

OSCILLOSCOPES

Oscilloscope Probes and Accessories (cont'd)



HP 10400A Family Accessories

Each 10400A family probe is shipped with one general-purpose grabber, one IC grabber, and one ground lead. An accessory package is also included, which contains 4 grounding spanners (for close grounds at the probe tip), 1 probe barrel insulator, 1 adjustment screwdriver, and 8 colored cable markers.

The photo above illustrates use of the IC grabber. This device fits DIPs with 0.1-inch pin spacing (standard) and up to 0.9-inch package width. It is handy for connecting the mini-probe tip to a single DIP pin. Construction prevents shorting adjacent pins during hookup. For applications where several adjacent DIP pins must be probed, the 10024A accessory can be used (see page 163).

Replacement Probe Tip Assemblies

Probe	Tip Color	HP Part Number	Price
HP 10430A	white	5061-6145	\$10
HP 10431A	white	5061-6145	\$10
HP 10432A	red	5061-6151	\$10
HP 10433A	blue	5061-6146	\$10
HP 10434A	brown	5061-6147	\$10
HP 10435A	green	5061-6147	\$10
HP 10436A	orange	5061-6152	\$10
HP 10437A	black	5061-6149	\$10
HP 10438A	black	5061-6149	\$10
HP 10439A	black	5061-6149	\$10
HP 10440A	yellow	5061-6148	\$10
HP 10441A	purple	5061-6153	\$10

Other HP 10400 Series Probe Accessories

General-purpose grabber/hook tip	\$10
Integrated circuit grabber	\$10
Ground lead	\$5
Accessory package: 4 grounding spanners, 1 probe barrel insulator, 1 adjustment tool, 8 colored wire markers	\$10

HP 10070A and HP 10071A Probes for HP 54600 Series Oscilloscopes.

The HP 10070A is a 1:1 probe, 1.5 meters in length, that is designed for use with the HP 54600A and HP 54601A oscilloscopes.

The HP 10071A is a 10:1 voltage divider probe, 1.5 meters in length, that can be used with the HP 54600A and HP 54601A oscilloscopes.



HP 10002A

HP 10002A 1000 V 50:1 Voltage Divider Probe

The HP 10002A voltage divider probe is a general-purpose probe for use with instruments that have a bandwidth of less than 40 MHz with an input impedance of 1 M Ω shunted by approximately 15 to 55 pF. The probe is rated at 1000 V peak.

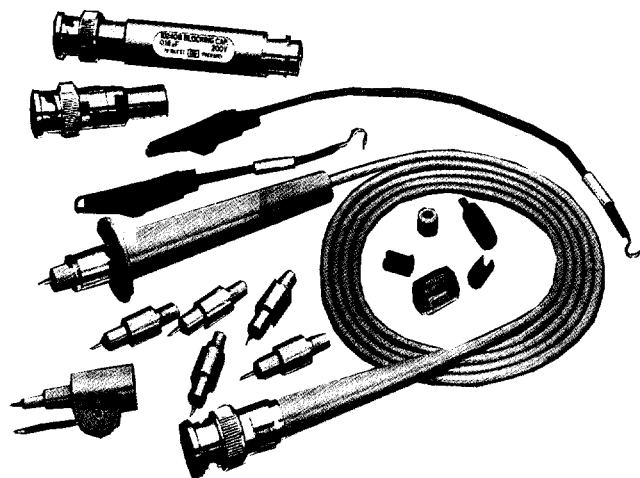
HP 10020A Resistive Divider Probe Kit

The HP 10020A Resistive Divider Probe Kit is a signal-probing system for measuring fast transition signals in high-impedance systems. It is designed for use with 50 Ω input oscilloscopes, but may be used with other than 50 Ω systems if a 50 Ω feedthrough termination (HP 10100C) is used. The extremely low input RC of the 10020A provides high-fidelity measurements of fast transition signals.

Probe length (overall): 1.2 m (4 ft).

Weight: Net, 0.45 kg (1 lb); shipping, 1.4 kg (3 lb).

Accessories supplied: HP 10240B blocking capacitor, BNC adapter tip, 6-32 adapter tip, alligator tip, probe handle, cable assy's 5.1 cm (2 in) & 15.2 cm (6 in) ground, spanner tip, insulating caps, colored sleeves.



The HP 10020A Resistive Divider Probe Kit (includes HP 10240B)

HP 10020A Resistive Dividers

Division Ratio	Input R* (ohms)	Division Accuracy	Max V** (rms)	Input C (pF)
1:1	50	—	6	—
5:1	250	$\pm 3\%$	9	<0.7
10:1	500	$\pm 3\%$	12	<0.7
20:1	1000	$\pm 3\%$	15	<0.7
50:1	2500	$\pm 3\%$	25	<0.7
100:1	5000	$\pm 3\%$	35	<0.7

*When terminated in 50 ohms.

**Limited by power dissipation of resistive element.

HP 10240B Blocking Capacitor

The HP 10240B blocking capacitor is a probing accessory that provides ac coupling while maintaining a 50 Ω system. This capacitor is designed for use with the HP 10020A resistive divider probe kit, and it is included with the kit. It can also be used with any probe that must be terminated in 50 Ω .

