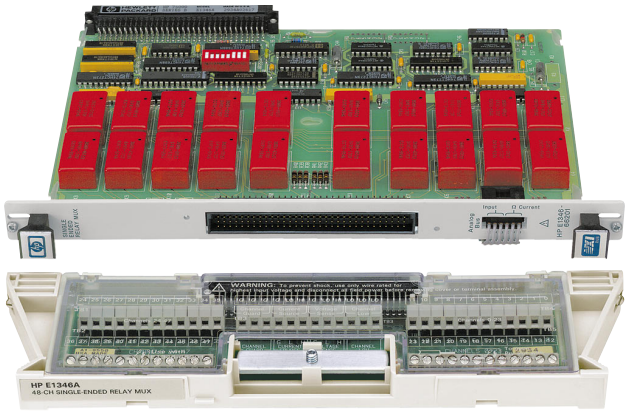
48-Channel Single-Ended Relay Multiplexer
HP E1346A

Technical Specifications

- **48 single-ended channels**
- **Common low and guard terminals**
- **Channel scanning with HP DMMs**
- **Analog bus connector on the faceplate**



Description

The HP E1346A single-ended relay multiplexer is a **B-size, 1-slot, register-based VXI module** that switches 48 channels of high connections and one channel each of low and guard. This module consists of a component and a terminal block that plugs onto the component card. An analog bus connector on the faceplate provides easy connection to an HP E1326B DMM, HP E1411B DMM, and/or other slot-adjacent multiplexers.

Common high, low, and guard signals are connected by tree switch to both the tree-switch terminals on the terminal card and the analog bus connector. Removal of a factory-installed jumper on the component card isolates the low from the guard input. One analog bus cable is shipped with each module, making it easy to connect multiplexer common outputs together for slot-adjacent modules.

Refer to the HP Website for instrument driver availability and downloading instructions.

Configuration

Common high, low, and guard signals are connected by tree switch to both the tree-switch terminals on the terminal card and the analog bus connector. Removal of a factory-installed jumper on the component card isolates the low from the guard input. One analog bus cable is shipped with each module, making it easy to connect multiplexer common outputs together for slot-adjacent modules. If you are using a B-size mainframe, HP E1300A or HP E1301A, use the analog bus cable shipped with the HP E1326A DMM to connect it to the multiplexer(s).

C-size Adapter

For installing the HP E1343A in a C-size mainframe, the HP E1403B active adapter is recommended.

Specifications

Input

DC:
- **Maximum voltage (any terminal to any other terminal or chassis):** 120 Vdc

AC rms:
- **Maximum voltage (any terminal to any other terminal or chassis):** 120 V rms
- **Maximum current (per channel common, non-inductive):** 50 mA
- **Maximum power per channel:** 1 VA

DC

Maximum thermal offset per channel, differential Hi-Lo:	50 μV
Closed channel resistance:	100 Ohm ±10%
Insulation resistance (between any two points):	10E9 Ohm
Insulation resistance (Hi to Lo, power off):	n/a

AC

Minimum bandwidth (−3 dB, 50 Ohm source/ load):	10 MHz (protection resistors shorted)
Crosstalk (channel-to-channel):	
100 kHz:	−70 dB
10 MHz:	−20 dB
Both:	n/a
Closed channel capacitance:	<150 pF Hi-Lo, <150 pF Lo-Guard, <2000 pF Guard-Chassis

General Characteristics

Relays:	Reed relays Break-before-make Relays open on power down Relays open on power up
Minimum relay life:	
No load:	10E8 operations
Rated load:	10E7 operations
Reference junction measurement accuracy (18 to 28 °C operating):	n/a
Strain gage excitation:	n/a
Screw terminal wire size:	16 to 26 AWG (1.5, 1.2, 0.9, 0.75, 0.5 mm)
Scanning rate:	600 channels/s typ.

