

Agilent Technologies DAC Express Data Recorder/Logger

Technical Specifications

DAC Express Release 2.01 (E9801B)



High-speed Measurements for Physical Parameters

- Combined measurements of noise, vibration, temperature, pressure, strain, and more
- No programming required – intuitive user interface reduces system development time
- Functional replacement for analog or digital tape recorders
- On-line monitoring assures confidence in measurements
- Post-test data viewing mode helps find events of interest
- Saves time with formatted output to analysis and reporting packages



Agilent Technologies
Innovating the HP Way

Introduction

Agilent *DACExpress* provides an intuitive user interface for data acquisition that maximizes the speed of data capture. The highest priority is recording data to disk without gaps. The update rate of the on-line channel monitoring displays is second priority and will be reduced as the measurement rate or the number of channels is increased.

There are three computer I/O's supported by *DACExpress*. These include the IEEE-1394 interface (Firewire), GPIB interface, and MXI-2. The recommended interface is IEEE-1394.

The maximum data recording rate specifications for factory integrated *DACExpress* systems are presented in graphical form below for each system configuration using a 450 MHz Pentium PC with no monitoring displays enabled. The effects of using a lower performance PC (166 MHz) and enabling of displays are shown in the tables following the graphs.

The optional VXI Data Disk is available for faster recording rates using the E1432A or E1433B Digitizers. The maximum aggregate recording rate is 5 MSamples/sec regardless of the PC used because the data is transferred over the VXI Local Bus directly to the data disk.

DAC Express Data Recorder/Logger Configuration

Number of analog input channels

Base configuration:	
E1432A Digitizer:	16 with individual A/D's and anti-aliasing filters
E1413C Scanning A/D:	8 with direct input buffering 8 with x64 gain and 7 Hz filter (up to 64 channels total with additional signal conditioning)
Available VXI slots for additional channels:	10 open slots with the 13-slot mainframe 8 open slots if the optional VXI Data Disk (N2216A) is installed

Basic analog measurement accuracy

E1432A:	± 0.7% (0.06 dB)
E1413C:	± 0.01% of reading

Maximum data file size per recording

E14132A Digitizers:	2 GBytes (1.0 GSamples)
E1413C Scanning A/Ds:	2 GBytes (500 MSamples)

Sample rate per channel

E1432A Digitizer:	20 Sa/sec to 51.2 kSa/sec on all 16 channels
E1413C Scanning A/D:	1 Sa per 6 sec to 1.25 kSa/sec for all 64 channels max of 10 kSa/sec for 1 to 3 channels

Update rate for monitoring displays:	>5 updates/sec
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Single module data recording rate

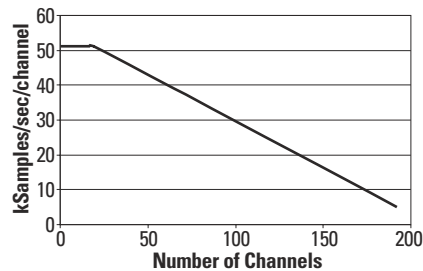
E1432A Digitizer to PC system hard drive:	819 kSa/sec maximum
E1432A Digitizer to N2216A Data Disk:	819 kSa/sec maximum
E1413C Scanning A/D to PC system hard drive:	80 kSa/sec maximum

Multiple module data recording rate to PC hard drive

PC Configuration:	450 MHz Pentium® III, 128 MB RAM, 10 GB ATA hard drive, Windows® NT 4.0
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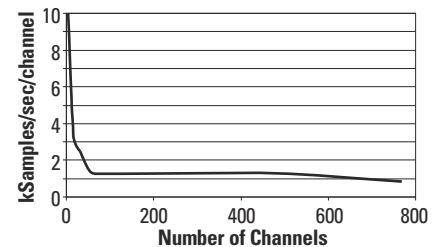
Dynamic Acquisition Rate

E1432A channels only, no displays enabled



Static Acquisition Rate

E1413A channels only, no displays enabled

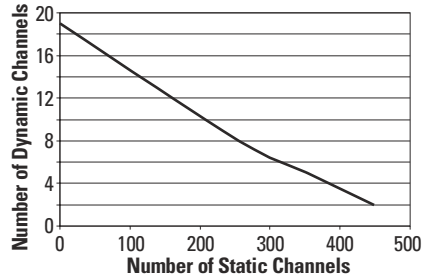


Windows and Windows NT are U.S. registered trademarks of Microsoft Corporation.
Pentium is a U.S. registered trademark of Intel Corporation.

Combined E1432A and E1413C modules, no displays enabled

Combined Static and Dynamic

E1432A channels at 51.2 kSa/sec, E1413C channels at 1.25 kSa/sec



Relative effect on recording rate using a 166 MHz PC and/or using displays enabled

PC Configurations: 450 MHz Pentium III, 128 MB,
10 GB ATA hard drive, Windows NT 4.0
166 MHz Pentium II, 64 MB RAM,
2 GB SCSI hard drive, Windows NT 4.0

Displays enabled at >5 updates/sec:

E1432A only displays:	1 block time
E1413C only displays:	2 stripcharts, 2 numeric readouts, 2 bargraphs, 2 meters
E1432A/E1413C displays:	1 strip chart, 1 block time, 2 numeric readouts, 2 bar graphs, 2 meters

Maximum number of E1432A channels recording at 51.2 kSa/sec/ch

	Displays off	Displays on
450 MHz PC	19 channels	16 channels
166 MHz PC	6 channels	4 channels

Maximum number of E1413C channels recording at 1.25 kSa/sec/ch

	Displays off	Displays on
450 MHz PC	512 channels	460 channels
166 MHz PC	192 channels	110 channels

Maximum number of E1432A channels recording at 51.2 kSa/sec/ch and

Maximum number of E1413C channels recording at 1.25 kSa/sec/ch

	Displays off	Displays on
450 MHz PC	8 channels	8 channels
	256 channels	170 channels
166 MHz PC	2 channels	2 channels
	96 channels	2 channels

DAC Express Data Recorder/Logger Configuration

Number of channels

Base configuration:

E1432A Digitizer:	16 with individual A/D's and anti-aliasing filters
Available VXI slots for Additional Channels:	2 open slots with the 4-slot mainframe 10 open slots with the 13-slot mainframe 8 open slots if the optional VXI Data Disk is installed

Basic measurement accuracy

E1432A:	$\pm 0.7\%$ (0.06 dB)
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Maximum data file size

E14132A Digitizer:	2 GBytes (1.0 GSamples)
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Sample rate per channel

E1432A Digitizer:	20 Sa/sec to 51.2 kSa/sec on all 16 channels
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Update rate for monitoring displays

>5 updates/sec

Single module data transfer rate

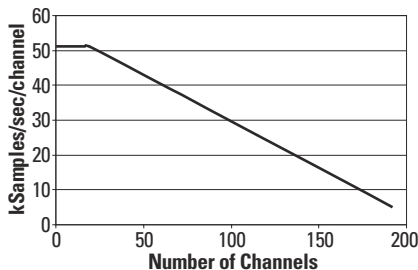
E1432A Digitizer to PC system hard drive:	819 kSa/sec maximum
E1432A Digitizer to N2216A Data Disk:	819 kSa/sec maximum
N2216A data export rate to PC system hard drive:	300 kSa/sec

Multiple module data recording rate

PC Configuration:	450 MHz Pentium III, 128 MB RAM
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Dynamic Acquisition Rate

E1432A channels only, no displays enabled



Relative effect on recording rate using a 166 MHz PC and/or using displays enabled

PC Configurations:

450 MHz Pentium III, 128 MB, 10 GB ATA hard drive, Windows NT 4.0
166 MHz Pentium II, 64 MB RAM, 2 GB SCSI hard drive, Windows NT 4.0

Displays enabled at >5 updates/sec:

E1432A only displays:	1 block time
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Maximum number of E1432A channels recording at 51.2kSa/sec/ch

	Displays off	Displays on
450 MHz PC	19 channels	16 channels
166 MHz PC	6 channels	4 channels

DAC Express Data Logger Configuration

Number of channels

Base configuration:

E1413C Scanning A/D:	8 with direct input buffering 8 with x64 gain and 7 Hz filter (up to 64 channels total with additional signal conditioning)
Available VXI slots for additional channels:	2 open slots with 4-slot mainframe 11 open slots with 13-slot mainframe

Basic measurement accuracy

E1413C:	± 0.01% of reading
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Maximum data file size

E1413C Scanning A/D:	2 Gbytes (500 MSamples)
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Sample rate per channel

E1413C Scanning A/D:	6 sec/Sa to 1.25 kSa/sec on 64 channels maximum of 10 kSa/sec for 3 channels
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Update rate for monitoring displays:	>5 updates/sec
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Single module data transfer rate

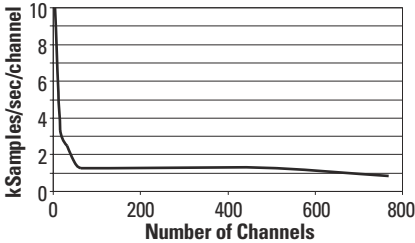
E1413C Scanning A/D to PC system hard drive:	80 kSa/sec maximum
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Multiple module data recording rate

PC Configuration: 450 MHz Pentium III, 128 MB RAM

Static Acquisition Rate
E1413C channels only, no displays enabled

Relative effect on recording rate using a 166 MHz PC and/or using displays enabled



PC Configurations:

450 MHz Pentium III, 128 MB, 10 GB ATA hard drive, Winows NT 4.0
166 MHz Pentium II, 64 MB RAM, 2 GB SCSI hard drive, Windows NT 4.0

Displays enabled at >5 updates/sec:

E1413C only displays:	2 stripcharts, 2 numeric readouts, 2 bargraphs, 2 meters
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Maximum number of E1413C channels recording at 1.25 kSa/sec/ch

	Displays off	Displays on
450 MHz PC	512 channels	460 channels
166 MHz PC	192 channels	110 channels

DAC Express Multifunction Data Logger Configuration

Number of channels

Base configuration:

E1419A Multifunction Measurement and Control:	8 with direct input buffering 8 with x64 gain and 7 Hz filter 16-bit digital I/O (up to 64 channels total with additional signal conditioning)
Available VXI slots for additional channels:	2 open slots with 4-slot mainframe 11 open slots with 13-slot mainframe

Basic analog measurement accuracy: ± 0.01% of reading

Sample rate per channel:

6 sec/Sa to 434 Sa/sec on 64 channels
maximum of 3333 Sa/sec for 5 channels

Update rate for monitoring displays: >5 updates/sec

Maximum data file size per recording

E1419A Multifunction Module 2 GBytes (500 MSamples)

Single module data transfer rate

E1419A to PC system hard drive: 27.8 kSa/sec maximum

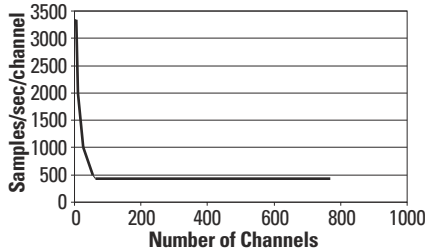
Multiple module data recording rate

PC Configuration: 450 MHz Pentium III, 128 MB RAM

Multifunction Acquisition Rate

E1419A channels only, no displays enabled

Relative effect on recording rate using a 166 MHz PC and/or using displays enabled



PC Configurations:

450 MHz Pentium III, 128 MB, 10 GB ATA hard drive, Windows NT 4.0
166 MHz Pentium II, 64 MB RAM, 2 GB SCSI hard drive, Windows NT 4.0

Displays enabled at >5 updates/sec:

E1419A only displays: 2 stripcharts, 2 numeric readouts,
2 bargraphs, 2 meters

Maximum number of E1419A channels recording at 434 Sa/sec/ch

	Displays off	Displays on
450 MHz PC	768 channels	680 channels
166 MHz PC	768 channels	36 channels

DAC Express Software (E9801B)

Minimum system requirements:

Windows 95 (Windows 98 and 2000 also)

or

Windows NT 4.0 (Service Pack 3 or higher)

166 MHz Pentium processor

64 MB RAM

30 MB available space on hard drive for program code plus space for data storage

CD-ROM drive for installation

IEEE-1394 I/O: bus must be PCI 2.1 compliant

Display: 15 inch, 800x600 resolution

Recommended system requirements:

Windows NT 4.0 (Service Pack 3)

450 MHz Pentium processor or faster

128 MB RAM or more

30 MB available space on hard drive for program code plus space for data storage

CD-ROM drive for installation

IEEE-1394 I/O: bus must be PCI 2.1 compliant

Display: 17 inch, 1024x768 resolution

Data storage requirements

E1432A: 2 bytes/sample plus overhead of 100 kBytes per recording

E1413C: 4 bytes/sample plus overhead of (430 bytes times number of enabled channels) per recording

E1419A: 4 bytes/sample plus overhead of (430 bytes times number of enabled channels) per recording

Maximum data file size

2.0 GB per recording session

E1432A: 1.0 GSamples

E1413C: 500 kSamples

E1419A: 500 kSamples

Supported VXI Interfaces

IEEE-488: E1406A with 82341D or 82350A

Typical data record rate with E1413C Scanning A/D and E1415A Multifunction Module: 20 kSa/sec regardless of computer performance level (Not recommended for use with E1432/33 and N2216A)

National Instruments MXI-2

Typical data record rate with E1413C Scanning A/D: approximately the same as rates shown for E8491B

Related Agilent Literature

E1413C Product Overview,
Literature number. 5965-5583E

E1419A Product Overview,
Literature number 5965-8828E

E1432A//33B/44A Product Overview,
Literature number 5968-2072E

E1432A Technical Specifications,
Literature number 5968-8729E

Test System and VXI Products Data Book,
Literature number 5966-2812E

On-line go to www.agilent.com/find/data_acq
for other data acquisition product information

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