

Description

The Keysight Technologies E1466A Relay Matrix Switch is a C-size, 1-slot, register-based VXI module. This 4x64 matrix switches each crosspoint, both high and low. The E1466A module provides the best cost-per-crosspoint for large matrix applications. It features easy expansion to larger matrixes via a chaining cable that allows you to interconnect rows and columns on different modules. A full VXI 13-slot mainframe can have up to 3072 two-wire crosspoints.

The E1466A shares the same switch card with the E1467A; each product's unique terminal block determines the matrix configuration. Therefore, you can change matrix topology simply by plugging in the various terminal blocks, which can be obtained separately. Creating a matrix as large as 4x256 requires four matrix modules and interconnected rows and columns on the terminal blocks. The E1466A and E1467A matrix modules offer similar densities, with different row/column sizes and identical performance specifications (with the exception of crosstalk).

Key Features

- 1-Slot, C-size, register-based
- 4x64 two-wire switching matrix
- Rows can be expanded to make larger matrixes
- Downloadable channel lists into onboard memory
- Armature latching relays
- QUIC easy-to-use terminal block included

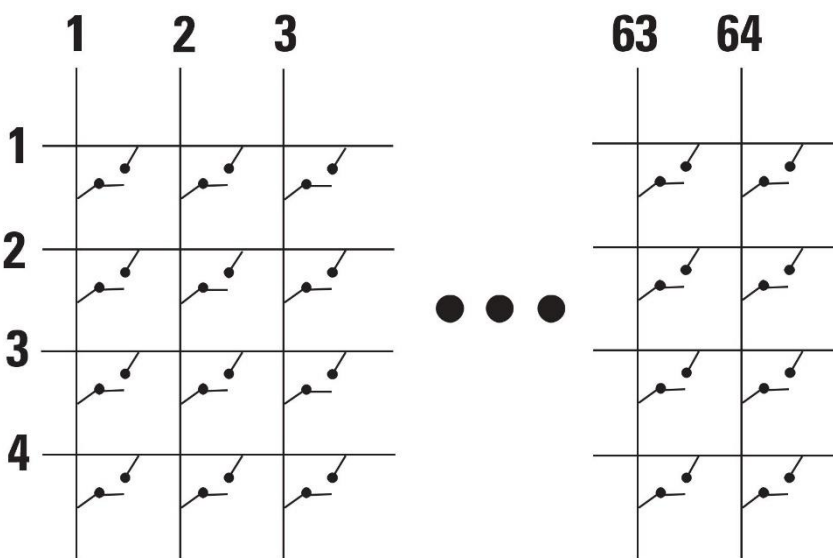


Figure 1. E1466A two-wire, 4x64 matrix

Configuration

You can create a larger matrix by adding one or more matrix modules and interconnecting the E1466A rows on the terminal blocks with the E1466-80002 daisy-chain expansion cable. You can interconnect the E1466A rows with the rows of another E1466A or E1467A. To create a 4x256 matrix with four E1466A modules requires three daisy-chain expansion cables connected as shown in Figure 2.

