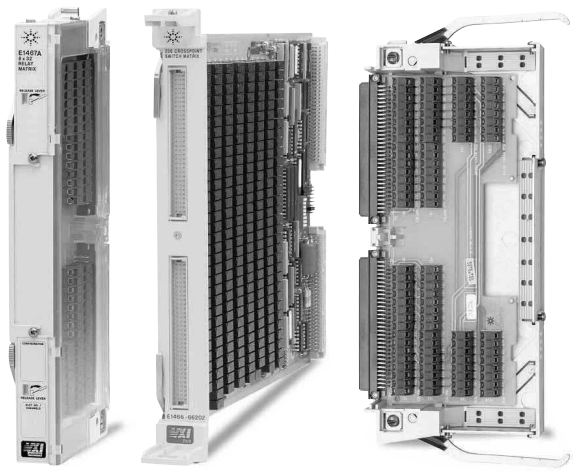
Agilent E1467A

8x32 Relay Matrix Switch

Data Sheet

- **1-Slot, C-size, register based**
- **8x32 two-wire switching matrix, latching relays**
- **Rows expand to make larger matrixes**
- **Downloadable channel lists into onboard memory**
- **Includes QUIC easy-to-use terminal blocks**
- **Latching armature relay**



Agilent E1467A

Description

The Agilent E1467A relay matrix is a **C-size, 1-slot, register-based VXI module.** This 8x32 matrix switches each crosspoint—both high and low. The E1467A features easy expansion to larger matrixes via a chaining cable that allows you to interconnect rows and columns on different modules. A full E1401B 13-slot mainframe can have up to 3072 two-wire crosspoints. The E1467A module provides the best cost-per-

The E1467A shares the same switch card with the E1465A and E1466A; each product's unique terminal block determines the matrix configuration. Therefore, you can change matrix topology simply by plugging in the various terminal blocks. The terminal blocks can be obtained separately.

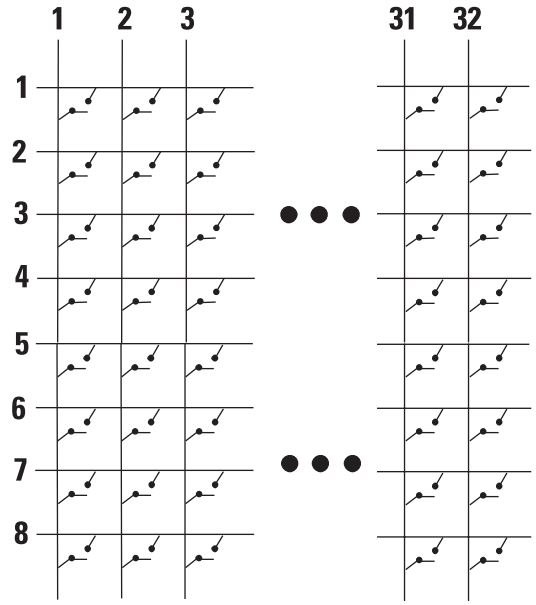
Creating a matrix as large as 8x96 requires three matrix modules and interconnected rows and columns on the terminal blocks. All the E1465/66/67A matrix modules offer similar densities, with different row/column sizes and identical performance specifications. All specifications are identical for this family, except for crosstalk.

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

Agilent Technologies

Configuration

You can create a larger matrix by adding one or more matrix modules and interconnecting the E1467A rows on the terminal blocks with the 280 mm E1466-80002 daisy-chain expansion cable. You can interconnect the E1467A rows with the rows of another E1467A or an E1466A. To create an 8x96 matrix with four E1467A modules requires four daisy-chain expansion cables connected as shown.



Product Specifications

AC Performance

AC specifications apply with no more than one crosspoint closed per row or column. Specifications are for 8x32 matrix, for Z(load) = Z(source) = 50 Ω. Note: Specifications are for worst crosspoint. Matrix expansion degrades crosstalk and bandwidth performance. Typical is defined as the worst crosspoint test from one or two matrix modules. If guaranteed specifications are necessary, contact your local sales representative.

Crosstalk (dB) within a card (worst path):

	<10 kHz	<100 kHz	<1 MHz
Closed Path to Closed Path (typical):	–72 dB	–51 dB	–33 dB
Open row to open row (typical):	–91 dB	–59 dB	–43 dB
Open row to open column (typical):	–85 dB	–64 dB	–47 dB
Open column to open column (typical):	–92 dB	–71 dB	–54 dB

Crosstalk (dB) module-to-module (represents 8x64 configuration):

Note: *Chaining cable used to connect modules (P/N E1466-80002).*

	<10 kHz	<100 kHz	<1 MHz
Closed Path to Closed Path (typical):	–72 dB	–51 dB	–33 dB
Open row to open row (typical):	–74 dB	–53 dB	–38 dB
Open row to open column (typical):	–92 dB	–72 dB	–56 dB
Open column to open column (typical):	–82 dB	–64 dB	–50 dB

Closed channel capacitance (<10 kHz):

- **Hi to Lo:** <270 pF
- **Hi to Ground:** <430 pF
- **Lo to Ground:** <440 pF

Minimum bandwidth (–3 dB, $Z_L = Z_X = 50\ \Omega$): 10 MHz

Input

Maximum voltage (any terminal to any other terminal or chassis):

DC:	200 V
AC rms:	170 V
Peak:	238 V p-p
Maximum current (per channel common, non-inductive):	1 Adc; 1 Aac peak
Maximum power:	
Per channel:	30 W
Per module:	62.5 VA (resistive load)

DC

Maximum thermal offset per channel, differential Hi-Lo:	5 μV
Closed channel resistance (per channel):	
Initial:	<4.0 Ω (worst crosspoint) <1.8 Ω (best crosspoint)
End of life:	<10.0 Ω
Insulation resistance (between any two points):	
≤40 °C, ≤95% RH:	>10E8 Ω
≤40 °C, ≤65% RH:	n/a
≤25 °C, ≤40% RH:	>10E9 Ω

General

Time to close one channel: 8.9 ms *(Agilent V/743 and C-SCPI)*

Note: When downloading a channel list to card memory, you can close all columns in one row in 8.9 ms.

