ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

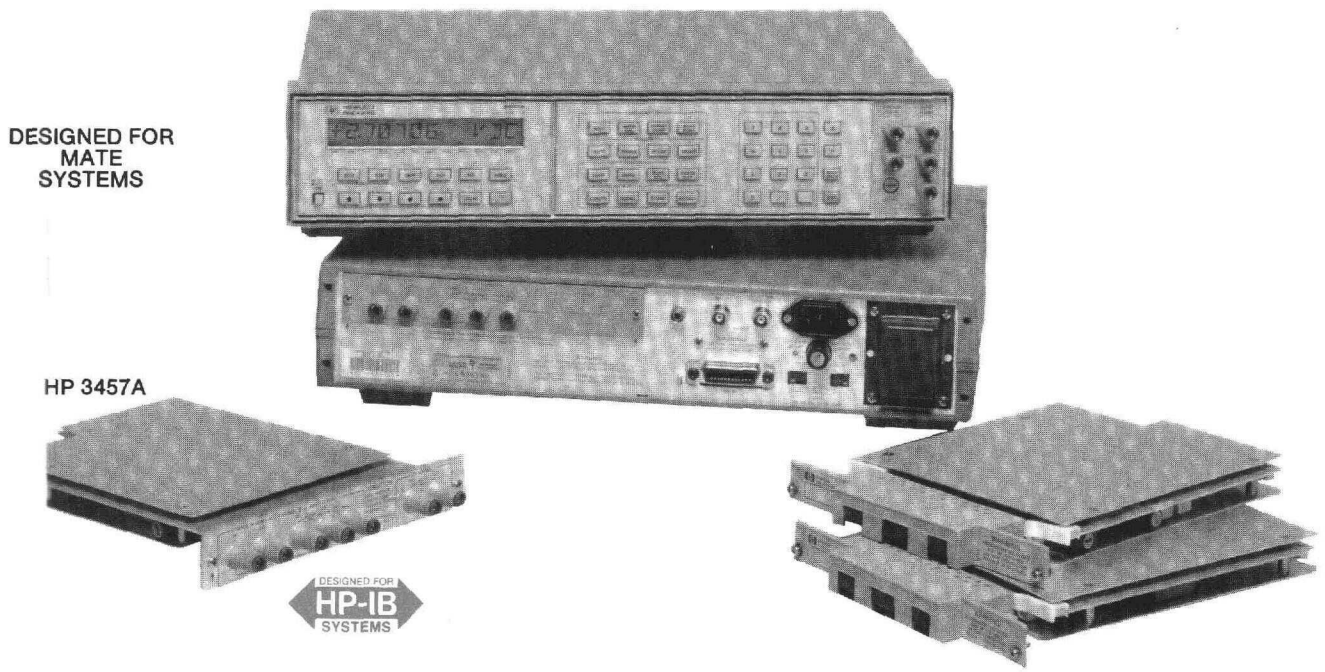
Find the *Keysight / Agilent 44491A* at our website: ***Click HERE***

DIGITAL MULTIMETERS

3 1/2 to 6 1/2 Digit DMM with Extended Resolution to 7 1/2 Digits

HP Model 3457A

- Over 1350 Readings/sec at 3 1/2 Digits
- Seven Functions—DCV, ACV, DCI, ACI, Ohms, Frequency and Period
- Three Plug-in Multiplexer Options
- DC Sensitivity to 10 Nanovolts
- Outstanding Combination of Performance and Price



Description

The HP 3457A has seven functions with 3'/2 to 6'/2 digits of resolution extendable to 7'/z digits at reading rates from 1 reading every 2 seconds to 1350 rds/s and basic DC volts accuracy as good as 5 ppm. In addition, the input of the HP 3457A can be expanded up to ten channels with either of the optional plug-in multiplexer assemblies. On the bench, the front panel operation 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 equally powerful measurement management. More than 1000 readings or whole measurement sequences can be stored in the HP 3457A for convenient and fast measurement throughput. The present dmm setup can be stored in the non-volatile state memory for convenient reconfiguration of the dmm.