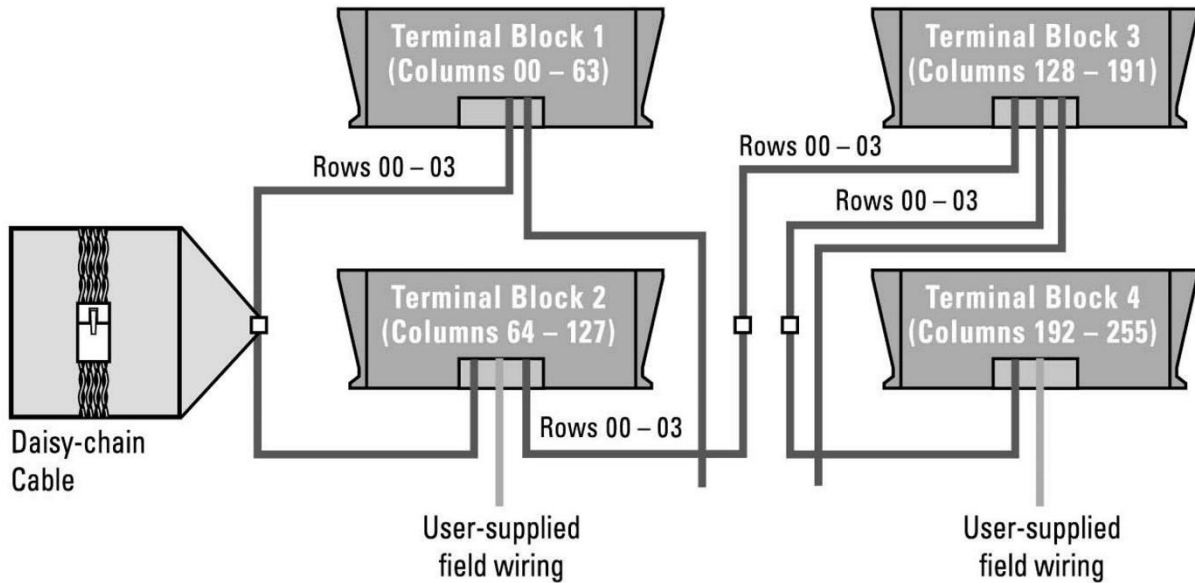


Figure 2. 4x256 two-wire matrix configuration



Figure 3. E1466A Terminal Block

Technical Specifications and Characteristics

Input Characteristics			
Maximum voltage (any terminal to any other terminal or chassis)			
DC	200 V		
AC rms	170 V		
Peak voltage	238 V _{pp}		
Maximum current (per channel common, non-inductive)			
DC	1 A		
AC	1 A peak		
Maximum power			
Per channel	30 Watts		
Per module	62.5 VA (resistive load)		
DC			
Maximum thermal offset (per channel, differential, Hi-Lo)	5 μ V		
Closed channel resistance			
Initial	<4.0 Ω (worst crosspoint) <1.8 Ω (best crosspoint)		
End of life	<10.0 Ω		
Insulation resistance (between any two points)			
$\leq 25^{\circ}\text{C}$, $\leq 40\%$ RH	>10 ⁹ Ω		
$\leq 40^{\circ}\text{C}$, $\leq 95\%$ RH	>10 ⁸ Ω		
AC ¹			
Minimum bandwidth (-3dB, 50 Ω source/load)	10 MHz (2-wire)		
Crosstalk for worst path (typ)	<10 kHz	<100 kHz	<1 MHz
Closed path to closed path	-66 dB	-45 dB	-29 dB
Open row to open row	-73 dB	-52 dB	-37 dB
Open row to open column	-84 dB	-64 dB	-47 dB
Open column to open column	-92 dB	-70 dB	-52 dB
Crosstalk module-to-module ²	<10 kHz	<100 kHz	<1 MHz
Closed path to closed path	-66 dB	-45 dB	-29 dB
Open row to open row	-68 dB	-46 dB	-29 dB
Open row to open column	-84 dB	-64 dB	-48 dB
Open column to open column	-92 dB	-71 dB	-52 dB

¹ AC specifications apply with no more than one crosspoint closed per row or column. Specifications are for 4x64 matrix, for Z(load) = Z(source) = 50 Ω . Specifications are for worst crosspoint. Matrix expansion degrades crosstalk and bandwidth performance. Typical is defined as the worst crosspoint test result from one or two matrix modules.

² Represents 4 x 128 configuration

AC Input Characteristics, cont.	
Closed channel capacitance	
Hi to Lo	<270 pF
Hi to Ground	<430 pF
Lo to Ground	<440 pF

General Characteristics	
Relays	Latching armature
Power-down state	Relay states are unchanged at power-down
Power-up state	Relays open at power-up
Time to close one channel	8.9 ms
Screw terminal wire size	18 to 26 AWG
Typical relay life	
No load	5 x 10 ⁷ 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	0.01
+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 ₂ O	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
E1466A	4x64 Relay Matrix Switch 256 2-wire crosspoint matrix
E1466A-106	Old style front panel and screw terminal block
E1466A-0B3	Service Manual
E1466A-FRMK	Factory refurbished product
E1466A-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

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