **Specifications**

- Isolated Digital Input
- Number of channels: 96
- Maximum input range: 24 V
- Digital logic levels
- 0-24 V, non-polarity
- ❖ Input high voltage: 10-24 V
- \* Input low voltage: 0-2 V
- ■Input Resistance: 4.7 kΩ @ 0.5W
- Isolation voltage: 2500 VRMs
- I/O connector: 100-pin SCSI-II female

- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Power consumption

48 mA maximum

■ Dimensions: 226 mm x 121 mm x 48 mm (WxLxH)

## **Ordering Information**

■ DIN-96DI

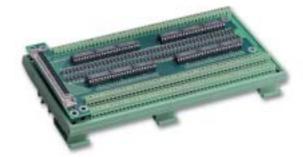
96-CH Isolated DI Termination Board with DIN-Rail Mounting (Including One 1-meter ACL-102100 Cable)

# DIN-96DO

# 96-CH Isolated DO Termination Board with DIN-Rail Mounting

## **Features**

- 96-CH isolated digital outputs For use with PCI-7396
- Sink current up to 500 mA on each isolated output
- 2500 VRMs optical isolation
- Screw terminals for easy field wiring



## **Specifications**

- Number of channels: 96
- Output type: open collector Darlington transistor
- Sink current
- · Max. 500 mA for only one Darlington pair
- 500 mA for all Darlington pair @ 20% duty
- Power dissipation: Max. 2.25 W per chip (8 DO channels)
- Supply voltage: 5-35 VDC
- Isolation voltage: 2500 VRMS

- Connector: 100-pin SCSI-II female
- Operating temperature: 0 to 60 °C ■ Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Power consumption

102 mA maximum

■ Dimensions: 226 mm x 121 mm x 48 mm (WxLxH)

## **Ordering Information**

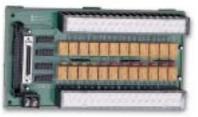
96-CH Isolated DO Termination Board with DIN-Rail Mounting (Including One 1-meter ACL-102100 Cable)

# DIN-24R/TB-24R

# Termination Board with 24 Relay Outputs

### **Features**

- 24-CH single-pole, double-throw (SPDT form C) relay outputs 50-pin Opto-22<sup>™</sup> compatible connector
- Maximum switching voltage 220 Vpc/250 Vac
- Maximum switching current up to 2 Apc/ac
- LED indicator for relay status
- On-board relay driver circuitry
- Screw terminals for easy filed wiring
- DIN socket available on DIN-24R
- 50-pin SCSI-type connector available on DIN-24R to interface with ND-6058





TB-24R

## Introduction

The DIN-24R and TB-24R relay output boards are designed for industrial control applications. It contains 24 electro-mechanical SPDT relays that can be driven by the 24-bit digital output ports of the PCI-7224, PCI-7248, PCI-7296, ACL-7112, ACL-7124 and PET-48DIO, ND-6058.

Each relay's switching capacity is 60 W, 125 VA. The normally closed, and common contacts for each relay are made available for maximum flexibility.

## Specification

- Relay Output
- Number of channels: 24
- Relay type: SPDT (Form C)
- · Contact rating
- AC: 125 Vac @ 0.6 A
- DC: 30 Vpc @ 2 A
- Breakdown voltage: 1500 VRMs
- Contact resistance: 50 m $\Omega$
- · Relay ON/OFF time
- · Operate time: 3 ms
- Release time: 3 ms

· LED Indicators for relay status: per channel

DIN-24R

- Expected life: 5 x 10<sup>5</sup> operations @ 2 A, 30 Vpc
- External coil excitation voltage
- 12 V nominal, 19.2 V maximum (TB-24R/12 & DIN-24R/12)
- 24 V nominal, 38.5 V maximum (TB-24R/24 & DIN-24R/24)
- ■I/O Connector
- 50-pin ribbon male
- 50-pin SCSI-II female
- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Power consumption

	+12 V	+24 V
TB-24R/12	288 mA maximum	
DIN-24R/12		
TB-24R/24		144 mA maximum
DIN-24R/24		

- Dimensions
  - TB-24R: 220 mm x 132 mm x 15 mm (WxLxH)
- DIN-24R: 203 mm x 120 mm x 55 mm (WxLxH)

## **Ordering Information**

Termination Board with 24-CH Relay Outputs @ 12V Coil Voltage (Including One 1.5-meter CL-10150 Cable)

