VT3242A 4-Channel Charge/Voltage Breakout Box

User's Guide

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2031 MAIN STREET
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In This Book

The VT3242A 4 Channel Charge/Voltage Breakout Box is used with the VT1432A 16 Channel 51.2 kSamples/s Digitizer plus DSP or the VT1433B 8-Channel 196 kSamples/s Digitizer plus DSP. It is controlled by the software which is supplied with those products.

This book documents the VT3242A 4 Channel Charge/Voltage Breakout Box. It provides:

– A description of the Breakout Box.

– Information on the functions in the VT1432A software library which are used to control the VT3242A.

For more information see the on-line Function Reference for the VT1432A and VT1433B and the User's Guides for each of those products.

Table Of Contents

1 The VT3242A 4-Channel Charge/Voltage Breakout Box

Introduction 1-2

Service 1-2

VT3242A 4-Channel Charge/Voltage Breakout Box 1-3

Input connectors 1-5

Monitor outputs 1-5

Programming the VT3242A Charge/Voltage Breakout Box 1-6

VT3242A Ranges 1-7

Breakout Box Cables 1-9

Option AFL, 20-meter cable. 1-9

Index

Need Assistance?

About this edition

1

The VT3242A 4-Channel Charge/Voltage Breakout Box

Introduction

A Breakout Box connects the VT1432A or VT1433B to a set of connectors to receive input signals.

Several types of Breakout Boxes are available:

- VT3240A 8-Channel Voltage Breakout Box
- VT3241A 8-Channel ICP®* Breakout Box
- VT3242A 4-Channel Charge/Voltage Breakout Box
- VT3243A 4-Channel Microphone/Voltage Breakout Box

This manual describes the VT3242A Charge/Voltage Breakout Box. See the VT1432A 16 Channel 51.2 kSamples/s Digitizer plus DSP User's Guide or the VT1433B 8-Channel 196 kSamples/s Digitizer plus DSP User's Guide for information about the VT3240A Voltage Breakout Box and the VT3241A ICP® Breakout Box.

Service

An VT3242A 4-Channel Charge/Voltage Breakout Box that fails during the warranty period will be replaced free of charge. After the warranty period an exchange 4-Channel Charge/Voltage Breakout Box can be ordered from VXI Technology. Contact your nearest VXI Technology Customer Service Representative.

** ICP® (Integrated-Circuit-Piezoelectric) is a registered trademark of PCB Piezotronics.*

The VT3242A 4-Channel Charge/Voltage Breakout Box

The VT3242A Breakout Box has four channels. It is connected to the VT1432A or VT1433B with a cable between the 26-pin subminiature “D” connector on the back of the Breakout Box and the subminiature “D” connector on the front panel of the VT1432A/33B. A two-meter cable is supplied with the Breakout Box. An eight-channel VT1433B can use one or two VT3242A Breakout Boxes. A 16-channel VT1432A can use up to four VT3242A Breakout Boxes.

