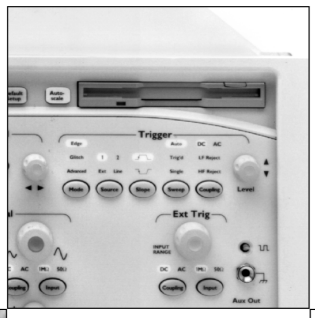
specification

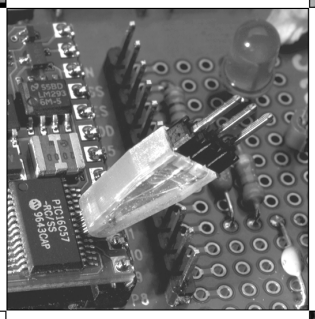
HEWLETT PACKARD
Expanding Possibilities

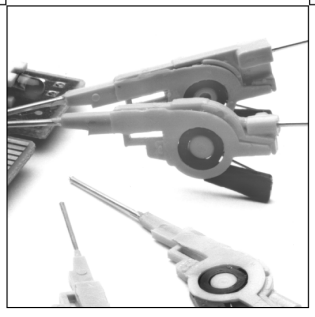
HP **Oscilloscopes** **Infiniium Probes and Accessories**

Tools to get your job done faster

- Probes
- Accessories
- Input devices

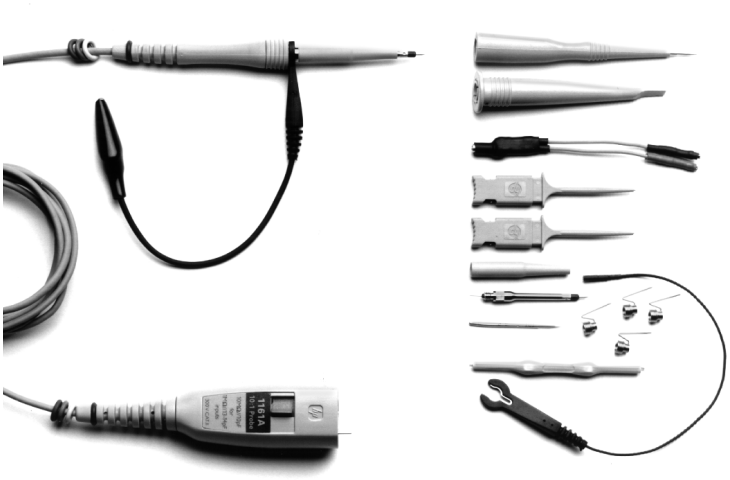






Rugged, general purpose probes for HP Infiniium Oscilloscopes

Before we developed the HP 1160 family of miniature probes, we conducted intensive market research. We used focus groups, surveys, and interviews to ask engineers about their frustrations with probing. We heard that probes often slip off the test point being probed and short to adjacent leads. We heard that a variety of ground accessories are needed to connect to different points. And we were told that reliability is always a concern. We used this feedback to guide our development team as we built the HP 1160 family of miniature probes.



HP 1160 probes and accessories

Browser crown point

No-slip browser

We developed a new browser with a crown point that digs in to solder, and won't slip. Install the browser over the probe tip, and probe about the board while debugging your circuit. The pogo pin allows hand movement without losing contact.

A variety of grounding accessories

The HP 1160 family probes come with an alligator lead for general purpose probing, 4 spring grounds for high frequency measurements, a socketed ground lead and SMD clips for probing 50 mil SMD. Also included is a dual lead adapter so that both the probe tip and ground can be connected to SMD devices. For connection to 0.5mm- 0.8mm devices order the optional HP 10467-687010 0.5mm IC clips.

Reliability

The HP 1160 family probes are built and tested for high reliability. The cable has a Kevlar® strengthener for added pull strength. The general purpose retractable hook tip has a durable music wire hook. And probe tips are replaceable.

Miniature size

To miniaturize the probe, unscrew the handle and pull it back on the cable. The miniature probe has a narrow, sharp tip that is excellent for probing SMD.

AutoProbe Interface Compatible

The HP 1160 family probes are compatible with the AutoProbe Interface, which completely configures the HP Infiniium Oscilloscope for the probe. The snap-on BNC connector makes it easy to attach the probe to the scope.

HP 1160 Family Selection Guide

Model Number	Type of Probe	System Bandwidth (scope +probe)	Division Ratio	Input R	Input C	Scope Input R	Compensation Range	Length
HP 1160A	High Impedance, Passive	500 MHz	10:1	10 MΩ	9 pF	1 MΩ	6 - 9 pF	1.5 m
HP 1161A	High ImpeSce, Passive	500 MHz	10:1	10 MΩ	10 pF	1 MΩ	12 - 14 pF	1.5 m
HP 1162A	High Impedance, Passive	25 MHz	1:1	1 MΩ	50 pF + scope capacitance	1 MΩ	n/a	1.5 m
HP 1163A	500 Ω Resistive Divider	1.5 GHz with HP 54845A	10:1	500 Ω	1.5 pF	50 Ω	n/a	1.5 m
HP 1164A Passive	High Impedance,	500 MHz	10:1	10 MΩ	10 pF	1 Ω	6 - 9 pF	2.0 m

Compatibility

Scope	Probe
HP 54810A	HP 1160A, 1162A, 1163A, 1164A
HP 54815A	HP 1160A, 1162A, 1163A, 1164A
HP 54820A	HP 1160A, 1162A, 1163A, 1164A
HP 54825A	HP 1160A, 1162A, 1163A, 1164A
HP 54845A	HP 1161A, 1162A, 1163A

Characteristics

Approximate Propagation Delay	6.7 ns
Maximum Input Voltage	300 V (dc + peak ac), CAT II
Safety	Meets IEC1010-2-31
Pull Strength (BNC to barrel)	≥ 12 lb static pull
Net Weight	2.6 oz