VXI Characteristics

VXI device type:	Register-based, A16, slave only
Size:	B
Slots:	1
Connectors:	P1
Shared memory:	None
VXI busses:	None
C-size compatibility:	Requires E1403B

Instrument Drivers

See the HP Website (http://www.hp.com/go/inst__drivers) for driver availability and downloading.

Command module firmware:	ROM
Command module firmware rev:	A.01
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	Yes
C-SCPI Series 700:	Yes
HP VEE Drivers:	Yes
VXI*plug&play* Win Framework:	No
VXI*plug&play* Win95/NT Framework:	No
VXI*plug&play* HP-UX Framework:	No (not available at time of publication)

Module Current

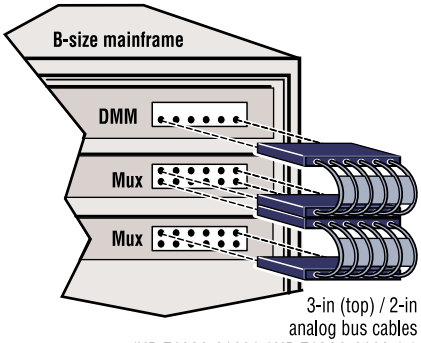
	I_{PM}	I_{DM}
+5 V:	0.2	0.01
+12 V:	0.13	0.01
−12 V:	0	0
+24 V:	0	0
−24 V:	0	0
−5.2 V:	0	0
−2 V:	0	0

Cooling/Slot

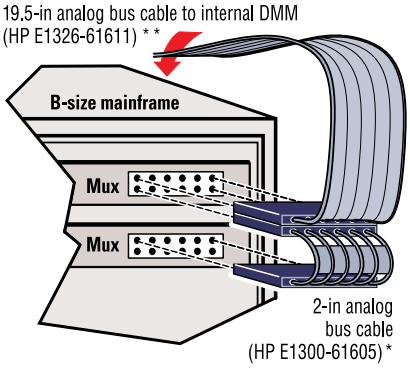
Watts/slot:	1.00
ΔP mm H_2O:	0.02
Air Flow liter/s:	0.10

Ordering Information

Description	Product No.
48-channel single-ended relay mux	HP E1346A
Service manual	HP E1346A 0B3
Japan - Japanese localization	HP E1346A ABJ
3 yr. retn. to HP to 1 yr. OnSite warr.	HP E1346A W01
Extra terminal block for the E1346A	HP E1346-80001



Analog bus cabling for Mux-to-Mux and Mux-to-multimeter



* DMM-to-Mux and Mux-to-Mux analog bus cables are provided with the purchase of the DMM and Mux modules respectively.

** 19.5-in analog bus cable is provided with purchase of HP E1300/01A Series B mainframe with internal DMM option.

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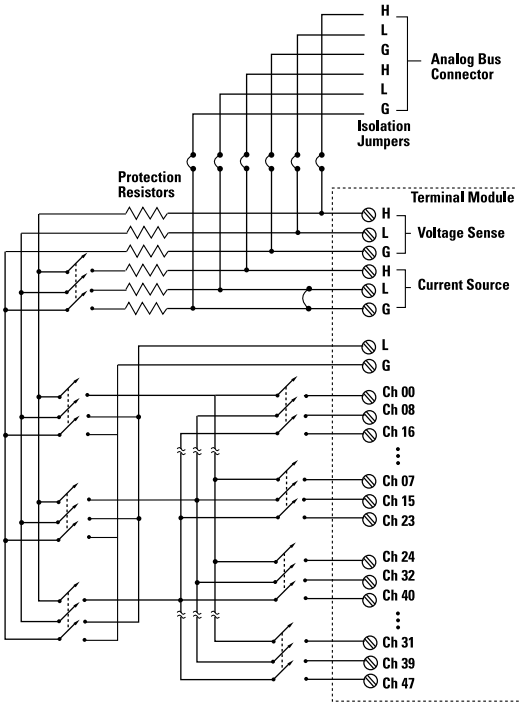

HP E1346A Circuit Diagram

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