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Find the *Ametek / VTI Instruments / VXI Technology VT1436-1D4* at our website: *Click HERE*

8-16 channel 102.4 kSa/s 24-bit Digitizer plus DSP with Built-in IEPE Conditioning



Overview

The VXI Technology VT1435/36 digitizers are C-size, single-slot, register-based VXI modules that include DSP, transducer signal conditioning, alias protection, digitization, and high-speed measurement computation. You can even add an optional arbitrary source or dual-input tachometer. On-board computation of measurement results, fast data transfer to the host computer, and a dedicated high-speed data bus for module-to-module communication, all combine to provide outstanding measurement architecture for demanding mechanical, acoustic and electrical test applications. Putting so much capability in a single module decreases system cost while increasing system performance.

The VT1435 has eight front panel high density SMB connectors for signal input and the VT1436 has sixteen. On-board digital signal processing and 32 MB of RAM maximizes total system performance and flexibility.

New redesigned 24 bit digitizer input combined with the largest number of input ranges allows the VT1435/36 to operate in the most optimum measurement range. Even low sensitivity/low output level transducers work well with the VT1435/36. The high performance floating point DSP used for the linear phase FIR anti-alias filters is also user programmable with TI's Code Composer Studio. Standard JTAG interface included to ease control to this DSP. The FIR anti-alias filter vastly improves the phase accuracy of all channels relative to the tachometer, trigger, and other channels.

Specifications

Frequency

Sampling Rate:

Maximum	102.4 kSa/s
Minimum	2 Sa/s

Decimate by 5 and 2 filters provide lower sample rate settings. External sampling allows continuous settings from 40.96 kSa/s to 102.4 kSa/s.

Frequency Bandwidth:

Maximum	46 kHz
Minimum Resolution	244 µHz

FFT Block Size (samples)	32 to 8192

Features

- 8 input ranges, including a 100 mV range, allow use of low sensitivity transducers
- True balanced differential inputs
- Integrated IEPE transducer signal conditioning
- On-board user-programmable DSP greatly improves total system performance
- User programmable digital anti-alias filters with API controllable FIR and Bessel filter
- FIR digital anti-alias filter provides linear phase response for accurate single and cross channel measurements
- Optional TEDS Support
- Optional arbitrary source or dual input tachometer
- 32 MB on-card FIFO memory plus optional local bus allows data records up to 146 MB with the VT2216A VXI data disk, larger data files to external SCSI disks

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Input

Number of Channels:

VT1436	16
VT1435	8

Full Scale Input Ranges: (in volts peak) 100 mV, 200 mV, 500 mV 1 V , 2 V, 5 V, 10 V, 20 V Add 23% to include over-range capability.

Input Impedance:

Differential	1 MΩ nominal
Either side-to-chassis	500 kΩ, 35 pF nominal

ac Coupling 3 dB Corner Freq: <1 Hz

Common Mode Rejection Ratio:

dc coupled, dc to 1 kHz	>70 dB
ac coupled, 40 Hz to 1 kHz	>60 dB
Maximum signal, either side-to-chassis	±20 Vp

Amplitude Over-Range Detection:

Over-range indication after Common mode overload	±22.5 V (typical)
Differential overload	130% of range
Over Voltage Protection	42 Vp

Residual dc: <±3 mV

TEDS (Transducer Electronic Data Sheet):

READ	Basic, Standard, and Extended
WRITE	User Area

IEPE Inputs (Available at each input):

Open Circuit Voltage	24 V nominal
IEPE Current	4 ma nominal 5.2 ma max
Software Controlled	On/Off

Amplitude

Amplitude Accuracy at 1 kHz: ±0.06 dB

Flatness (relative to 1 kHz, at full scale):

dc to 46 kHz	±0.01 dB

Amplitude Resolution: 24 bits

Cross Channel Match

(any VT1435/36 module in the same mainframe)

Cross Channel Amplitude Match: ±0.01 dB
(full-scale signal, input ranges equal, frequency above 10 Hz if ac coupled)

Cross Channel Phase Match: <±0.1 deg
At 1 kHz

Phase Match Relative to Tach: <±0.1 deg (typical)

Dynamic Range

Spurious Free Dynamic Range: -112 dBfs (typical)
(includes spurs, harmonic distortion, intermodulation distortion, alias products)

Aliased Responses: <-115 dB (typical)

Crosstalk: <-90 dBfs (typical)

