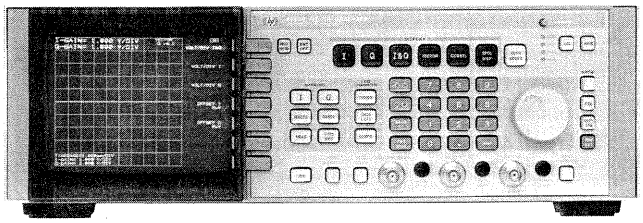
SIGNAL ANALYZERS

Vector Modulation Analysis, dc-350MHz, 50-200MHz

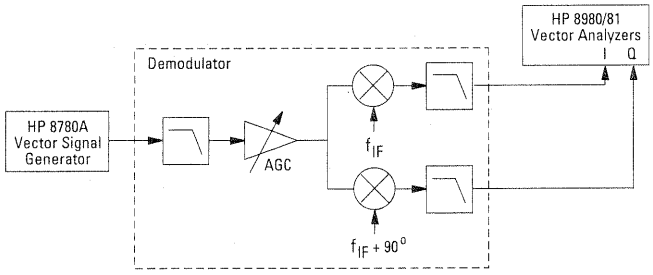
HP 8980A, 8981A

HP 8980A, HP 8981A

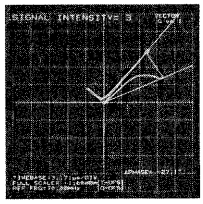
- Analyzes coherent phase and amplitude modulation
- 350 MHz Q vs. I bandwidth
- Markers for measuring phase, amplitude, and time
- 12 bit digitizing for HP-IB measurements.



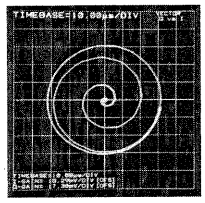
HP 8980A



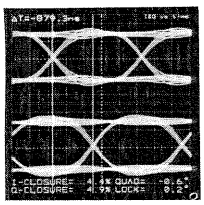
The HP 8980A Vector Analyzer and the HP 8780A Vector Signal Generator can be used to adjust and troubleshoot an I/Q demodulator directly. The I/Q outputs of the demodulator are connected directly to the HP 8980A. The HP 8980A Vector Analyzer can display the constellations of high-rate modulation schemes such as QPSK, 16QAM, 49PRS, 64QAM, and 56QAM. It also makes statistical measures of system quality like closure, lock angle error and quadrature error.



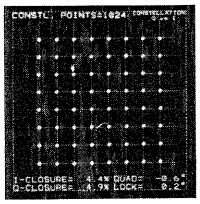
UMOP (Unintentional-Modulation-on Pulse) is identified by quantitatively measuring the phase transients on a radar pulse with the delta-phase measurement marker.



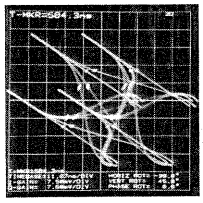
Display of vector demodulated SAW chirp signals. The spiraling phase response indicates the changing chirp frequency and amplitude.



I & Q display: each I and Q channel is displayed vs. time on a separate grid, one above the other.



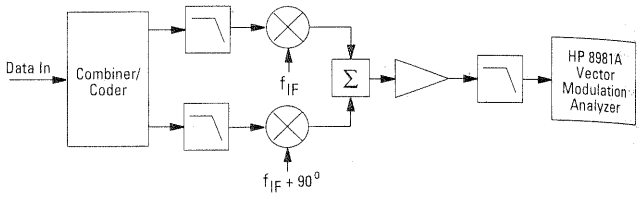
Constellation display: displays Q vs. I at the time instant defined by the time marker.



3D display: useful for visual, or intuitive, analysis of Q vs. I vs. time waveforms. Signal can be rotated about any of three axes for optimal viewing.

HP 8981A adds built-in I/Q demodulator with:

- 50 - 200 MHz modulated IF input frequency range
- 100 MHz baseband bandwidth with external I/Q filters and 35 MHz with internal filters
- Automatic internal/external demodulator calibration



HP 8980/81A Vector Modulation Analyzer

The HP 8981A Vector Analyzer is a superset of the HP 8980A. It also analyzes the analog I and Q signals, but because it contains a calibrated demodulator it can be connected to the IF of the modulator. This gives the user the flexibility to examine the changes in modulation down through the receiver chain and isolate faults quickly.

Specifications

HP 8980A, 8981A

I and Q channels

Bandwidth (-3dB): 350 MHz dc coupled; approximately 1 KHz to 350 MHz, ac coupled

dc vector accuracy using internal ADC: ±1% of full scale (or 2mV if greater) ±1% of offset

Input termination: 50 ohms or 75 ohms

Input coupling: each channel independently: ac,dc, or ground (input disconnected)

Power Requirements

Voltage: 100, 120, 220, 240V ac, −10% to 10%; 48-66Hz

Power: 245 Watts, 320 VA maximum

Dimensions: Package is 5¼ inch rack height, one module width 23D HP System II cabinet

Weight: net, approximately 20kg (45lb); shipping, approximately 24kg (53lb)

Demodulator Correction (HP 8981A only)

A powerful routine in the HP 8981A measures and corrects demodulator errors. This routine measures the internal demodulator or external demodulator quadrature error, I/Q gain imbalance, and DC offsets. The display and digitized outputs can then be automatically adjusted to correct for these errors.

HP 8981A Demod Mode Specifications

Modulated IF input frequency range: 50 MHz to 200 MHz.

Modulated IF input level range: −5 dBm to −20 dBm.

Coherent reference input frequency range: 50 MHz to 200 MHz.

Coherent reference input level range: +10 dBm to −20 dBm.

Baseband bandwidth (3 dB): 100 MHz with external filters. Supplemental characteristic of 35 MHz with internal filters.

Corrected vector dc accuracy at 70 MHz: (typical from 50 to 200 MHz) <2% of full scale IF input.

Supplemental characteristics

Quadrature Error: Corrected: <±0.5° Uncorrected: <±1°.

I/Q gain imbalance (dc to 10 kHz): Corrected: <±0.1 dB. Uncorrected: <±0.25 dB.

Ordering Information

HP 8980A Vector Analyzer

HP 8981A Vector Modulation Analyzer

HP 11748A Active probe system