VMA-6x4-8110 Lab Brick® 6x4 Matrix Attenuator

700 – 7250 MHz Frequency | 110 dB Attenuation Range | 0.1 Step Size

Features/Benefits

- Reliable and Repeatable solid state digital attenuation
- Includes Windows and Linux SDK
- Simple GUI controls
- Single shot or repeating programmable attenuation ramps
- Programmable fading profiles
- USB/Ethernet Control
- DHCP or Static IP
- Password Protection
- Convenient 19” Rack Mount Configuration

Applications

- WiFi 6E, WiFi,
- LTE, 5G, 6G
- MIMO, Multipoint Radio Fading Simulators
- Semiconductor Test and Qualification Labs
- Automated Test Equipment (ATE)

The Vaunix Digital Attenuator Matrix Systems are easily customized, bidirectional, non-blocking test instruments. Attenuation matrixes are ideal instruments for mobile operators, Wi-Fi chip manufacturers and radio development teams testing handover and MIMO performance in research labs, product verification and development environments. The matrix attenuator allows the user to direct multiple input signals to multiple outputs while controlling the signal power on all paths.

The VMA-6x4-8110 Attenuator Matrix System is a rack mounted 6 input x 4 output non-blocking test instrument. The VMA-6x4-8110 provides 110 dB of attenuation control range from 700 to 7250 MHz with a step size of 0.1 dB on all 24 possible path combinations. The attenuators are easily programmable for fixed attenuation, swept attenuation ramps and fading profiles using our highly developed Windows API DLL files and Linux platforms.

The VMA-6x4-8110 is USB powered, and controlled through a single USB or Ethernet port on the rear of the chassis. All output signals are available on the front panel with SMA connectors.

vaunix

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Revision A 1/29/25

VMA-6x4-8110 Specifications

Parameter	Test Conditions	Min	Typ	Max
Frequency Range (MHz)		700		7250
Impedance (Ω)			50	
Channel Inputs/Outputs		4x4 - Bidirectional		
Attenuation Range (dB)		110	120	
Step Size (dB)		0.1		
Insertion Loss (dB) **(Includes theoretical loss of power dividers)**	< 2 GHz		24	
	< 4 GHz		26	
	< 7.250 GHz		31.5	
Attenuation Accuracy (dB)	<30 dB		1	
	<60 dB		2	
	<90 dB		3	
	<110 dB		3.5	
Switching Speed (µs)			2	
Maximum Input Level (dBm)	RMS/Peak (dBm)		32/37	
Input IP3 (dBm)		45	52	
VSWR			1.5:1	

Parameter	Test Conditions/Notes	
Power Requirements	+5VDC (from USB port)	330 mA
Environmental	Operating Temperature	0 °C to +60 °C
	Relative Humidity (non-condensing)	<95%
Physical Connections	Power Connector	USB
	Control	USB/Ethernet
	RF Connectors	SMA – female
Operating Modes	Manual Attenuation Control Swept Attenuation – uni/bi directional – one time/repeat Profile	
Mechanical	Size (3RU)	17.0 x 13 x 5.25 inches 431.8 x 330.2 x 133.5 millimeters
	Weight	12 lbs 5.5 kg

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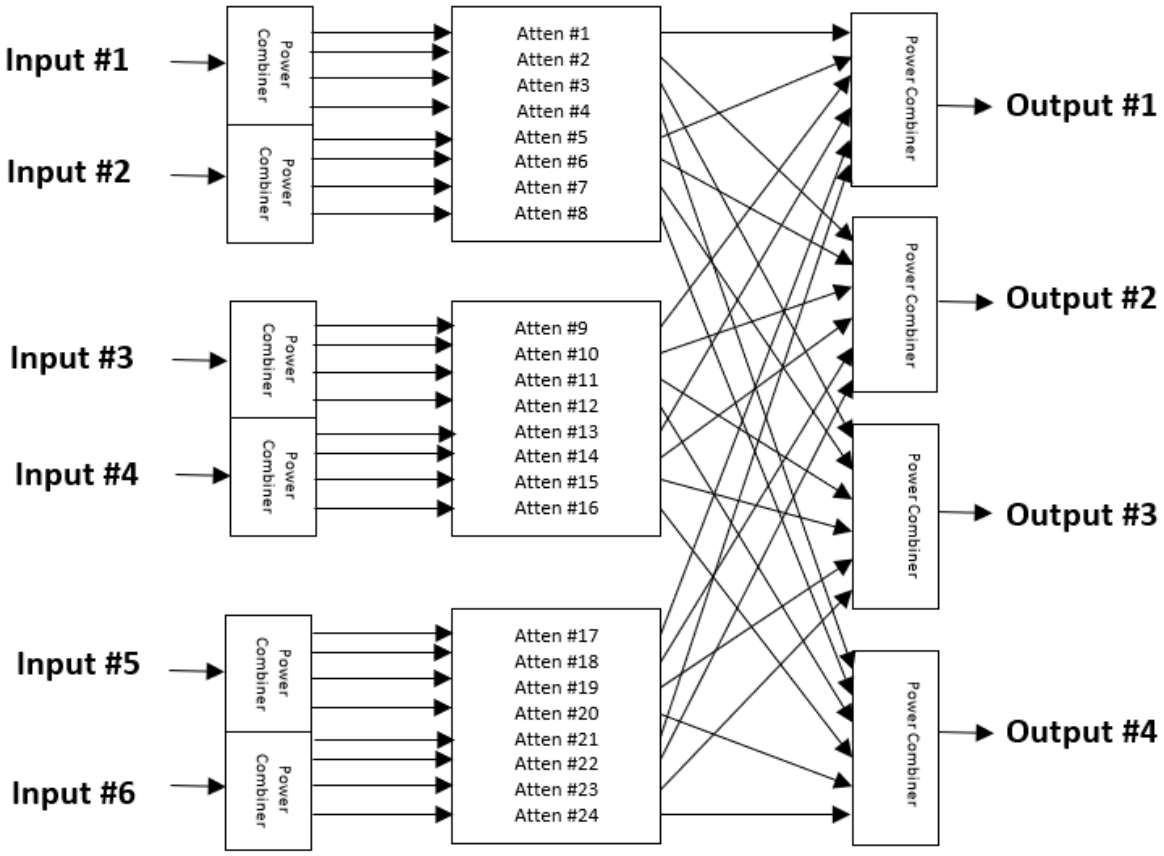
VMA-6x4-8110 Functional Diagram



VMA-6x4-8110 Attenuator Channel Mapping

Path	Attenuator Channel
Input 1 to Output 1	1
Input 1 to Output 2	2
Input 1 to Output 3	3
Input 1 to Output 4	4
Input 2 to Output 1	5
Input 2 to Output 2	6
Input 2 to Output 3	7
Input 2 to Output 4	8
Input 3 to Output 1	9
Input 3 to Output 2	10
Input 3 to Output 3	11
Input 3 to Output 4	12

Path	Attenuator Channel
Input 4 to Output 1	13
Input 4 to Output 2	14
Input 4 to Output 3	15
Input 4 to Output 4	16
Input 5 to Output 1	17
Input 5 to Output 2	18
Input 5 to Output 3	19
Input 5 to Output 4	20
Input 6 to Output 1	21
Input 6 to Output 2	22
Input 6 to Output 3	23
Input 6 to Output 4	24

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