### ■ TB-24R/24

Termination Board with 24-CH Relay Outputs @ 24V Coil Voltage (Including One 1.5-meter ACL-10150 Cable)

■ DIN-24R/12

Termination Board with 24-CH Relay Outputs @ 12V Coil Voltage and DIN-Rail Mounting (Including One 1.5-meter ACL-10150 Cable)

## ■ DIN-24R/24

Termination Board with 24-CH Relay Outputs @ 24V Coil Voltage and DIN-Rail Mounting (Including One 1.5-meter ACL-10150 Cable)

# DIN-24P/TB-24P

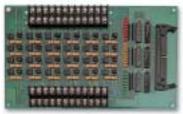
# Termination Board with 24 Opto-Isolated Digital Inputs

## **Features**

- 24-CH opto-isolated digital inputs
- 50-pin Opto-22 compatible connector
- Non-polarity digital input range
- Isolated input voltage up to 24 V
- 5000 VRMs optical isolation
- Jumper selectable for voltage input or dry-contact input mode
- LED indicator for input status
- Screw terminals for easy field wiring
- DIN socket is available on DIN-24P
- 50-pin SCSI-type connector available on DIN-24P to interface with ND-6058



DIN-24P



TB-24P

## Introduction

The DIN-24P and TB-24P digital input termination boards feature high-voltage opto-isolation on all input channels. They provides 24 channels that are accessed through a single 50-pin connector, standard on the NuDAQ digital I/O boards, such as ACL-7122, ACL-7124, PET-48DIO, PCI-7224, PCI-7248, PCI-7296 and ND-6058.

## **Specification**

- Input modes (jumper selectable on per channel basis)
- Voltage input
- · Dry contact input
- Isolated digital input
- · Number of channels: 24, maximum

- Maximum input range: 24 V, non-polarity
- · Digital logic levels
- 0-24 V, non-polarity ❖ Input high voltage: 5-24 V
- ❖ Input low voltage: 0-1.5 V
- Input resistance:1.2 kΩ @ 0.5 W
- Isolation voltage: 5000 VRMs
- Dry contact input
- Number of channels: 24
- Internal pull-up voltage supply: +5 VDC
- LED Indicators for input status: one per channel
- I/O Connector
  - 50-pin ribbon male
  - 50-pin SCSI-II female
- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing

■ Power requirement:

40 mA maximum

- TB-24P: 220 mm x 132 mm x 23 mm (WxLxH) DIN-24P: 259 mm x 121 mm x 55 mm (WxLxH)

## Ordering Information

Termination Board with 24-CH Isolated Digital Inputs (Including One 1.5-meter ACL-10150 Cable)

Termination Board with 24-CH Isolated Digital Inputs and DIN-Rail Mounting (Including One 1.5-meter ACL-10150 Cable)

# **TB-16P8R**

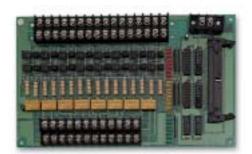
## Termination Board with 16-CH Isolated DI & 8-CH Relay Outputs

## **Features**

- 16-CH isolated digital inputs
- Non-polarity digital input range
- Isolated input voltage up to 24 V
- 5000 VRMs optical isolation
- Jumper selectable for voltage input or dry-contact input mode
- 8-CH single-pole double-throw (SPDT form C) relays
- Maximum switching voltage 220 Vpc/250 Vac
- Maximum switching current up to 2 Adc/Ac
- On-board relay driver circuitry
- LED indicators for both input and relay status
- Screw terminals for easy field wiring



- Number of isolated DI channels: 16
- Number of relay output channels: 8
- LED Indicators for input and output status: one per
- Electronics characteristics of isolated DI: refer to the TB-24P's specifications
- Electronics characteristics of relay outputs: refer to the TB-24R's specifications



- I/O Connector: 50-pin ribbon male
- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Power requirements

+5V	+12V	
40 mA maximum	100 mA maximum	

■ Dimensions: 220 mm x 132 mm x 22 mm(WxLxH)

## Ordering Information

### ■ TB-16P8R/12

Termination Board with 16-CH Isolated DI & 8-CH Relay Outputs (Including One 1.5-meter ACL-10150 Cable)

TB-16P8R/24

Termination Board with 16-CH Isolated DI & 8-CH Relay Outputs (Including One 1.5-meter ACL-10150 Cable)

