Agilent E1563A, E1564A 800 kSa/s, 2- and 4-Channel Digitizers

Data Sheet

- **800 kSa/s sample rate with 14-bit resolution**
- **Input ranges up to 256 V, channel isolation 256 V**
- **Common mode rejection 113 dB**
- **Time or event triggering with selectable reading counts**
- **Switchable 25 kHz input filter/channel (E1563A)**
- **Four selectable input filters/channel—1.5 kHz, 6 kHz, 25 kHz, 100 kHz (E1564A)**

Agilent E1563A

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Description

The Agilent Technologies E1563A and E1564A digitizers are **C-size, 1-slot, register-based VXI modules.** They are ideal for measurements in electronic production test and electromechanical design characterization, particularly in environments with high levels of electrical noise. Engineers and technicians in manufacturing test, product development, and engineering research test groups can fully characterize electronic and mechanical transient waveforms with these highly accurate digitizers.

Each channel of the digitizers has its own analog electronics, including 800 kSa/s 14-bit A/D converters, and independent channel isolation. The E1563A channels have switchable 25 kHz input filters, and the E1564A channels have four (4) selectable input filters.

The digitizers are configured for PC SIMM memory, scaleable from 4 Mbytes to 64 Mbytes. The large memory can easily capture transients and act as a FIFO to allow continuous digitizing while unloading data with block mode transfers.

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Time Base and Triggering

All channels sample simultaneously with a single internal or external time base. Triggering can be set up for either time or event modes with programmable pre- and post-trigger reading counts.

Programming

The E1563A and E1564A both have a simple programming model which includes a data FIFO or flat file memory model for the A/D converter, 16-bit integer data corrected for offset and gain errors, and a current value table to retrieve the current sample of data.

Calibration

The E1564A provides a calibration source with flash ROM for holding calibration constants.

Refer to the Agilent Technologies Website for instrument driver availability and downloading instructions, as well as for recent product updates, if applicable.

Product Specifications

Number of channels:	2 (E1563A) 4 (E1564A)
Bandwidth:	1 MHz
Resolution:	14 bits (including sign)
Sample rates:	1 Sa/s to 800 kSa/s
Built-in DSP:	No
Alias protection:	Oversample
Basic accuracy:	0.1%
Time Base resolution:	0.1 µs
Low-frequency CMRR:	113 dB
Variable bandwidth:	E1563A: 25 kHz switchable filter E1564A: 4 selectable filters, 2-pole linear phase
2 dB Input range headroom:	n/a
Trigger:	Time & Event
Pre-arm capture:	Yes
Memory:	4 Mbyte to 64 Mbyte PC SIMM
Dual-ported memory:	Yes
Dual-rate sampling:	No
Segmented memory:	No
E1564A selectable input filters (per channel):	1.5 kHz, 6 kHz, 25 kHz, 100 kHz

Accuracy

Range:	Zero Offset[1] (with filter OFF)		Zero Offset[1] (with filter ON)		Gain (% of reading)		Noise (3 sigma)
	Specification[2]	Temperature Coefficient[3]	Specification[2]	Temperature Coefficient[3]	Specification[2]	Temperature Coefficient[3]	Specification[2]
0.0625 V	20 µV	1.9 µV/°C	28 µV	4.3 µV/°C	0.034%	0.0061%/°C	57 µV
0.25 V	78 µV	6 µV/°C	110 µV	16 µV/°C	0.034%	0.0061%/°C	180 µV
1 V	300 µV	15 µV/°C	430 µV	63 µV/°C	0.034%	0.0061%/°C	720 µV
4 V	1.2 mV	60 µV/°C	1.7 mV	251 µV/°C	0.034%	0.0061%/°C	2.88 mV
16 V	21 mV	1.3 mV/°C	21 mV	1.63 mV/°C	0.034%	0.0061%/°C	14.7 mV
64 V	28 mV	1.65 mV/°C	34 mV	4.24 mV/°C	0.034%	0.0061%/°C	48 mV
256 V	79 mV	4.28 mV/°C	110 mV	16.2 mV/°C	0.034%	0.0061%/°C	189 mV

[1]Valid within the range of 0° C to 55° C. A zero offset calibration for all channels must be performed if the instrument experiences a temperature <0° C or >55° C for these specifications to remain valid.

[2]Specification is valid when tested at a temperature within ± 5° C of the calibration temperature.

[3]Amount of error that must be added for each° C outside of ± 5° C of the calibration temperature.

Integral Non-Linearity Specification

All ranges:	2.5 LSB

Environmental Specifications

For indoor use:	Pollution degree 2
Operating altitude:	3000 meters or mainframe altitude specification, whichever is lower
Operating temperature:	0° C to 55° C
Relative humidity:	Up to 80% at 31° C, decreasing to 50% at 40° C

General Specifications

VXI Characteristics	
VXI device type:	Register based
Data transfer bus:	A16, slave only
Size:	C
Slots:	1
Connectors:	P1/2
Shared memory:	None
VXI buses:	TTL

Instrument Drivers - See the Agilent Technologies Website (http://www.agilent.com/find/inst_drivers) for driver availability and downloading.

Command module firmware:	Downloadable
Command module firmware rev:	A.01.00
I-SCPI Win 3.1:	No
I-SCPI Series 700:	No
C-SCPI LynxOS:	No
C-SCPI Series 700:	No
Panel Drivers:	No
VXI*plug&play* Win Framework:	No
VXI*plug&play* Win 95/NT Framework:	Yes
VXI*plug&play* HP-UX Framework:	No

Note: The Agilent VEE application can use VXI*plug&play* drivers or panel drivers.

Cooling/Slot	
Watts/slot:	E1563A: 20.6 E1564A: 37.4
ΔP mm H_2O:	0.18
Air flow liter/s:	2.8

Module Current

	E1563A		E1564A	
	I_{PM} (A)	**I_{DM} (A)**	**I_{PM} (A)**	**I_{DM} (A)**
+5 V:	1.1	0.5	1.1	0.5
+12 V:	0.6	0.1	1.2	0.1
–12 V:	0.6	0.1	1.2	0.1
+24 V:	0	0.01	0.05	0.01
–24 V:	0	0.01	0.05	0.01
–5.2 V:	0.1	0.01	0.01	0.01
–2 V:	0.1	0.01	0.01	0.01

Ordering Information

Description	Product No.
800 kSa/s 2-Channel VXI Digitizer	E1563A
Add Manual Set	E1563A 0B1
Convert Standard Warranty to On-site	E1563A W01
800 kSa/s, 4-Channel VXI Digitizer	E1564A
Add Manual Set	E1564A 0B1
Convert Standard Warranty to On-site	E1564A W01

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