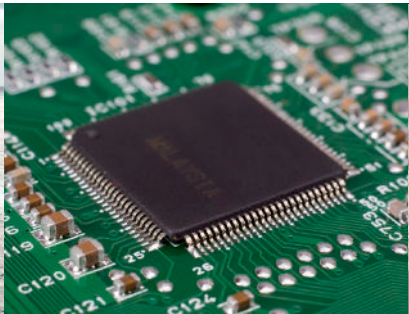# TERADYNE Z1 Series

OSCILLOSCOPES & ARBITRARY WAVEFORM GENERATORS

TERADYNE

FEATURES

• *Supports PXI/PXIe, VXI & LXI platforms and up to 4 channels per instrument*

• *Sample rates to 4 GS/s and up to 14 bit resolution*

• *Wide Bandwidth up to 1 GHz*

• *On-board signal processing*

• *Compatible with third-party tools, such as, LabVIEW and LabWindows/ CVI*

• *Benchtop like Graphical User Interface*

BENEFITS

• *High density form factor lowers overall system size and cost*

• *Platform flexibility promotes integration with various designs and chassis*

• *On board processing speeds up data acquisition and analysis*

• *Best-in-class service, calibration, and repair; continuous support throughout product lifecycle*

ZTSeries

HIGH-PERFORMANCE ANALOG TEST INSTRUMENTS

Teradyne develops and supports Modular Digitizers, Digital Storage Oscilloscopes, and Waveform Generators under the ZT-Series brand. Teradyne's ZT-Series works to solve the test and measurement challenges of various end markets such as Defense and Aerospace, Semiconductor Test, High Energy Physics Applications, Industrial Control and Automotive Test.

The ZT-Series modular digital oscilloscopes and waveform generators provide superior performance and support industry standards for easy integration into automated test systems. Its powerful hardware is complemented by its flexible software and Graphical User Interface (GUI) to enhance the instrument's capabilities for new and legacy test requirements. The instrument's on-board signal processing and measurement suite speeds up data acquisition and analysis. The instruments are available in PXI/PXIe, LXI, and VXI.

ZT-SERIES PROGRAM WINS

DEFENSE & AEROSPACE TEST

eCASS Program

ZT-Series instruments support two separate sub- sections of the NAVAIR eCASS stations. The mission of eCASS is to support approximately 1,100 Test Program Sets (TPS) for multiple aircrafts, such as F-35, F-18, P-3, P-8, etc. Teradyne provides Lockheed Martin with a custom ZT4628 PXI modular oscilloscope.

A-10 PATS-70

When the USAF determined the A-10 required updated flight line test capability, the aircraft's current and future test challenges were matched to the appropriate hardware — the ZT4441DF and ZT5211 in PXI. Both the ZT4441DF and ZT5212 are 14-bit instruments, thus allowing for extremely precise measurements. The instruments went through extensive environmental testing since they are used in flight line testers.

SEMICONDUCTOR TEST

Multi-Channel Voltage Monitoring

Teradyne's ZT-Series LXI Oscilloscope, ZT4212-01LXI was selected by a leading semiconductor manufacturer to monitor the voltage rail fluctuations on their next generation chipset. Multiple LXI oscilloscopes were simultaneously synchronized to capture the data on 20+ channels.

HIGH ENERGY PHYSICS APPLICATION

High Power Pulse Test Event

ZT4442VXI and ZT4612VXI instruments were selected by the US Department of Energy for data acquisition during their High Power Pulse events. The application required 100+ DSO channels for parallel data capture during test events. The ZT-Series DSOs have successfully met the application requirements capturing all data.

ZT4600 Series

1 GHz, 2-4 GS/s, 8-bit Oscilloscope/Digitizer

FEATURES

- Bandwidth & fast sampling for a variety of applications

- Equivalent and interpolated sampling up to 400 GS/s for the ZT4610

- Segmented memory mode for analysis of repetitive signals and statistical analysis

- Direct inputs of +/- 250V peak (CAT I)

- ZT4610 input ranges from 1.25 mV/div to 40 V/div (10 vertical divisions)

- ZT4620 input ranges from 1mV/div to 6.25V/div with 800 uV/div resolution
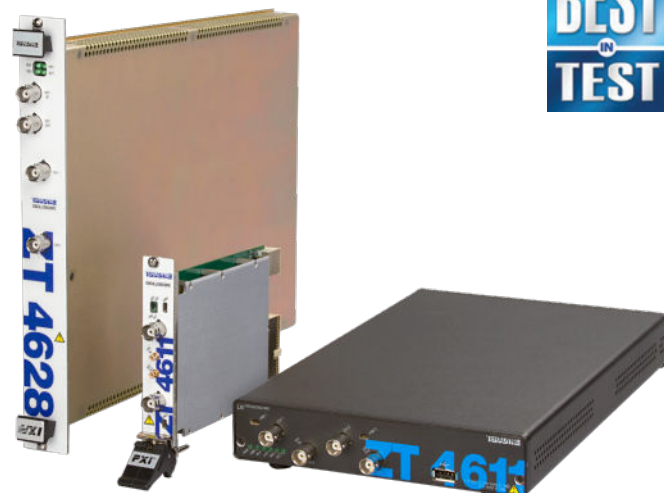
Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI/PXIe	VXI	LXI		
ZT4611	8 bit	4 GS/s	1 GHz	2	2	2	12.5mVpp -100Vpp	512M samples
ZT4612	8 bit	4 GS/s	1 GHz	–	4	4	12.5mVpp -100Vpp	512M samples
Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI/PXIe	VXI	LXI		
ZT4628	8 bit	2 GS/s	500 MHz	2	2	2	8mVpp -50Vpp	256M samples

ZT4400 Series

300 MHz, 800-1000 MS/s, 12-14 bit Oscilloscope/Digitizer

FEATURES

- On-board calculation of over 40 waveform parameters related to voltage, time, and frequency (FFT)

- Multiple acquisition modes including averaging, high-resolution, peak detect, and envelope

- Up to four calculation channels for waveform math, digital filtering, FFT, and more

- Up to four non-volatile reference channels for storing and comparing waveforms

Instrument	Res	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI/PXIe	VXI	LXI		
ZT4421	12 bit	1 GS/s	300 MHz	2	2	2	10mVpp-50Vpp	256M samples
ZT4422	12 bit	1 GS/s	300 MHz	–	4	4	10mVpp-50Vpp	256M samples
ZT4441	14 bit	800 MS/s	300 MHz	2	2	2	10mVpp-50Vpp	256M samples
ZT4442	14 bit	800 MS/s	300 MHz	–	4	4	10mVpp-50Vpp	256M samples

ZT4210 Series

300 MHz, 1 GS/s, 8-bit Oscilloscope/Digitizer

FEATURES

- 300 MHz typical analog bandwidth, 250 MHz minimum

- Real-time sampling up to 1 GS/s interleaved or 500 MS/s non-interleaved

- Equivalent and interpolated sampling up to 100 GS/s

- On-board memory with up to 256M samples record length (128M samples/channel)

- Segmented memory mode for analysis of repetitive signals and statistical analysis

- Direct inputs of +/- 300 Vpeak (CAT II)

- Input ranges from 1.25 mV/div to 40 V/div

|	Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
					PXI/PXIe	VXI	LXI		
M-CLASS	ZT4211	8 bit	1 GS/s	300 MHz	2	2	2	12.5mVpp -400Vpp	256M samples
	ZT4212	8 bit	1 GS/s	300 MHz	–	4	4	12.5mVpp -400Vpp	256M samples

ZT5200 Series

FEATURES

- Function generator with 18 standard waveforms: sine, square, triangle, ramp, pulse, sinc pulse, Gaussian pulse, Lorentz pulse, AM, FM, DC, haversine, havercosine, half cycle sine, noise, multi-tone, & serial data

- Arbitrary waveform generator outputs up to 32M samples per channel using an 8M sample waveform library

Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI/PXIe	VXI	LXI		
ZT5211	14 bit	200 MS/s	50 MHz	2	2	2	±14V	32M samples
ZT5212	14 bit	200 MS/s	50 MHz	–	4	4	±14V	32M samples

SOFTWARE
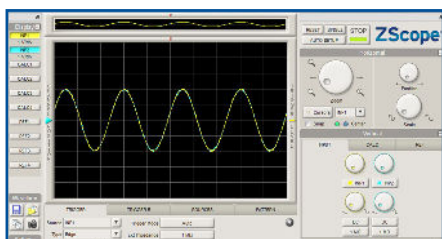
ZScope®

- Intuitive software interface delivers the look and feel of benchtop oscilloscopes
- User-configurable measurement sets for quick and easy waveform analysis
- Auto-setup to configure horizontal, vertical, and trigger settings based on the applied signals
- Large on-screen display clearly shows waveform details
- No more than 2 clicks needed to access all oscilloscope functions
- Save and view thousands of acquisitions using segmented memory
- Runs on Windows XP/ 7/ 10

ZWave™

- Intuitive software interface delivers the look and feel of a benchtop function generator
- Easily select and configure pre-loaded waveforms such as Sine, Square, Triangle, Sinc, Pulse, Ramp, Multi-Tone, and Noise
- Generate arbitrary waveforms using ZWave by importing waveforms captured using a digital oscilloscope
- No more than 2 clicks needed to access most functions
- Save and recall data and instrument settings
- Runs on Windows XP/ 7/ 10

ZT-SERIES OSCILLOSCOPES AND DIGITIZERS

Series	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI	LXI	VXI		
ZT4610	8 bit	4 GS/s	1 GHz	√	√	√	12.5mVpp -100Vpp	512M samples
ZT4210	8 bit	1 GS/s	300 MHz	√	√	√	12.5mVpp -400Vpp	256M samples
ZT4620	8 bit	2GS/s	500 MHz	√	√	√	8mVpp -50Vpp	256M samples
ZT4420	12 bit	1 GS/s	300 MHz	√	√	√	12.5mVpp -50Vpp	256M samples
ZT4440*	14 bit	800 MS/s	300 MHz	√	√	√	12.5mVpp -50Vpp	256M samples

ZT-SERIES WAVEFORM GENERATORS

Series	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Maximum Output Voltage	Maximum Record Length
				PXI	LXI	VXI		
ZT5210	14 bit	200 MS/s	50 MHz	√	√	√	±14V	32M samples

*ZT4440 includes Direct Path (DP) & Differential (DF) options

TERADYNE