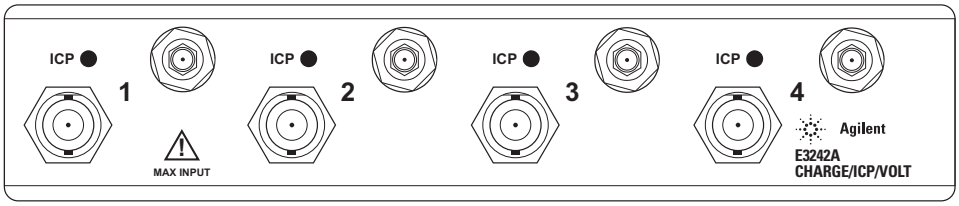
Agilent E3242A

Charge/Voltage Breakout Box

Technical Specifications



General Characteristics	
Number of input channels	Four
Transducer connectors	One female BNC and one Microdot connector for each of four channels.
Output connection	One 26-pin Amp 750823-1 connector is mounted on the box. One female BNC connector per channel, in parallel with above output, for monitor purpose.
Cable to VXI module	One 2-meter cable, terminated at each end with Amp 750833-1 connectors, connects the breakout box to the VXI module.
Mechanical dimensions	Width 174 mm, Height 39 mm, Depth 190 mm
Weight	1.5 kg, not including cable

The Agilent E3242A charge/voltage breakout box is an accessory for the E1432A and E1433A VXI Modules. This Breakout Box provides both BNC and Microdot connection for each channel of the VXI module. Each breakout box has four BNC and four Microdot connectors for signal input. A 26-pin connector is provided for connection to the VXI module through an extension cable. Each channel has a program controlled float/ground switch to connect the input connector shell to the chassis ground, or to allow a floating input.

The charge input has a charge amplifier with three gain settings, and a 2 kHz low-pass filter that can be switched in or out through software control.

The BNC input is a direct connection to the VXI module with no amplification. The IEPE current source for powering accelerometer transducers can be switched on or off under program control. An light indicates when the current source is on.

Test and calibration

To test the E3242A 4-channel charge/voltage breakout-box contact your nearest Agilent Technologies Service Center.

Agilent does not supply customer performance test software for the E3242A. The E3242A's recommended calibration cycle is every 24 months.

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Electrical Specifications

Charge input

Full scale ranges when used with E1432A or E1433A* (All levels are peak)

Fullscale input range	Breakout box gain	Voltage at breakout box output
0.1pC	1V / pC	0.1V
0.2 pC	1V / pC	0.2V
0.5 pC	1V / pC	0.5V
1 pC	1V / pC	1 V
2 pC	1V / pC	2V
5 pC	1V / pC	5V
10 pC	10 mV / pC	0.1V
20 pC	10 mV / pC	0.2V
50 pC	10 mV / pC	0.5V
100 pC	10 mV / pC	1V
200 pC	10 mV / pC	2V
500 pC	10 mV / pC	5V
1,000 pC	0.1 mV/ pC	0.1V
2,000 pC	0.1 mV/ pC	0.2V
5,000 pC	0.1 mV/ pC	0.5V
10,000 pC	0.1 mV/ pC	1V
20,000 pC	0.1 mV/ pC	2V
50,000 pC	0.1 mV/ pC	5V

Breakout box Gains	**Specification**
0.1 pC Range	1V / pC
10 pC Range	10 mV / pC
1000 pC Range	0.1 mV / pC
Gain accuracy	± 3% at 1 kHz
Flatness	
30 Hz to 1 kHz, LP filter in:	± 2%
30 Hz to 25.6 kHz, LP filter out:	± 2%
25.6 kHz to 88 kHz, LP filter out:	± 6%
Channel-to-channel phase match	
30 Hz to 1 kHz, LP filter in:	± 2 Degrees
30 Hz to 25.6 kHz, LP filter out:	± 2 Degrees
25.6 kHz to 88 kHz, LP filter out:	± 5 Degrees
Distortion	
With 2-meter cable:	<-75 dBfs or 90 x 10E-6 pC**
With 20-meter cable:	
Fundamental frequency ≤ 25.6 kHz	-70 dBfs or 160 x 10E-6 pC**
Fundamental frequency > 25.6 kHz	-65 dBfs or 280 x 10E-6 pC**
Spurious Responses	
With 2m cable:	-75 dBfs or 90 x 10E-6pC**
With 20m cable:	-70 dBfs or 160 x 10E-6 pC**
dc Offset at output	< ± 15 mV
Noise: (Referred to input, at 200 Hz, 0.1 pC Range, 1000 pF load on input)	< 50 x 10E-6 pC rms / $\sqrt{Hz}$

* It is not necessary to set the breakout box gain. Simply setting the desired fullscale input range automatically sets the proper breakout box gain and the optimum E1432A or E1433A input range.

** Whichever is greater.

Channel-to-channel crosstalk (Referred to input, at 10 kHz,1000 pF load on receiving channel, full scale signal on other channels, ranges within a factor of 50)	< -70 dBfs
2 kHz Low-pass Filter:	
3 dB frequency:	2 kHz (typical)
Rolloff:	24 dB / Octave
Input Connector Shell to ground resistance:	
"Float" setting:	20 kΩ (nominal)
"Grounded" setting:	< 50Ω (nominal)
Common mode voltage sensitivity:	
("Float" setting, 30 Hz to 1 kHz, 1000 pF load on input)	
0.1 pC to 5 pC range	< 0.006 pC/V
10 pC to 500 pC range	< 0.05 pC/V
1000 pC to 50,000 pC range	< 2.0 pC/V

BNC input and supply	
Maximum input signal level	20 Vp
Gain: (Straight through connection)	1V / V
Current	4 mA (nominal)
Open circuit voltage	24V (nominal)
Noise	< 50 mV rms / $\sqrt{Hz}$

Monitor output buffer amplifier*	
Maximum output signal level	5V peak
Output impedance	1 kΩ (nominal)
Gain (at 1 kHz)	1V / V ± 1.0%
Flatness	
DC - 88 kHz, relative to 1 kHz	± 2.0%
Channel-to-channel crosstalk (Refered to input, at 10 kHz, 50Ω input termination on receiving channel, full scale signal on other channels)	< -100 dB
Noise (50Ω input termination)	< 300 nV rms / $\sqrt{Hz}$
Distortion	< -70 dB
Spurious response	
50Ω input termination, 10 Hz to 88 kHz	< -110 dBVp

* All monitor output buffer amplifier specifications apply for ≤ 5V peak signal level and 2-meter cable.

General

Physical characteristics

Height:	39 mm
Width:	174 mm
Depth:	190 mm
Weight:	1.5 kg

Regulatory Compliance

Safety standards

Designed for compliance to:	CSA 22.2, No 231 UL 1244, 4th Edition IEC 348, 2nd Edition, 1978
Radiated emissions (Tested in a typical E1432A system)	CISPR 11 :1990
Electrostatic discharge	EMC Directive
Radiated immunity	EMC Directive
Environmental operating Restrictions, including temperature, humidity, altitude.	Agilent Class B2

Note:

Typical refers to typical, non-warranted, performance specification included to provide general product information.

Warranty:

This product has a three year warranty period. Agilent Technologies will replace the defective E3243A with a new or rebuilt unit during this time.

Related Agilent literature:

Agilent E3242A product overview
5966-3060E

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