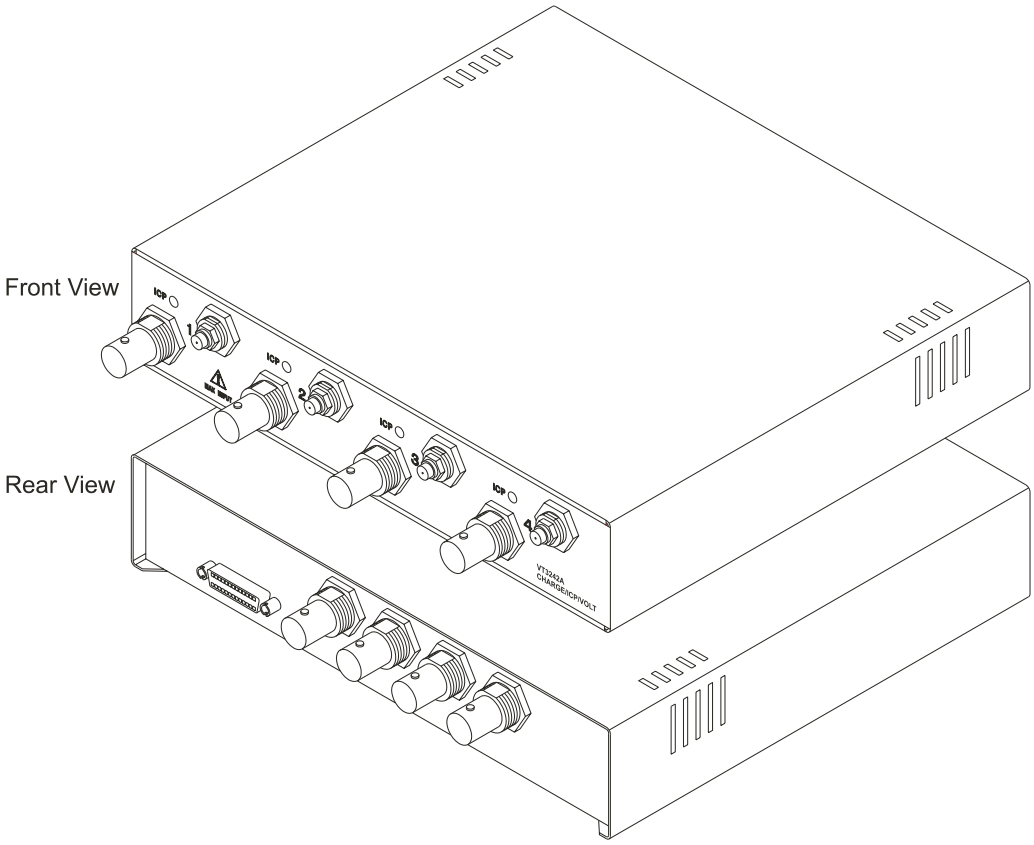

Figure 1-1: VT3242A Charge/Voltage Breakout Box

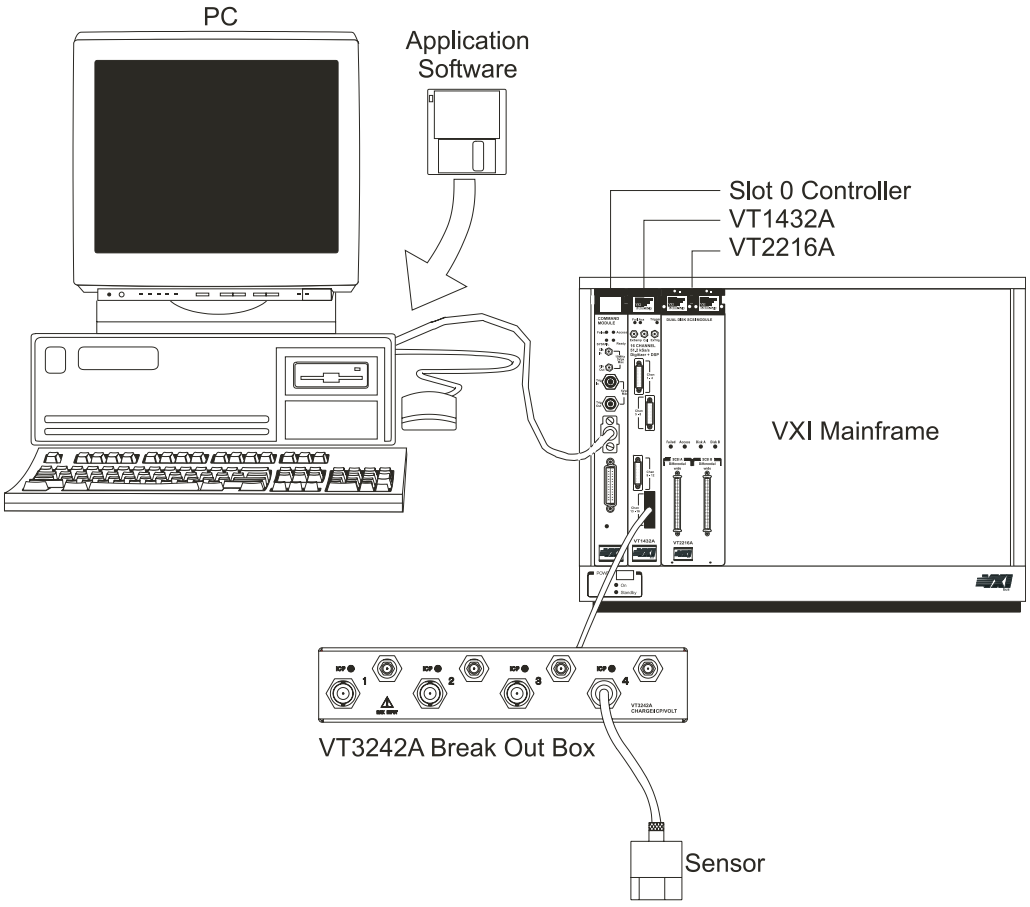

Figure 1-2: The VT3242A in a typical PC VXI controlled system

Input connectors

Each channel on the VT3242A has two input connectors: a Microdot connector for charge input, and a BNC connector for voltage input.

The charge input is an integrator input; a charge at the input becomes a voltage. (In effect, its gain is capacitance). The unit of measure for the charge input is picocoulombs (pC) of charge. The unit of measure can also be defined as acceleration if a standard accelerometer is used. The charge input has a charge amplifier with 3 gain settings, and a 2 kHz low-pass filter that can be switched in or out.

The BNC input can accept a voltage input (like the VT3240A Voltage Breakout Box). The BNC input is a direct connection to the VXI module with no amplification.

The BNC input can also accept an ICP® input (like the VT3241A ICP® Breakout Box). The current source for powering ICP® accelerometer transducers can be switched on or off under program control. A yellow LED on the Breakout Box front panel indicates when the ICP® current source is on.

Each channel has a program-controlled Float/Ground switch to connect the input connector shell to chassis ground, or to allow floating input.

Monitor outputs

The monitor outputs are four BNC connectors on the back of the VT3242A Breakout Box, one for each channel. These are unity-gain, buffered outputs. The signal at the monitor outputs is the same as the signal that is being sent to the VT1432A/33B by way of the connector cable. These connectors can be useful if you wish to connect the signals to a recorder or oscilloscope in parallel with the VT1432A/33B.

Programming the VT3242A Charge/Breakout Box

