

# Configurable Signal Conditioning Enclosure

## NI CA-1000

- Versatile connector/enclosure system
- Houses signal conditioning and connector block accessories
- Wide variety of I/O connectivity and panelette options
- Holds maximum of 18 connectivity/interface panelettes
- Low-profile enclosure
- Rack-mount and stacking kits available

### I/O Connectivity Options

- BNC
- Thermocouple
- Banana jack
- LEMO connector (B-Series)
- MIL-spec
- SMB
- 9-pin D-Sub
- Strain relief

### Interface Panelettes

- Momentary pushbutton
- Potentiometer
- Toggle switch
- Rocker switch
- LED



## Overview

The National Instruments CA-1000 is a configurable enclosure designed for maximum user-defined I/O connectivity and flexibility. It is a portable enclosure for laptop, desktop, and rack-mount applications. You can install many NI accessories in the NI CA-1000, such as the SC-204x signal conditioning products, and the SCB-68, CB-68LPR, and CB-50LP terminal blocks. The result is a compact, portable, flexible, and comprehensive signal conditioning/interconnection system. The CA-1000 also facilitates quick connection and disconnection with standard I/O connectors for easy system integration and reconfiguration. By adding interface panelettes, such as toggle switches, potentiometers, and LEDs, you can control and verify system operation locally.

## CA-1000 Enclosure

The metal enclosure provides a low-profile, portable housing for signal conditioning and connector accessories. You can place the enclosure under a laptop PC, on a benchtop, or in a 19 in. rack. You can also stack two or more enclosures with the stacking kit. The CA-1000 enclosure includes five cable entry options, so you can place the 68-pin or 50-pin connector for the cable to your DAQ device on either the side or the rear of the CA-1000 enclosure. Please note that the CA-1000 is shipped without any panelettes, signal conditioning accessories, connector blocks, or cables. These components must be ordered separately.

## Internal Accessories

The CA-1000 houses a variety of signal conditioning and data acquisition accessories, including the SC-204x, SCB-68, CB-68LPR, and CB-50LP. You mount these accessories using hardware in the bottom panel of the CA-1000 enclosure. To install the SCB-68 in the CA-1000, you must first remove it from its own metal enclosure.

## I/O Panelettes

The CA-1000 includes a user-configurable signal connection scheme. This connectivity flexibility is achieved with interchangeable panelettes. The panelettes, which come with standard signal connectors – for example, BNC, SMB, banana jack, thermocouple plugs, and LEMO, MIL-Spec, and 9-pin D-Sub connectors – mount in the front of the CA-1000 enclosure. The CA-1000 front panel offers nine panelette slots. The rear panel can also be removed offering nine more panelette slots. However, this option is not available if you are using the SCB-68 inside the CA-1000. You can mix and match different types of panelettes. Each panelette (except for the strain-relief panel) includes lead wires that you connect to the screw terminals of the accessory mounted inside the CA-1000. You can therefore connect the panelettes to any I/O signal available on the accessory.

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## Interface Panelettes

National Instruments also offers interface panelettes, which expand the functionality of the CA-1000. Interface panelettes include traditional interface controls and displays, such as rocker switches, toggle switches, momentary switches, potentiometers, and LEDs. Using interface panelettes, which are mounted alongside I/O panelettes, you can change hardware inputs, trigger events, or verify operational status. Each interface panelette includes lead wires for connection to the screw terminals of the accessory mounted inside the CA-1000.

## Cabling

The cabling needed to connect the CA-1000 to the measurement device depends on the accessories installed in the CA-1000 and the measurement device used. Some accessories installed in the CA-1000 require internal cabling to connect the accessory to the CA-1000 wall. Use Table 1 to determine which cabling components you need, including the cable to your measurement device.

The CA-1000 also provides the flexibility of five external interconnection locations, giving convenient cabling for laptop applications by aligning the I/O connector with the location of the PCMCIA slots on laptop computers. With the five external interconnection locations, you can also customize desktop and rack-mount applications for added convenience.

