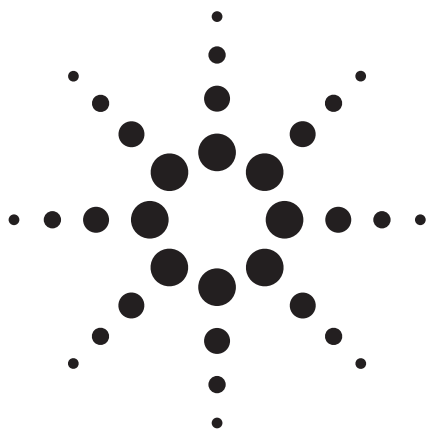


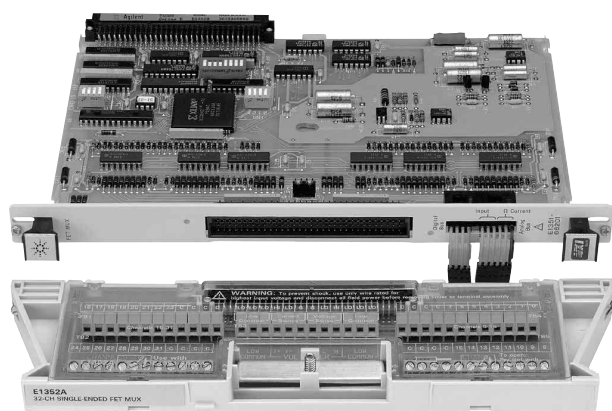


Agilent E1352A

32-Channel Single-Ended FET Multiplexer

Data Sheet

- 1-Slot, B-size, register based
- Up to 13,000 channels/s scanning with Agilent's DMMs
- 100,000 switches/second from downloaded scan list
- Voltage, current, and resistance measurements
- Space for signal conditioning components



Agilent E1352A

Description

The Agilent E1352A FET Multiplexer is a **B-size, 1-slot, register-based VXI module** that switches 32 channels of high only and one low common input.

The FET multiplexer module consists of a B-size component card (labeled E1351-66201 on each one) and a screw terminal block that plugs onto the component card. The E1352A is functionally similar to the E1351A and E1353A.

An analog bus connector on the faceplate provides easy connection to an E1326B DMM, E1411B DMM, and/or other slot-adjacent multiplexers. Common high, low, and guard signals are connected by tree switch to both the tree terminals on the terminal card and the analog bus connector.

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

Configuration

Common high, low, and guard signals are connected by tree switch to both the tree terminals on the terminal card and the analog bus connector. A factory-installed removable wire jumper on the component card connects the low input to the guard input.

A digital bus cable is shipped with each module, which attaches to a digital bus connector on the faceplates and is used to synchronize scanned measurements up to 13,000/second with either the E1326B DMM or E1411B DMM. Use of this bus requires the SCPI command TRIGger:SOURce DBUS. To connect an external DMM to the FET multiplexer for high-speed scanning synchronization up to 100,000 switches/second, order the digital FET MUX-to-DMM cable below.

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, E1300B or E1301B, use the analog bus cable shipped with the E1326A DMM to connect it to the multiplexer(s).

C-size Adapter

For installing the E1352A in a C-size mainframe, the E1403C active adapter is recommended.



Agilent Technologies

Product Specifications

Input

DC:	
Maximum voltage (any terminal to any other terminal or chassis):	16 Vpk
AC rms:	
Maximum voltage (any terminal to any other terminal or chassis):	16 Vpk
Maximum current (per channel common, non-inductive):	1 mA

DC

Maximum thermal offset per channel, differential	
Hi-Lo:	25 μ V (0 to 28 °C), 250 μ V (28 to 55 °C)
Closed channel resistance:	<3.1 k Ω
Insulation resistance (between any two points):	10E8 Ω , 10E3 $\Omega \pm 10\%$ guard to chassis
Insulation resistance (Hi to Lo, power off):	>1 k Ω for Vin <14 V, >220 Ω for Vin >14 V

AC

Minimum bandwidth	
(-3 dB, 50 Ω source/load):	500 kHz (1 M $\Omega \parallel$ 10 pF termination)
Closed channel capacitance:	<2000 pF Hi/Lo-Chassis, <200 pF Hi-Lo

General Characteristics

Relays:	FETs Break-before-make
Power down state:	FETs open on power down
Power up state:	FETs open on power up
Minimum relay life:	
No load:	Unlimited
Rated load:	Unlimited
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:	13,000 channels/s typ.

General Specifications

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 E1403C

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.03
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	Yes
C-SCPI Series 700:	Yes
Panel Drivers:	Yes
VXIplug&play Win Framework:	No
VXIplug&play Win 95/NT Framework:	No
VXIplug&play HP-UX Framework:	No

Module Current

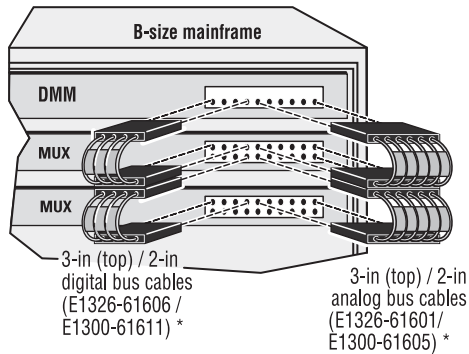
	I _{PM}	I _{DM}
+5 V:	0.2	0.01
+12 V:	0.13	0.01
-12 V:	0	0
+24 V:	0	0
-24 V:	0	0
-5.2 V:	0	0
-2 V:	0	0

