BNC-2142 Desktop and DIN Rail-Mountable BNC Adapter

This installation guide describes how to install and configure your BNC-2142 accessory.

Introduction

The BNC-2142 is a desktop and DIN rail-mountable BNC adapter you can connect directly to dynamic signal acquisition (DSA) devices. It includes six BNC connectors for signal connections, and a 68-pin I/O connector for connection to the PCI-445*x* and NI 455*x* DSA devices. The BNC-2142 is ideal for simplifying connections between your measurement apparatus and your DSA device in laboratory, test, and production environments.

What You Need to Get Started

To set up and use your BNC-2142 accessory, you will need the following:

- ❑ BNC-2142 BNC Adapter
- ❑ *BNC-2142 Desktop and DIN Rail-Mountable BNC Adapter Installation Guide*
- ❑ PCI-445*x* or NI 455*x* device
- ❑ SHC68-C68-A1 analog cable

Detailed specifications for the BNC-2142 are in the *Specifications* section later in this guide.

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Connecting Signals to Your BNC-2142

This section describes how to connect field signals to your BNC-2142 accessory.

Table 1 describes the BNC connectors available on the front panel of your BNC-2142.

Table 1. BNC-2142 Connector Signal Descriptions

Front Panel BNC Connectors	Signal Description
ACH<0..3>	Single-ended Input Analog Channels 0 through 3
DAC0OUT	Digital-to-Analog Converter 0 Output—This single-ended connector supplies the voltage output of analog output channel 0.
DAC1OUT	Digital-to-Analog Converter 1 Output—This single-ended connector supplies the voltage output of analog output channel 1.

Note All BNC connectors on the BNC-2142 are single-ended *only*. The outer shells of the BNC connectors are in direct contact with the metal enclosure of the BNC-2142, which is grounded via the SHC68-C68 analog cable shield to the chassis ground of your computer.

Caution Connecting ground-referenced sources to the analog inputs or ground-referenced loads to the analog outputs may cause ground noise to be picked up from other electrical equipment also referenced to the source or load ground. Additionally, if the source or load ground is at a different electrical potential than the ground of the BNC-2142 and DSA device, ground-loops may occur that can result in incorrect readings, and may damage the BNC-2142, the DSA device, or the host computer. National Instruments is *not* liable for damage resulting from these connections.

To avoid encountering these conditions, electrically isolate or float the source or load from its reference ground to create single-ended connection with a single ground reference on the BNC-2142.

Connecting Analog Inputs

You can use the BNC-2142 to measure floating analog input signals. The BNC-2142 connects to the analog input channels on the PCI-445*x* and NI 455*x* DSA devices via the ACH<0..3> BNC connectors.

Connecting Analog Outputs

The BNC-2142 connects to the analog output channels on the PCI-445*x* and NI 455*x* DSA devices via the DAC0OUT and DAC1OUT BNC connectors.

Cabling

The BNC-2142 has one 68-position 0.8 mm VHDCI connector on the rear panel to connect to your DSA device.

Caution Do *not* connect the BNC-2142 to any device other than the National Instruments PCI-445*x* and NI 455*x* DSA devices. Doing so can damage the BNC-2142, the DSA device, or host computer. National Instruments is *not* liable for damages resulting from these connections.

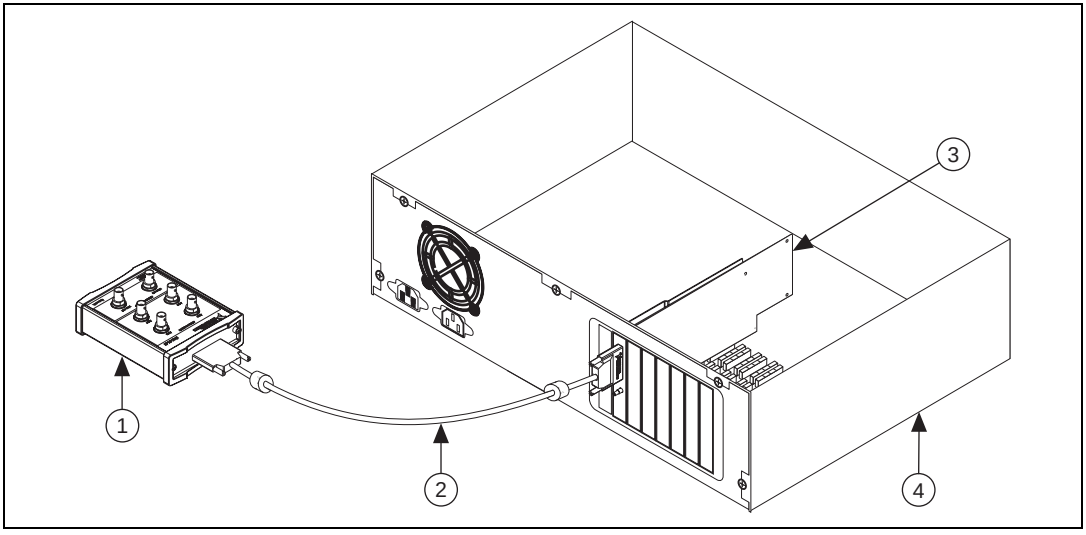
Installing Your BNC-2142

Perform the following steps to connect your BNC-2142 to your DSA device. Consult your computer user manual or technical reference manual for specific instructions and warnings.

Note You can either place the BNC-2142 on a workbench near the host computer or use the available DIN rail-mount kit.

1. Connect the BNC-2142 to your DSA device.
2. Connect the field signals to the BNC connectors. Refer to the *Connecting Signals to Your BNC-2142* section earlier in this guide for more information.

When you have finished using your BNC-2142, turn off any powered external signals connected to your BNC-2142 before you turn off your computer.



1	BNC-2142	2	Shielded Cable	3	DSA Device	4	Personal Computer

Figure 1. Connecting the BNC-2142 to Your DSA Device

Warning The BNC-2142 is not designed for input voltages greater than ±42.4 V, even if a user-installed voltage divider reduces the voltage to within the input range of the DSA device. Input voltages greater than ±42.4 V can damage the BNC-2142, any device connected to it, and the host computer. Overvoltage can also cause an electric shock hazard for the operator. National Instruments is *not* liable for damage or injury resulting from such misuse.

Specifications

This section lists the specifications of the BNC-2142. These specifications are typical at 25 °C unless otherwise specified.

Electrical

Max input voltage ..... Each input should remain within ±42.4 V (30 V_{rms}) of ground

Field connection ..... 6 BNC connectors (4 single-ended analog input connectors, and 2 single-ended analog output connectors)

Physical

Dimensions ..... 14.4 by 11.2 by 5.5 cm (5.7 by 4.4 by 2.2 in.)

I/O connector ..... One 68-pin 0.8 mm VHDCI female connector

BNC connectors 6

Environment

Operating temperature ..... 0 to 70 °C

Storage temperature ..... –55 to 150 °C

Relative humidity ..... 5% to 90% noncondensing

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