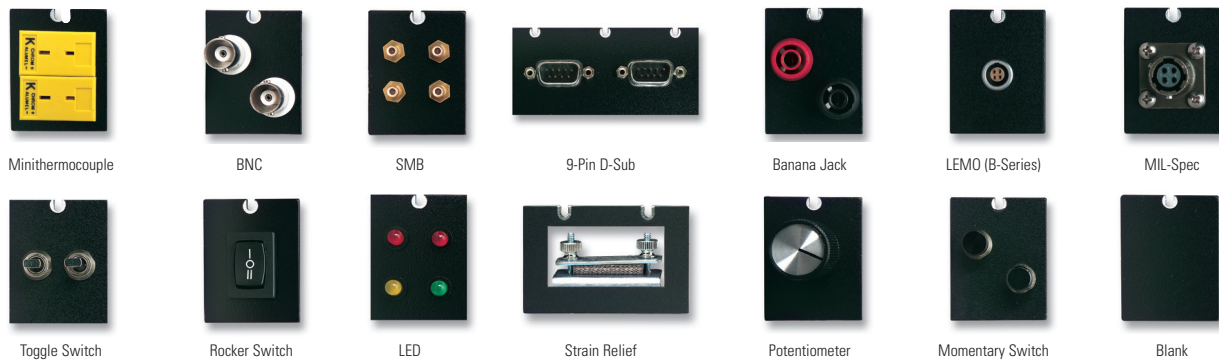


Figure 1. CA-100 Panelettes Options

Device	SC-204x Series	Connector Blocks	
		CB-50LP	CB-68LPR or SCB-68
68-pin E Series DAQ Devices (except DAQCards)	R68M-50F and SH68-68-EP <sup>1</sup>	N/A	SH68-68-EP <sup>1</sup>
100-pin E Series DAQ Devices <sup>3</sup>	Applicable for one leg	N/A	SH1006868
Latching E Series DAQCards	R68M-50F and SHC68-68-EP	N/A	SHC68-68-EP
DAQCard-6062E, DAQCard-6024E	—	—	—
Nonlatching E Series DAQCards: DAQCard-AI-16E-4, DAQCard-AI-16XE-50	R68M-50F and PSHR68-68 shielded cable kit <sup>2</sup>	N/A	PSHR68-68 shielded cable kit <sup>2</sup>
68-pin digital I/O and counter/timer devices (except DAQCards)	N/A	N/A	SH68-68-D1
PCI-DIO-32HS, PXI-6533, AT-DIO-32HS, NI 6534, NI 660x	—	—	—
Nonlatching 68-pin digital I/O DAQCards: DAQCard-6533	N/A	N/A	PSHR68-68-D1 shielded cable kit
Simultaneous sampling multifunction DAQ devices	N/A	N/A	SH68-68-EP <sup>1</sup>
PCI-6503	N/A	R50M-50F and SH50-50	N/A
PC-DIO-24	—	—	—
DAQCard-DIO-24	N/A	R50M-50F and PSH27-50F-D <sup>1</sup>	N/A
NI 65273, PCI-DIO-963, PXI-65083, DAQPad-65083	N/A	Two R50M-50F and R1005050 <sup>4</sup>	N/A
PC-DIO-963	N/A	Two R50M-50F and NB5 <sup>4</sup>	N/A

<sup>1</sup>You can also use the SH68-68R1-EP or R6868. <sup>2</sup>You can also use the PR68-68F. <sup>3</sup>You can use two CA-1000 enclosures with one of these devices. Please note: If you are using a NI 435x series data logger, please see Table 2 on page 358 for information on cabling to a CB-68T and CA-1000. <sup>4</sup>Splits into two 50-pin connectors. See page 368 for information on using the CA-1000 with analog output products.

Table 1. CA-1000 Cabling

# Configurable Signal Conditioning Enclosure

## Ordering Information

NI CA-1000 .....777664-01  
Dimensions – 30.7 by 25.4 by 4.3 cm (12.1 by 10.3 by 1.7 in.)

### Panellets

Minithermocouple, J-type (2 included) .....184736-01  
Minithermocouple, K-type (2 included) .....184736-02  
Minithermocouple, uncompensated (2 included) .....184736-03  
Thermocouple, J-type .....187597-01  
Thermocouple, K-type.....187597-02  
Thermocouple, uncompensated .....187597-03  
BNC (2 included).....184737-01  
Banana jack (2 included).....186405-01  
LEMO (B-Series)  
  2-pin, female.....187585-01  
  4-pin, female.....187585-02  
  6-pin, female.....187585-03  
MIL-C-26482 (Series 1)  
  MS 3112 E 8-2 S .....187591-01  
  MS 3112 E 8-2 S .....187591-02  
  MS 3112 E 8-4 S .....187591-03  
SMB (4 included) .....185505-01  
9-pin D-Sub  
  1 male .....184738-01  
  2 male .....184738-02  
  1 female.....184738-03  
  2 female.....184738-04  
Strain relief (small) .....184721-01  
Blank .....184483-01  
Momentary push-button switches (2 included) .....185380-01  
Rocker switch (on/off/on) .....185379-01  
Toggle switches (on/off/on, 2 included) .....185378-01  
Potentiometer (10 k $\Omega$ , single-turn) .....185377-01  
LEDs (4 included-1 green, 1 red,  
  1 orange, 1 yellow).....185376-01

### External Cables

SH68-68-EP, 1 m .....184749-01  
SH68-68-D1, 1 m .....183432-01  
SH68-68R1-EP, 1 m .....187051-01  
SH50-50, 1 m .....777720-01  
R6868, 1 m.....182482-01  
R1005050, 1 m.....182762-01  
NB5, 1 m.....181304-10  
SH1006868, 1 m.....182849-01  
PSHR68-68 shielded cable kit .....777293-01  
PSHR68-68-D1 shielded cable kit.....777420-01  
PR68-68F, 1 m .....183646-01  
PSH27-50F-D1, 1 m.....776989-01  
SHC68-68-EP, 1 m .....186838-01

### Internal Cables

R50M-50F ribbon cable .....184526-0R3  
R68M-50F MIO bulkhead ribbon cable .....777660-0R3

### Accessories

CA-1000 rack-mount kit (1U) .....777665-01  
CA-1000 stacking kit.....777666-01  
CA-1000 panel mount kit.....187243-01  
Strain Relief Kit<sup>1</sup> .....187407-01

<sup>1</sup>You cannot use the Strain Relief Kit in conjunction with the rack-mount, panel-mount, or stacking kits.

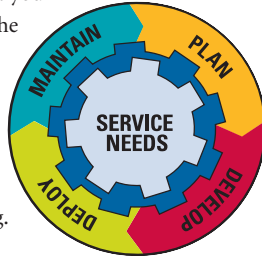
For information on extended warranty and value added services, visit [ni.com/services](http://ni.com/services).

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