ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Abaco Systems / VMIC VMIVME-3122-000* at our website: ***Click HERE***



VME-3122A* Specifications

High-Performance 16-bit Analog-to-Digital Converter (ADC) Board

Features:

- 64 differential or single-ended inputs
- 16-bit Analog-to-Digital (A/D) conversion
- Software-selectable conversion rate (100 kHz maximum)
- Program-selectable scanning of 1, 8, 16, 32 or 64 channels
- Continually digitizes selected input channels and stores the results
- Three trigger modes
  - Software trigger
  - External trigger
  - Interval timer trigger
- Three scan modes
  - Autoscan
  - Single scan
  - Random access
- Programmed VME interrupts
- User-programmable interval timer
- Software-programmable gain 1 and 10
- External trigger to synchronize multiple boards simultaneously
- Jumper-selectable A/D ranges of 0 to +5 V, 0 to +10 V, ±2.5 V, ±5 V and ±10 V
- Optional low pass filter
- Overvoltage protected inputs
- 1,024-word data buffer (16-word deep buffer x 64 channels)
- Selectable output coding
- Powers up in autoscanning mode with unity gain

Applications:

- Factory automation and instrumentation
- Process control
- Laboratory instrumentation
- Machine monitoring
- Data acquisition

abaco SYSTEMS

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VME-3122A* Specifications *High-Performance 16-bit Analog-to-Digital Converter (ADC) Board*

Ordering Options							
December 19, 2011 800-103122-000 C		A	B	C	D	E	F
VME-3122A	–				0		

A = Input Filter Option
0 = No Filter
1 = 10 Hz (-3 dB)
2 = 50 Hz (-3 dB)
3 = 100 Hz (-3 dB)
4 = 500 Hz (-3 dB)
B = Number of Channels Option
0 = 64 Channels High Performance
1 = 32 Channels High Performance
2 = 16 Channels High Performance
C = Input Option
0 = Differential Analog Input Channels with 96-pin Nonlatching Connector (See Note 1)
1 = Single-Ended Analog Input Channels with 96-pin Nonlatching Connector (See Note 1)
2 = Differential Analog Input Channels with 64-pin Latching Connector
3 = Single-Ended Analog Input Channels with 64-pin Latching Connector
D = 0 (Options reserved for future use)
E = Special Sales Order
0 = Standard
1 = Reserved for CCS
F = Special Sales Order
0 = Standard VME front panel without conformal coating
1 = Reserved
2 = Standard VME front panel with conformal coating

Connector Data		
Style	Recommended Connecting Component	P3 and P4 I/O Connectors
64-pin IDC	Mating Connector (64-pin)	Panduit 120-964-435
	Strain Relief (For 64-pin Connectors)	Panduit 100-000-072
96-pin Discrete Wire	Mating Connector (96-pin Discrete)	AMP 925486-1 Harting 09 03 096 3214
	Female Crimp Contacts (96-pin Discrete)	Harting 09 02 000 8484 (See Note 2)
	Connector Housing (For 96-pin Connectors)	Harting 09 03 096 0501
96-pin IDC	Mating Connector (96-pin Mass-Terminated)	ERNI 913.031
	0.033-inch Ribbon Cable (96-pin Mass-Terminated)	ERNI 913.049
	Strain Relief Insert (0.033-inch Ribbon Cable)	Harting 09 02 000 9912
	Connector Housing (For 96-pin Connector)	Harting 09 03 096 0501

PC Board I/O Connector Part Number Panduit 101-096-033A
Panduit is also known as ITW/Pancon.

Notes

1. Latches are located on the cable.
2. AMP crimp tool part number 90301-2 or Harting 09 99 000 0075

For Ordering Information, Call:
1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859
Email: support@abaco.com
Web Address: www.abaco.com
Copyright © 2011 by Abaco Systems. All rights reserved.
Specifications subject to change without notice.

Introduction: The VME-3122A* is designed to support 64 channels of differential or single-ended wide range (±250 mV to ±10 V) analog inputs.

The board supports the following operating modes, which are described below:

Trigger Modes
Software Trigger
External Trigger
Interval Timer Trigger

Scan Modes
Autoscan
Single Scan
Random Access

One thousand twenty-four dual-port Data Registers provide storage for continuous scanning of all channels. The trigger and scanning modes are executed automatically at power up, system reset, or are entered under program control. The dual-port registers allow VME access at any time to read the latest stored data.

Channel gain is under software control and can be fixed at x1 or x10 or each channel individually programmed for either gain. Conversion rate is selectable up to 100 kSPS (thousand samples/s). Low pass input filters are available.

