DATA SHEET

E1460A VXI Relay Multiplexer

64-Channel, 1-amp, C-Size

KEYSIGHT TECHNOLOGIES

Description

The Keysight Technologies 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 threewire,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.

Key Features

- 1-Slot, C-size, register-based
- Armature latching relays
- Configuration for testing insulation
- Numerous multiplexer topologies
- QUIC easy-to-use terminal block included

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 or to interconnect multiple E1460A multiplexers. Using SCPI commands sent to the E1411B, you can close channels configured as two-wire, three-wire, or four-wire in the E1460A.

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.

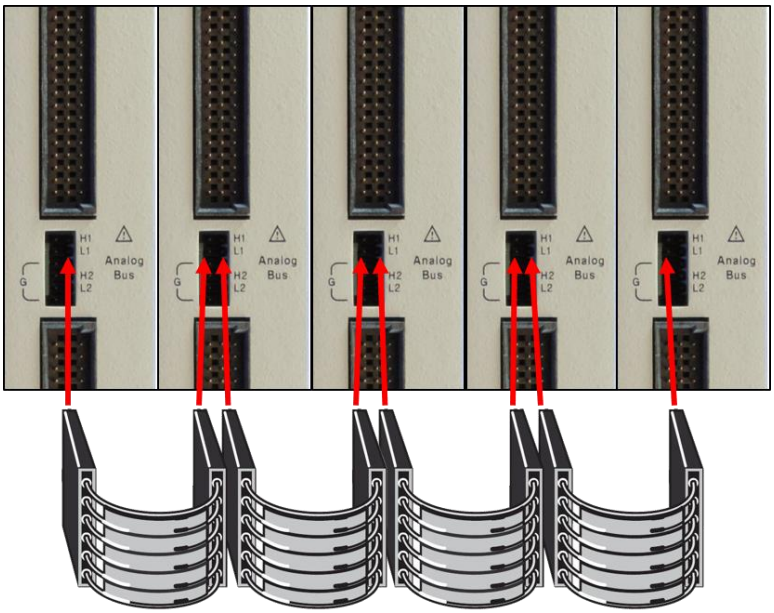

Figure 1. Interconnecting multiple E1460A multiplexers using the analog bus cable