Additional power from math functions can be obtained by using PASS/FAIL limit testing, NULL, SCALE, THERMISTOR linearization, and others. The power of total electronic calibration, including AC volts, makes it easy to maintain instrument performance.

System Features

Keeping with HP's long tradition of systems oriented digital multimeters, the HP 3457A has all the systems features you've come to expect plus more to make interfacing to your computer even easier—features like flexible formatting of ASCII, 16 bit binary, or 32 bit binary data and buffer memory so that you can take measurements with the HP 3457A at its highest speed. In addition, you'll find the VOLTMETER COMPLETE output and EXTERNAL TRIGGER input signals ideal for synchronizing other instrumentation with the HP 3457A. Finally, programmable front-rear terminal switching lets you measure two separate inputs without a scanner.

Hewlett-Packard Multimeter Language (HPML)

Another first for the HP 3457A DMM is an easy-to-use dmm language—HPML. Designed so that software written for today's multimeter will fit tomorrow's, HPML only asks you to define the parameters necessary to accomplish your measurement. For example, if you want to make a measurement on a 9 volt DC signal with 0.01% resolution, the command sequence is "DCV,9,.01".

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. The HP 3457A is further enhanced by adding the functions of AC and DC current measurement through CIIL through HP-IB.

Three Rear Panel Plug-In Options

Either one of three different optional assemblies may be used with the HP 3457A for different measurement capabilities. Using the multiplexer assemblies will enable up to ten signal channels to be scanned either sequentially or randomly. All of the functional capability offered through 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.

For measurement flexibility, the HP 44491A Armature Relay Multiplexer Assembly offers eight two-wire channels and two current/actuator channels. Under software control, the eight two-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 as high as 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. The general purpose multiplexer can close a channel and make a measurement at a maximum rate of 33 channels per second.

For higher speed scanning, the HP 44492A Reed Relay Multiplexer Assembly offers ten two-wire channels. The HP 44492A is useful for switching dcV, acV, ac+dcV, two wire ohms, frequency and period measurement signals with a maximum amplitude of 125 V. The Reed Relay Multiplexer can close a relay and make a measurement at a maximum rate of 300 channels per second.

For measurement of voltages up to 1414V 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 utilized to perform conventional VDC, VAC, Two-wire and Four-wire Ohms, Period, Frequency, DCI, and ACI measurements. Using the HP 44497A with HP 3457A in the 6 1/2 digit mode will yield a resolution of 1 mV for a 1000 V input. Implementing the MATH Scale function will have the HP 3457A LCD display the measurement results in the correct units of kilovolts.

DIGITAL MULTIMETERS
$3^1/_2$ to $6^1/_2$ Digit DMM with Extended Resolution to $7^1/_2$ Digits (cont'd)
HP Model 3457A

Abbreviated Technical Specifications
90 day, Tcal ± 5 deg. C

DC Voltage

Range	Maximum Reading	Best $6^1/_2$ Digit Accuracy[1] ± (% Rdg + Cnts) % of Reading	Count Error	Input Resistance
30 mv	30.03000 mV	0.0040	365	10 GΩ
300 mv	303.0000 mV	0.0025	39	10 GΩ
3.0 V	3.030000 V	0.0017	6	10 GΩ
30.0 V	30.30000 V	0.0035	19	10 MΩ
300.0 V	303.0000 V	0.0050	6	10 MΩ

1. After 1 hr warm-up, integration time 100 PLC. Tcal is the temperature of the calibration environment between 18 and 28 deg C.

