

VMA-2X2-8110 Lab Brick® 2x2 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-2x2-8110 Attenuator Matrix System is a rack mounted 2 input x 2 output non-blocking test instrument. The VMA-2x2-8110 provides 110 dB of attenuation control range from 700 to 7250 MHz with a step size of 0.1 dB on all 4 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.

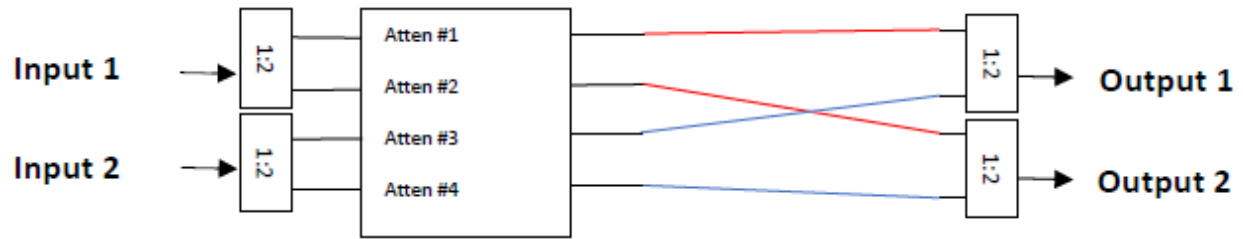
The VMA-2x2-8110 is USB powered, and controlled through a single USB or Ethernet port on the rear of the chassis. All output signals are available on the front panel with SMA connectors.

VMA-2x2-8110 Specifications

| Parameter | Test Conditions | Min | Typ | Max |
|--|-----------------|---------------------|-------|------|
| Frequency Range (MHz) | | 700 | | 7250 |
| Impedance (Ω) | | | 50 | |
| Channel Inputs/Outputs | | 2x2 - Bidirectional | | |
| Attenuation Range (dB) | | 110 | 120 | |
| Step Size (dB) | | 0.1 | | |
| Insertion Loss (dB) (Includes theoretical loss of power dividers) | < 2 GHz | | 14 | |
| | < 4 GHz | | 15.5 | |
| | < 7.250 GHz | | 18 | |
| Attenuation Accuracy (dB) | <30 dB | | 1 | |
| | <60 dB | | 2 | |
| | <90 dB | | 3 | |
| | <110 dB | | 3.5 | |
| Switching Speed (μ s) | | | 2 | |
| Maximum Input Level (dBm) | RMS/Peak (dBm) | | 28/33 | |
| Input IP3 (dBm) | | 38 | 45 | |
| VSWR | | | 1.5:1 | |

| Parameter | Test Conditions/Notes | |
|----------------------|--|---|
| Power Requirements | +5VDC (from USB port) | 110 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 (1RU) | 17.0 x 13 x 1.75 inches 431.8 x 330.2 x 44.5 millimeters |
| | Weight | 10 lbs 4.5 kg |

VMA-2x2-8110 Functional Diagram

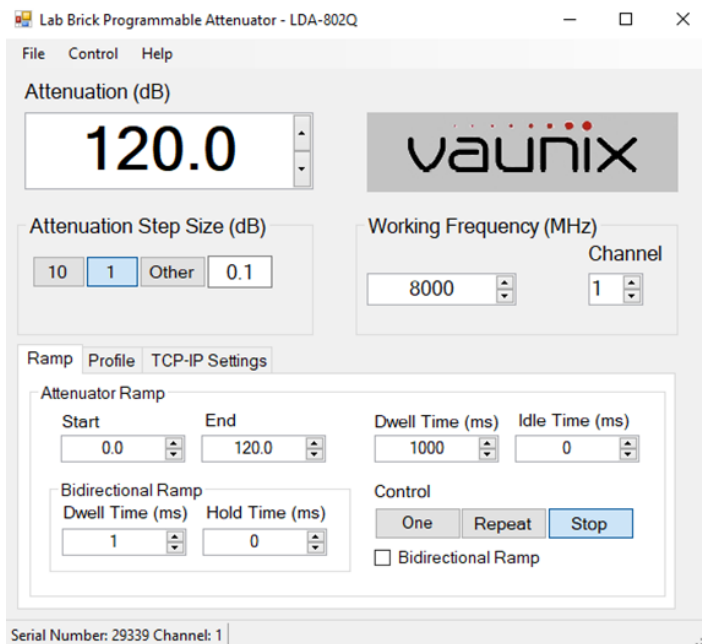


VMA-2x2-8110 Attenuator Channel Mapping


| Path | Attenuator Channel |
|---------------------|--------------------|
| Input 1 to Output 1 | 1 |
| Input 1 to Output 2 | 2 |
| Input 2 to Output 1 | 3 |
| Input 2 to Output 2 | 4 |

VMA-2x2-8110 Software Interface

Windows GUI



Ethernet GUI



STATUS
SETUP
LOGOUT

LDA-802Q

- RF Settings
- Advance Settings
- Network Settings
- Account Settings

Save Config

Global Configuration

| | | |
|-------------|--|--|
| Frequency | <input type="text" value="8000"/> MHz (Valid range: 200-8000) | Set All |
| Attenuation | <input type="text" value="110.1"/> dB (Valid range: 0.0-120.0) | Set All |

Read Config
Apply Changes
 Auto-Refresh

| Attenuation Settings | | | | | | | | | | | |
|----------------------|--|------------------------------------|----------------------------------|----------------------------------|------------------------------------|-----------------------------------|--------------------------------|-----------|--------------------------------|--------------------------------|--------------------------|
| Chnl# | Action | Atten. (dB) | Step Size(dB) | Ramp Start(dB) | Ramp End(dB) | Dwell Time(ms) | Idle Time(ms) | Ramp Mode | Bi-Dwell Time(ms) | Bi-Hold Time(ms) | Bi-Ramp |
| 1 | Set | <input type="text" value="110.1"/> | <input type="text" value="1.0"/> | <input type="text" value="0.0"/> | <input type="text" value="120.0"/> | <input type="text" value="1000"/> | <input type="text" value="0"/> | Stop ▼ | <input type="text" value="1"/> | <input type="text" value="0"/> | <input type="checkbox"/> |
| 2 | Set | <input type="text" value="110.1"/> | <input type="text" value="1.0"/> | <input type="text" value="0.0"/> | <input type="text" value="120.0"/> | <input type="text" value="1000"/> | <input type="text" value="0"/> | Stop ▼ | <input type="text" value="1"/> | <input type="text" value="0"/> | <input type="checkbox"/> |
| 3 | Set | <input type="text" value="110.1"/> | <input type="text" value="1.0"/> | <input type="text" value="0.0"/> | <input type="text" value="120.0"/> | <input type="text" value="1000"/> | <input type="text" value="0"/> | Stop ▼ | <input type="text" value="1"/> | <input type="text" value="0"/> | <input type="checkbox"/> |
| 4 | Set | <input type="text" value="110.1"/> | <input type="text" value="1.0"/> | <input type="text" value="0.0"/> | <input type="text" value="120.0"/> | <input type="text" value="1000"/> | <input type="text" value="0"/> | Stop ▼ | <input type="text" value="1"/> | <input type="text" value="0"/> | <input type="checkbox"/> |