VT3243A 4-channel Microphone/ Voltage/ICP® Breakout Box

User's Guide

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In This Book

The VT3243A 4-Channel Microphone/Voltage/ICP®* 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 VT3243A 4-Channel Microphone/Voltage Breakout Box. It provides:

– A descriptions of the Breakout Box.

– Information on the functions in the VT1432A software library which are used to control the VT3243A.

– Technical Specifications

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

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The VT3243A 4-Channel Microphone/Voltage/ICP® 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/ICP® Breakout Box

This manual describes the VT3243A 4-Channel Microphone/Voltage/ICP® 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 E1432A-61600 ICP Breakout Box and the VT1432A-61602 Voltage Breakout Box.

Service

A VT3243A 4-Channel Microphone/Voltage/ICP® Breakout Box that fails during the warranty period will be replaced free of charge. After the warranty period an exchange 4-Channel Microphone/Voltage/ICP® Breakout Box can be ordered from VXI Technology. Contact your nearest VXI Technology Sales Office.

The VT3243A 4-Channel Microphone/Voltage/ICP® Breakout Box

The VT3243A Microphone/Voltage/ICP® Breakout Box is an accessory for the VT1432A series VXI Modules. This Breakout Box provides both BNC and LEMO connection for each channel of the VXI module. Each Breakout Box has four BNC and four LEMO connectors for signal input. A 26-pin connector is provided for connection to the VXI module through an extension cable.

Microphone input

The microphone input provides polarization and supply voltages for microphones and pre-amplifiers. This input has an amplifier with three gain settings and is AC coupled. The low-frequency roll-off frequencies are well-matched to minimize low-frequency phase match errors. This microphone input supports “phantom calibration” of microphone pre-amplifiers, in which a test signal is routed to a microphone pre-amplifier and capacitively injected near the microphone diaphragm.

BNC input

The BNC input is a direct connection to the VXI module with no amplification. The ICP® (Integrated Electronic Piezo Eletronic) current source for powering ICP accelerometer transducers can be switched on or off under program control. A light indicates when the ICP® current source is on. Each channel has a program- controlled Float/Ground switch to connect the BNC shell to chassis ground, or to allow a floating input. A two-meter cable is supplied with the Breakout Box. An eight-channel VT1433B can use one or two VT3243A Breakout Boxes, and a 16-channel VT1432A can use up to four VT3243A Breakout Boxes.

Note: The BNC input cannot be used while a microphone is connected to the same channel. Attempting to do so may cause a common-mode signal overload.

Monitor outputs

The monitor outputs are four BNC connectors on the back of the VT3243A Breakout Box, one for each channel. These are buffered outputs. The signal level at the monitor output is the same as the signal that is being sent to the VT1432A/33B by way of the extension cable. These monitor outputs can be useful if you wish to connect the signals to a recorder or oscilloscope in parallel with the VT1432A/33B.

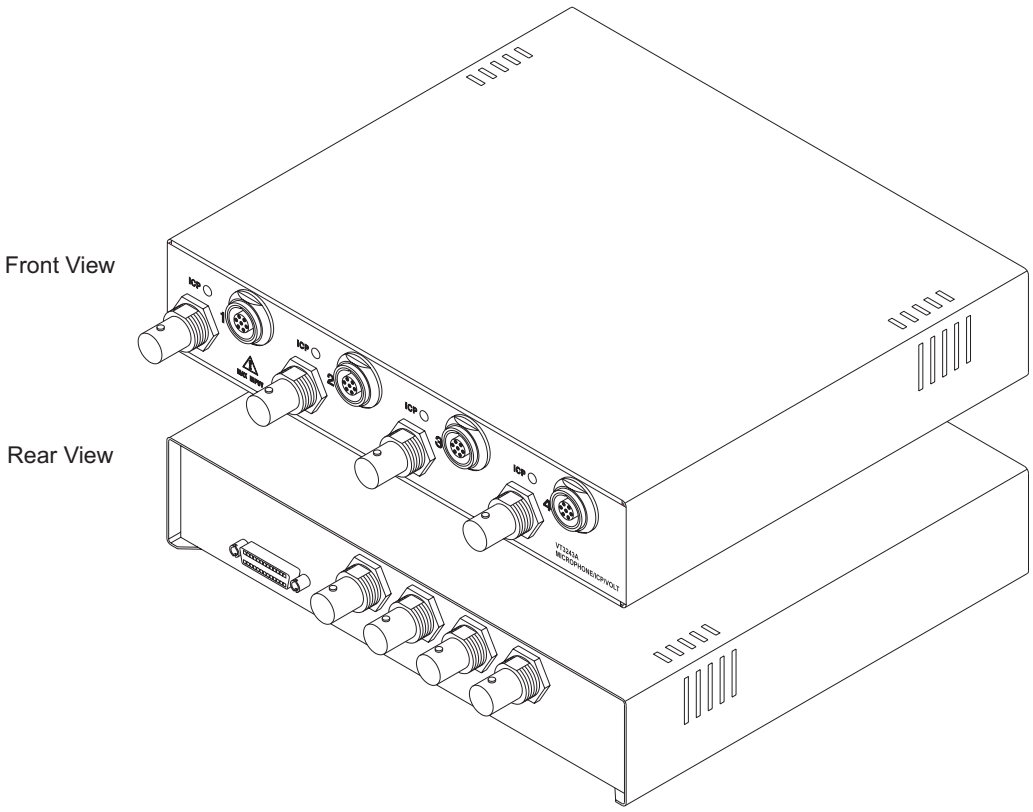

Figure 7-1:
The VT3243A Microphone/Voltage/ICP® Breakout Box

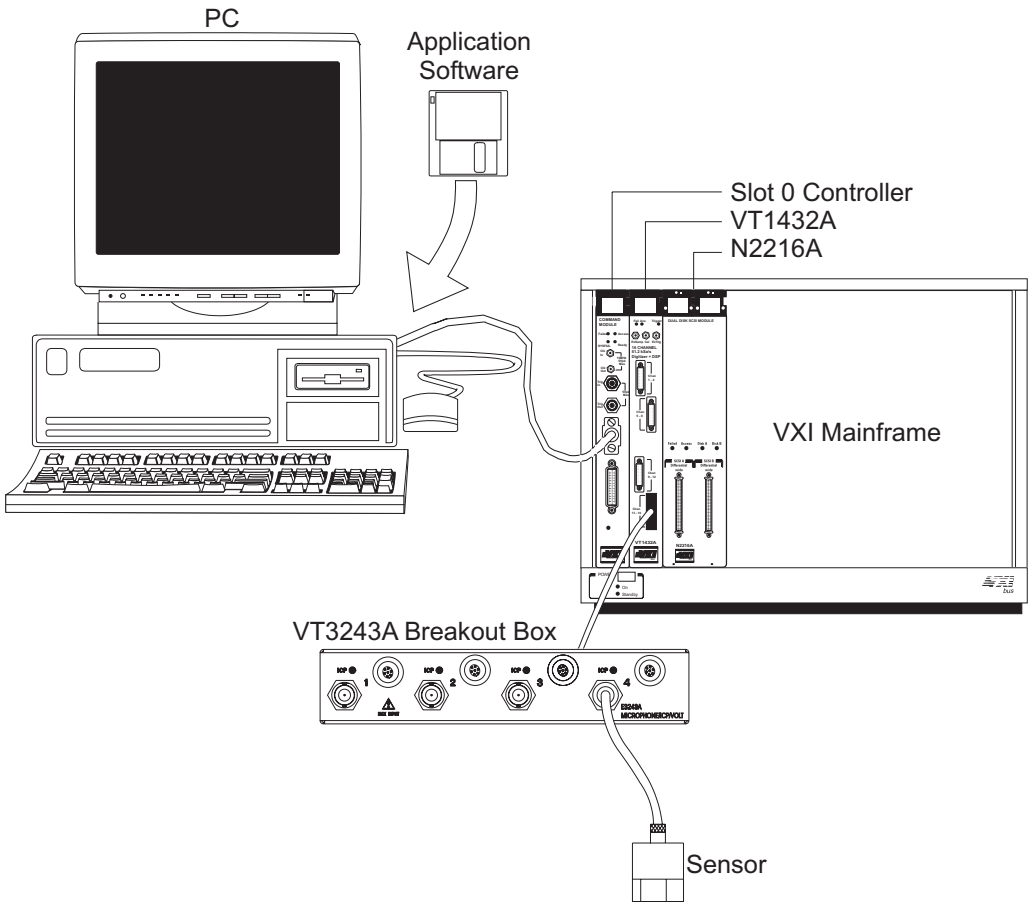

Figure 7-2:
The VT3243A in a typical PC controlled VXI system

-

Programming the VT3243A Microphone/Voltage/ICP® Breakout Box

The VT3243A Breakout Box is programmed as part of a system using the VT1432A VXI*plug&play* Host Interface Library or the VT1432A Host Interface Library. The following table shows the changes that can be made in the VT3243A Microphone/Voltage/ICP® Breakout Box and the functions used to control those changes.