Functional Characteristics

(At +25°C and rated power supplies, unless otherwise stated)

Operating Modes:

Trigger Mode: Software Trigger: The selected scan mode is initiated by writing to the software trigger address.

External Trigger: An external trigger, received on the P2 connector, initiates the selected scan mode.

Interval Timer Trigger: The selected scan mode is initiated each time the programmed time interval expires.

Scan Mode: Autoscan: This is the default scan mode. All active channels are scanned continuously in sequential order.

Single Scan: A single data burst (scan of all selected channels) is initiated by the selected trigger mode. After all selected channels have been scanned, the scanning process stops and waits for another trigger.

Random Access: A single channel can be selected, digitized, and stored each time the selected trigger mode is enabled.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VME-3122A* Specifications *High-Performance 16-bit Analog-to-Digital Converter (ADC) Board*

Channel Autogain: The unique gain code for each channel is loaded from the VME into a gain buffer. The assigned code is retrieved from the buffer in real-time for each channel acquisition.

Synchronization: A single scan or burst can be initiated by an external TTL trigger through the P2 connector (External Trigger), or locally through the control and status register (CSR) (Software Trigger). Either event generates a P2 Trigger output, which can be used to synchronize up to 15 boards.

VME Access: Response to address modifiers is jumper selectable as:

A32, A24 or A16 address space
Supervisory or User privilege, or both

VMEbus Compliance: This product complies with VMEbus Specification ANSI/IEEE STD 1014-1987 IEC 821 and 297 with the following mnemonics:

A32/A24/A16:D16/D8 (EO) DTB Slave
Interrupter I (1 to 7) ROAK (DYN)
Interrupter Vector: D08 (O) (DYN)
6U form factor

VME Interrupt: An interrupt request can be generated at the end or middle of a buffer scan. The request can also be initiated after a specific number of samples (1 to 65,535) have been acquired. Response vectors are controlled through Interrupt Vector Registers.

Data Ready Flag: A data ready flag in the CSR is set when the data buffer is filled (endscan) or half-filled (midscan).

Interval Timer: Timed intervals of up to 687 seconds are provided by a programmable interval timer.

Reset Operations: Board reset occurs in response to a system reset or by writing to the Software Reset Address. For programming-free initial operation, a reset operation automatically establishes the following default conditions:

Autoscanning Mode
64-channel block size
64-channel data buffer
Channel Gain = x1
Rate = 100 kHz conversion

The ADC will go through a calibration cycle on either RESET condition. The calibration cycle takes 41 ms after a RESET operation has been initiated.

PGA: Channel gains of x1 and x10 are selected through a Programmable Gain Amplifier (PGA). PGA gain can be software configured for a single gain on all channels, or it can be controlled in real-time with unique gains assigned for each channel.

Panel Indicator: Program-controlled front panel LED is energized during reset, and is extinguished through the CSR.

Board Identification: A Board Identification Register (BIR) contains the VME-3122A identification code.

Input Characteristics

Number of Input Channels: 64, 32 or 16 differential or single-ended channels

Full-Scale A/D Ranges: ±2.5 V, ±5 V, ±10 V, 0 to +5 V, 0 to +10 V; jumper selectable

Channel Gain: Software configured for x1 or x10

Full-Scale Input Range: Gain = 1: ±2.5 V to ±10 V Bipolar; 0 to +5 V, 0 to +10 V Unipolar
Gain = 10: ±250 mV to ±1 V Bipolar; 0 to +0.5 V, 0 to 1 V Unipolar

Accuracy (% of FSR):

Range Gain	±10 V	±5 V	±2.5 V	0 to +5 V	0 to +10 V
x 1	0.015	0.008	0.032	0.014	0.012
x 10	0.058	0.079	0.126	0.135	0.076

NOTE: Based on an average of 1000 samples

Stability: Temperature drift, per degree Celsius = ±25 PPM (ADC reading) plus ±5 PPM (ADC range) plus ±2.5 µV

Example: For a +7.000 V reading in the ±10 V range: Temperature drift = ±175 µV ±100 µV ±2.5 µV = ±277.5 µV

Input Noise: (0.4 + 0.3/G)mV; where: G = PGA Gain (Noise is independent of filter option)

Range Gain	±10 V	±5 V	±2.5 V	0 to +10 V	0 to +5 V
x 1	0.509	0.280	0.191	0.381	0.229
x 10	0.014	0.015	0.014	0.014	0.014

NOTE: Based on all channels scan for 512 data samples

Input Bias Current (typical/maximum): 50/120 nA

Input Impedence (minimum):

Condition	DC-Dif	DC-CM	AC-Dif	AC-CM
Power ON	10 M	100 M	250 K	250 K
Power OFF	8 K	4 K	8 K	4 K

NOTE: Impedances are provided for no filter differential input option. AC impedance measured at 1 kHz.

