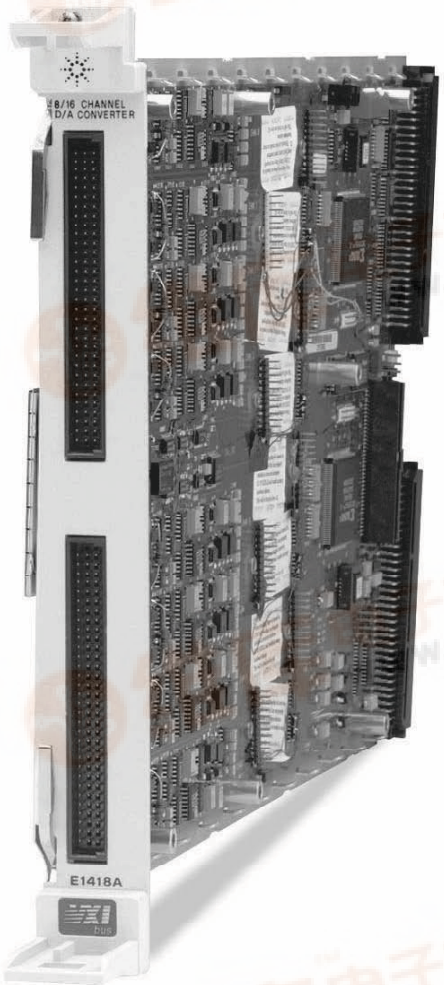
Agilent E1418A
8/16-Channel D/A Converter

Data Sheet



Features

- 1-Slot, C-size, register based
- 8/16 independent channels, flexible and configurable
- Individual isolation per channel
- 16-bit resolution D/A per channel
- Programmable selectable voltage/current modes
- Software controlled calibration

Description

The Agilent E1418A 8/16-Channel D/A Converter is a C–size, 1-slot, register-based VXI module. It consists of 8 or 16 fully independent, isolated or non-isolated, 16-bit D/As. Each channel can be set to voltage or current mode with local or remote sensing on voltage outputs. All outputs can be updated with register-level programming to allow fast backplane access. Each channel can be updated individually, or by using the internal data buffer, synchronized so that all channels change simultaneously. The channel output mode is set with jumpers in the terminal block for each channel or by register programming. Each D/A converter can be calibrated without removal through software commands and use of the terminal block CALBUS in conjunction with a 5.5-digit multimeter. The on/off terminal block has standard screw terminals for field wiring.

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

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Fast Updates

All outputs can be updated with register-level programming to allow fast backplane access. Rates are limited by controller speed and analog settling time. Each channel can be updated individually, or by using the internal data buffer, synchronized so that all channels change at the same time. The channel output mode is set with jumpers in the terminal block for each channel or by register programming.

In-place Calibration

Each D/A converter can be calibrated without removal through software commands and use of the terminal block CALBUS in conjunction with a 5.5-digit multimeter. In addition, a built-in self-test command provides a high level of confidence that the module is operating properly.

Choice of Connectors

The easy-to-use on/off terminal block, a feature of QUIC, comes with standard screw terminals for field wiring. Optional crimp and insert or ribbon cable connectors are available. Each channel contains a programmable output disconnect relay to open or close the channel.

Product Specifications

DC Voltage

Amplitude:	± 16 V max.
Resolution:	16 bits (488 µV steps) Monotonic to 2.0 mV
Amplitude accuracy (dc):	± (0.05% + 3.0 mV) (90 days)

DC Current

Range:	0 to ± 20.00 mA
Resolution:	16 bit (610 nA steps) Monotonic to 25 µA
Accuracy: ± (% value + amps) (calibrated; temperature within ± 5 °C of calibration temperature and same load as at calibration)	
90-day:	± (0.09% + 5.0 µA)
Output voltage:	
Compliance voltage:	± 12 V
Max open circuit voltage:	<18 V
Output current:	
Compliance current:	>20 mA @ 0 to ± 12 V derated linearly to 5 mA @ ± 16 mV
Short circuit current:	<40 mA
Differential ripple and noise:	<2 µA rms (20 Hz - 250 kHz, into 250 Ω load)

AC Output

Sample rate:	1 kSa/s per channel
Modulation:	No
Sweep:	No
Amplitude accuracy (ac):	Not specified
Standard waveforms:	No
Arbitrary waveform function:	No

General Characteristics

Settling time:	300 µs (+ full scale to – full scale step, single channel, to rated accuracy)
Isolation:	42 Vdc/ac peak (channel-to-chassis or channel-to-channel)
Synchronization:	Software commands, external trigger inputs, or TTL backplane trigger lines provide a choice of synchronizing event. Each individual channel can be updated by software command or all channels can be updated at the same time based upon a software or hardware trigger.

General Specifications

VXI Characteristics

VXI device type:	Register based
Data transfer bus:	A16 or A24, D16
Size:	C
Slots:	1
Connectors:	P1/2
Shared memory:	n/a
VXI busses:	n/a
C-size compatibility:	n/a

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.08
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	Yes
C-SCPI Series 700:	Yes
Panel Drivers:	No
VXI*plug&play* Win Framework:	Yes
VXI*plug&play* Win 95/NT Framework:	Yes
VXI*plug&play* HP-UX Framework:	No

Module Current

	I_{PM}	I_{DM}
+5 V:	0.7	0.01
+12 V:	0.04	0.01
-12 V:	0	0
+24 V:	0.44	0.01
-24 V:	0.44	0.01
-5.2 V:	0	0
-2 V:	0	0

Cooling Slot

Watts/slot:	25.4
ΔP mm H_2O:	0.10
Air Flow liter/s:	2.0

Ordering Information

Description	Product Number
8/16-Channel D/A Converter	E1418A
Add 8 channels for total of 16, non-isolated***	E1418A 001***
Convert 8 channels to isolated***	E1418A 002***
Add 8 channels and convert all 16 to isolated***	E1418A 003***
Crimp/insert connectors****	E1418A A3E****
Ribbon cable connectors	E1418A A3H
1-Channel Isolation Plug-on for E1418A*	E1523A*
8-Non-isolated-channel Expan. Kit for E1418A**	E1524A**
8-Isolated-channel Expan. Kit for E1418A**	E1525A**
Service Manual	E1418A-OB3

Notes:

* You can add isolation to single channels with the E1523A.

** You can add an 8-channel expansion kit to existing 8-channel units with the E1524A and E1525A.

*** Factory installed option. *Must* be ordered with the E1418A. Comes with standard screw terminals.

**** Crimp-and-insert contacts are not included. See the Interconnect and Wiring section for information on ordering Crimp-and-Insert Contacts.

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LXI

www.lxistandard.org
LXI is the LAN-based successor to GPIB, providing faster, more efficient connectivity. Agilent is a founding member of the LXI consortium.

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Product specifications and descriptions in this document subject to change without notice.

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