

# Agilent E8462A 256-Channel Armature Relay Multiplexer

## Data Sheet

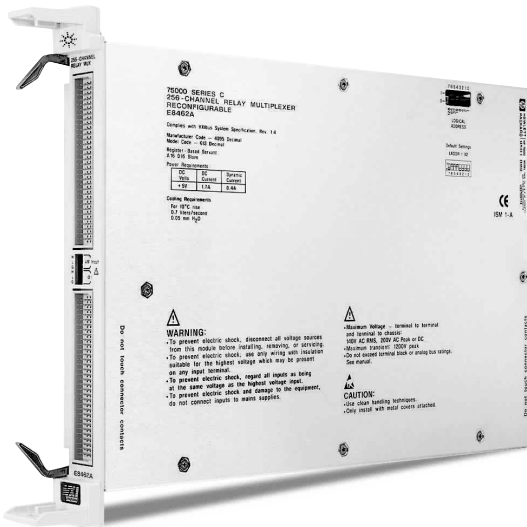
- 1-Slot, C-size, register based
- High-density, low-cost multiplexer
- Flexible reconfiguration
- Armature non-latching relay channels
- Contact protection for reliable operation
- Three different easy-to-use terminal blocks available as options

### Description

The Agilent Technologies E8462A High-Density Relay Multiplexer is a **C-size, 1-slot, register-based** VXI module. This 256-channel multiplexer, using non-latching armature relays, offers a fast, reconfigurable, high point-count switching topology. This single-slot multiplexer extends the choices of multiplexers available to the system engineer.

The E8462A can be programmed into individual topologies; some common examples are shown in the table below. Many other combinations of these topologies are supported (in addition to those shown in the table). Two-wire, three-wire, and four-wire measurements can be configured.

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



Agilent E8462A

### Common Multiplexer Configurations

One 256 x 1	Four 64 x 1
One 128 x 2	Two 32 x 4
One 64 x 3	Eight 32 x 1
•	•
•	•
•	•



## Accessories

A terminal block does not come with the module. Three different terminal blocks are available as options: one for crimp-and-insert connectors, one for ribbon cable connectors, and the other for fault-tolerant protection of DUT inputs, where each channel has a positive temperature coefficient resistor that behaves like a resettable fuse and will increase impedance when excessive current is flowing in a channel.

One 2.5-in. analog bus cable (E1400-61605) is included to connect the analog buses of multiple slot-adjacent E8462A modules or a slot-adjacent E1411B multimeter module. The analog bus cable, easily installed at the faceplate of the component card, lets you connect the E8462A with the E1411B DMM.

## Product Specifications

### Input

**Note:** These limits apply only if no connection is made to power mains.

### Maximum Input

	With Opt. 012 Terminal Card	With Opt. 014 or Opt. 015 Terminal Card	Analog Bus
<b>Maximum dc voltage:</b>	*250 V	60 V	60 V
<b>Maximum ACrms voltage:</b>	*250 V	50 V	30 V
<b>Maximum ACpeak voltage:</b>	350 V	70.7 V	42 V
<b>Maximum current per channel:</b>			
Switching:	2 A @ 30 V	100 mA	n/a
Carry:	2 A	100 mA	n/a

\*Limited to 15,000 hours of voltage stress above 80 V.

### dc Performance

#### Typical thermal offset per channel:

1-wire:	± 3 μV
2-wire:	± 1.5 μV

#### Typical closed channel resistance:

1-wire:	<0.9Ω*
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\*With output protection resistor shorted; protection resistor adds 100 Ω.

### ac Performance

#### Bandwidth, 50 Ω Source/Load

Configuration	100 Ω Protection Resistor Shorted
256 x 1:	6 MHz
128 x 1:	12.0 MHz
32 x 1:	30.0 MHz

#### Closed Channel Capacitance

Configuration	To Chassis	To Open Channel
256 x 1:	620 pF	410 pF
128 x 1:	340 pF	220 pF
32 x 1:	160 pF	100 pF
<b>Open channel to either open channel or to chassis (capacitance):</b>		30 pF

#### Hi-to-Low Capacitance (2-Wire-Mode)

Configuration	Capacitance
128 x 2:	410 pF
64 x 2:	230 pF
16 x 2:	100 pF

#### Crosstalk

Configuration	10 kHz	100 kHz	1 MHz	10 MHz
256 x 1 (1-wire):	70 dB	53 dB	33 dB	15 dB
128 x 1 (2-wire):	85 dB	65 dB	45 dB	30 dB
16 x 1 (2-wire):	85 dB	65 dB	45 dB	30 dB

### General Characteristics

<b>Relays:</b>	Armature relays
<b>Open/close time:</b>	5 ms max.
<b>Minimum relay life:</b>	
1.0 V & 10 mA:	1 M operations
Rated full resistive load (60 VA):	100 K operations
<b>Power up/down state:</b>	All open
<b>Minimum permissible load:</b>	10 m Vdc, 10 μA

## General Specifications

### VXI Characteristics

<b>VXI device type:</b>	Register based, A16/D16
<b>Data transfer bus:</b>	A16, slave only
<b>Size:</b>	C
<b>Slots:</b>	1
<b>Connectors:</b>	P1/P2
<b>Shared memory:</b>	None
<b>VXI buses:</b>	None

**Instrument Drivers** - See the Agilent Technologies Website ([http://www.agilent.com/find/inst\\_drivers](http://www.agilent.com/find/inst_drivers)) for driver availability and downloading.

<b>Command module firmware:</b>	Downloadable
<b>Command module firmware rev:</b>	A.08
<b>I-SCPI Win 3.1:</b>	No
<b>I-SCPI Series 700:</b>	No
<b>C-SCPI LynxOS:</b>	No
<b>C-SCPI Series 700:</b>	No
<b>Panel Drivers:</b>	No
<b>VXI plug&amp;play Win Framework:</b>	No
<b>VXI plug&amp;play Win 95/NT Framework:</b>	Yes
<b>VXI plug&amp;play HP-UX Framework:</b>	No

### Module Current

	$I_{PM}$ (A)	$I_{DM}$ (A)
+5 V:	*1.0	*0.5
+12 V:	0.0	0.0
-12 V:	0.0	0.0
+24 V:	—	—
-24 V:	—	—
-5.2 V:	—	—
-2 V:	—	—

\* Specified in worst case typical MUX configuration (eight 32x1). Add 30 mA per additional relay.

### Cooling/Slot

<b>Watts/slot:</b>	30 W max., 10 W typ.
<b><math>\Delta P</math> mm H<sub>2</sub>O:</b>	0.1
<b>Air Flow liter/s:</b>	3.0

## Ordering Information

Description	Product No.
256-Channel Armature Relay Multiplexer*	E8462A*
Crimp and Insert Connector Terminal Block**	E8462A 012**
Fault Tolerant Terminal Block	E8462A 014***
Ribbon Cable Connector Terminal Block	E8462A 015***
Service Manual	E8462A 0B3

### Notes:

\* Standard unit does not include terminal block. One of the terminal block options must be ordered.

\*\* Crimp-and-Insert Contacts are not included. See the Interconnect and Wiring section for information on ordering Crimp-and-Insert Contacts.

\*\*\* Ribbon cables and mating connectors are not included. See ordering details below:

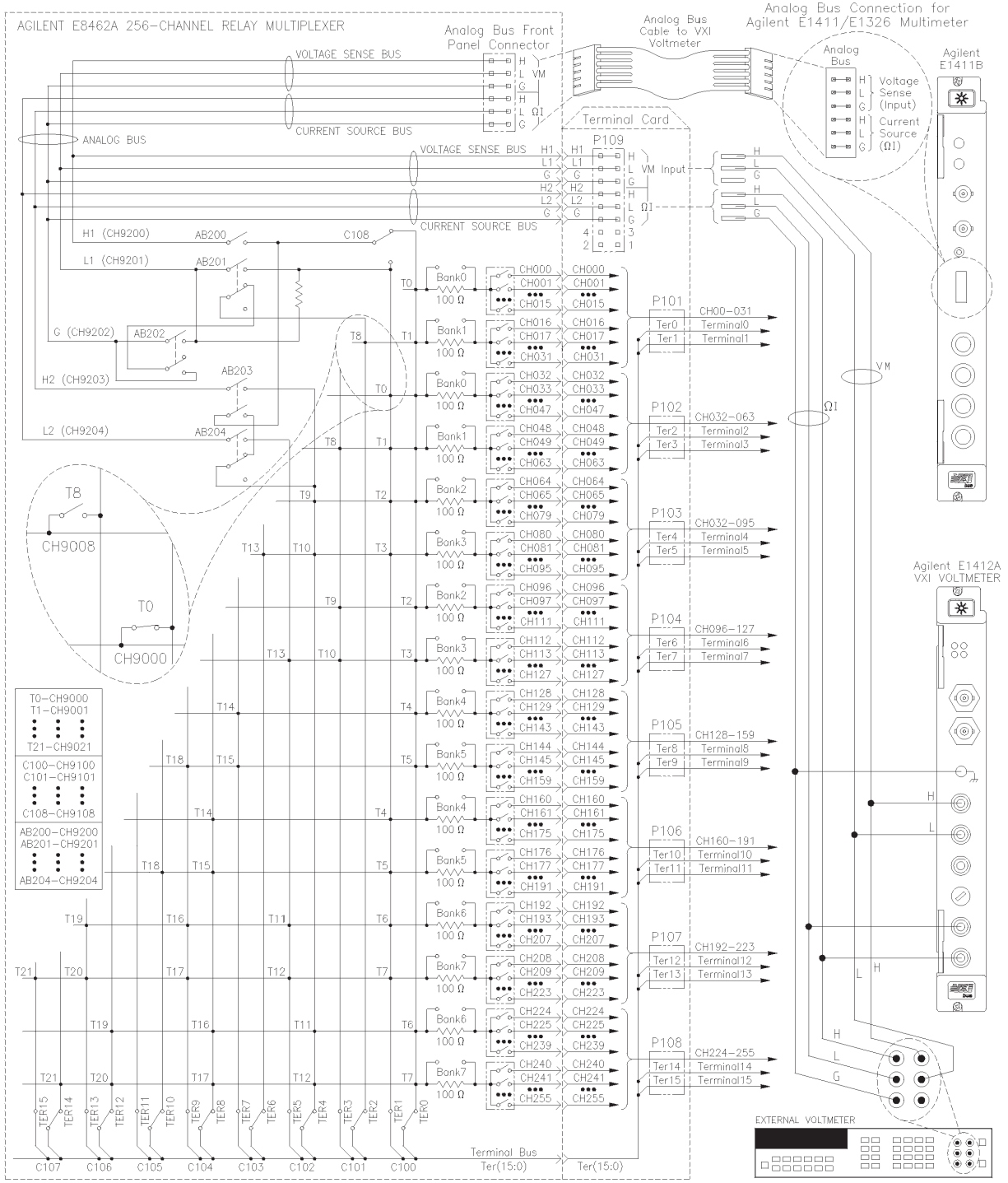
### Recommended 3M Mating Socket and Cable

Part Description	Qty Required per Terminal Card	3M Part Number
Socket (without strain relief)	8 sockets either with or without strain relief	3414-6600
Socket * (with strain relief)	8 sockets either with or without strain relief	3414-6606
Metal strain relief *(low profile)	8 *	3448-2034
Flat cable (34 conductor)	Length as needed	3365/34

\* Required only for socket with strain relief.

## Manufacturer Ordering Information

3M Electronic Products Division  
 6801 River Place Blvd.  
 Austin, TX 78726-9000  
 Phone 800-225-5373



Agilent E8462A Simplified Schematic

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