VME-3122A* Specifications *High-Performance 16-bit Analog-to-Digital Converter (ADC) Board*

Interchannel Crosstalk (DC to 1 kHz):

±10 V Range	±2.5 V Range
Adjacent Channel	Adjacent Channel
80 dB	70 dB

Common-Mode Voltage Range:
(IVCMI + IVINI.G): ≤ 10 V

Where: VCM = the common-mode voltage
VIN = the input voltage
G = the gain

Common-Mode Rejection: DC to 60 Hz with 350 Ω source imbalance

Gain	Min	Typical
1	68 dB	80 dB
10	76 dB	89 dB

Common-Mode Rejection in the +5 V and ±2.5 V range is a minimum of 66 dB. This can be field-trimmed to the same common-mode rejection as the gain of 1.

Overvoltage Protection:
±35 V, sustained Power On/Power Off
±80 V, transient (1 s maximum)

Input Filters: Optional low pass single-pole filters:
-3 dB at 10 Hz
-3 dB at 50 Hz
-3 dB at 100 Hz
-3 dB at 500 Hz

These values apply for differential inputs. Frequency doubles for single-ended (pseudo-differential) applications. The cutoff frequency has a tolerance of ±25 percent. Typical no filter input bandwidth (20 Vp-p) is 40 kHz.

Common-Mode/Floating Input Protection: Both sides of each input is pulled to ground through a 22 MΩ resistor.

Transfer Characteristics
Resolution: 16 bits

Input Sampling: Sequential, starting at channel 00

Input Transfer Function:

$$E_{IN} = E_{LO} + E_{FSR} \times \frac{NADC}{65{,}536}$$

Where: EIN = Input Voltage
ELO = Lower End of Input Range
EFSR = Full-Scale Input Range
NADC = A/D Converter Reading

Example: For a NADC value of D99A HEX (55,706 decimal) in the ±10 V range:

EIN = -10 + [20.000 x (55,706/65,536)] = +7.000

A/D Conversion Rate: 381 to 100 kSPS

Channel Sample Rate (Maximum): 100 kSPS
(100 kSPS ÷ number of channels in scanning block, 1 channel minimum)

Timed Interval: 305 µs to 687 s

Data Coding: Program selectable as two's complement, or straight/offset binary

Data Buffer Memory

Buffer Size: 16 to 1,024 contiguous 16-bit data words; program controlled

Block Size: 1, 8, 16, 32, or 64 channels; program controlled

Access Time:
Nonscanning: 600 ns maximum
Scanning: 600 ns typical, 1.2 µs maximum
Maximum access time in scanning mode will occur only when VME access occurs in ADC sample window.

VME Access: D8 to or D16

Availability: Accessible at any time from the VME. Buffer and block sizes are controlled through a Configuration Control Register (CCR).

VME-3122A* Specifications *High-Performance 16-bit Analog-to-Digital Converter (ADC) Board*

Physical/Environmental Specifications

Dimensions: 6U (4HP) single slot Eurocard form factor

Height	9.2 in. (233.4 mm)
Depth	6.3 in. (160 mm)
Thickness	0.8 in. (20.3 mm)

Power Requirements:
3.0 A (maximum) at +5 VDC

Airflow: Forced air cooling required

Temperature:
Operating: 0 to +65° C
Storage: -40 to +85° C

Altitude:
Operating: 0 – 10,000 ft (3,000 m)
Storage: 0 – 40,000 ft (12,000 m)

Humidity:
Operating: relative humidity 0% to 80%, noncondensing

Input Connectors (P3, P4): Input connectors P3 and P4 may be ordered as either 96-pin DIN nonlatching or 64-pin DIN latching. The 96-pin nonlatching connectors offer the center row as ground, while the center row ground is not available on the 64-pin latching connector. When using the 64-pin latching connectors in differential mode, the user may jumper E1 and E2 to provide ground on the front panel, this will result in configuring channels 31 and 63 as single-ended. See the Ordering Options C field (Input Option).

MTBF: Contact factory

Trademarks

* indicates a trademark of Abaco Systems, Inc. and/or its affiliates. All other trademarks are the property of their respective owners.

Application and Configuration Guide

The following Application and Configuration Guide is available from Abaco Systems to assist the user in the selection, specification and implementation of systems based on Abaco Systems' products.