# TB-24

## General Purpose Termination Board for DB-37 and Opto-22 Connectors

## **Features**

- Easy connection to boards with 50-pin mating connector or 37-pin D-sub connector
- Breadboard area for custom circuit
- Two 37-pin male D-sub connectors ■ Two 50-pin male mating connectors
- Screw terminals for easy field wiring
- Breadboard area: 125 mm x 73 mm
- Dimensions: 220 mm x 132 mm x 13 mm (WxLxH)

## **Ordering Information**

General-Purpose Termination Board with Two 37-pin D-sub Connectors and Two 50pin Ribbon Connectors (Including One 1.5-meter ACL-10150 Cable)



# DIN-24G

# Termination Board for 24-CH Grayhill I/O Modules

## **Features**

- Supports standard or miniature G5 size modules ■ Termination board for installing Grayhill I/O
- Up to 24 modules
- Port configurable as input or output on 8-CH basis
- Dimensions: 371 mm x 126 mm x 49 mm (WxLxH)

## **Ordering Information**

■ DIN-24G

Termination Board with 24-CH Grayhill I/O Modules and DIN-Rail Mounting

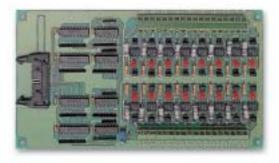


# ACLD-9182A

# Termination Board with 16-CH Isolated Digital Inputs

## **Features**

- 16-CH opto-isolated digital inputs
- For use with 20-pin ribbon digital input connector of NuDAQ cards
- Non-polarity digital input range
- Isolated input voltage up to 24 V
- 5000 VRMs optical isolation
- Jumper selectable for voltage input or dry-contact input mode
- LED indicator for input status
- Screw terminals for easy field wiring



## **Specifications**

- Isolated Digital Input
- Number of channels: 16
- · Maximum input range: 24 V, non-polarity
- Digital logic levels
- 0-24V, non-polarity
- \* Input high voltage: 5-24 V
- ❖ Input low voltage: 0-0.7 V

- Input Resistance: 560  $\Omega$  @ 1 W
- Isolation voltage: 5000 VRMs
- I/O Connector: 20-pin ribbon male
- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C
- Relative humidity: 5 to 95%, noncondensing
- Dimensions: 205 mm x 114 mm

## **Ordering Information**

■ ACLD-9182A

Termination Board with 16-CH Isolated Digital Inputs (Including One 1-meter ACL-10120 Cable)



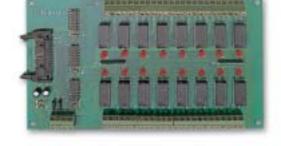


# ACLD-9185

# Termination Board with 16-CH Relay Outputs

## **Features**

- 16-CH single-pole, double-throw (SPDT form C) relay outputs
- For use with 20-pin digital input connector of NuDAQ cards
- Maximum switching voltage up to 60 Vpc/120 Vac
- Maximum switching current up to 1 Apc/Ac
- On-board relay driver circuitry
- LED indicators for relay status
- Screw terminals for easy field wiring



## **Specifications**

- Relay Output
- · Number of channels: 16
- Relay type: SPDT (Form C) • Isolation voltage: 1500 VRMS
- Contact rating
- AC: 120 V @ 0.5 A
- DC: 24 V @ 1 A
- Breakdown voltage: 1000 VRMs
- Contact resistance: 100 mΩ
- · Relay ON/OFF time
- · Operate time: 6 ms
- · Release time: 3 ms
- · LED indicators for relay status: one per channel

- Expected life

- Operating temperature: 0 to 60 °C
- Storage temperature: -20 to 80 °C ■ Relative humidity: 5 to 95%, noncondensing
- Power consumption

+5 V	+12 V
200 mA maximum	528 mA maximum

■ Dimensions: 205 mm x 114 mm

## **Ordering Information**

■ ACLD-9185
Termination Board with 16-CH Relay Outputs (Including One 1-meter ACL-10120 Cable)

# DIN Rail Screw Terminal Boards

### **Features**

- Universal screw termination boards for easy wiring
- DIN socket for easy mounting in DIN-rail

### **DIN-100S**

Termination board with one 100-pin SCSI-II connector and DIN-rail mounting

- General purpose termination board for 100-pin SCSI-II cable
- On-board connector type: 100-pin SCSI-II female
- Shipped with 1-meter ACL-102100 cable
- Dimensions: 158 mm x 120 mm x 52 mm (WxLxH)

## DIN-68S/1M, DIN-68S/1S

Termination board with one 68-pin SCSI-II connector and DIN-rail mounting

- General purpose termination board for 68-pin SCSI-II cable
- On-board connector type: 68-pin SCSI-II female
- Shipped with 1-meter ACL-10568-1 cable in DIN-68S/1M
- Shipped with 1-meter ACL-10569-1 cable in DIN-68S/1S
- Dimensions: 103 mm x 85 mm x 43 mm (WxLxH)

### **DIN-50S**

Termination board with one 50-pin SCSI-II connector and DIN-rail mounting

- General purpose termination board for 50-pin SCSI -II cable
- On-board connector type: 50-pin SCSI-II female
- Plastic cover for protection of wiring
- Shipped with 1-meter ACL-10250 cable
- Dimensions: 125 mm x 85 mm x 50 mm (WxLxH)

### **DIN-502S**

Two pieces of DIN-50S

- Split 100 signals of 100-pin SCSI-II connector to two DIN-50S sockets
- Shipped with 1-meter ACL-10252 cable
- Dimensions: 125 mm x 85 mm x 50 mm (WxLxH)

## DIN-50P

Termination board with one 50-pin ribbon connector and DIN-rail mounting

- General purpose termination board for 50-pin ribbon flex cable
- Shipped with 1.5-meter ACL-10150-1.5 cable
- Dimensions: 146 mm x 85 mm x 55 mm (WxLxH)

Termination board with one 37-pin D-sub connector and DIN-rail mounting

- General purpose termination board for D-sub 37-pin cable
- On-board connector type: 37-pin D-sub female
- Shipped with 1-meter ACL-10137-1 cable
- Dimensions: 113 mm x 85 mm x 52 mm (WxLxH)

Termination board with one 20-pin ribbon connector and DIN-rail mounting

- General purpose termination board for 20-pin ribbon cable
- Shipped with 1-meter ACL-10120-1 cable
- Dimensions: 68 mm x 85 mm x 55 mm (WxLxH)





DIN-68S/1M, DIN-68S/1S



**DIN-50S** 



**DIN-502S** 



DIN-50P



DIN-37D



DIN-20P



## **Ordering Information**

Termination Board with a 100-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-102100 Cable)

■ DIN-68S/1M

Termination Board with a 68-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-10568 Cable)

DIN-68S/1S

Termination Board with a 68-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-10569 Cable)

DIN-50S

Termination Board with a 50-pin SCSI-II Connector and DIN-Rail Mounting (Including One 1-meter ACL-10250 Cable)

## DIN-502S

Two Pieces of DIN-50S Termination Board (Including One 1-meter ACL-10252

## ■ DIN-50P

Termination Board with a 50-pin Ribbon Connector and DIN-Rail Mounting (Including One 1.5-meter ACL-10150 Cable)

DIN-37D

Termination Board with a 37-pin D-sub Connector and DIN-Rail Mounting (Including One 1-meter ACL-10137 Cable)

DIN-20P

Termination Board with a 20-pin Ribbon Connector and DIN-Rail Mounting (Including One 1-meter ACL-10120 Cable)

# ACLD Screw Termination Boards

### **Features**

### General

- Low cost universal screw termination boards
- Blank pads accommodate applications such as break detection, low-pass filter, current shunt and voltage attenuator on ACLD-9881, ACLD-9178, ACLD-9188, ACLD-9138, and ACLD-8125
- Table-top mounting using nylon standoffs

General-Purpose Termination Board with One 37-pin D-sub Connector for PCI-9113A and ACL-8113A

- For use with PCI-9113A and ACL-8113
- On-board 37-pin D-sub female connector
- Reliable screw clamp termination blocks
- Shipped with one 1-meter ACL-10137 cable
- Dimensions: 222 mm x 105 mm

### **ACLD-9188**

General-Purpose Termination Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector

- On-board 20-pin ribbon male connector x 2
- On-board 37-pin D-sub female connector
- Reliable screw clamp termination blocks
- Shipped with two 1-meter ACL-10120 cables
- Dimensions: 222 mm x 114 mm

### ACLD-9178

General-Purpose Termination Board with Two 20-pin Ribbon Connectors

- On-board 20-pin ribbon male connector x 2
- Reliable screw clamp termination blocks
- Shipped with two 1-meter ACL-10120 Cables
- Dimensions: 103 mm x 114 mm

## ACI D-9138

General-Purpose Termination Board with a 37-pin D-sub Connector

- On-board 37-pin D-sub female connector
- Blank RC circuits for analog input boards
- Reliable screw clamp termination blocks
- Shipped with one 1-meter ACL-10237 cable
- Dimensions: 103 mm x 114 mm

## ACLD-9137 / ACLD-9137F

General-Purpose Termination Board with a 37-pin D-sub Connector

- ACLD-9137: on-board 37-pin D-sub male connector
- ■ACLD- 9137F: on-board 37-pin D-sub female connector
- Reliable screw clamp termination blocks
- Dimensions: 124 mm x 72 mm

## ACLD-8125

Termination Board with a 37-pin D-sub Connector and One Cold Junction Temperature Sensor

- One on-board temperature sensor for cold-junction compensation
- Jumper selectable sensor outputs in either DI or SE mode
- On-board calibration for the temperature sensor
- On-board 37-pin D-sub female connector
- Reliable screw clamp termination blocks
- Shipped with one 1-meter ACL-10137 cable
- Dimensions: 168 mm x 114 mm

## ACLD-7285

Termination Board with Two 9-pin D-sub Connectors for ACL-6128A

- For ACL-6128A analog outputs
- On-board 9-pin D-sub female connector x 2
- Reliable screw clamp termination blocks
- Shipped with two 0.3-meter 9-pin D-sub ribbon cables
- Dimensions: 115 mm x 103 mm

## ACLD-9881



## ACLD-9188



### **ACLD-9178**



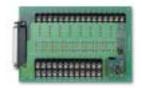
### ACLD-9138



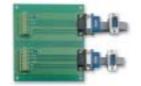
## ACLD-9137/ACLD-9137F



## ACLD-8125



## ACLD-7285



## **Ordering Information**

General-Purpose Termination Board with one 37-pin D-sub Connector (Including one 1-meter ACL-10137 Cable)

General-Purpose Termination Board with Two 20-pin Ribbon Connectors and One 37-pin D-sub Connector (Including Two 1-meter ACL-10120 Cables)

■ ACLD-9178

General-Purpose Termination Board with Two 20-pin Ribbon Connectors (Including Two 1-meter ACL-10120 Cables)
■ ACLD-9138

General-Purpose Termination Board with a 37-pin D-sub Connector (Including One 1-meter ACL-10237 Cable)

- ACLD-9137
  - General-Purpose Termination Board with a 37-pin D-sub Male Connector ACLD-9137F

General-Purpose Termination Board with a 37-pin D-sub Female Connector ■ ACLD-8125

Termination Board with a 37-pin D-sub Connector and One Cold Junction Temperature Sensor (Including One 1-meter ACL-10137 Cable)

■ ACLD-7285

Termination Board with Two 9-pin D-sub Connectors (Including two 0.3-meter 9-pin D-sub Ribbon Cables)

# Cable Accessories

ACL-10120-1/2

20-Pin Flat Cable,1M/2M



ACL-10437

40-Pin header to 37-Pin D-sub PC back panel (for ACL-7225,PCI-7200)



ACL-10537

37-Pin D-sub Assembly



ACL-10220-1/2

20 Pin Shielded & Grounded Cable,1M/2M



ACL-10150-1.5

50-Pin Flat Cable, 1.5M



ACL-105100

100-Pin SCSI-II Assembly



ACL-10232

9-Pin D-sub (RS-232) male/female Cable, 5M



ACL-10250

50-Pin SCSI-II Cable (Mate with AMP-787082-5, 1M, 2M, 3M)



ACL-10550

50-Pin SCSI-II Assembly



ACL-10137-1/2

37-Pin D-sub male/male Cable,1M/2M



ACL-102100

100-Pin SCSI-II Cable (Mate with AMP-787082-9)



ACL-10569-1

68-Pin SCSI Cable (Mate with AMP-787082-7)



**ACL-10137 MF** 

37-Pin D-sub male/female Cable,1M (for ACLD-9137)



ACL-10252

100-Pin to 2x50-Pin Cable (for DIN-502S)



ACL-SSI-2/3/4

SSI Bus Cable for 2/3/4 DAQ-2000 Devices



ACL-10237-1

37-Pin D-sub male/male flat Cable,1M



ACL-10253

100-Pin to 2x50-Pin Cable (for PCI-7348 to DIN-24P/R)



SMB-SMB-1M

1-Meter SMB to SMB Cable



ACL-10337

Two 20-Pin header to 37-Pin D-sub PC back panel



ACL-10568-1M

68-Pin SCSI-VHDCI Cable (for DAQ-2000 Series) (Mate with AMP-787254-1)



SMB-BNC-1M

1-Meter SMB to BNC Cable