Trigger

Trigger Detection: Digital

Trigger Modes: Input, external, source, TTL TRG, RPM (with opt AYF)

Arbitrary Source Option 1D4 Specifications

General

Output Modes Sine and pseudo random with burst and band translation, arbitrary waveform with loop or continuous output

Frequency Bandwidth

Sine, Noise Modes:

Reconstruction filter bandwidth	0 Hz to 25.6 kHz
DSP data rate (Fs)	48.00 kHz to 65.536 kHz
Data word size	16 bits

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Arb modes:

Reconstruction filter bandwidth	0 Hz to 6.4 kHz
Data word size	20 bits

Signal Output

Number of Output Channels	1
Maximum Amplitude	10 Vp nominal
Output Impedance	<0.5 Ω (typical)
Maximum Output Current	100 mA (typical)
Maximum Capacitive Load	0.01 µF (typical)

Amplitude Control:
(signal amplitude = range x scale factor)

Maximum amplitude	10 Vp nominal
Amplitude ranges	79 mVp to 10 Vp in 0.375 dB steps
Amplitude scale factor	0.0 to 1.0, with 20-bit resolution

Residual dc Offset:

Offset after autozero	±2 mV
Offset after shutdown	±20 mV
Zeroing resolution	100 µV

Output Overload Trip: >17 V

Amplitude Ramp-down Time: 0 s to 30 s (Programmable)

Shutdown:

Shutdown input	TTL levels
Shutdown time	< 5 s
Shutdown time, ac fail	< 4 ms

Tachometer Input Option AYF Specifications

General

Option AYF, Tachometer Input, provides two tachometer inputs. When this option is installed, two of the three SMB connectors at the top of the VXI module are used for tachometer inputs. When this option is not installed, these connectors are normally used for "External Sample" and "Trigger." Each tachometer input has a programmable trigger level. Each tach pulse causes a "Tach Edge Time" to be recorded in a 16384-word FIFO. A "Tach Edge Time" is the instantaneous value of the 32-bit "Tach Counter". A "Decimate" number can be set to ignore a number of tach pulses before recording each Tach Edge Time. A "Holdoff" time can be set to avoid false triggering due to ringing.

One of the tachometer inputs can be programmed for use as a trigger input rather than a tachometer input. In this mode, the tachometer option can trigger the system and measure the time between the trigger and the next sample clock edge. The analog signal from either of the tachometer inputs can be routed to an input channel using the internal calibration path.

Tach Counter:	32-bit counter with roll-over detector bit
Decimate Counter:	16-bit counter

Input Signal Trigger Level (typical):

Voltage Range	-25 V to +25 V
Resolution, levels <±5 V	40 mV
Resolution, levels >±5 V	200 mV
Hysteresis	Programmable, 0 V to 250 mV
Slope	Programmable, positive or negative

Input Signal Timing:

Minimum pulse width	5 µs
Maximum pulse rate	100 kHz
Trigger hold off	1 to 65536 clock periods
Input Impedance	20 kΩ (typical)

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VXI System Level Features

VXI Standard Information:

Conforms to VXI revision 1.4 C-size, single slot width, register-based programming, "Slave" Data Transfer Bus functionality, A24 address capability, D32 data capability Optional Local Bus capability, SUMBUS driver and receiver. Requires 2 or 4 TTLTRG lines for multi-module synchronization.

Software

Driver Type:	VXIplug&play C libraries with source code and ME4X ActiveX driver
Supported Operating Systems:	MS Windows, Linux, HP-UX
Plug&Play Compliance:	MS Windows, Linux, HP-UX

Ordering Information

VT1435	8-channel 102.4 kSa/s digitizer with DSP
VT1435-1D4	Arbitrary source
VT1435-AYF	Add dual tachometer input
VT1435-UGV	Add local bus interface
VT1435-UK6	Commercial cal. certificate w/test data
VT1435-TEDS	Add TEDS support to VT1435
VT1436	16-channel 102.4 kSa/s digitizer with DSP
VT1436-1D4	Arbitrary Source
VT1436-AYF	Add tachometer input
VT1436-UGV	Add local bus interface
VT1436-UK6	Commercial cal. certificate w/test data
VT1436-TEDS	Add TEDS support to VT1436
56-0120-000	12" SMB to BNC jack coax cables
56-0121-000	60" SMB to BNC plug coax cables

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