Changes made	Function(s) used
Calibrator switch	hpel432_setInputHigh
Range selection	hpel432_setRange hpel432_setRangeMike
Microphone/BNC selection	hpel432_setInputMode
Float/Ground selection	hpel432_setInputLow
2 kHz Filter selection	hpel432_setFilterFreq
ICP® on/off	hpel432_setInputMode
200V supply on/off	hpel432_setInputMode

When programming a VT1432A or VT1433B with a VT3243A 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 VT3243A and implement its functions correctly.

You can use the function hpE1432_setInputMode to select either LEMO or BNC input for each channel.

The software distribution includes two low-level functions which can be used to communicate between the VT1432A/33B and a Breakout Box. These are hpel432_readI2C( ) and hpel432_writel2C( ). However they are never needed for the VT3243A because the VT1432A/33 can control the VT3243A using the higher-level functions listed above.

For more information on programming see the chapter “Using the VT1432A” (or “Using the VT1433B”) or “The Host Interface Library.”

VT3243A Ranges

Full Scale Ranges when used with VT1432A or VT1433B and 50 mV/Pa Microphone: (Voltage is peak, dB SPL is RMS)

Full Scale Sound Pressure Level (50 mV/Pa sens.)	Voltage at Breakout Box Input	Breakout Box Gain	Voltage at Breakout Box Output, VT1432A/33B Range
77 dB SPL	0.01 V	+ 20 dB	0.1 V
83 dB SPL	0.02 V		0.2 V
91 dB SPL	0.05 V		0.5 V
97 dB SPL	0.1 V		1 V
103 dB SPL	0.2 V		2 V
111 dB SPL	0.5 V		5 V
117 dB SPL	1 V	0 dB	1 V
123 dB SPL	2 V		2 V
131 dB SPL	5 V		5 V
137 dB SPL	10 V	–20 dB	1 V
143 dB SPL	20 V		2 V
161 dB SPL	50 V		5 V