DC Current

Range	Maximum Reading	Best $6^1/_2$ Digit Accuracy[1] ± (% Rdg + Cnts) % of Reading	Count Error	Input Resistance
300 μA	303.0000μA	0.02	104	1000Ω
3 mA	3.030000 mA	0.02	104	100Ω
30 mA	30.30000 mA	0.02	104	10Ω
300 mA	303.0000 mA	0.07	204	1Ω
1.0A	1.000000 A	0.07	604	0.1Ω

1. After 1 hr warm-up, integration time 100 PLC. Tcal is the temperature of the calibration environment between 18 and 28 deg C.

Resistance (2 and 4 wire ohms)[2]

Range	Maximum Reading	Best $6^1/_2$ Digit Accuracy[1] ± (% Rdg + Cnts) % of Reading	Count Error	Current Output
30 Ohm	30.30000 Ohm	0.0065	315	1 mA
300 Ohm	303.0000 Ohm	0.0045	34	1 mA
3 kOhm	3.030000 kOhm	0.0035	6	1 mA
30 kOhm	30.30000 kOhm	0.0035	6	100 μA
300 kOhm	303.0000 kOhm	0.0040	7	10 μA
3 MOhm	3.030000 MOhm	0.0055	12	1 μA
30 MOhm	30.30000 MOhm	0.0250	80	100nA
300 MOhm[3]	303.0000 MOhm	1.6	1000	100nA
3.0 GOhm[3]	3.030000 GOhm	16.0	1000	100nA

1. After 1 hr warm up, integration time 100 PLC. Tcal is the temperature of the calibration environment between 18 and 28 deg C.
2. For two-wire ohms, add 200m Ohms to count error specifications.
3. For two-wire ohms only, Accuracy is specified following autocal (ACAL), under stable conditions (±1 deg C).

Maximum Reading Rates (DCV, DCI, and Resistance up to 30 kOhm)[2]

Power Line Cycles[3]	Maximum # of Digits	Readings per Second-60Hz (50Hz) Auto Zero On	Auto Zero Off	NMR
.0005	$3^1/_2$	300	1350	0
.005	$4^1/_2$	280	1250	0
.1	$5^1/_2$	140 (128)	360 (312)	0
1.0	$6^1/_2$	26 (22)	53 (45)	60dB
10	$7^1/_2$[1]	2.5 (2.0)	4.8 (4.0)	80dB
100	$7^1/_2$[1]	.25 (0.2)	0.5 (0.4)	90dB

1. Using Math HIRES mode.
2. Reading rates are specified with zero delay, fixed range, display off, and front panel off. The output is to internal reading memory using single integer format and internal timer.
3. Integration Time in Power Line Cycles (PLC).

Common Mode Rejection (dB): (1 kOhm unbalance in low lead) DC ECMR 140 dB; AC ECMR: <1 PLC, 76 dB; AC ECMR >1 PLC 156 dB, for 50, 60 Hz ±.C\8%.

True RMS ACV and (AC+DC)V
Bandwidth: 20 Hz **to 1 MHz**
Crest Factor: 3.5 to 1 at full scale
Common Mode Rejection: (1 kOhm unbalance in LO): >76 dB, I C to 60 Hz
Accuracy: (90 day)

Accuracy specified for sine wave inputs, >10% of range. DC component <10% of AC component after 1 hr warm-up and within one week of autocal. Integration time = 10 PLC. AC Band set to <400 Hz. DC coupled mode requires 2 hour warm-up.

Range	Maximum Reading	(100 Hz to 20 kHz) Best $5^1/_2$ Digit Accuracy ± (% Rdg + Cnts) AC Coupled % of Reading	AC Coupled Count Error	DC Coupled % of Reading	DC Coupled Count Error	Input Impedance
30mV	32.50000mV	0.13	116	0.17	364	1MOhm ±1%
300mV	325.0000mV	0.13	116	0.17	364	shunted by
3.0V	3.250000 V	0.13	116	0.17	364	<90pf
30.V	32.50000 V	0.13	116	0.17	364	
300V	303.0000 V	0.19	116	0.23	364	

True RMS ACI and (AC+DC)I
Bandwidth: 20 Hz to 100 kHz Crest Factor: 3.5 to full scale
Accuracy: (90 day)

Accuracy specified for sine wave inputs, >10% of range. DC component <10% of AC component after 1 hr warm-up and within one week of autocal. Integration time = 10 PLC. AC Band set to <400 Hz. DC coupled mode requires 2 hour warm-up.