The VT3242A Breakout Box is programmed as part of a system using the VT1432A VXI*plug&play* Host Interface Library or the VT1432A C-Language Host Interface Library. The following table shows the changes that can be made in the VT3242A Charge/Voltage Breakout Box and the functions used to control those changes.

Changes made	Function(s) used
Calibrator switch	hpel432_setInputHigh
Range selection	hpel432_setRange hpel432_setRangeCharge
Charge/BNC selection	hpel432_setInputMode
Float/Ground selection	hpel432_setInputLow
2 kHz Filter selection	hpel432_setFilterFreq
ICP® on/off	hpel432_setInputMode

When programming an VT1432A or VT1433B with an VT3242A Breakout Box attached, it is not necessary to use any special functions for the Breakout Box. The firmware in the VT1432A/33B can recognize the VT3242A and implement its functions correctly. An exception to this is the function hpel432_setRangeCharge(), which is used to set the range of the VT3242A when it is in charge mode. It takes a value in pico-Coulombs instead of Volts. When using the normal BNC input, hpel432_setRange() is used to control the range setting.

You can use the function hpel432_setInputMode to select either charge or BNC input for each channel.

For more information on programming see the chapter “Using the VT1432A” (or “Using the VT1433B”) or “VT1432A *Plug&Play* Library.”

VT3242A Ranges

Full Scale Ranges when used with VT1432A or VT1433B and 10 pC/g Accelerometer: (All levels are peak)

Full Scale Acceleration (10 pC/g sens.)	Charge at Break-out Box Input	Break-out Box Gain	Voltage at Break-out Box Output, VT1433B Range
0.01 g	0.1 pC	1 V/pC	0.1 V
0.02 g	0.2 pC		0.2 V
0.05 g	0.5 pC		0.5 V
0.10 g	1 pC		1 V
0.2 g	2pC		2 V
0.5 g	5 pC		5 V
1 g	10 pC	10 mV/pC	0.1 V
2 g	20 pC		0.2 V
5 g	50 pC		0.5 V
10g	100 pC		1 V
20g	200 pC		2 V
50 g	500 pC		5 V
100 g	1,000 pC	0.1 mV/pC	0.1 V
200 g	2,000 pC		0.2 V
500 g	5,000 pC		0.5 V
1,000 g	10,000 pC		1 V
2,000 g	20,000 pC		2 V
5,000 g	50,000 pC		5 V

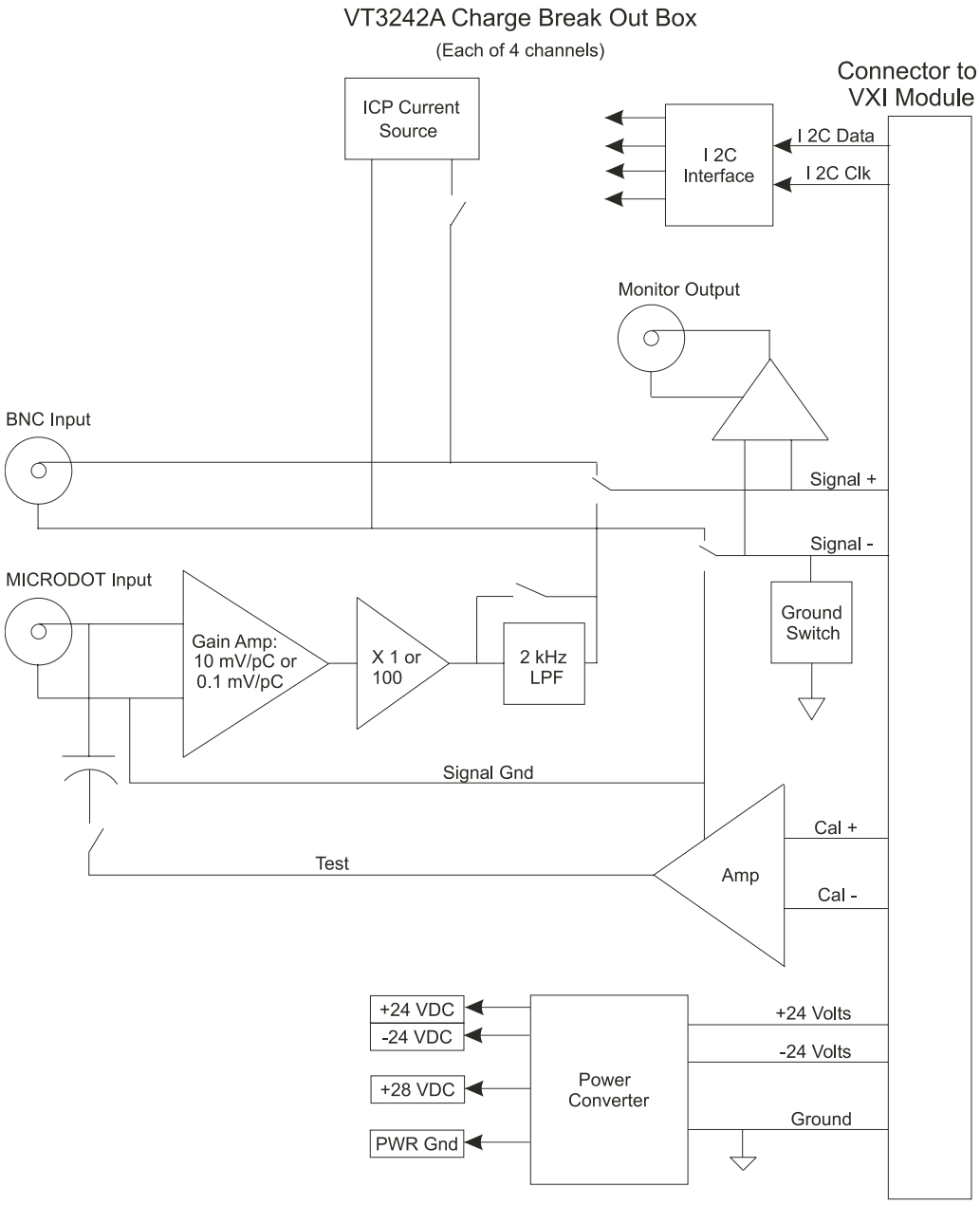

Figure 1-3: VT3242A Block Diagram

Breakout Box Cables

Option AFL, 20-meter cable

The VT3242A Charge/Voltage Breakout Box comes with a standard 2-meter cable. If you wish to place the Breakout Box a greater distance from the VXI mainframe, you can add the optional 20-meter cable. The wider end of the 20-meter cable attaches to the end of the 2-meter cable. The other end attaches to the Breakout Box.

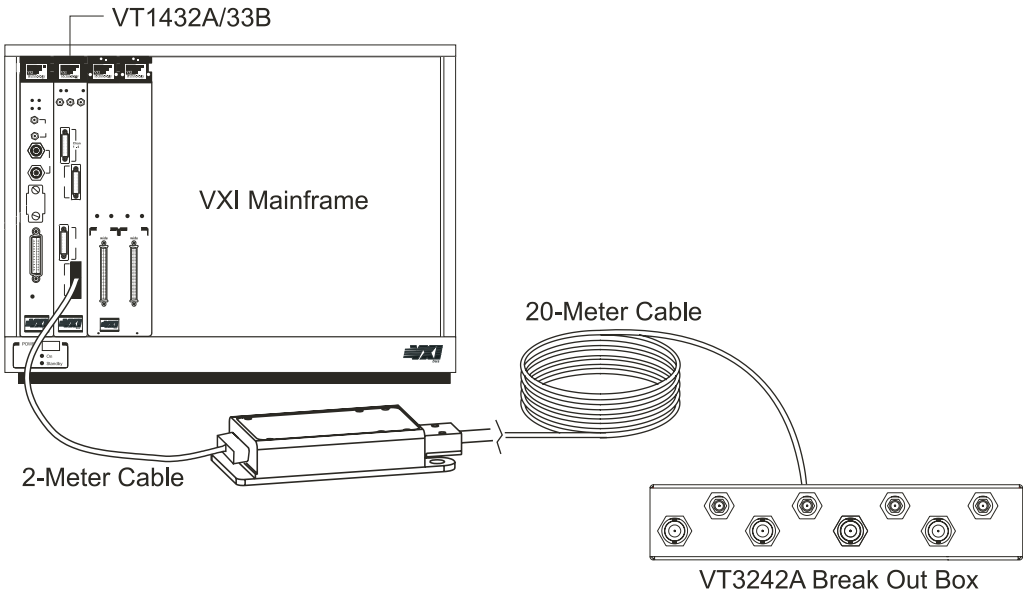

Figure 1-4: Optional 20-meter cable connection diagram

Index

A
assistance (rear of manual) 1-i

B
break out box
  cable 1-9
  charge 1-2
  ICP® 1-2
  microphone 1-2
  voltage 1-2

C
cable 1-9
charge break out box 1-2 - 1-3
connectors 1-5

F
float/ground switch 1-5, 2-1
functions 1-6

I
ICP® Break Out Box 1-2
input connectors 1-5

M
microphone break out box 1-2
monitor outputs 1-5

O
outputs 1-5

P
phone assistance (rear of manual) 1-i
programming 1-6

R
ranges 1-7

S
service 1-2
service assistance (rear of manual) 1-i

T
telephone assistance (rear of manual) 1-i

V
voltage break out box 1-2
VT3241A 1-2
VT3240A 1-2
VT3242A 1-2 - 1-3
VT3243A 1-2

Need Assistance?

If you need assistance, contact your nearest VXI Technology Customer service representative below. You can also find a list of local service representatives on the Web at: ***http://www.vxitech.com***.

If you are contacting VXI Technology, Inc. about a problem with your VT3242A Charge/Voltage Breakout Box, please provide the following information:

- ❑ Model number: VT3242A
- ❑ Software version:
- ❑ Serial number:
- ❑ Options:
- ❑ Date the problem was first encountered:
- ❑ Circumstances in which the problem was encountered:
- ❑ Can you reproduce the problem?
- ❑ What effect does this problem have on you?

If you do not have access to the Internet, one of these centers can direct you to your nearest representative:

Irvine	Tel: (949) 955-1894 Fax: (949) 955-3041 support@vxitech.com
Cleveland	Tel: (216) 447-8950 Fax: (216) 447-8951
Washington	Tel: (425) 212-2285 Fax: (425) 212-2289
World Wide Support	Available at: http://www.vxitech.com