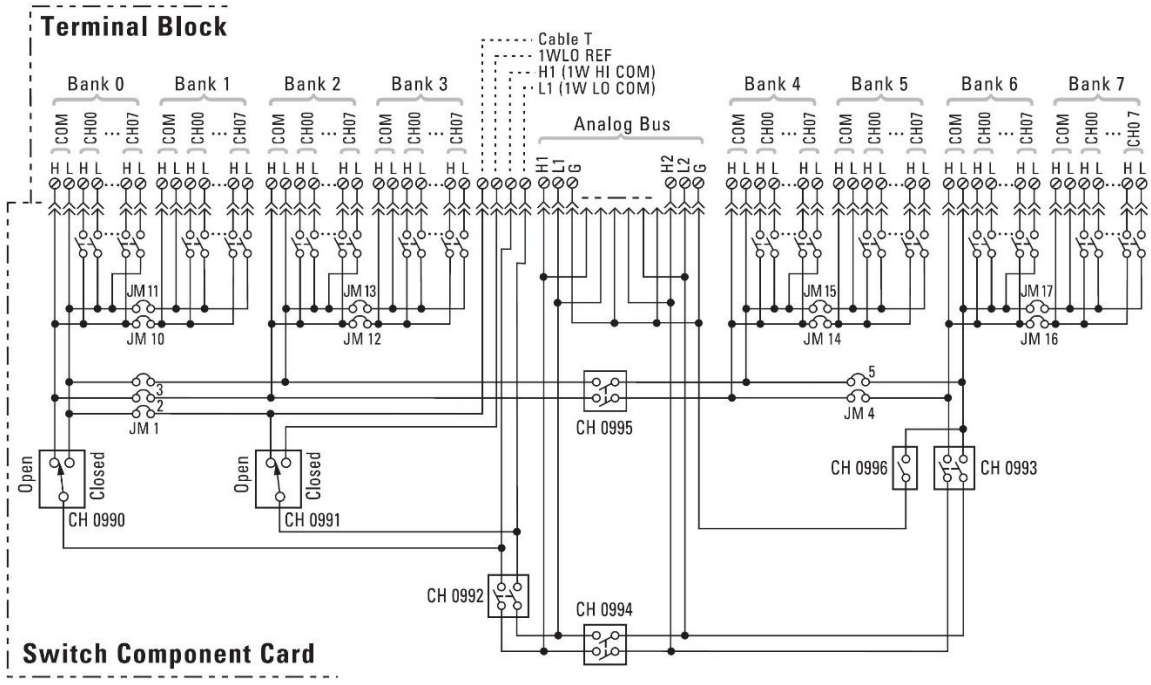

Figure 2. E1460A Circuit Diagram

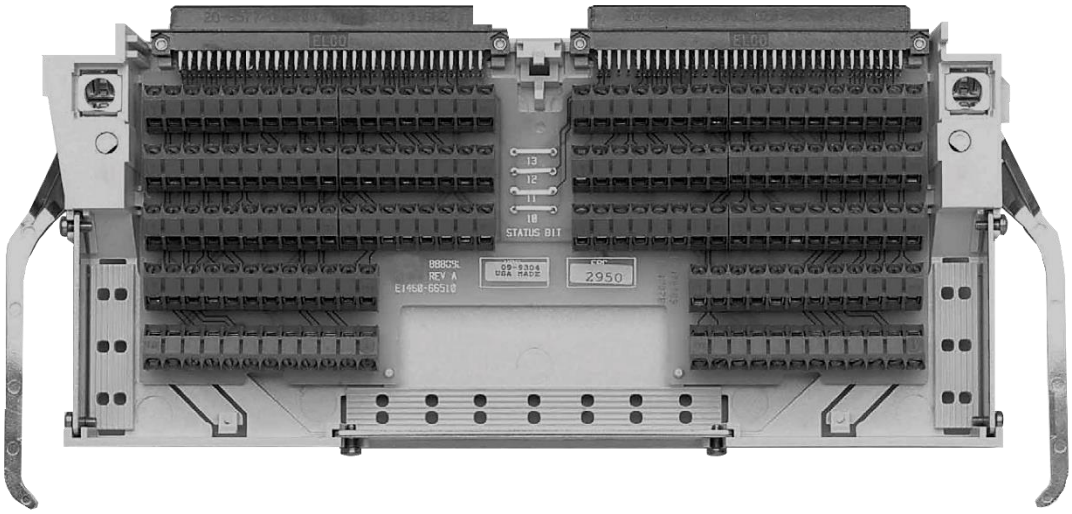

Figure 3. E1460A-STD Terminal Block

Technical Specifications and Characteristics

Input Characteristics	
Maximum voltage (any terminal to any other terminal or chassis)	
DC	220 V
AC rms	250 V
Maximum current (per channel common, non-inductive)	
DC	1 A (<30 VDC) 0.3 A (<133 VDC)
AC rms	1 A (<30 VAC rms) 0.3 A (<133 VAC rms)
Maximum power (per channel)	
DC	40 Watts
AC	40 VA

DC	
Maximum thermal offset (per channel, differential, Hi-Lo)	7 µV
Closed channel resistance	
Initial	<1.5 Ω
End of life	<3.5 Ω
Insulation resistance (between any two points)	
25°C, 40% RH	$5x10^8$ Ω
40°C, 95% RH	$5x10^6$ Ω

AC	
Minimum bandwidth (-3dB, 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)
Closed channel capacitance (2-wire)	
Hi-Lo	< 650 pF
Lo-chassis	< 700 pF

General Characteristics	
Relays	Latching armature, break-before-make
Power down state	Relays open on power down
Power up state	Relays open on power up
Screw terminal wire size	16 to 26 AWG
Scanning rate	75 channels/s (typ)
Typical relay life	
No load	5×10^6 operations
Rated load	10^5 operations

VXI characteristics		
VXI device type	Register-based, A16, slave only	
Size	C	
Slots	1	
Connectors	P1/P2	
Shared memory	None	
VXI busses	None	
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_20	0.08	
Air flow liters/s	0.42	

Definitions and Conditions

Specification (spec)
The warranted performance of a calibrated instrument that has been stored for a minimum of 1 hour within the operating temperature range of 0 to 50 °C and after a 30-minute warm up period. All specifications account for the effects of measurement and calibration-source uncertainties and were created in compliance with ISO-17025 methods. In addition, a driver session must be opened to initialize the power supplies. This can be done programmatically or by opening SFP and connecting to the instrument. Data published in this document are specifications (spec) only where specifically indicated.
Typical (typ)
The characteristic performance, which 80% or more of manufactured instruments will meet. This data is not warranted, does not include measurement uncertainty or calibration-source, and is valid only at room temperature (approximately 25°C).
Nominal (nom)
The mean or average characteristic performance, or the value of an attribute that is determined by design such as a connector type, physical dimension, or operating speed. This data is not warranted and is measured at room temperature (approximately 25°C).
Measured (meas)
An attribute measured during the design phase for purposes of communicating expected performance, such as amplitude drift vs. time. This data is not warranted and is measured at room temperature (approximately 25°C).
Additional Information
All data are measured from multiple units at room temperature and are representative of product performance within the operating temperature range unless otherwise noted. The data contained in this document is subject to change.

Ordering Information

Model	Description
E1460A	32-Channel, 5 Amp, Form C VXI Switch
E1460A-106	Old style front panel and screw terminal block
E1460A-A3E	Crimp/insert connectors
E1460A-0B3	Service Manual
E1460A-FRM	Factory refurbished product
E1460A-STD	Screw connection terminal block
Related Products	
E8401A	13-slot, C-size, VXI Mainframe with 550W Power Supply and basic monitoring
E8403A	13-slot, C-size, VXI Mainframe with 1000W Power Supply and basic monitoring
E8404A	13-slot C-size VXI Mainframe, 1000W PS, Enhanced monitor, color graphic display
E1406A	VXI GPIB Command Module; C-size

Learn more at: www.keysight.com

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