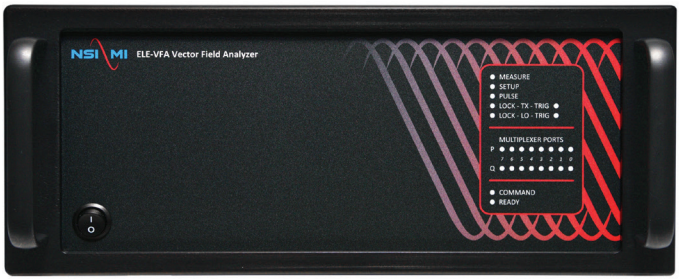
Vector Field Analyzer™

ELE-VFA



FEATURES

- **Industry leading performance with up to 16 million measurements per second**
- **Enhanced dynamic range and -126 dBm sensitivity**
- **Frequency coverage from 10 MHz to 1 THz**
- **Expandable number of simultaneous measurement channels, 2 or 4 per unit**
- **Built-in LO/IF distribution components to support remote mixing**
- **Internal Local Oscillator signal source**
- **Supports multi-port switching, synchronization and pulse mode options**

DESCRIPTION

The Vector Field Analyzer™ (VFA) incorporates the latest technology for making antenna, radome, and electromagnetic field probing measurements. This simultaneous multi-channel precision measurement receiver adds powerful new capabilities to display polarization parameters. When used with a dual polarized probe, the Vector Field Analyzer™ measures both polarization ports and calculates key polarization parameters. Results include axial ratio, tilt angle, sense of rotation, and displays of the polarization ellipse. The Vector Field Analyzer™ combines the best RF performance, fastest measurement speed, and most advanced features available in the industry to create the foundation of a state of the art measurement system.

OPTIONS

One mixer for each channel is required. The following options are offered to complete your specific RF instrumentation needs:

- **0.1 - 6 GHz Mixer**
- **1 - 26.5 GHz Mixer**
- **1 - 50 GHz Mixer**
- **10 - 210 MHz Low Frequency Converter**
- **mmWave bands are also available on request**

ACCESSORIES

- **RF Sources**
- **Software**
- **Auxiliary Controller**
- **Multiplexers**
- **Multipliers**
- **Low Noise Amplifiers**
- **Couplers**

RF PERFORMANCE ADVANTAGES

The Vector Field Analyzer™ provides the RF performance characteristics most desirable for measuring electromagnetic fields. In these measurements, Signal to Noise Ratio (SNR) is a key characteristic to determining uncertainty and measurement speed. The inherently low noise floor of the Vector Field Analyzer™ provides high SNR, resulting in more accurate measurements. Its low noise floor also allows the use of wider IF bandwidths than other instruments for a given SNR. With a 10 dB lower inherent noise floor, a factor of 10 times wider IF bandwidth can be used, resulting in 10 times faster measurement speed. The superior dynamic range and sensitivity of the Vector Field Analyzer™ significantly enhances flexibility and productivity for test ranges.

ACQUISITION COORDINATION

Radiating fields propagate in three-dimensional space, requiring positioning systems to change the orientation of the probe and/or the device under test. For highest range productivity, one or more axes are moved while fields are being measured. This requires coordination between the test instrumentation and the positioning system. As the probe or antenna under test is moved, each vector field measurement can be associated with a specific location in space. Maximizing the axis speed demands instrumentation with superior measurement speed, data buffering capability, and high continuous throughput.

Many systems also require multi-frequency operation and real-time control of multiplexers for antennas with multiple ports. NSI-MI's Multiplexer products support up to 256 ports per channel. Controlling and synchronizing these test parameters with measurements requires a flexible acquisition controller with precise timing. The Vector Field Analyzer™ is the instrument that best supports the requirements of the electromagnetic test environment and provides the ideal solution for your measurement needs.

SPECIFICATIONS

Function / Parameter		Performance	
IF Bandwidth		100 Hz–5 MHz	
Continuous Throughput		>= 600 ksps	
RF Performance (3–18 GHz)	IF Bandwidth	Dynamic Range	Sensitivity
	250 Hz	101 dB	-126 dBm
	10 kHz	101 dB	-110 dBm
	5 MHz	78 dB	-83 dBm
Maximum Input Power (at mixer input)		Adjustable; -5 dBm to -25 dBm	
IF Linearity		+/- 0.1 dB (0 to -50 dB)	
Max Remote Mixer Cable Length (@ 0.2 dB/ft loss cable)		53.34 m (175 ft)	
Pulse Mode		Yes (min. pulse width = 200 nS)	
Advanced T/R Support		Dynamic BW, Reference, Ratio, Tx/Rx synchronization	
Control Ports		Two 8 bit multiplexer control ports	
Digital IF Filter Types		Simple averaging	
RF Frequency Range	Internal Mixer	1–26.5 GHz	
	Remote Mixers	0.1–6 GHz, 1–26.5 GHz, 1–50 GHz, >50 GHz mmWave modules	
	Low Frequency Option	10 MHz–210 MHz	
LO Frequency Range		0.1–20 GHz	
Remote Control Interface		Ethernet	
Trigger Bus		4 differential bits, RJ45	
Size (W x H x D)		Rack-mount, 48 x 18 x 58 cm (19 x 7 x 22.8 in.)	
Environmental		0° to 40° C	