Environmental Characteristics

Temperature (Operating)	0° C to +55° C
Humidity(Operating)	Up to 95% relative humidity at 40° C
Altitude(Operating)	Up to 4,600 meters (15,000 ft.)
Shock	50 g (400 g tip only)

Ordering Information

HP 1160A 10:1, 10 MΩ, 1.5 m, miniature passive probe

HP 1161A 10:1, 10 MΩ, 1.5 m, miniature passive probe

HP 1162A 1:1, 1.5 m, miniature passive probe

HP 1163A 10:1, 500 Ω, low C, 1.5 m, miniature passive probe

HP 1164A 10:1, 10 MΩ, 2 m, miniature passive probe

Each HP 1160 family probe includes: 1 probe assembly, 1 general-purpose retractable hook tip, 1 browser, 2 barrel insulators, 4 spring grounds, 1 alligator ground lead, 1 socketed ground lead, 1 dual lead adapter, 2 SMD grabbers, 1 spare browser pogo pin,1 spare probe tip, and 1 screw driver, 1 users' reference and a three-year warranty.

Available Accessories

HP 10467-68701 0.5 mm IC clips for connection to SMD with lead spacings of .5mm (.020") to .8mm (.032")

Replacement Parts

HP 5063-2135 General purpose retractable hook tip, Qty 2

HP 5063-2140 Alligator ground lead, Qty 2

HP 5063-2120 Socketed ground lead, Qty 1

HP 5063-2115 Browser, Qty 1

HP 5063-2147 Dual lead adapter, Qty 1

HP 5063-2149 SMD clips, Qty 5

HP 01160-68701 Accessory kit (includes 4 spring grounds, 4 browser pogo pins, 4 barrel insulators, 1 screw driver)

HP 5063-2136 HP 1160A probe tip, Qty 5

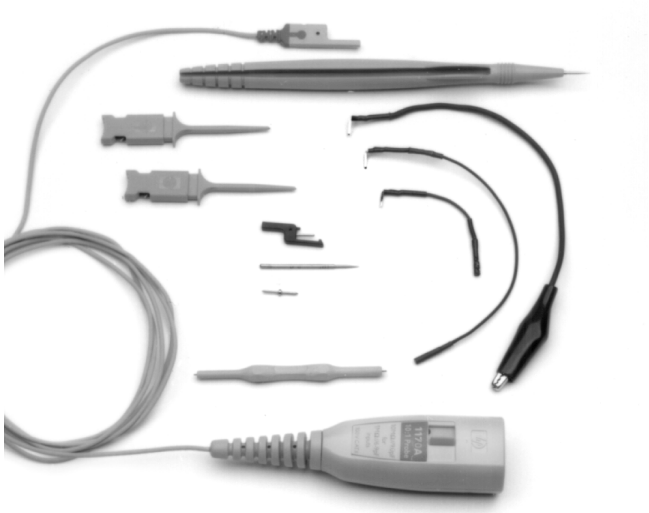
HP 5063-2137 HP 1161A probe tip, Qty 5

HP 5063-2138 HP 1162A probe tip, Qty 5

HP 5063-2139 HP 1163A probe tip, Qty 5

The HP 1170 Family of Low Mass Passive Probes and Fine-Pitch Probing Kits

Small, easy-to-connect probes for HP Infiniium Oscilloscopes



As ICs and components continue to shrink in size, probing has become increasingly difficult. Developed for easy connection to fine-pitch ICs, surface mount components and dense circuit boards, the HP 1170 family of low mass passive probes makes the job of probing and connecting less frustrating. With an exceptionally small, light probe tip (<1 gram), these passive probes provide the same high-performance and reliability you've come to expect from HP's high-performance passive probes. Add an ultra-thin, flexible cable, and the HP 1170 probes are not only easy to connect, they stay put on the test point.

Easy to connect, Easy to hold

You'd think a probe this small would be hard to hold, but the HP 1170-family of probes plug in to a browser accessory that makes them as easy to hold as a conventional probe. This patented browser concept utilizes a crown point pogo pin that digs in to solder and absorbs small hand movement, so doesn't slip. When used in conjunction with the HP Wedge, the HP 1170 probes provide a reliable hands-free solution for probing 0.5-mm and 0.65-mm IC packages and the probe tip also connect directly to board headers.

Low capacitive loading

Typical passive probes feature a 10:1 division ratio and a tip capacitance of approximately 10 pF or more. In sharp contrast, the HP 1172A and 1173A's 20:1 division ratio provides a low tip capacitance of less than 5 pF making these passive probes much better suited for the fast rise times of today's ICs.

Complements your standard passive probe

The HP 1170 probes' low mass and size, combined with the flexibility provided by the no-slip browser and the HP Wedge (see page 12)make it the ideal supplement to your standard passive probe. And that can really ease fine pitch frustrations. The HP 1170 family of probes include IC clips, miniature socketed leads and a complete selection of probing and grounding accessories.

Fine-Pitch Probing Kits

A complete solution, a bargain price!

The HP fine-pitch probing kits take the 1170-family of probes and add the most useful fine-pitch probing accessories to give you a versatile and complete probing solution. Each kit include 2 HP 1170-family probes and its' accessories, 2 of the 0.5 mm HP Wedge probe adapters, 4 of our 0.5 mm IC clips and 10 standard IC clips. All for a price substantially less than the individual parts.

HP 1170 Family Selection Guide

Model Number	Type of Probe	System Bandwidth (scope +probe)	Division Ratio	Input R	Input C	Scope Input R	Compensation Range	Length
HP 1170A	High Impedance, Passive	500 MHz	10:1	10 MΩ	9pF	1 M	6 - 9 pF	1.5 m
HP 1171A	High Impedance, Passive	500 MHz	10:1	10 MΩ	10 pF	1 M	12 - 14 pF	1.4 m
HP 1172A	High Impedance, Passive	500 MHz	20:1	10 MΩ	< 5 pF	1 M	6 - 9 pF	1.3 m
HP 1173A	High Impedance, Passive	500 MHz	20:1	10 MΩ	< 5 pF	1 M	12 - 14 pF	1.2 m

Compatibility

Scope	Probe
HP 54810A	HP 1170A, HP 1172A
HP 54815A	HP 1170A, HP 1172A
HP 54820A	HP 1170A, HP 1172A
HP 54825A	HP 1170A, HP 1172A
HP 54845A	HP 1171A, HP 1173A

Characteristics

Approximate Propagation Delay	7 ns, 6.5, 6.0, 5.5
Maximum Input Voltage	40V (dc + peak ac), CAT I
Safety	Meets IEC1010-2-31
Pull Strength (BNC to probe tipl)	≤ 12 lb static pull
Net Weight	2.6 oz
Probe Tip Weight	< 1 gram

Environmental Characteristics

Temperature (Operating)	0° C to +55° C
Humidity (Operating)	Up to 95% relative humidity at 40° C
Altitude (Operating)	Up to 4,600 meters (15,000 ft.)
Shock	50 g (400 g tip only)

Ordering Information

Low Mass Passive Probes

HP 1170A 10:1, 10 MΩ , 1.5 m,
low mass passive probe

HP 1171A 10:1, 10 MΩ , 1.4 m,
low mass passive probe

HP 1172A 20:1, 10 MΩ , 1.3 m,
low mass passive probe

HP 1173A 20:1, 10 MΩ , 1.2 m,
low mass passive probe
Each HP 1170A family probe includes: 1 probe assembly, 1 browser, 2 probe pins, 2 pogo pins, 2 IC clips, 1 screwdriver, 1 alligator ground, 1 socketed ground, 1 walking stick ground, 1 ground extender and a user's guide.

Fine Pitch Probing Kits

HP E2652A Fine-Pitch Probing Kit for
HP 54810/15/20/25A

HP E2653A Fine-Pitch Probing Kit for HP 54845A
Each kit includes. 2 HP 1172A (E2652A) or
HP 1173A (E2653A) low mass probes and their accessories,
2 x 0.5 mm HP Wedge Probe Adapters,
4 x 0.5 mm IC clips, 10 x std IC clips.

Fine Pitch IC Probing Accessories

HP E2613B HP Wedge probe adapter, .5mm,
3-signal, Qty 2

HP E2614A HP Wedge probe adapter, .5mm,
8-signal, Qty 1

HP E2615B HP Wedge probe adapter, .65mm,
3-signal, Qty 2

HP E2616A HP Wedge probe adapter, .65mm,
8-signal, Qty 1

HP10467-68701 0.5mm IC clips for
surface SMT parts with leg spacing of
.5mm (.020") to .8mm (0.32 "), Qty 4

Other Accessories

HP E9638A Probe tip to BNC (m) adapter

Replacement Parts

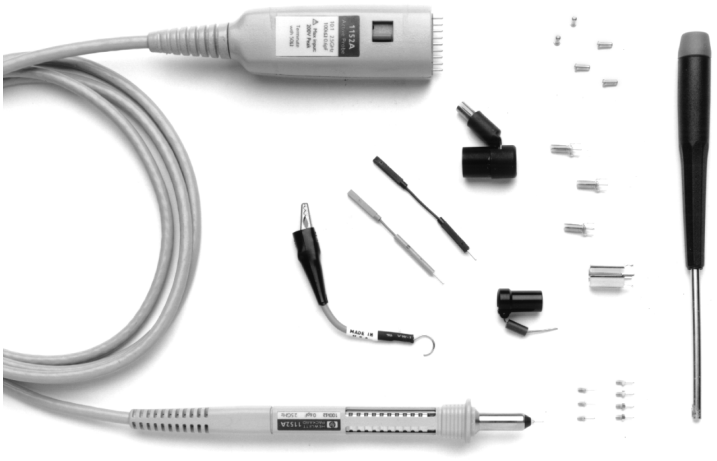
HP E2642A Accessory replacement kit

Nonintrusive, reliable probing provides faithful reproduction of signals

The HP 1152A's bandwidth, superior accuracy, and reliability make it an ideal companion for the HP 54845A 1.5 GHz bandwidth oscilloscope.

Nonintrusive

The low input capacitance of the active probe eliminates distortion caused by excessive loading. As frequency increases, probe tip capacitance decreases the impedance of the probe by $Xc = 1/(2\pi fC)$, resulting in measurement error, depending on the source impedance of the output device. The HP 1152A's low tip capacitance becomes a distinct advantage as frequency increases.

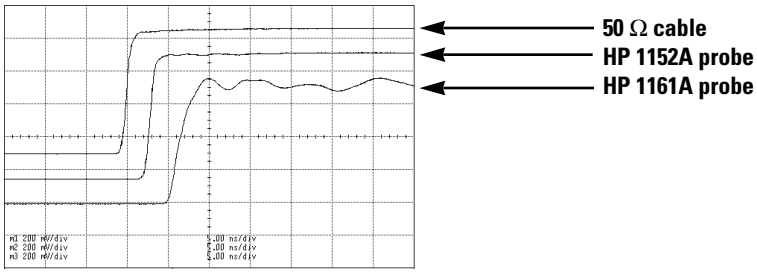


HP 1152A probe and accessories

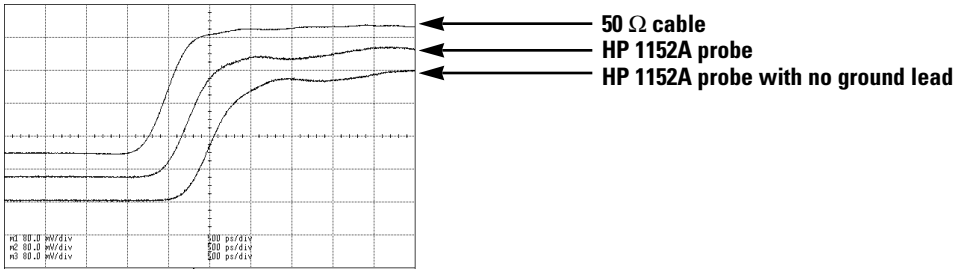
Compare Active and Passive Probe Performance

See how the HP 1152A active probe compares to a 50 Ω coaxial cable and an HP 1161A passive probe when probing a 1 ns edge. The higher bandwidth and nonintrusiveness of the active probe result in faithful reproduction of the signal.

