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Dynamic Signal Acquisition and Analysis Accessories



Figure 1. BNC-2140 DSA Accessory with Analog Cable SHC68-C68-A1



Figure 2. CB-68LP I/O Connector Block



Figure 3. SMB 110 cable



Figure 4. SMB 300 cable

Six-Channel Signal Connector Box

The BNC-2140 DSA accessory (see Figure 1) is specifically designed to connect voltage and ICP® accelerometers and microphones to the NI 455x and NI 445x boards. It integrates four channels of signal conditioning in one box, reducing the equipment needed. BNC input connections are used for both voltage and ICP sensors.

The accessory is manually configured with two switches per channel. One switch is for ICP on/off control, and the other switch configures the accessory for floating or grounded input, which connects the BNC shell to computer ground, or permits differential input. The BNC-2140 also has two output channels that may be manually configured through a switch. The switch selects between floating for differential output or grounded for single-ended output. The BNC-2140 is included with the NI 4551 and NI 4552. Order the BNC-2140 separately for the NI 4451 and NI 4452.

The BNC-2142 accessory is designed for use with the NI 4454. The accessory passes signals directly through to the board and does not provide ICP signal conditioning. The inputs and outputs are single ended.

Signal Connections I/O Connector and Cables

The NI 4551, NI 4552, NI 4451, and NI 4452 use a 68-pin connector for analog signals and a 50-pin connector for digital and trigger signals. The analog cable is included with the NI 4551 and NI 4552. The NI 4454 uses a 68-pin connector for analog signals and an SMB connector for the digital trigger signal. You can use these connectors to cable the boards to National Instruments accessories and signal conditioning modules. The NI 4472 uses SMB connectors for its eight analog inputs and digital trigger input.

BNC-2140 (see Figure 1)

BNC connector assembly with built-in ICP conditioning 777597-01

BNC-2142

BNC connector assembly 778021-01

SHC68-C68-A1

Analog cable for connecting to BNC-2140 and BNC-2142

0.5 m 184747-0R5

1 m 184747-01

2 m 184747-02

SHC50-68

Digital cable for connecting to generic 68-pin accessories

0.5 m 184748-0R5

1 m 184748-01

2 m 184748-02

CB-68LP (see Figure 2)

68-pin digital and trigger I/O terminal block for use with the SHC50-68 digital I/O cable.....777145-01

SHC68-D25-A1

Analog cable terminating in 25-pin D-Sub for connecting to user-defined accessories

1 m 186627-01

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Dynamic Signal Acquisition and Analysis Accessories

SMB 100 Cable

SMB female to BNC female, 50 Ω coaxial cable for use with the NI 4454 and NI 4472

1 m 763389-01

SMB 110 Cable (see Figure 3)

SMB female to BNC male, 50 Ω coaxial cable for use with the NI 4454 and NI 4472

1 m 763405-01

SMB 300 Cable (see Figure 4)

SMB female to alligator clip, 50 Ω coaxial cable for use with the NI 4454 and NI 4472

1 m 763388-01

Specifications

BNC-2140 (For use with NI 455x, NI 4451, NI 4452)

These specifications are typical for 25 °C unless otherwise noted.

Analog Input

Voltage input channels 4

Maximum input voltage (Signal + common mode voltage) ..... Each input should remain within ±42.4 V (30 V_{rms}) of any other input or of AIGND

Inputs affected ACH0, ACH1, ACH2, ACH3

Input coupling ..... DC

Input capacitance*

	Current Excitation	
	On	Off
DIFF mode	85 pF	75 pF
SE mode	150 pF	145 pF

Current Excitation

Level ..... 4 mA

Accuracy ..... ±1.31%

Temperature coefficient ..... ±141 ppm/°C

Voltage compliance ..... 24 V

Excitation overvoltage protection ..... ±42.4 V (30 Vrms) powered on or off

Analog Output

Number of channels 2

Output coupling ..... DC

Power Requirement from DSA device

+5 VDC ..... 400 mA

Physical

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

I/O connectors

I/O signals ..... 6 BNC connectors (outer shell isolated from box metal)

DSA board connection ..... 68-pin 0.8 mm VHDCI female connector

Environment

Operating temperature ..... 0 to 40 °C

Storage temperature ..... -55 to 50 °C

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

BNC-2142 (For use with NI 4454)

Analog Input

Number of channels 4

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

Inputs affected ACH0, ACH1, ACH2, ACH3

Input coupling ..... DC

Input capacitance* ..... 115 pF

Analog Output

Number of channels 2

Output configuration ..... Single-ended

Output coupling ..... DC

Physical

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

I/O connectors

I/O signals ..... 6 single-ended BNC connectors (outer shell connected to box metal)

DSA board connection ..... 68-pin 0.8 mm VHDCI female connector

Environment

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

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

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

Certifications and Compliances

CE Mark Compliance CE

*Includes the effects of the accessory with a 1 m SHC68-C68-A1 analog cable

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