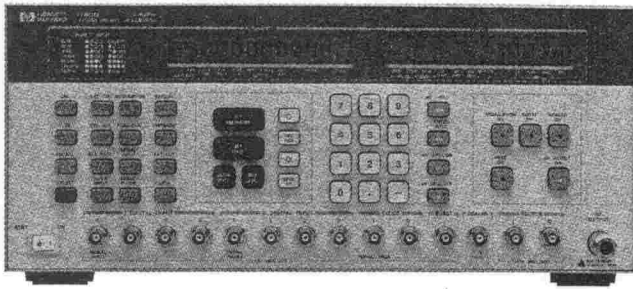


# SIGNAL SOURCES

## Digital I/Q Modulation

HP 8782B, 8782B-K03, 11846B

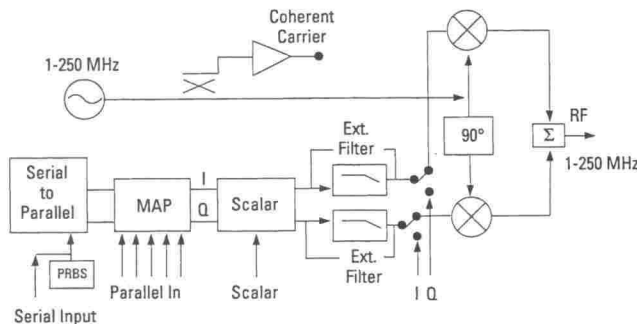


HP 8782B

- 1 MHz to 250 MHz covers 70 and 140 MHz IFs
- Calibrated 100 MHz BW I/Q vector modulation inputs
- BPSK, QPSK, 8PSK, 16QAM, 256QAM digital modulation and burst
- Internal pseudo-random binary sequence generator
- AM/SCALAR modulation to simulate flat fading
- Coherent carrier output
- Optional 1 GHz LO for up conversion to 750 MHz to 1.25 GHz

### HP 8782B Vector Signal Generator

The HP 8782B vector signal generator is a second-generation synthesized generator providing IF signal generation for research and development and manufacturing. It supports a wide range of built-in digital modulation from BPSK to 256QAM for RF and microwave terrestrial and satellite communications applications. Its 1 MHz to 250 MHz frequency range, covers most of the IF frequencies in commercial receivers. An internal pseudo-random bit sequence (PRBS) generator makes all digital modulation possible without using external digital data sources. The HP 8782B also provides an unmodulated coherent carrier output for testing receivers and subsystems before carrier recovery circuits are working. Its cost is substantially lower than that of the HP 8780A vector signal generator.



HP 8782B Simplified Block Diagram

The HP 8782B offers a wide variety of digital modulation using either the internal PRBS generator or a user data source. It generates calibrated test signals as well as specified modulation impairments such as quadrature errors, I/Q imbalance, carrier leakage, and flat fading.

### Applications

Using the HP 8782B to align digital radios in manufacturing can improve radio quality. Instead of relying on a golden standard modulator from Research and Development, the HP 8782B can provide calibrated constellations with extremely low quadrature error and amplitude imbalance. Customers can also simulate transmitter impairments by using the HP 8782B to test receiver performance margins.

### HP 8782B Partial Specifications

#### Frequency

**Range:** 1 to 250 MHz

**Resolution:** 1 Hz

**RF Output Level:** +7 to -100 dBm for all formats

#### Digital Modulation

**Modulation Types:** BPSK, QPSK, 8PSK, 16QAM, 64QAM, 256QAM, 9PRS, 25PRS, 49PRS, 81PRS

**PRBS:** Internal pseudo-random binary sequence generator with  $2^{23}-1$  sequence length

#### Analog I/Q Inputs:

**Frequency Response:** DC to 40 MHz (-0.5 dB)

#### Burst Modulation

**Burst Rates:** 0 to 50 MHz

**Burst DC On/Off Ratio:** > 50 dB at 70 MHz carrier typical > 50 dB from 1 to 250 MHz

#### AM/SCALAR Modulation

**Sensitivity:** 0 to +1 V for 0 to full-scale output power

**Frequency Response:** DC to 50 kHz at 70 MHz carrier frequency

#### PI/4 DQPSK and JCT Modulation

The HP 11846B (with Option 001 or 002) is an accessory for use with the HP 8780A or HP 8782B vector signal generators. The HP 11846B with Option 001 is used with a vector signal generator to provide NADC (North American Dual-mode Cellular) and JDC (Japan Digital Cellular) for simulating telephone system transmissions. The HP 11846B with Option 002 is for use with one of the vector signal generators to simulate JCT (Japan Cordless Telephone) system transmissions.

#### Digital HDTV and CATV Modulation

The HP 8782B-K03 is an accessory for use with the HP 8780A/8782A or 8782B vector signal generators. The HP 8782B-K03 is used with a vector signal generator to simulate the new digital HDTV and/or digital cable TV transmissions. The HP 8782B-K03 can also be used with the HP 8981B to simulate a digital HDTV or cable TV receiver. Note: These products can be used to simulate broadcast or cable TV transmissions. However, these products can not simulate the high bit rates required for satellite transmission simulations.

### Ordering Information

HP 8782B Vector Signal Generator

### Price

\$35,700

For the most current prices and product information, contact your local Hewlett-Packard sales office—see page 691.