See how well the HP 1152A reproduces this 600 ps edge - even with no ground lead attached.



Faithful Reproduction of high frequency edges... even with no ground lead



Faithful reproduction

- 2.5-GHz bandwidth
- 140-ps rise time
- 1% long-term flatness
- ±0.5% dc gain accuracy

The HP 1152A active probe offers digital designers 2.5 GHz of bandwidth for extending measurement response, along with 140-ps rise time for accurate measurement of fast signals. Adding 1% long-term flatness, and ±0.5% dc gain accuracy, results in a clearer representation of the input signal than ever before possible.

Superior reliability

- 200-Vac max input tolerance
- ±12-kV ESD tolerance
- Pliable, replaceable probe tips
- ±5-V dc + peak ac

The HP 1152A's microcircuits are protected by their ability to withstand damage from high-input voltage, ESD pulses, and shock to the probe tips. The HP 1152A's probe tips are rigid enough for probing, yet pliable enough to bend if dropped, protecting the microcircuits from damage. In addition, the probe tips are easy and inexpensive to replace. You'll appreciate the reliability and ruggedness of the HP 1152A.

AutoProbe Interface Compatible

The HP 1152A is compatible with the AutoProbe Interface which completely configures the HP Infiniium Oscilloscope for the probe. The interface recognizes the probe, and automatically sets up the proper power, 50-Ω impedance and offset range.

Characteristics

Bandwidth (-3dB)*	>2.5 GHz
System Bandwidth with HP 54845A with HP 54810A/15A/20A/25A	1.3 GHz 500 MHz
Risetime (10% to 90%)	<140 ps calculated from tr = (0.35/bandwidth)
Attenuation Factor*	10:1
dc Input Resistance*	100 kΩ±1%
dc Gain Accuracy* (with 50 ± 0.1 Ω load)	±0.5%
Input Capacitance	0.6 pF (typical)
Flatness (with input edge ≥170 ps) < 3 ns from rising edge > 3 ns from rising edge	 ±6% ±1%
Dynamic Range (< 1.5% gain compression)	±5 V dc + peak ac
dc Offset Accuracy	±1% of offset ±1 mV
Offset Adjustment Range	±20 V at the probe tip
Offset Gain	4.6 V/mA
RMS Output Noise (dc to 2.5 GHz with input loaded in 50 Ω)	< 300 µV
Propagation Delay	7.5 ns (approximately)
Maximum Input Voltage	±40 V (dc + peak ac (< 20 MHz)), CAT I
ESD Tolerance (150 Ω/150 pF)	±12 kV
Power Requirements from AutoProbe Interface	+12 V @ 5 mA max
	-12 V @ 95 mV max
	+4 V @ 90 mA max
Net Weight	4.9 oz
Safety	Meets IEC1010-2-31

Environmental Characteristics

Temperature (Operating)	0° C to +55° C
Humidity (Operating)	Up to 95% relative humidity at 40° C

* Denotes specified parameters. All others are characteristics.

Ordering Information

HP 1152A Active Probe

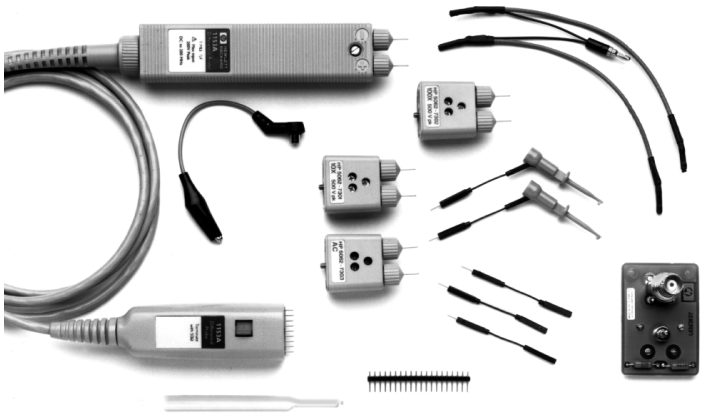
Each HP 1152A includes:
1 walking stick ground (HP 5960-2491),
5 single-contact sockets (HP 1251-5185), 1, 2-inch ground wire, attachable to walking stick (HP 01650-82103), 1, 4-inch alligator ground wire, attachable to probe tip ground (HP 01123-61302), 1 standard replacement tip (HP 54701-26101), 2 sharp probe tips (HP 5081-7734), 1 200-Ω signal lead (HP 54701-81301), 1 User and Service Guide, and a one-year warranty.

HP 1153A 200 MHz Differential Probe for HP Infiniium Oscilloscopes

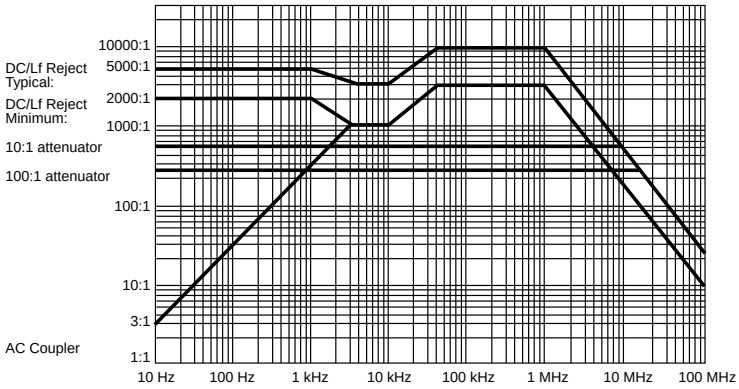
High-bandwidth probing for differential signals

- Dc to 200-MHz bandwidth
- AutoProbe Interface compatible
- ±200 V (dc + peak ac) maximum allowable input without attenuators
- 3000:1 CMRR at 1 MHz
- Low frequency reject
- Superior tolerance to ESD
- Low dc thermal drift
- Rugged construction
- Easy-to-attach, snap-on BNC

The HP 1153A is a 1:1 FET differential probe with 200 MHz bandwidth and 3000:1 CMRR (Common Mode Rejection Ratio) at 1 MHz. The probe has an input resistance of 1 MΩ and low input capacitance of 7 pF to minimize circuit loading.



HP 1153A probe and accessories



AutoProbe Interface Compatible

The HP 1153A is compatible with the HP AutoProbe Interface which completely configures the HP Infiniium Oscilloscope for the probe. The probe interface recognizes the probe and automatically sets up the proper power, coupling modes, 50 Ω impedance and offset range.

Reliability

The HP 1153A is designed for reliability through use of over-voltage protection circuitry which decreases the probe's susceptibility to damage from electrostatic discharge and other accidental exposure to excessive voltage.

We also designed the HP 1153A to be rugged. We paid special attention to isolating critical parts from shock. With a shell molded of tough ABS-polycarbonate, the HP 1153A is built for long life and dependability.

Low dc Thermal Drift

The probe's dual-path amplifier design provides superior dc stability by reducing dc drift to less than 50 µV dc per °C.

Attenuators, ac Coupling

Two attenuators, 10:1 and 100:1, are provided to expand the dynamic range of the inputs up to ±30 V. It also comes with an ac coupling adapter for those cases where input dc voltage level prevents you from using low frequency reject.

Low Frequency Reject

Lf reject, like ac coupling, blocks the dc component in a signal without degrading low-frequency CMRR, which occurs when you use blocking capacitors to accomplish ac coupling (see the graph above).

Characteristics

Bandwidth (-3dB)*	dc to 200 MHz[1]
System Bandwidth HP 54800 Family	200 MHz
Risetime (0.35/bandwidth)	1.75 ns calculated from tr =
dc Gain Accuracy* (with 50 ± 0.1 Ω load)	2%
dc Attenuator Accuracy	2%
Linear Differential Input Range	±0.3 V (1:1) ; ±3.0 V (10:1) ±30 V (100:1)
dc Offset	±18 V (1:1); ±180 V (10:1) ±500 V (100:1)
Common Mode Operating Range dc: dc to 30 Hz: 30 Hz to 200 MHz:	 ±18 V (1:1); ±180 V (10:1) ±500 V (100:1) linearly decreased to 30 Hz value. ±0.5 V (1:1); ±5 V (10:1); ±50 V (100:1) (voltages are peak voltage)
Maximum Allowable Input Voltage*	200 V (dc + peak ac) CAT I, 1:1 500 V (dc + peak ac) CAT I, with attenuators common or differential modes
Input Coupling	dc, lf reject, and ac. Ac coupling is provided via an adapter that attaches to the probe. Lf reject response (-3dB) is selectable independent of attenuators at 1.7 Hz (LFR1) and 0.14 Hz (LFR2)
CMRR*	See graph on previous page
ac Coupling Low-Frequency Response (-3dB) w/ac coupling adapter and input coupling set to dc	15 Hz (1:1); 1.5 Hz (10:1) 1.5 Hz (100:1)
dc Thermal Drift	≤ 50 µV dc/°C
Input RC 1:1 10:1 100:1	R C 1 MΩ 7 pF 9 MΩ 3.5 pF 10 MΩ 2.0 pF
Output Termination Impedance	50 Ω
Power Requirements from the AutoProbe Interface	+12 V @ 33 mA max -12 V @ 16 mA max +6 V @ 80 mA max -6 V @ 130 mA max
Safety	Meets IEC 1010-2-31

Environmental Characteristics

Temperature	Operating Non-operating	0° C to +55° C -40° C to +70° C
Humidity	Operating Non-operating	95% relative humidity at 40° C 90% relative humidity at 65° C
Altitude	Operating Non-operating	up to 4,600 m (15,000 ft) up to 15,300 m (50,000 ft)

* Denotes specified parameters. All others are characteristics.

1 For maximum signal fidelity, above 100 MHz, limit probe output into 50 Ω to ≤ 300 mV peak to peak.

Ordering Information

HP 1153A Differential Probe

Each HP 1153A includes: 2 voltage attenuators, 10:1 and 100:1, ac coupling adapter, 5 probe leads, 2 probe clips, Operating and Service Manual, calibration adapter, ground lead, and one-year warranty.

Accessories

HP 5959-9335 Long (5.5") test lead, Qty. 5

HP 5090-4356 SMD clips, Qty. 20

HP 10467-68701 0.5 mm IC clips for surface SMT parts with leg spacing of 0.5mm (.020") to 0.8mm (.032"), Qty. 4

The HP 1155A
Low Mass Active Probe

- Small and light probe tip (< 1 gram)
- < 2pF input capacitance and 1 MOhm impedance
- 750 MHz bandwidth
- 2 channels
- Autoprobe interface

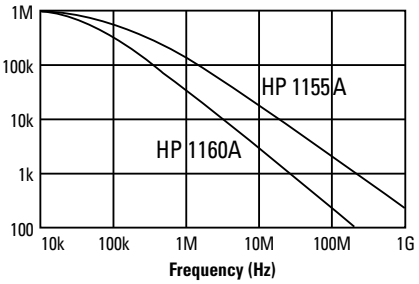
Small, low mass probe tip for surface mount devices

Talk about big performance in a small package! The two-channel HP 1155A low-mass active probe for HP Infiniium oscilloscopes combines a probe tip that weighs less than 1 gram with the superior performance of an active probe. It's a powerful combination ideal for attaching to fine-pitch ICs and probing surface mount components.