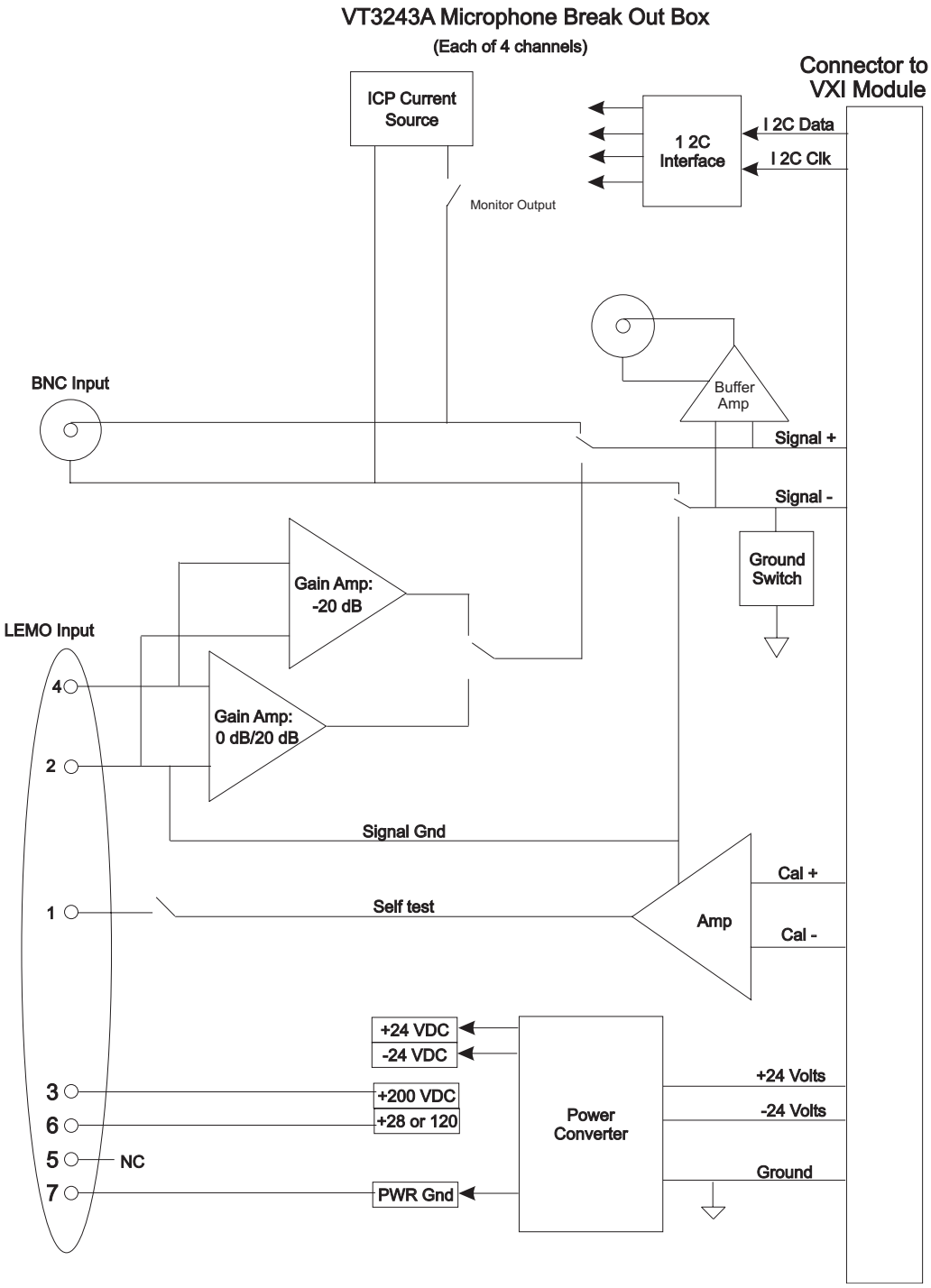

Figure 7-3 - VT3243 block diagram

Breakout Box Cables

Caution

To avoid damage to the VXI module or the Breakout Box, always turn off VXI mainframe power before connecting or removing power cables.

Option AFL, 20-meter cable.

The VT3243A Microphone/Voltage/ICP® 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.

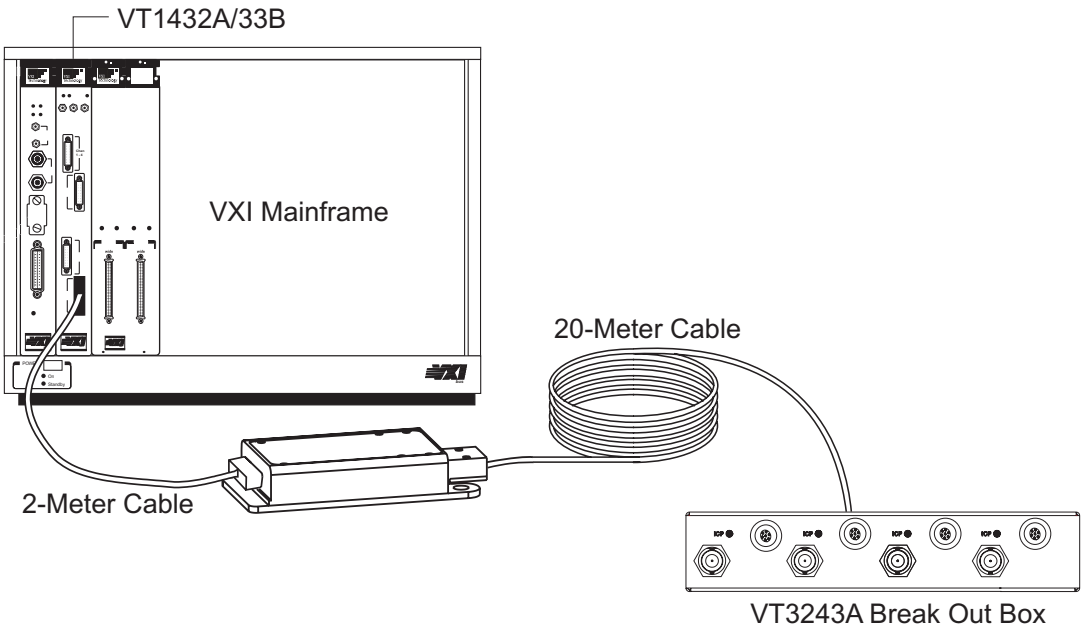

Figure 7-4 - Option AFL 20-meter cable

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Need Assistance?

If you need assistance, contact your nearest regional VXI Technology office listed at the back of this book. If you are contacting VXI Technology about a problem with your VT3243A Microphone/Voltage/ICP® Breakout Box, please provide the following information:

- ❑ Model number: VT3243A
- ❑ 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?