TERADYNE ZTSeries

OSCILLOSCOPES & ARBITRARY WAVEFORM GENERATORS

ADDRESSING THE UNIQUE CHALLENGES OF THE DEFENSE AND AEROSPACE INDUSTRIES THROUGH POWERFUL HARDWARE AND FLEXIBLE SOFTWARE

TERADYNE

FEATURES

■ *Supports PXI, 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*

■ *Built-in measurements including: FFT, SFDR, THD, SNR, SINAD, limit test, and more*

BENEFITS

■ *Long instrument life ideal for mission critical Automated Test Systems*

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

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

■ *Forward-looking design facilitates upgrades to modern instruments with minimal migration costs*

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

ZTSeries

DECADES OF DEFENSE & AEROSPACE TEST LEADERSHIP

Teradyne's Defense and Aerospace group develops and supports Modular Digitizers, Digital Oscilloscopes, and Waveform Generators under the ZT-Series brand. These instruments were previously part of ZTEC Instruments, which was acquired by Teradyne in October 2013.

Teradyne's ZT-Series works to solve the unique challenges of the defense and aerospace industries. The ZT-Series modular digital oscilloscopes and waveform generators provide superior performance and support industry standards for easy integration into automated test systems. Powerful hardware and flexible software combine to improve capabilities of legacy equipment, maintain compatibility, provide assurance of supply, and ensure product longevity. The ZT-Series instruments are available as stand-alone instruments, as integrated subsystems, or as fully integrated into Teradyne Spectrum test systems.

DEFENSE & AEROSPACE APPLICATIONS

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 the ZT4628 PXI modular oscilloscope. The ZT4628 was a natural fit as it's the follow-on to the successful ZT1428 used in the US Navy's RTCASS system.

Teradyne also provides Textron with the ZT8442LXI modular IF/RF digitizer for the RF sub-section of eCASS. Textron was able to replace three digitizers, reduce switching requirements, and significantly lower cost and precious space required in the station. ZT8442LXI's on-board digital down converter (DDC) and filtering enable flexible-rate, alias-free sampling, and true 16-bit resolution for band limited signals rather than requiring sampling rate/resolution trade-offs like traditional digitizers.

F-15 ESTS Modernization

Teradyne provides VXI oscilloscopes to SES in support of the USAF modernization of the F-15 ESTS test systems. SES delivered a ''drop-in'' replacement for the digitizer/counter/timer instrument from the original ESTS test stations. The ZT4211VXI oscilloscope was updated to add counter/timer functionality. In addition, SES replaced Symmetricom BC824 Rubidium Oscillator with the ZT824, a form/fit/function replacement.

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. ZT4441DF is the industry's only differential front-end oscilloscope that elegantly solves the test challenge of differential signaling using true differential inputs. 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.

RTCASS Program

The ZT1428 replaces the obsolete HP/Agilent E1428A oscilloscope series, thus allowing for support of the US Navy and Marine Corps.

ADEPT Radar Test System

Teradyne provides Mikros Systems with ZT4611 digital oscilloscopes for the ADEPT Radar Test System that is used on the on the US Navy's AN/SPY-1 Radar System for the Aegis Cruiser and Destroyer. Teradyne has delivered the ZT4611 in both PXI and PCI form factors. Mikros selected ZT4611 as it met all of their requirements and exhibited the best available combination of hardware capability, programmability, and price. ZT4611's onboard waveform analysis alleviates the ADEPT processor from performing those tasks.

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*
- ■ *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 +/- 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 µV/div resolution*
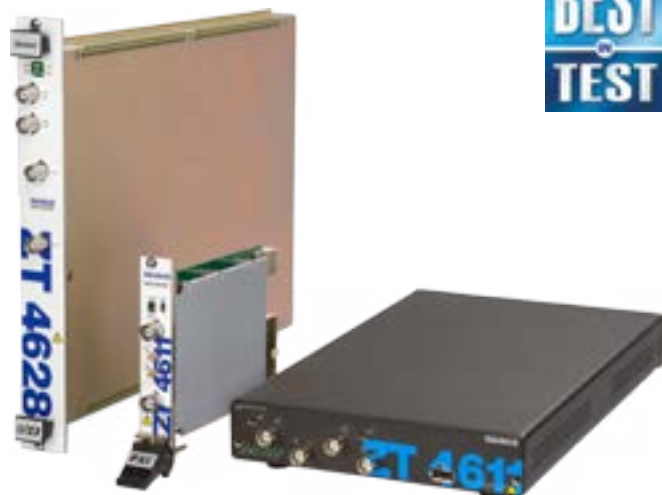
Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI	VXI	LXI		
ZT4611	8 bit	4 GS/s	1 GHz	2	2	2	12.5mVpp -100Vpp	512M samples
ZT4612	8 bit	4 GS/s	1 GHz	-	4	4	12.5mVpp -100Vpp	512M samples

Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI	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*
- ■ *Direct Path (DP) option provides improved noise performance, and the Differential Option (DF) provides differential outputs*

Instrument	Res	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI	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

Additional Options	Product	Max. Input	SFDR
Direct Path (DP) Option	ZT4420-DP	±1V	80 dBc
	ZT4440-DP	±1V	80 dBc
Differential (DF) Option	ZT4420-DF	±100V	65 dBc
	ZT4440-DF	±100V	65 dBc

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*
- *Built-in timer/counter functions*

	Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
					PXI	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

ZT8440 Series

160 MHz IF Digitizer

FEATURES

- *Single-ended I and Q inputs*
- *160 MHz instantaneous bandwidth*
- *On-board memory up to 128 MS record length*
- *Programmable signal conditioning including range and offset*
- *1 GHz Input bandwidth*

	Series	Type	Analysis Bandwidth	ADCs	Baseband Inputs	Baseband Frequency	Baseband Input Range	Memory
RECEIVER	ZT8440	IF Digitizer	160 MHz	Dual 14-bit 400 MS/s	Qty. 2 Single-Ended	DC to 1 GHz	+10 dBm	128MS per I/Q channel

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*
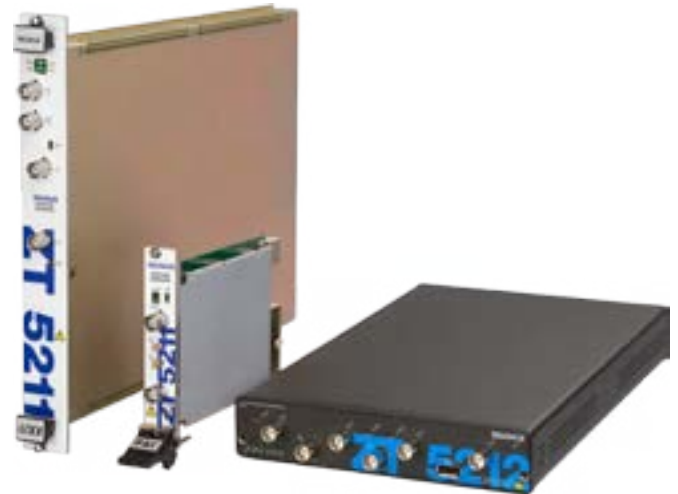

Instrument	Resolution	Maximum Sample Rate	Analog Bandwidth	Channels			Voltage Ranges	Maximum Record Length
				PXI	VXI	LXI		
ZT5211	14 bit	200 MS/s	50 MHz	2	2	2	±14V	32M samples
ZT5212	14 bit	200 MS/s	50 MHz	-	4	4	±14V	32M samples

REPLACEMENT SOLUTIONS

	ZT4211PXI	ZT4628VXI	ZT5211VXI	ZT824VXI
Replacement for:	LECROY PXD222	ANALOGIC DBS907AB & DBS9905	ANALOGIC DBS901	SYMMETRICOM BC824
Applications	Used on UK MOD Bowman Tester	Used on LMC LMSTAR Tester		Used on ESTS Instrument Modernization Program
Instrument				

SOFTWARE
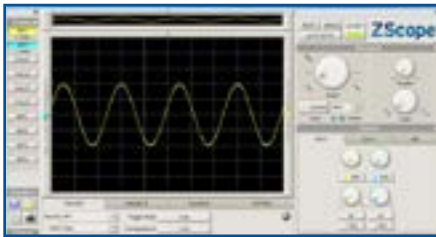
ZScope

- 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 (M-Class only)

- Runs on Windows 2000/XP/Vista/7/64-bit and Linux

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 2000/XP/Vista/7/64-bit and Linux

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	512M 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

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