More power to you

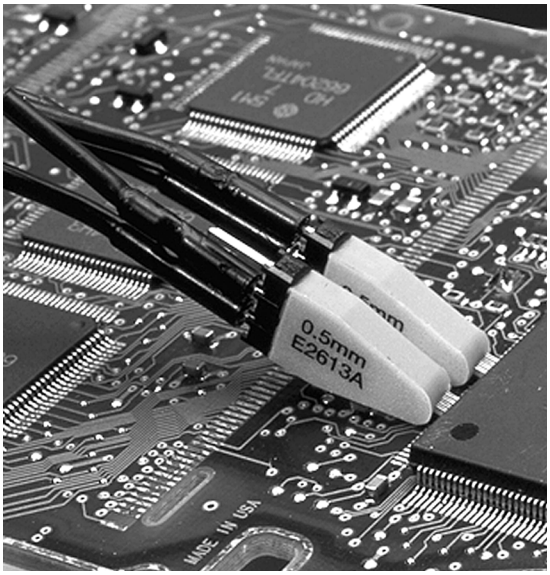
The 1155A probe couples high band width (750 MHz), low input capacitance (2 pF), and high resistance (1 MΩ). It's a combination superior to passive divider probes with higher input capacitance, because it provides minimal circuit loading at high and low frequencies.

Typical Input Impedance vs. Frequency



Includes the HP Wedge. Provides hands-free probing.

The HP 1155A comes complete with the HP Wedge Probe Adapter for hands-free probing of 0.5 mm ICs. The HP Wedge provides accurate, mechanically noninvasive and reliable electrical contact with little chance of shorting. It's easy to insert and it stays put.



Characteristics

Bandwidth (-3dB)	dc to ≥ 750 MHz
System Bandwidth with HP 54800 Family	750 MHz
Risetime	≤ 470 ps
Attenuation Factor	10:1 ± 3%
dc Input Resistance	1 MΩ ± 2%
Input Capacitance	2 pF (typical)
Flatness	Less than ± 10% for first 6ns, ± 4% from 6ns to 20 µs, ± 1.5% thereafter
Input Dynamic Range	0 to 6.0 V
Maximum Input Voltage	±40 V (dc + peak ac), CAT I

Environmental Characteristics

Temperature (Operating)	0° C to +55° C
Humidity (Operating)	Up to 95% relative humidity at 40° C

* Denotes specified parameters. All others are characteristics.

Ordering Information

Fine Pitch IC Probing Accessories

HP 1155A Low mass, 2-channel active probe.
Each HP 1155A includes: 4 probe pins, 5 SMT clips, 2 flexible leads, 2 spacing ground adapters, 2 red and black SMT leads, 1 BNC-to-probe tip adapters, 2 0.5 mm HP Wedge Probe adapters

HP E2613B HP Wedge probe adapter, .5mm, 3-signal, Qty 2.

HP E2614A HP Wedge probe adapter, .5mm, 8-signal, Qty 1

HP E2615B HP Wedge probe adapter, .65mm, 3-signal, Qty 2

HP E2616A HP Wedge probe adapter, .65mm, 8-signal, Qty 1

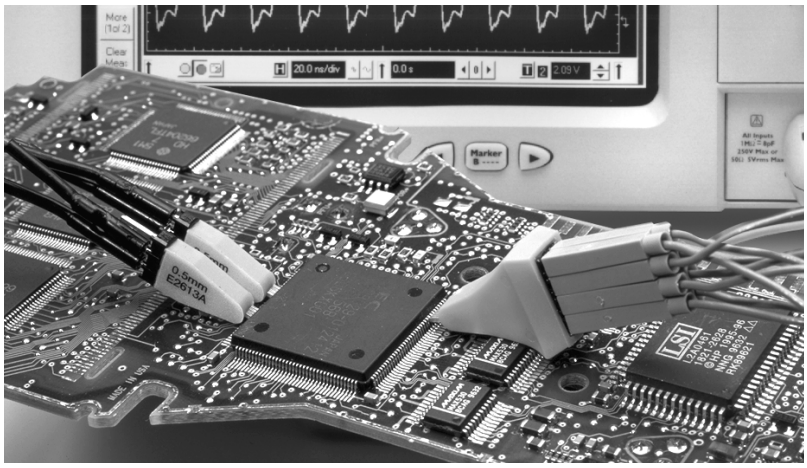
HP10467-68701 0.5mm IC clips for surface SMT parts with leg spacing of .5mm (.020") to .8mm (0.32 "), Qty 4

Other Accessories

HP E9638A Probe tip to BNC (m) adapter

HP Wedge Probe Adapter

- Easy connection to surface mount IC's
- Safe, with no chance of shorting
- Mechanically non-invasive contact
- Three and eight signal versions
- Supports 0.5mm and 0.65 mm TQFP and PQFP packages



Make the inaccessible accessible with this non-invasive, problem-free probing solution

If you've ever tried to probe a surface mount component, you've probably experienced one or more of the following frustrating situations: Accidentally shorting IC pins together; electrical and/or mechanical problems with soldering small wires onto leads; and/or holding multiple probes and trying to use your scope at the same time. The HP Wedge Probe Adapter provides a solution to these frustrations.

