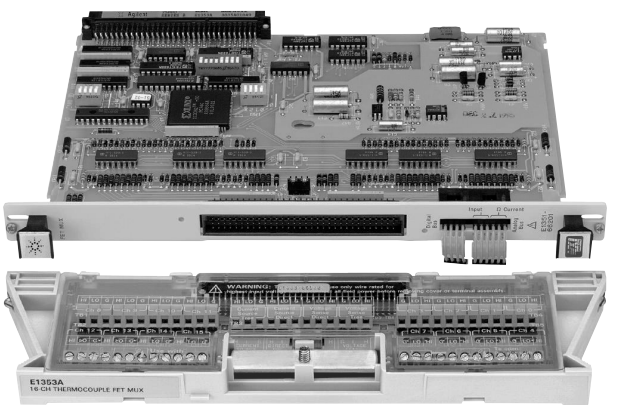
Agilent E1353A
16-Channel T/C FET Multiplexer
Data Sheet

- **1-Slot, B-size, register based**
- **Up to 13,000 channels/s scanning with Agilent DMMs**
- **100,000 switches/s from downloaded scan list**
- **Built-in thermistor reference junction**
- **Temperature, voltage, current, and Ohm readings**
- **16-channel 3-wire, or 8-channel 4-wire multiplexer**



Agilent E1353A

Description

The Agilent E1353A FET Multiplexer is a **B-size, 1-slot, register-based VXI module** that switches 16 channels each of high, low, and guard. When used with the E1326B DMM or E1411B DMM, it makes automatically compensated thermocouple temperature measurements. The FET multiplexer module consists of a B-size component card (labeled E1351-66201) and a screw terminal block that plugs onto the component card. The E1353A is functionally similar to the E1351A and E1352A.

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 digital bus cable is shipped with each module. It attaches to a digital bus connector on the faceplates, and is used to synchronize scanned measurements up to 13,000/s with the Agilent DMMs. Additionally, shunt and series signal conditioning elements can be added to each channel.

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 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 E1353A in a C-size mainframe, the E1403C active adapter is recommended.

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 µV (0 to 28 °C), 250 µV (28 to 55 °C)
Closed channel resistance: <3.1 kΩ
Insulation resistance (between any two points): 10E8 Ω, 10E3 Ω ± 10% guard to chassis
Insulation resistance (Hi to Lo, power off): >1 kΩ for |Vin| <14 V, >220 Ω for |Vin| >14 V

AC

Minimum bandwidth (–3 dB, 50 Ω source/load): 500 kHz (1 MOhm || 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): 0.3 °C
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
VXI*plug&play* Win Framework: Yes
VXI*plug&play* Win 95/NT Framework: Yes
VXI*plug&play* HP-UX Framework: No

Module Current

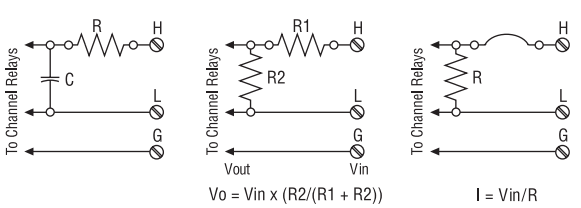
	I_{PM}	I_{DM}
+5 V:	0.2	0.01
+12 V:	0.13	0.01
–12 V:	0	0
+24 V:	0	0
–24 V:	0	0
–5.2 V	0	0
–2 V:	0	0

Cooling/Slot

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

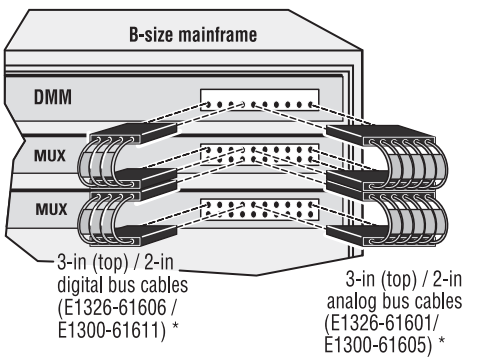
Ordering Information

Description	Product No.
16-Channel T/C FET Multiplexer	E1353A
Service Manual	E1353A 0B3
3 Yr. Retn. to Agilent to 1 Yr. OnSite Warr.	E1353A W01
Terminal Card,16-Chan FET Multiplexer	E1353-80001
Cable Kit, VM To B-Size FET Multiplexer	E1411-80001

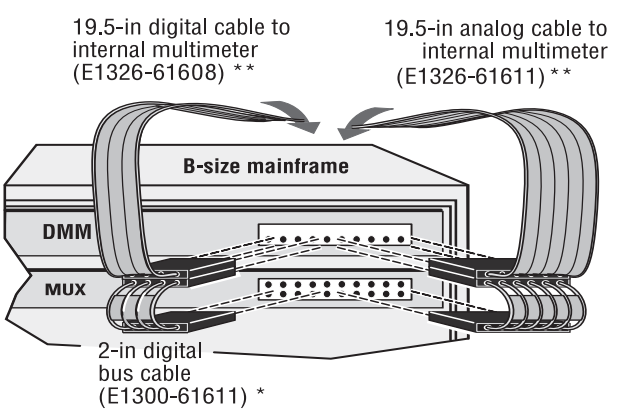


Low Pass Filter Configuration | **Attenuator Configuration** | **Current Sensing Configuration**

Signal conditioning components and current shunt for E1353A



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



* 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

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
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or check your local phone book for the Agilent office near you.

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