

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)		Input Resistance
		% of Reading	Count Error	
30 mv	30.03000 mV	0.0040	365	10 GΩ
300 mv	303.00000 mV	0.0025	39	10 GΩ
3.0 V	3.0300000 V	0.0017	6	10 GΩ
30.0 V	30.300000 V	0.0035	19	10 MΩ
300.0 V	303.00000 V	0.0050	6	10 MΩ

- 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)		Input Resistance
		% of Reading	Count Error	
300 μA	303.00000 μA	0.02	104	1000Ω
3 mA	3.0300000 mA	0.02	104	1000Ω
30 mA	30.300000 mA	0.02	104	100Ω
300 mA	303.00000 mA	0.07	204	1Ω
1.0A	1.0000000 A	0.07	604	0.1Ω

- 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)		Current Output
		% of Reading	Count Error	
30 Ohm	30.30000 Ohm	0.0065	315	1 mA
300 Ohm	303.00000 Ohm	0.0045	34	1 mA
3 kOhm	3.0300000 kOhm	0.0035	6	1 mA
30 kOhm	30.300000 kOhm	0.0035	6	100 μA
300 kOhm	303.00000 kOhm	0.0040	7	10 μA
3 MOhm	3.0300000 MOhm	0.0055	12	1 μA
30 MOhm	30.300000 MOhm	0.0250	80	100nA
300 MOhm ³	303.00000 MOhm	1.6	1000	100nA
3.0 GOhm ³	3.0300000 GOhm	16.0	1000	100nA

- After 1 hr warm up, integration time 100 PLC. Tcal is the temperature of the calibration environment between 18 and 28 deg C.
- For two-wire ohms, add 200m Ohms to count error specifications.
- 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 ²	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

- Using Math HIRES mode.
- 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.
- 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 ±.08%.

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, DC 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)				Input Impedance
		AC Coupled % of Reading	Count Error	DC Coupled % of Reading	Count Error	
30mV	32.50000mV	0.13	116	0.17	364	1MΩ ± 1% shunted by <90pf
300mV	325.00000mV	0.13	116	0.17	364	
3.0V	3.2500000 V	0.13	116	0.17	364	
30.V	32.500000 V	0.13	116	0.17	364	
300V	303.00000 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		DC Coupled	
		% of Reading	Count Error	% of Reading	Count Error
30mA	32.50000mA	0.25	290	0.3	1600
300mA	325.00000mA	0.25	290	0.3	1600
1.0A	1.0000000 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)

- 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 μA (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 lbs)
- Shipping Weight:** 9.3 kgm (20.5 lbs)

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 - 3µ 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 µV. 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.

Model 3457A Multimeter

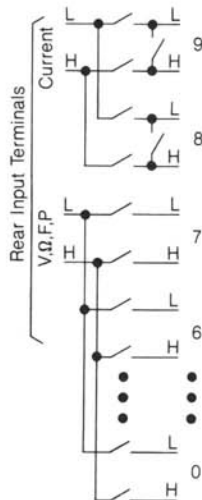
Price \$2950

- *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.

Armature Relay (44491A)



Reed Relay (44492A)