Power-down state:	Relay states are unchanged at power-down.
Power-up state:	Relays open at power-up.
Minimum relay life:	
No load:	10E7 operations
Screw terminal wire size:	18 to 26 AWG (1.2, 0.9, 0.75, 0.6, 0.5 mm)

General Specifications

VXI Characteristics

VXI device type:	Register based, A16, slave only
Size:	C
Slots:	1
Connectors:	P1/2
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.08
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

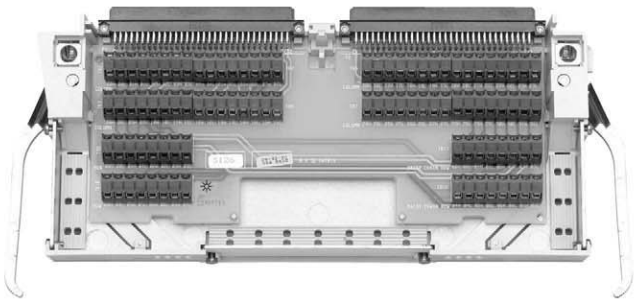
	I_{PM}	I_{DM}
+5 V:	0.1	0.01
+12 V:	0.18	0.01
–12 V:	0	0
+24 V:	0	0
–24 V:	0	0
–5.2 V:	0	0
–2 V:	0	0

Cooling/Slot

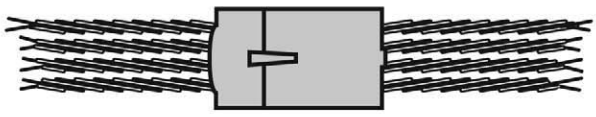
Watts/slot:	5.00
ΔP mm H_2O:	0.08
Air Flow liter/s:	0.42

Ordering Information

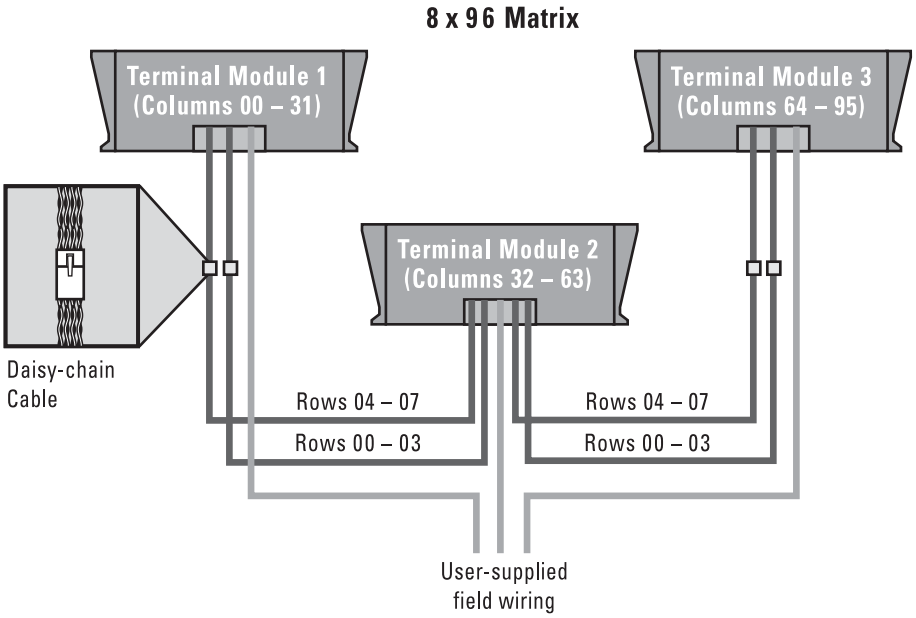
Description	Product No.
8x32 Relay Matrix Module	E1467A
Pre-QUIC-type Terminal Block	E1467A 106
Service Manual	E1467A 0B3
CBL Kit, Daisy Chain	E1466-80002
Extra Terminal Block	E1467-80010



Three E1467A matrix terminal blocks wired as an 8x96 matrix



Daisy Chain Cable: E1468-80002



E1467A Opt 201 Matrix Expansion Terminal Block

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you receive your new Agilent equipment, we can help verify that it works properly, and help with initial product operation.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

Agilent Email Updates

www.agilent.com/find/emailupdates

Get the latest information on the products and applications you select.

Agilent T&M Software and Connectivity

Agilent's Test and Measurement software and connectivity products, solutions and developer network allows you to take time out of connecting your instruments to your computer with tools based on PC standards, so you can focus on your tasks, not on your connections.

Visit **www.agilent.com/find/connectivity** for more information.

For more assistance with all your test and measurement needs or to find your local Agilent office go to **www.agilent.com/find/assist**

Product specifications and descriptions in this document subject to change without notice.

Printed in the USA May 1, 2005
5965-5593E

Agilent Technologies