Cooling/Slot

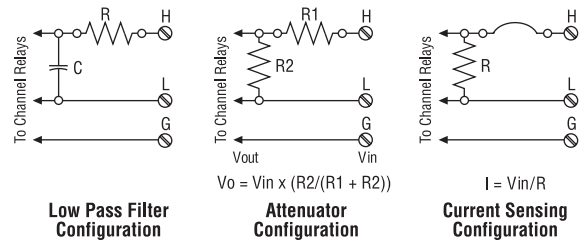
Watts/slot:	1.00
Δ P mm H ₂ O:	0.02
Air Flow liter/s:	0.10

Ordering Information

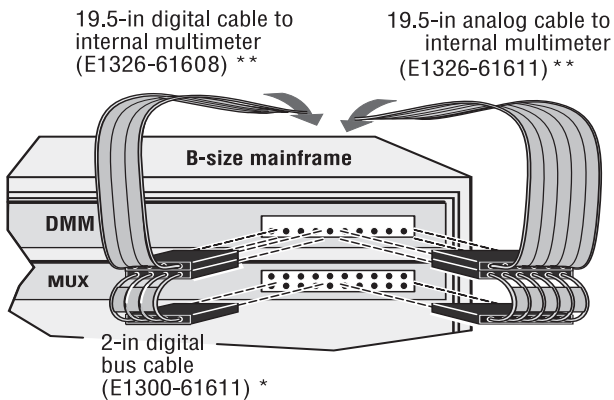
Description	Product No.
32-Channel Single-ended FET Multiplexer	E1352A
Service Manual	E1352A 0B3
Terminal Card, 16-Chan FET Multiplexer	E1352-80001
Cable Kit, VM To B-Size FET Multiplexer	E1411-80001



Analog and Digital Bus Cables for MUX-to-MUX and MUX-to-Multimeter Connections



Signal conditioning components and current shunt for E1351A/52A

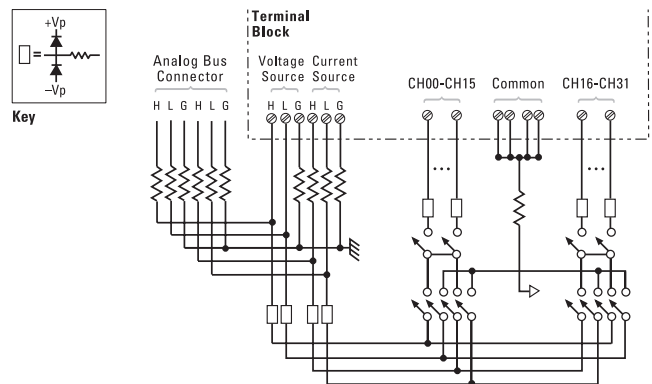


* DMM-to-MUX and MUX-to-MUX analog and digital bus cables are provided with the purchase of the DMM and MUX modules, respectively.

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

Analog and Digital Bus Cables for MUX-to-MUX and MUX-to-Multimeter Connections

E1352A Circuit Diagram



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
www.agilent.com/find/data_acq

Agilent Technologies Instrument Driver Downloads
www.agilent.com/find/inst_drivers

Agilent Technologies Electronics Manufacturing Test Solutions
www.agilent.com/go/manufacturing

Get assistance with all your test and measurement needs at
www.agilent.com/find/assist
or check your local phone book for the Agilent office
near you.

Agilent Technologies' test and measurement service/support commitment

Agilent strives to maximize the value our test and measurement products give you, while minimizing your risk and service/support problems. We work to ensure that each product is realistically described in the literature, meets its stated performance and functionality, has a clearly stated global warranty, and is supported at least five years beyond its production life. Our extensive self-help tools include many online resources (www.agilent.com).

Experienced Agilent test engineers throughout the world offer practical recommendations for product evaluation and selection. After you purchase an Agilent product, they can provide no-charge assistance with operation verification and basic measurement setups for advertised capabilities. To enhance the features, performance, and flexibility of your test and measurement products—and to help you solve application challenges—Agilent offers free or extra-cost product options and upgrades, and sell expert engineering, calibration, and other consulting services.

Phone or Fax

United States:

(tel) 1 800 829 4444

Canada:

(tel) 1 877 894 4414

(fax) (905) 282 6495

China:

(tel) 800 810 0189

(fax) 800 820 2816

Europe:

(tel) (31 20) 547 2323

(fax) (31 20) 547 2390

Japan:

(tel) (81) 426 56 7832

(fax) (81) 426 56 7840

Korea:

(tel) (82 2) 2004 5004

(fax) (82 2) 2004 5115

Latin America:

(tel) (305) 269 7500

(fax) (305) 269 7599

Taiwan:

(tel) 0800 047 866

(fax) 0800 286 331

Other Asia Pacific Countries:

(tel) (65) 6375 8100

(fax) (65) 6836 0252

(e-mail) tm_asia@agilent.com

Data Subject to Change
© Agilent Technologies, Inc. 2000
Printed in the U.S.A. May 1, 2004
5965-5520E



Agilent Technologies