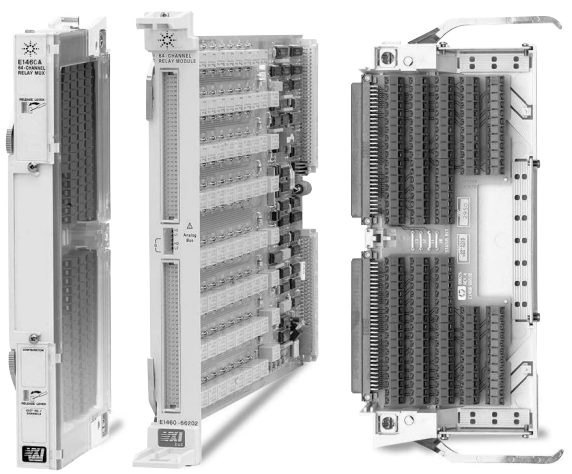
Agilent E1460A
64-Channel Relay Multiplexer
Data Sheet

- **1-Slot, C-size, register based**
- **Armature latching relay channels**
- **Configuration for testing insulation**
- **Includes QUIC easy-to-use terminal block**
- **Numerous multiplexer topologies**
- **Configurable for scanning voltmeter applications**



Description

The Agilent E1460A High-Density Relay Multiplexer is a **C-size, 1-slot, register-based VXI module.** This 64-channel multiplexer, using latching armature switches, offers a highly configurable, high point-count switching topology. Switching topologies include 64 two-wire, 32 three-wire, 32 four-wire, or 128 single-ended latching relay channels. This multiplexer consists of a component card with switches (labeled E1460-66202) and the QUIC screw terminal block (E1460-80011) that plugs onto the component card.

Use of SCPI commands or status bit jumpers on the terminal card configures the E1460A "wire mode" as either a 128x1-wire, 64x2-wire, 32x3-wire, or 32x4-wire multiplexer.

Applications for the E1460A include wire harness and cable testing, semiconductor testing, and printed circuit board testing.

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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Configuration

The switch consists of eight banks of eight Hi and Lo switches, each bank having its own eight Hi and Lo common. There are seven programmable control switches and six sets of wire jumpers. These wire jumpers allow all bank commons to produce either eight 1x8 two-wire multiplexers, four 1x8 two-wire multiplexers, and two 1x16 two-wire multiplexers, or four 1x16 two-wire multiplexers. Other switching topologies are also possible.

One 2.5-in analog bus cable (E1400-61605) is included to connect the analog buses of multiple slot-adjacent E1460A modules or a slot-adjacent E1411B multimeter module. The analog bus cable, easily installed at the faceplate of the component card, lets you connect the E1460A with the E1411B DMM. Using SCPI commands sent to the E1411B, you can close channels configured as two-wire, three-wire, or four-wire in the E1460A. It is possible (but less convenient) to connect the analog bus by attaching your own wiring to the E1460A and E1411B screw terminals.

The E1460A User Manual contains configuration and programming examples for one-wire through four-wire switching modes, cable test, switchbox, scanning, triggering, and scanning with an external multimeter.

Product Specifications

Input

DC:	
Maximum voltage (any terminal to any other terminal or chassis):	220 Vdc
AC rms:	
Maximum voltage (any terminal to any other terminal or chassis):	250 V rms
Maximum current (per channel common, non-inductive):	1 Adc/ac rms (< 30 Vdc), 0.3 Adc/ac rms (<133 Vdc)
Maximum power per channel:	40 VA

DC

Maximum thermal offset per channel, differential Hi-Lo:	7 µV
Closed channel resistance:	<1.5 Ω initial, <3.5 Ω end of life
Insulation resistance (between any two points):	5x10E6 Ω (40 °C, 95% RH), 5x10E8 Ω (25 °C, 40% RH)
Insulation resistance (Hi to Lo, power off):	n/a

AC

Minimum bandwidth (–3 dB, 50 Ω source/load):	10 MHz (2-wire), 3 MHz (1-wire)
Crosstalk (channel-to-channel):	
100 kHz:	≤60 dB (1-wire), ≤90 dB (2-wire)
10 MHz:	n/a
Both:	n/a
Closed channel capacitance:	<650 pF Hi-Lo, <700 pF Lo-Chassis (both in 2-wire mode)

General Characteristics

Relays:	Latching armature Break-before-make
Power down state:	Relays open on power down
Power up state:	Relays open on power up
Minimum relay life:	
No load:	5x10E6 operations
Rated load:	10E5 operations
Screw terminal wire size:	16 to 26 AWG (1.5, 1.2, 0.9, 0.75, 0.5 mm)
Scanning rate:	75 channels/s typ.

General Specifications

VXI Characteristics

VXI device type:	Register based, A16, slave only
Size:	C
Slots:	1
Connectors:	P1, P2
Shared memory:	None
VXI busses:	None
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.02
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	Yes
C-SCPI Series 700:	Yes
Panel Drivers:	Yes
VXI*plug&play* Win Framework:	Yes
VXI*plug&play* Win 95/NT Framework:	Yes
VXI*plug&play* HP-UX Framework:	No

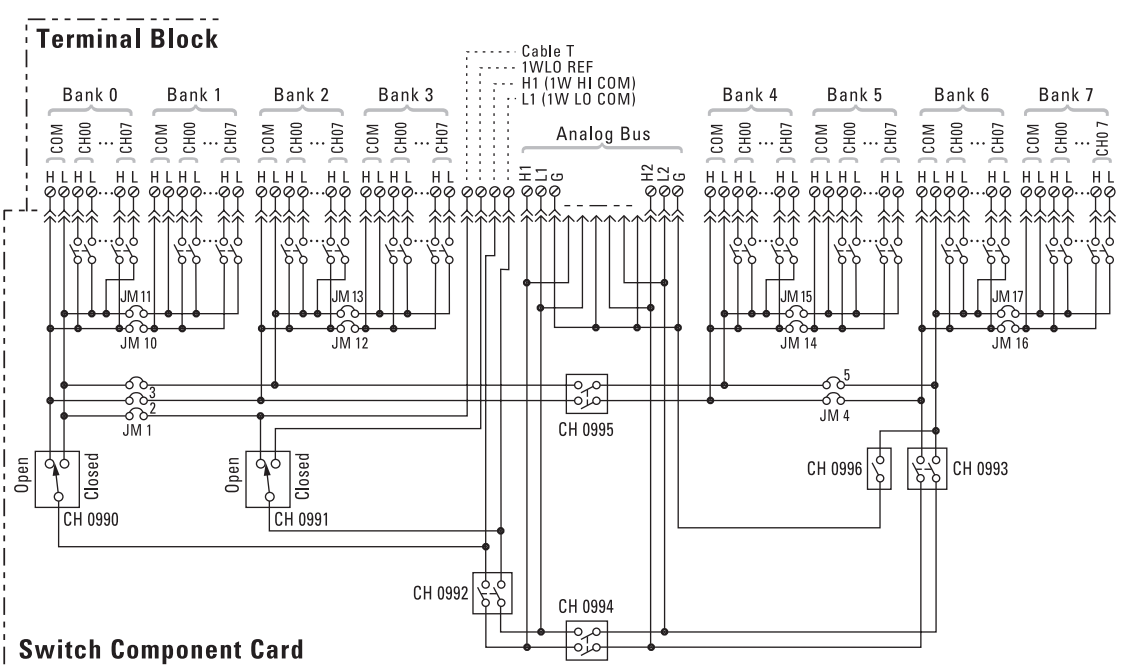
Module Current

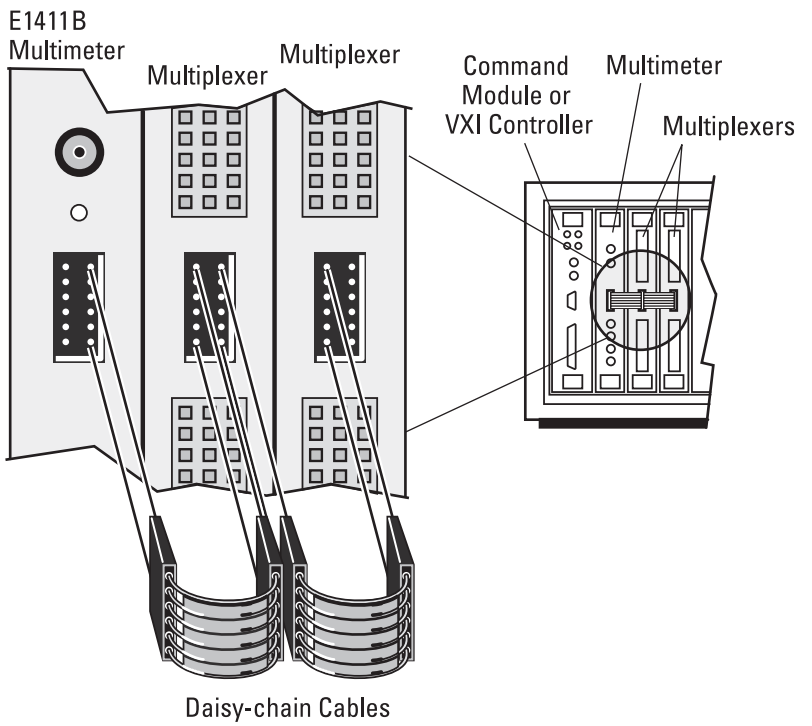
	I_{PM}	I_{DM}
+5 V:	0.1	0.1
+12 V:	0	0
–12 V:	0	0
+24 V:	0	0
–24 V:	0	0
–5.2 V	0	0
–2 V:	0	0

Cooling/Slot

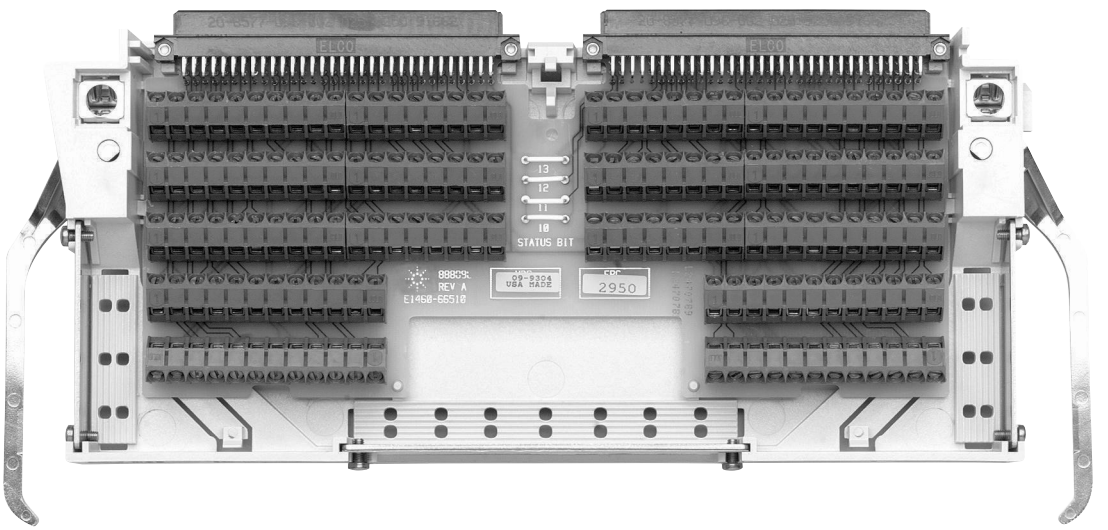
Watts/slot:	5.00
ΔP mm H_2O:	0.08
Air Flow liter/s:	0.42

Agilent E1460A





Agilent E1460A with MUX-to-MUX and MUX-to-multimeter analog bus cabling



Agilent E1460A Terminal Block

Ordering Information

Description	Product No.
64-Channel Relay Multiplexer	E1460A
Pre-QUIC-type Terminal Block	E1460A 106
Crimp-and-Insert Terminal Block*	E1460A A3E*
Service Manual	E1460A 0B3
3 Yr. Retn. to Agilent to 1 Yr. OnSite Warr.	E1460A W01
Extra Screw Terminal Block	E1460-80011
Extra Crimp-and-Insert Terminal Block (if ordered separately)*	E1460-80012*

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

Related Literature

2000 Test System and VXI Catalog CD-ROM,
Agilent Pub. No. 5980-0308E (detailed specifications for VXI products)

2000 Test System and VXI Catalog,
Agilent Pub. No. 5980-0307E (overview of VXI products)

1998 Test System and VXI Products Data Book,
Agilent Pub. No. 5966-2812E

Online

Internet access for Agilent product information, services and support
www.agilent.com/find/tmdir

VXI product information
www.agilent.com/find/vxi

Defense Electronics Applications
www.agilent.com/find/defense_ATE

Agilent Technologies VXI Channel Partners
www.agilent.com/find/vxichanpart

Agilent Technologies' HP VEE Application Website
www.agilent.com/find/vee

Agilent Technologies Data Acquisition and Control Website
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Agilent Technologies Instrument Driver Downloads
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