

DIGITAL MULTIMETERS/DIGITAL VOLTMETERS

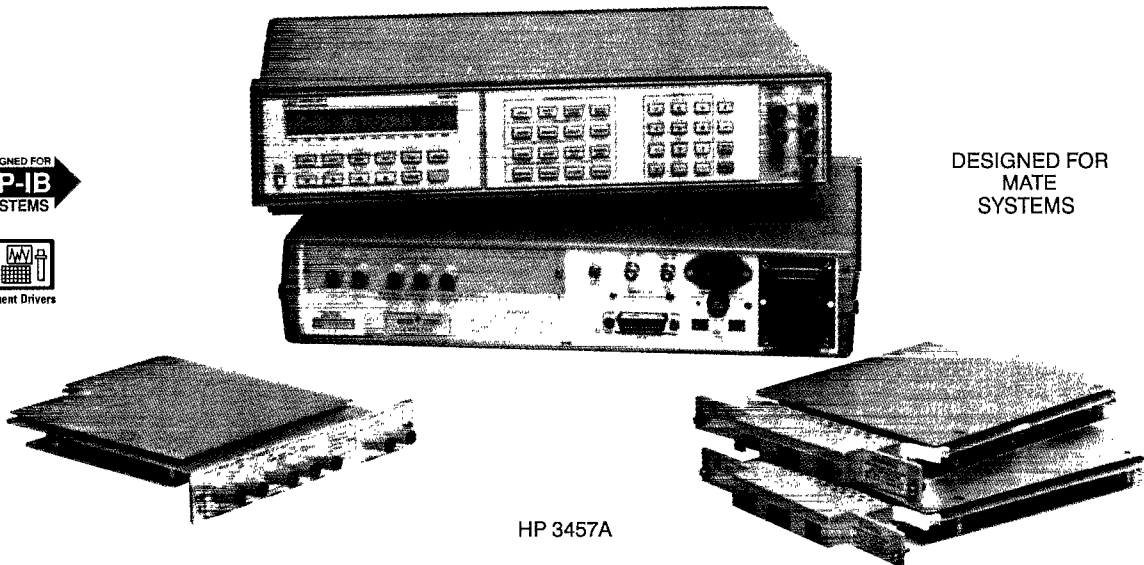
3½- to 6½- Digit DMM with Extended Resolution to 7½ Digits

HP 3457A

- Over 1,350 readings/sec at 3½ digits
- Seven functions: dcV, acV, dcI, acI, Ω , frequency, and period
- Three plug-in multiplexer options
- DC sensitivity to 10 nanovolts
- Outstanding combination of performance and price

DESIGNED FOR
HP-IB
SYSTEMS

HP
Instrument Drivers



DESIGNED FOR
MATE
SYSTEMS

HP 3457A

HP 3457A Digital Multimeter

The HP 3457A has seven functions with 3½ to 6½ digits of resolution, extendable to 7½ digits. Reading rates vary from 1 reading every 2 seconds to 1350 rds/s. Basic dc volts accuracy is 5 ppm. The input of the HP 3457A can be expanded to ten channels with either of the optional plug-in multiplexer assemblies. In bench operation, the front panel is extremely flexible and comprehensive. In systems, the Hewlett-Packard Interface Bus (HP-IB) is standard.

Powerful Measurement Management

The HP 3457A combines superb analog measuring capability with powerful measurement management. More than 3,000 readings or entire measurement sequences can be stored in the HP 3457A. The present digital multimeter (DMM) setup can also be stored in the non-volatile memory for convenient reconfiguration.

Math functions include PASS/FAIL limit testing, NULL, SCALE, THERMISTOR linearization, and others. Total electronic calibration makes it easy to maintain performance.

System Features

The HP 3457A has all the features you've come to expect, plus more to make interfacing to your computer easy—features like flexible formatting of ASCII, 16-bit binary, or 32-bit binary data and buffer memory. In addition, you'll find the VOLTMETER COMPLETE output and EXTERNAL TRIGGER input signals ideal for synchronizing other instruments with the HP 3457A. Finally, programmable front-rear terminal switching lets you measure two separate inputs without a scanner.

Control Interface Intermediate Language (CIIL)

With Option 700, the HP 3457A responds to standardized DMM CIIL commands via HP-IB. Physically and functionally identical to the standard HP 3457A, Option 700 adds the CIIL command set with a built-in test module adapter (TMA) to the DMM's standard HPML.

Three Rear-Panel Plug-In Options

One of three optional assemblies may be used with the HP 3457A. Using the multiplexer assemblies, you can scan up to ten signal channels either sequentially or randomly. All of the capability of the normal front and rear input terminals is available for multiple inputs. Using the high-voltage assembly allows single-channel measurement of either ac or dc voltages at the rear panel.

The HP 44491A armature relay multiplexer assembly offers eight 2-wire channels and two current/actuator channels. Under software control, the eight 2-wire channels can be reconfigured to four 4-wire ohm channels. The two current channels offer automatic make-before-break switching so that the path for current up to 1.5 A is never broken. In addition, these two channels can be used as external device actuator channels. Each channel can switch up to 150 V.

For higher speed scanning, the HP 44492A reed relay multiplexer assembly offers ten 2-wire channels. The HP 44492A is useful for switching Vdc, Vac, 2-wire Ω , frequency, and period measurement signals with a maximum amplitude of 125 V.

For measurement of voltages up to 1414 V peak, the HP 44497A high voltage assembly offers a 1000:1 attenuator input (channel 1) for the high-voltage measurements. In addition, the other rear terminal input (channel 0) can be used to take conventional Vdc, Vac, 2-wire and 4-wire Ω , period, frequency, dcI, and acI measurements. Using the HP 44497A with the HP 3457A in the 6½-digit mode will yield a resolution of 1 mV for a 1000 V input. Implementing the MATH Scale function will cause the HP 3457A LCD to display the measurement results in kilovolts.

Abbreviated Technical Specifications

90-day, $T_{cal} \pm 5^\circ \text{C}$

DC Voltage

Range	Maximum reading	Best 6½-digit accuracy \pm (% rdg + cnts)*		Input resistance
		% of reading	Count error	
30 mV	30.30000 mV	0.0040	365	> 10 G Ω
300 mV	303.0000 mV	0.0025	39	> 10 G Ω
3 V	3.030000 V	0.0017	6	> 10 G Ω
30 V	30.30000 V	0.0035	19	10 M Ω \pm 1%
300 V	303.0000 V	0.0050	6	10 M Ω \pm 1%

*After 1-hr warmup, with integration time of 100 power line cycles (PLC). T_{cal} is the temperature of the calibration environment between 18° and 28° C.