Problem-free probing

There's no need to worry about accidentally shorting IC pins together on a delicate component –or worse yet on an irreplaceable prototype. The Wedge is easy to insert and it stays put. There's no need to solder small wires onto leads. The Wedge is mechanically non-invasive, so you won't damage the legs of the IC. Instead, you'll have easy access to hard-to-reach components. And that makes testing them hassle-free.

Electrical reliability

The HP Wedge makes two contact points with each leg of the IC. This redundant physical connection increases the electrical reliability of the connection. In the HP Wedge's low capacitance and inductance provides superior performance to many other alternatives.

Making the inaccessible accessible

The HP Wedge easily attaches to HP Infiniium probes. It connects directly to the HP 1155A and the HP 1170A-family of low mass probes and the dual lead adapter provided with the HP 1160A-family of miniature passive probes.

For more information on how the HP Wedge Probe Adapter works with your HP Infiniium scope, please refer to application note 5966-4179.

Characteristics

Operating Voltage	<40 V dc + peak ac
Operating Current	0.5 A maximum
Capacitance Between Contacts	2 pF (typical)
Self-Inductance	15 nH (typical)
Contact Resistance	<0.1 Ohm

Ordering Information

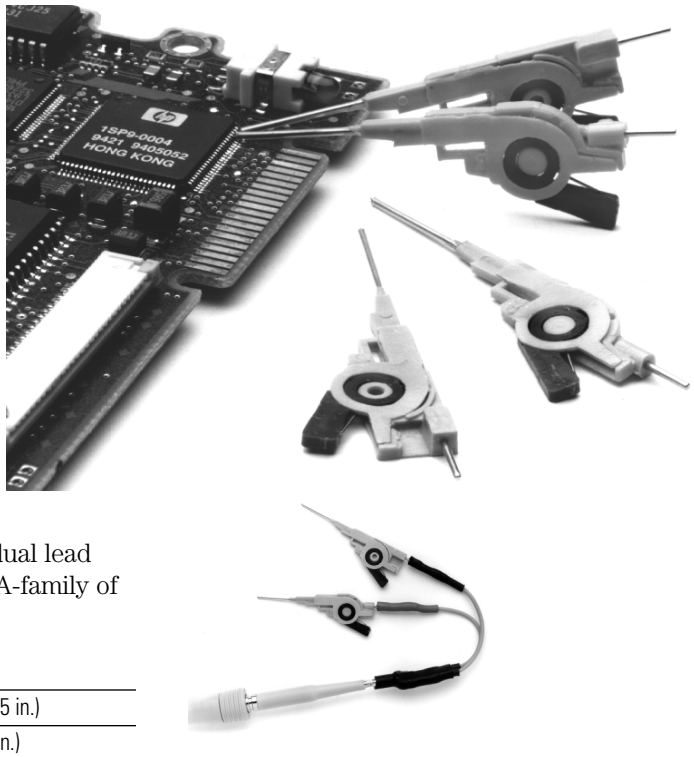
HP Wedge Probe Adapter
HP E2613B 0.5 mm, 3 signal, qty 2
HP E2614A 0.5 mm 8 signal, qty 1
HP E2615B 0.65 mm, 3 signal, qty 2
HP E2616A 0.65 mm, 8 signal, qty 1
Each HP Wedge includes: 1 user's guide and 1 magnifying lens

Accessories

The HP 1160-family of oscilloscope probes come with a dual lead adapter. Additional adapters can be ordered. Use the HP 5063-2147 dual lead adapter for HP 116x probe family

HP 10467-68701
0.5 mm IC Clips

- Smallest IC clips in the industry to date
- Probe PQFP and SOIC SMT packages from 0.5 mm to 0.8 mm (0.020" to 0.032") lead pitch
- Thin clip body allows many IC clips to be mounted side-by-side



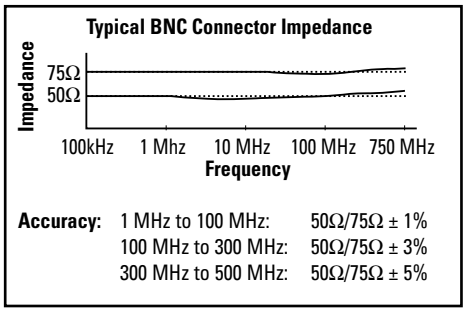
The 0.5 mm IC clips easily attaches to HP Infiniium probes. They connect directly to the HP 1155A and the HP 1170A-family of low mass probes and the dual lead adapter provided with the HP 1160A-family of miniature passive probes.

HP 10467-68701 Characteristics

Length	31.75 mm (1.25 in.)
Tip diameter	.75 mm (.029 in.)
Pin diameter	.75 mm (.029 in.)

BNC Adapters and Feedthrough terminations

Not all BNC adapters and feedthrough terminations are the same and making a bad choice can have a big impact on your measurement. That's why HP adapters and connectors are the choice of many professionals the world over who demand excellence in their measurement set up.



Accuracy:

1 MHz to 100 MHz:	50Ω/75Ω ± 1%
100 MHz to 300 MHz:	50Ω/75Ω ± 3%
300 MHz to 500 MHz:	50Ω/75Ω ± 5%

Ordering Information

HP 10467-68701 0.5 mm IC clips, pkg of 4

Feedthrough terminations

HP 10100C BNC (m) to BNC (f) 50 Ohm high performance feedthrough
HP 11094B BNC (m) to BNC (f) 75 Ohm feedthrough

BNC to BNC adapters (50 Ohm)

HP E9620A BNC (m) to BNC (f) Ohm right angle
HP E9622A BNC (f) to BNC (f) Ohm
HP E9624A BNC (m) to BNC (m) Ohm
HP E9625A Tee BNC (m) (f) (f)

BNC to BNC adapters (75 Ohm)

HP E9628A BNC (f) to BNC (f)
HP E9629A BNC (m) to BNC (m)

Between series adapters (50 Ohm)

HP E9621A Type N (f) to BNC (m)
HP E9623A Type N (m) to BNC (m)
HP E9635A Type N (m) to BNC (f)
HP E9631A SMA (m) to BNC (f)
HP E9632A SMA (f) to BNC (m)
HP E9633A SMA (m) to BNC (m)
HP E9634A SMA (f) (gold plated) to BNC (m)
HP E9636A SMC (m) to BNC (m)
HP E9626A SMC (f) to BNC (f)
HP E9627A Banana (f) to BNC (m)
HP E9637A BNC (f) to dual banana (m)

Input devices for HP Infiniium Oscilloscopes

HP E2611A Clip-on Trackball

If you don't have the benchspace for a standard mouse, a clip-on trackball is available for HP Infiniium. The trackball clips into holes on the instrument. The driver for the clip-on trackball is pre-installed.

HP E2610A Keyboard

The E2610A is a small keyboard for use with HP Infiniium Oscilloscopes. The keyboard makes file naming easier if you are archiving waveforms or instrument setups. You'll appreciate the small size of this keyboard for use on your bench or on an oscilloscope cart.

HP E2612A Touchpad

The E2612A Touchpad has a touch surface that gives you complete control of your scope with just the tip of your finger. The driver for the Touchpad is pre-installed.

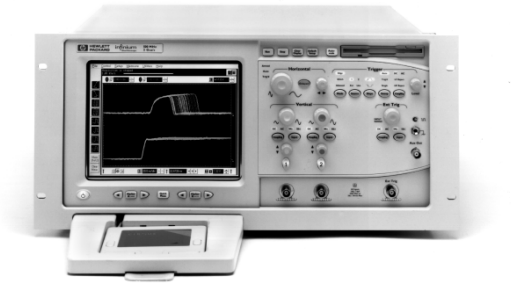
Ordering Information

HP E2611A Clip-on Trackball
HP E2610A Keyboard
HP E2612A Touchpad

Rack or Pack Your HP Infiniium Oscilloscopes.

HP E2609A Rackmount Kit

The rackmount kit provides a support shelf and hardware for mounting Infiniium into EIA standard [19-in (487-mm)] rack cabinets. When installed, the instrument occupies 5 vertical increments [8.75 in (222 mm)].



HP 2609A Rackmount Kit

HP 1182B Testmobile

The 1182A is a testmobile for use with HP Infiniium Oscilloscopes. Large, easy-to-maneuver wheels let you move your scope with ease from place to place. Supports monitor and printer with sliding drawer for accessories.

HP 1184A Testmobile

Made tough for years of sturdy performance, the HP 1184A Testmobile features large wheels that get you where you want to go in no time - with no tipping. Includes bottom drawer for accessories, slide-out mouse tray for right- or left-handed operation, and support for monitor and printer.

HP 1184A Testmobile

HP E2617A Transit Case

The HP E2617A Infiniium Oscilloscope Transit Case is one heavy-duty, hard cover carrying case. Ideal for transporting oscilloscopes away from the lab, it's constructed from rugged A.B.S. with rubber-grip, steel handles and steel latches. Pull-out handles and smooth-rolling wheels make moving your instrument easy. The case can also be padlocked (not included).

Ordering Information

Rackmount Kit

HP E2609A Rackmount Kit

Each kit includes: a support shelf, 2 rackmount rails, 1 Touchpad (E2612A), 2 brackets, hardware, and a user's reference.

Rackmount Accessories

1494-0015 Rackmount slide kit

Testmobile

HP 1182B Testmobile

HP 1184A Testmobile

Testmobile Accessories

HP 35181H Printer/Plotter stand

HP 35181K Work surface (550 x 305 mm)

HP 35181E Antistatic Mat for 35181D

HP 35181J 89 mm (3.5 in) high Storage Drawer, Support shelf

HP 35181M 133 mm (5.25 in) high Storage Drawer, Support shelf

HP 92199B Power Strip (U.S.) (5 receptacles)

HP 92199E Power Strip (IEC 320)(4 receptacles)

International use of 92199E requires one or more of the cable assemblies below:

HP 8120-1575 Cable, 762 mm (30 in)

HP 8120-2191 Cable, 1.5 m (60 in) with right angle plug

HP 5181-8707 IEC-320 Male Power Cable Adapter

Transit Case

HP E2617A Infiniium Transit Case

HEWLETT PACKARD
Expanding Possibilities

Other Probes Compatible with HP Infiniium Oscilloscopes

HP 1144A 800-MHz Active Probe
Request Technical Data Sheet 5091-7935
(requires HP 1142A power supply)
HP 01144-61604 probe power extender
(required when using more than 2 HP 1144A active probes)
$ 42.00 ea.

HP 1145A 2-channel, 750-MHz Active Probe for SMD
Request Technical Data Sheet 5962-8537
(requires HP 1142A power supply)

HP 1146A Oscilloscope AC/DC Current Probe
Request Technical Data Sheet 5965-5689

HP 1137A 1000:1 High-Voltage Probe
Request Technical Data Sheet 5952-2410

For more information about HP Infiniium Probes and Accessories, HP Infiniium Communication Mask Testing option, HP Infiniium oscilloscopes, or other Hewlett-Packard Test and Measurement products, and for a current sales office listing, visit our web site at **http://www.hp.com/info/infiniium21**.
You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:
Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, Colorado 80155-4026
1 800 452 4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(905) 206 4725

Europe:
Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547 9900

Japan:
Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho,
Hachioji-Shi,
Tokyo 192, Japan
Tel: (81) 426 56 7832
Fax: (81) 426 56 7840

Latin America:
Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive
9th Floor
Miami, Florida 33126
U.S.A.
Tel: (305) 267-4245
(305) 267-4220
Fax: (305) 267-4288

Australia/New Zealand:
Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
1 800 629 485

Asia Pacific:
Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
Tel: (852) 2599 7777
Fax: (852) 2506 9285

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