Title	Document No.
Connector and I/O Cable Application Guide	825-000000-006

VME-3122A* Specifications *High-Performance 16-bit Analog-to-Digital Converter (ADC) Board*

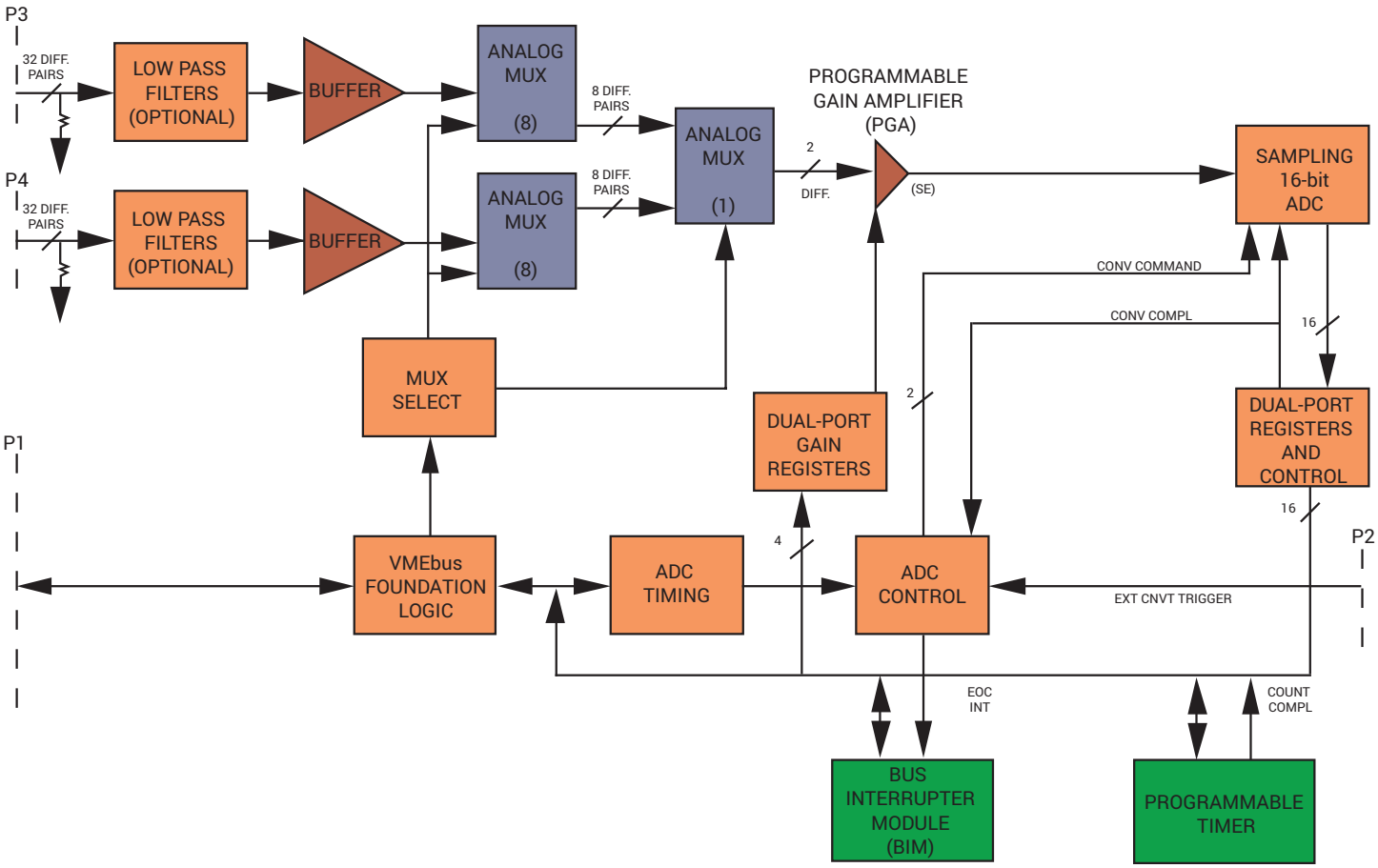


Figure 1. VME-3122A Functional Block Diagram

WE INNOVATE. WE DELIVER. YOU SUCCEED.

Americas: 866-OK-ABACO or +1-866-652-2226 **Asia & Oceania:** +81-3-5544-3973
Europe, Africa, & Middle East: +44 (0) 1327-359444
Locate an Abaco Systems Sales Representative visit: abaco.com/products/sales

abaco.com | @AbacoSys

©2017 Abaco Systems. All Rights Reserved. All other brands, names or trademarks are property of their respective owners. Specifications are subject to change without notice.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP