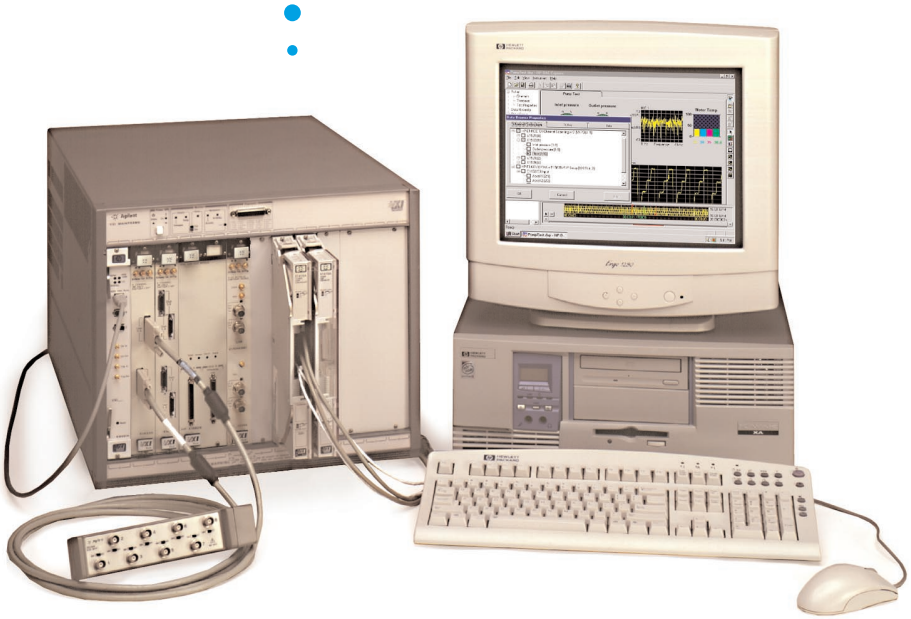
Agilent Technologies

DAC *Express*

Technical Specifications

DAC*Express* Data Recorder/Logger (E9814B)
DAC*Express* Data Recorder (E9813B)
DAC*Express* Data Logger (E9812B)
DAC*Express* Multifunction Data Logger (E9811B)



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 DAC*Express* 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 DAC*Express*. These include the IEEE-1394 interface (Firewire), GPIB interface, and MXI-2. The recommended interface and the only one available in a factory integrated system is IEEE-1394.

The maximum data recording rate specifications for factory integrated DAC*Express* 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 (Option 001 or 002 for the E9814B and E9813B) is available for faster recording rates using the E1432A or E1433B Digitizers. The maximum aggregate recording rate is 2.5 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 (E9814B)

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 standard 13-slot mainframe 8 open slots if the optional VXI Data Disk 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

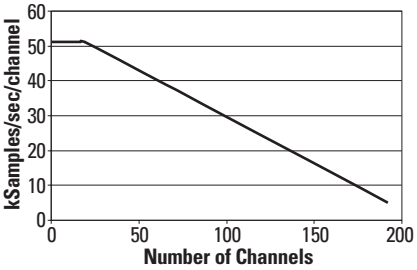
Single module data recording rate

E1432A Digitizer to PC system hard drive:	819 kSa/sec maximum
E1432A Digitizer to E1562D/E Data Disk:	819 kSa/sec maximum
E1413C Scanning A/D to PC system hard drive:	80 kSa/sec maximum

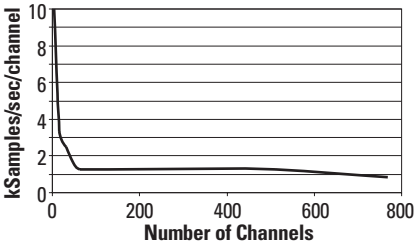
Multiple module data recording rate to PC hard drive

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

Dynamic Acquisition Rate
E1432A channels only, no displays enabled

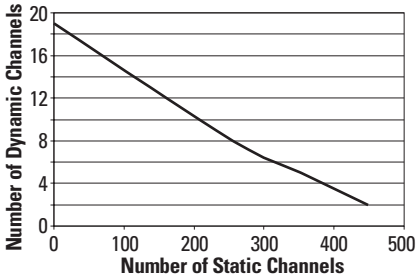


Static Acquisition Rate
E1413A channels only, no displays enabled



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 (E9813B)

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 standard 4-slot mainframe
	10 open slots with the optional 13-slot mainframe
	8 open slots if the optional VXI Data Disk is installed

Basic measurement accuracy

E1432A:	± 0.7% (0.06 dB)

Maximum data file size

E14132A Digitizer:	2 GBytes (1.0 GSamples)

Sample rate per channel

E1432A Digitizer:	20 Sa/sec to 51.2 kSa/sec on all 16 channels

Update rate for monitoring displays >5 updates/sec

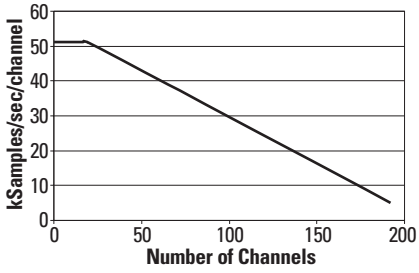
Single module data transfer rate

E1432A Digitizer to PC system hard drive:	819 kSa/sec maximum
E1432A Digitizer to E1562D/E Data Disk:	819 kSa/sec maximum
E1562A 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

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

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 (E9812B)

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 standard 4-slot mainframe 11 open slots with optional 13-slot mainframe

Basic measurement accuracy

E1413C:	± 0.01% of reading

Maximum data file size

E1413C Scanning A/D:	2 Gbytes (500 MSamples)

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

Update rate for monitoring displays:	>5 updates/sec

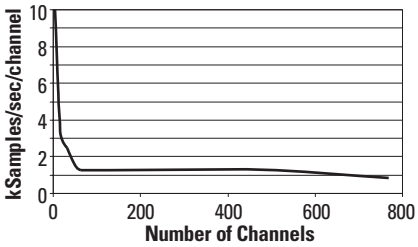
Single module data transfer rate

E1413C Scanning A/D to PC system hard drive:	80 kSa/sec maximum

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

Maximum number of E1413C channels recording at 1.25kSa/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 (E9811B)

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 standard 4-slot mainframe 11 open slots with optional 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)

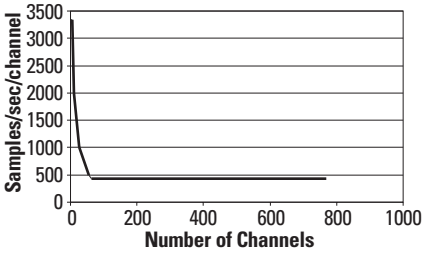
Single module data transfer rate

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 166MHz 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 for Firewire I/O to be available later)

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 E1562D)

National Instruments MXI-2

Typical data record rate with E1413C Scanning A/D:	approximately the same as rates shown in E9814A and E9812A (E8491A I/O)

Related Agilent Literature

E1413C Product Overview,
Pub. No. 5965-5583E

E1419A Product Overview,
Pub. No. 5965-8828E

E1432A//33B/44A Product Overview,
Pub. No. 5968-2072E

E1432A Technical Specifications,
Pub. No. 5968-8729E

Test System and VXI Products Data Book,
Pub. No. 5966-2812E

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