Characteristics

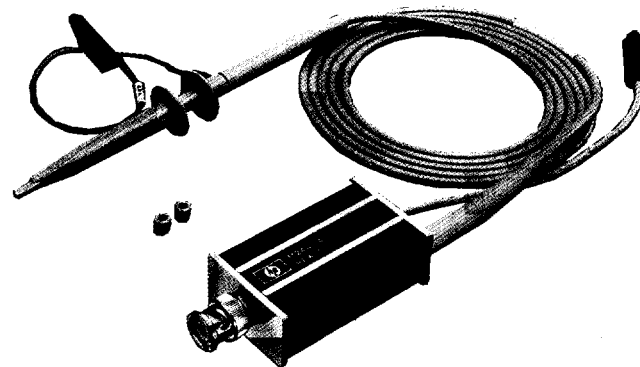
Capacitance: 0.18 μ F

Maximum voltage: ± 200 Vdc

Reflection: Under 12% when driven by a 150 ps rise time step in a 50 Ω system

Sag: Approximately 10% per μ s (1% in 100 ns)

Connectors: BNC



HP 1124A 100 MHz Active Divider Probe

The HP 1124A active divider probe provides high-voltage, general-purpose probing capabilities for instruments having 50 Ω inputs without selectable high-impedance inputs. This 10 M Ω 10 pF probe allows direct measurements of 100 V, in the 100:1 division ratio mode, from dc to 100 MHz. In the 10:1 division ratio mode, input voltage range is ± 10 V. Power is supplied by instruments with probe power jacks or the HP 11899A probe power supply.

HP 1124A Specifications

(measured when connected to a 50 Ω load)

Bandwidth: (measured from a terminated 50 Ω source) dc-coupled, dc to 100 MHz; ac-coupled, 2 Hz to 100 MHz.

Pulse response: (measured from a terminated 50 Ω source) transition time, <3.5 ns; perturbations, 5% peak-to-peak. Measured with pulse transition time of >2.5 ns.

Attenuation ratio: 10:1 $\pm 5\%$; 100:1 $\pm 5\%$

Dynamic range: $\times 10$, ± 10 V; $\times 100$, ± 100 V

Input RC: 10 M Ω shunted by ≈ 10 pF

Maximum safe input

dc-coupled: $\times 10$, ± 300 V (dc + peak ac) ≤ 100 MHz; $\times 100$, ± 500 V (dc + peak ac) ≤ 100 MHz

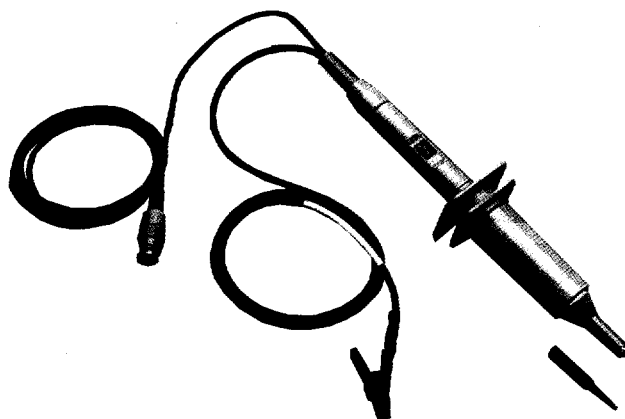
ac-coupled: $\times 10$, ± 300 V (dc + peak ac) ≤ 100 MHz; dc component must not exceed ± 200 V; $\times 100$, ± 500 V (dc + peak ac) ≤ 100 MHz; dc component must not exceed ± 200 V.

Accessories supplied: One 20.3 cm (8 in) ground lead, one retractable hook tip, and two probe tip insulating caps

Power: Supplied by instruments with probe power jacks or the HP 11899A probe power supply.

Weight: Net, 0.2 kg (5 oz); shipping, 0.91 kg (2 lb)

Length: 1.5 m (5 ft) overall

**HP 1137A High-Voltage Divider Probe**

The HP 1137A 1000:1 high-voltage divider probe is designed for use with any oscilloscope having input resistance of 1 M Ω ($\pm 1\%$) and nominal input capacitance between 6 and 50 pF. The HP 1137A is a 1000:1 voltage divider probe that extends voltage measurement capability to 5 kV ac or dc.

Operating Characteristics**Maximum input voltage:**

dc voltage 5 kV

ac voltage 5 kV rms (0 to 250 kHz), 2.5 kV rms (250 kHz to 1 MHz)

Input impedance: 500 M Ω shunted by 3 pF (approximate)

Bandwidth: 1 MHz

Rise time: Approximately 350 ns

Calculated from formula: $t_r = \frac{0.35}{\text{bandwidth}}$

Temperature coefficient: $\pm 0.02\%$ of reading per degree C

Division ratio accuracy: $\pm 1.5\%$ of reading (see note)

Compensation range: For input capacitance of 6 to 50 pF

Crest factor: 2 or less

Note: Characteristic applies for operation between 0° and 55° C, at less than 85% relative humidity. For operation above 40° C, at 85% to 95% relative humidity, add additional 10% of reading.

General**Operating modes:**

1 M Ω mode, for oscilloscope impedance of 1 M Ω $\pm 1\%$

10 M Ω mode (optional), for input impedance of 10 M Ω $\pm 1\%$

Operating temperature range: 0° to 55° C

Storage temperature range: -20° to 70° C

Cable length: 1.5 meters

Accessories: Trimmer adjustment tool included

Ordering Information

	Price
HP 10002A 1000V 50:1 Voltage Divider Probe	\$290
HP 10020A Resistive Divider Probe Kit	\$525
HP 10070A 1:1 Probe	\$45
HP 10071A 10:1 Probe	\$45
HP 10240B Blocking Capacitor	\$45
HP 1124A 100 MHz Active Probe	\$425
HP 1137A 1000:1 High Voltage Divider Probe	\$150