Range	Maximum Reading	(100 Hz to 20 kHz) Best $5^1/_2$ Digit Accuracy ± (% Rdg + Cnts) AC Coupled % of Reading	AC Coupled Count Error	DC Coupled % of Reading	DC Coupled Count Error
30mA	32.50000mA	0.25	290	0.3	1600
300mA	325.0000mA	0.25	290	0.3	1600
1.0A	1.000000 A	0.35	290	0.4	1600

Reading Rates (ACV and ACI)[1]

Power Line Cycles	Maximum # of Digits	Readings per Second .60 Hz (50 Hz) Input <400 Hz (Slow Response)	Input >400 Hz (Fast Response)
.0005	$3^1/_2$	1	9.5
.005	$4^1/_2$	1	9.5
.1	$5^1/_2$	1 (1)	9.25 (9.2)
1	$6^1/_2$	1 (1)	7.25 (6.9)
10	$6^1/_2$	0.7 (0.65)	2.0 (1.7)
100	$6^1/_2$	0.2 (0.17)	0.25 (0.2)

1. Reading rates are specified with preprogrammed delays, fixed range, and Auto Zero on.

Frequency and Period: Measures the frequency or period of the ac component of the ac or dc coupled voltage or current input. The counter uses a reciprocal counting technique to give constant resolution independent of input frequency.
Input Impedance: Refer to AC voltage and current specifications.
Frequency Range: 10 Hz to 1.5 MHz (voltage input)
10 Hz to 100 KHz (current input)
Period Range: .1 s to 667 ns (voltage input)
.1 s to 3.33 us (current input)
Sensitivity: 10 mV or 100 MA (sinewave)
Triggering: Triggers and counts on zero crossings
Accuracy: (1 year)

Frequency	Period	±% of Reading
10 Hz to 400 Hz	.1 s to .025 s	0.05
400 Hz to 1.5 MHz	.025 s to 667 ns	0.01

Maximum Reading Rate: 2.0 rdgs/s for integration time of 1 PLC, AC Band >400 Hz, delay zero and math off, and fixed range.

Memory: 2139 available bytes that can be partitioned into 3 segments, one devoted to storing measurements, one devoted to storing measurement subprograms, and one devoted to storing instrument states.

Math Functions: The HP 3457A performs the following math functions on the measurements—NULL, SCALE, OFFSET, RMS FILTER, SINGLE POLE FILTER, THERMISTOR LINEARIZATION, DB, DBM, % ERROR, PASS?FAIL LIMIT TESTING, and STATISTICS. Two math functions may be used at one time.

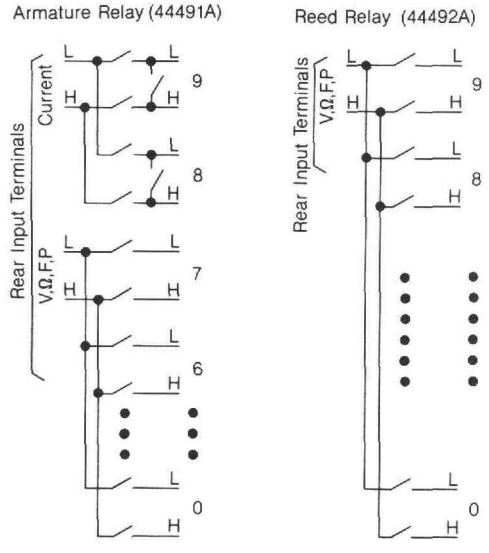
General Specifications

Operating Temperature: 0 to 55° C
Warmup Time: one hour to all specifications except where noted
Humidity Range: 95% R.H., 0 to 40° C
Storage Temperature: -40 to +75° C
Power: 100/120/220/240 V ±10%, 48 Hz - 66 Hz, 220 V, ±10%, 48 Hz to 66 Hz. Fused at .2A (115 V) or 0.08 A (230 V). <30 VA.
Size: 89 mm **H** (without removable feet) x 425mm W x 292mm D (3.5" x 16.75" x 11.5"). Height (with removable feet): 100 mm (4"). Allow 76mm (3") additional depth for wiring.
Net Weight: 5.05 kgm (11.1 Ibs)
Shipping Weight: 9.3 kgm (20.5 Ibs)

Plug-in Options

HP 44491A Armature Relay Multiplexer Assembly Input Characteristics: Eight two-wire armature relay channels and two current/actuator channels. Maximum voltage (terminal-to-terminal or terminal to chassis) 250 Vrms. Maximum current (per channel) —1.0 A DC or AC. Thermal Offset - *3u* V. Closed channel resistance (end of relay life) - <2 Ohms. Maximum switching and measurement speed - 33 channels/second.

HP 44492A Reed Relay Multiplexer Assembly Input Characteristics: Ten two-wire reed relay channels. Maximum voltage (terminal-to-terminal or terminal-to-chassis) - 125 V peak. Thermal offset - 3 *u*V. Closed channel resistance (end of relay life) - <4 Ohms. Specified for < 100 kHz ac volts and frequency operation. Maximum switching and measurement speed - 300 channels/second.



HP 44497A High Voltage Attenuator Assembly Input Characteristics: Two relay channels, channel 1 devoted to high voltage measurements. Maximum High-to-Low voltage of 1000 Volts DC or AC rms. Maximum Low-to-Earth voltage of 350 V Peak Non-destructive Overload voltage of 1700 V Peak, 1200 Volts DC. Attenuator accuracy to be added to HP 3457A range and function accuracy for total accuracy.

DC	0.030% of reading
20 Hz - 1 KHz	2.8% of reading
1 KHz - 10 KHz	10.0% of reading

Note: One year accuracy applies to Tcal ±5%, NPLC=1 or greater. Specifications are for low-to-earth voltage less than 0.1 times the High-to-Earth voltage.

	Price
Model 3457A Multimeter	**$2950**
***HP 44491A** Armature Relay Multiplexer Assembly	$470
***HP 44492A** Reed Relay Multiplexer Assembly	$470
***HP 44497A** High Voltage Attenuator Assembly	$390
Option 401: Side Handle Kit (P/N 5061-1171)	$40
Option 700: CIIL Language	$990
Option 907: Front Handle Kit (P/N 5061-1170)	$51
Option 908: Rack Flange Kit (P/N 5061-1168)	$32
Option 909: Rack Flange and Front Handle Kit (P/N 5061-1169)	$75
Option 910: Extra Operating and Service Manual	$110
Option W30: Two years of additional hardware support	$80
Accessories:	
HP 44490A Rack Slide Kit for 30 inch depth racks	$230
HP 44493A Screw Terminal Connector for HP 44491A includes strain relief and housing	$63
HP 44494A Screw Terminal Connector for HP 44492A includes strain relief and housing	$63
HP 34118A Test Lead Kit	$27 ☎
HP 34301A RF Detector Probe, 100 KHz to 700 MHz	$80 ☎
HP 34300A 40 Kv ac/dc Probe, dc to 300 Hz	$90 ☎
HP 34119A High Voltage Probe, 1000:1, AC & DC Voltage Divider for up to 5000V	$130 ☎
HP 44414A: Four Thermistor Pack	$63 ☎

'Plug-in options may be ordered and shipped separately without a HP 3457A mainframe. Unless otherwise specified, the optional plug-In accessories will be shipped with the HP 3457A mainframe.

☎ Fast Ship Product—see page 734.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP