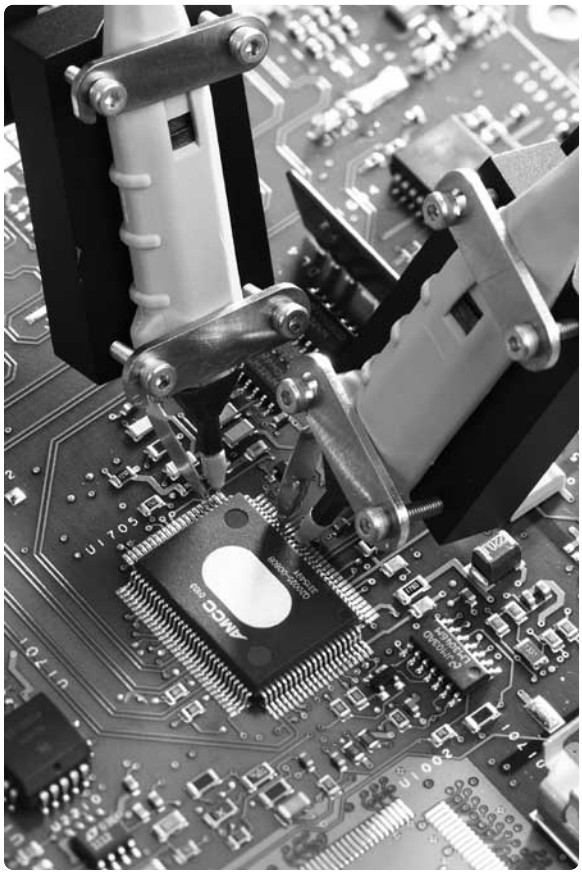
Infiniium 54800 Series Oscilloscope Probes, Accessories, and Options

Selection Guide Data Sheet



To ensure that you have the tools for dependable oscilloscope measurements, Agilent Technologies offers a wide range of oscilloscope probes and accessories. Each is designed for a specific measurement need because the physical and electrical quality of the connection can make the difference between a good measurement and a bad one.

Table of Contents

Agilent Technologies

Probe Compatibility Table

For ordering information when replacing your probe or probe accessory:

Refer directly to the page number listed in the table of contents for your probe model.

To assist you in selecting the proper probe for your application:

Use our probe compatibility table below to find the probes that are recommended for use with your Infiniium scope.

Or refer to our probe overview page at the beginning of each section in the table of contents explaining what the different probe types are and the models available for your Infiniium.

Probe Type	Probe Model	Agilent Infiniium Oscilloscope Model NEW 54830B/31B/32B 54830D/31D/32D	54835A/45A/45B/46A/46B	54810A/15A/20A/25A
General Purpose Passive Page 4	1160A, 10:1	Incompatible	Incompatible	Recommended
	1161A, 10:1	Incompatible	Recommended	Incompatible
	1162A, 1:1	Recommended	Recommended	Recommended
	1164A, 10:1	Incompatible	Incompatible	Recommended
	1165A, 10:1	Recommended	Incompatible	Incompatible
Low Mass Passive Page 7	1170A, 10:1	Incompatible	Incompatible	Recommended
	1171A, 10:1	Incompatible	Recommended	Incompatible
	1172A, 20:1	Incompatible	Incompatible	Recommended
	1173A, 20:1	Incompatible	Recommended	Incompatible
Active Voltage Page 10, 12	1155A, 750 MHz	Recommended	Compatible	Recommended
	1156A, 1.5 GHz	Recommended	Recommended	Recommended
	1157A, 2.5 GHz	Compatible	Recommended	Compatible
	1158A, 4 GHz	Compatible	Recommended	Compatible
Resistive Divider Page 4	1163A, 10:1	Recommended	Recommended	Recommended
Differential Page 18, 21	1153A, 200 MHz	Recommended	Recommended	Recommended
	1154A, 500 MHz	Recommended	Recommended	Recommended
	1159A, 1 GHz	Recommended	Recommended	Recommended
Current Page 25, 27	1146A, 100 A	Recommended	Recommended	Recommended
	1147A, 15A	Recommended	Recommended	Recommended
High Voltage Page 28, 29	10076A, 4 kV	Recommended	Recommended	Recommended
	N2771A, 15 kV	Recommended	Recommended	Recommended
Mixed-Signal Oscilloscope Logic Probe Kit, Page 30	54826-68701	Recommended*	Incompatible	Incompatible

***Note: Recommended for 54830D/31D/32D MSOs only**

Table 1.1. Agilent probes compatible with Infiniium oscilloscopes.

General Purpose Probes Overview

Passive voltage probes are used for general purpose probing and are made with passive components only such as wires, connectors, capacitors and resistors (when attenuation is required). There are no active components such as transistors or amplifiers in the probe, and therefore passive voltage probes do not need to be powered.

General purpose probes are available with attenuation ratios of 1:1, 10:1, and 20:1. The 10:1 passive voltage probe is the most commonly used probe, and is supplied as a standard accessory with all Infiniium oscilloscopes having bandwidths ≤ 600 MHz.

Figure 2.1. Agilent 116XA standard Infiniium replacement probe.

Figure 2.2. Agilent 117XA low mass probe for fine-pitched ICs, SMDs, and dense circuit boards.

Model	Probe Type	Applications and Use	Page
116XA Family (excluding the 1163A)	Passive voltage	General purpose, Infiniium replacement probes	4
117XA Family	Passive voltage	Fine-pitched ICs, surface mount devices, and dense circuit boards	7

Passive Voltage Probe Advantages	Limitations
116XA are rugged, economical, easy to use, have high dynamic range and high input resistance	500 MHz bandwidth Higher capacitive loading than active probes
117XA feature low mass, low weight, low tip capacitance compared to other passive probes	500 MHz bandwidth Not compatible with Agilent 54830B Series

General Purpose Probes
Agilent 116XA Family Passive Voltage

- **Standard replacement probes for Infiniium scopes with bandwidths ≤ 600 MHz**
- **Rugged, economical, easy to use**
- **Compact design, removable probe handle for tight probing areas**
- **Agilent 1163A, 500 Ω resistive divider, 10:1 attenuation**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A	1160A, 1162A, 1163A, 1164A
NEW 54830B/D, 54831B/D, 54832B/D	1162A, 1163A, 1165A
54835A, 54845A/B, 54846A/B	1161A, 1162A, 1163A

Built for Reliability

These general purpose replacement devices are built and tested for high reliability. Kevlar strengthener has been added to the probe cable for extra pull strength. Durable probe tips are replaceable.

The compact design significantly reduces the problem of probing densely populated integrated circuit components or the characteristically minute conductors on printed circuit boards. These small lightweight probes allow measurements that were previously quite difficult, while reducing the danger of shorting. For tight probing areas, the probe handle can be unscrewed and pulled back along the cable.

When probing about the circuit in debug mode, the probes easily slip inside the included browsers. The browsers feature a crown point that digs into solder and avoids the danger of slipping off the test point and shorting to adjacent leads. A pogo pin allows hand movement on the probes without losing contact with the device under test.

The 116XA family probes are compatible with the AutoProbe interface, which completely configures the Infiniium oscilloscope for the probe. A snap-on BNC connector simplifies attaching the probe to the scope. Leads are available for connecting to a wide variety of test points. See "Ordering Information" for a complete list.

Agilent 1163A Resistive Divider

Agilent 1163A features low capacitive loading and wide bandwidth, resulting in very accurate timing measurements. Resistive divider probes are useful for probing low-voltage signals such as ECL circuits, 50 Ω transmission lines, and GaAs circuits.

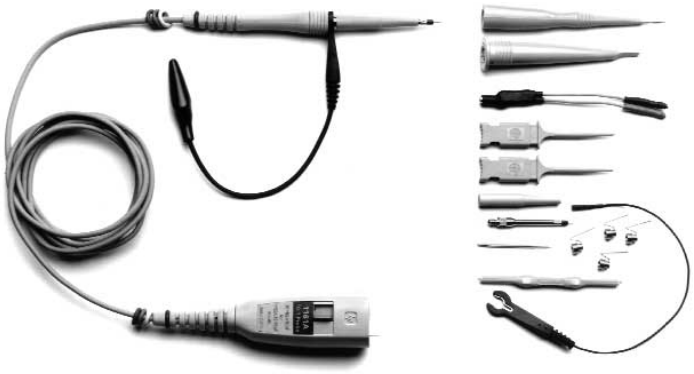


Figure 2.3. Agilent 116XA family general purpose replacement probes.

Figure 2.4. No-slip browser crown point.

General Purpose Probes
Agilent 116XA Family Passive Voltage

Specifications

Model Number	Type of Probe	System Bandwidth (scope +probe)	Division Ratio	Input R	Input C	Scope Input R	Compensation Range	Length
1160A	High Impedance, Passive	500 MHz	10:1	10 MΩ	9 pF	1 MΩ	6 - 9 pF	1.5 m
1161A	High Impedance, Passive	500 MHz	10:1	10 MΩ	10 pF	1 MΩ	12 - 14 pF	1.5 m
1162A	High Impedance, Passive	25 MHz	1:1	1 MΩ	50 pF + scope capacitance	1 MΩ	n/a	1.5 m
1163A	500 Ω Resistive Divider	1.5 GHz with scope model 54845A/B	10:1	500 Ω	1.5 pF	50 Ω	n/a	1.5 m
1164A	High Impedance, Passive	500 MHz	10:1	10 MΩ	10.5 pF	1 MΩ	6 - 9 pF	2.0 m
1165A	High Impedance, Passive	600 MHz typical with 54830B/31B/32B 54830D/31D/32D	10:1	10 MΩ	10 pF	1 MΩ	12 - 14 pF	1.5 m

Operating Characteristics

Approximate Propagation Delay	6.7 ns for 1160A/61A/62A/63A/65A probes 8.8 ns for 1164A probe
Maximum Input Voltage	300 V (dc + peak ac), CAT II
Safety	Meets IEC1010-2-31
Pulling 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)

General Purpose Probes
Agilent 116XA Family Passive Voltage

Ordering Information

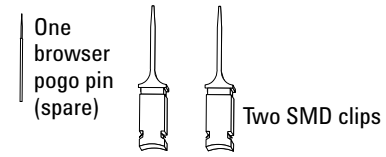
Probes and Accessories

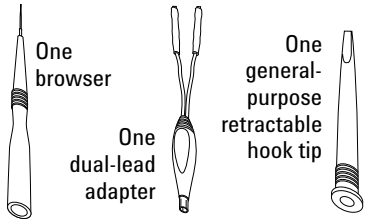
Part #	Description	Quantity
1160A	10:1, 10 MΩ, 1.5 m, miniature passive probe	1
1161A	10:1, 10 MΩ, 1.5 m, miniature passive probe	1
1162A	1:1, 1.5 m, miniature passive probe	1
1163A	10:1, 500 Ω, low C, 1.5 m, miniature passive probe	1
1164A	10:1, 10 MΩ, 2 m, miniature passive probe	1
1165A	10:1, 10 Ω, 1.5 m, miniature passive probe	1
5063-2143	Probe tip to BNC (m)	1
	IC clips: See “Probing Accessories”	
	Horizontal and vertical mini-probe sockets: See “Probing Accessories”	
	Wedge Probe Adapters: See “Probing Accessories”	

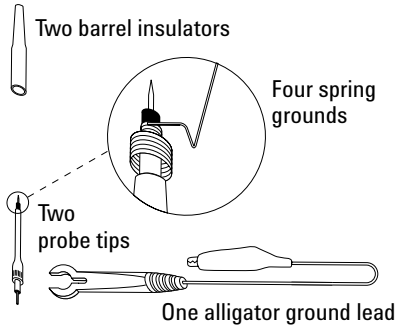
Replacement Parts

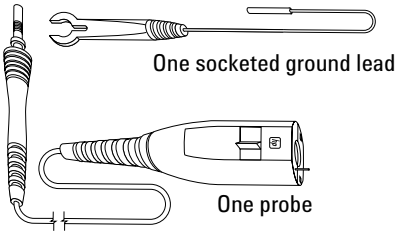
Part #	Description	Quantity
5063-2135	General purpose retractable hook tip	2
5063-2140	Alligator ground lead	2
5063-2120	Socketed ground lead	1
5063-2115	Browser	1
5063-2147	Dual lead adapter	1
5063-2149	SMD clips	5
01160-68701	Accessory kit (includes four spring grounds, four browser pogo pins, four barrel insulators, one screwdriver)	1
5063-2136	1160A probe tip, red	5
5063-2137	1161A probe tip, brown	5
5063-2138	1162A probe tip, black	5
5063-2139	1163A probe tip, grey	5
5063-2151	1164A probe tip, orange	5
5063-2137	1165A probe tip, brown	5

Probe Parts Supplied









Includes user’s guide and three-year warranty.

General Purpose Probes
Agilent 117XA Family Low Mass, Passive Voltage

- **Easy connection to fine-pitch ICs, SMDs, and dense circuit boards**
- **Light weight (< 1 gram), low mass probe tip**
- **20:1 attenuation, capacitance < 5 pF (1173A)**

Scope Compatibility (all scopes recommended)	**Probe**
54835A, 54845A/B, 54846A/B	1171A, 1173A

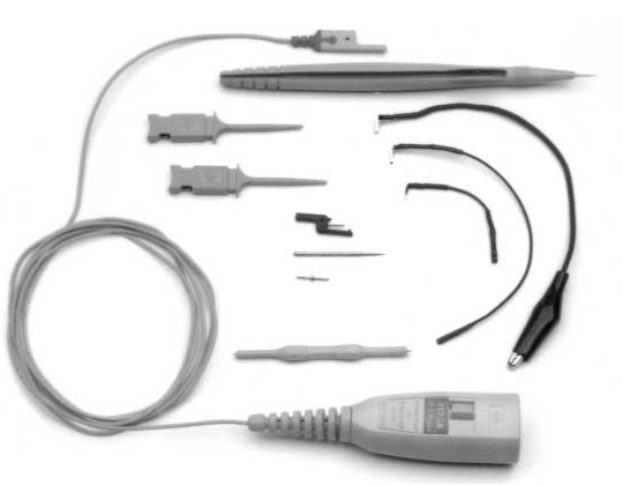


Figure 2.5. Agilent 117XA family probes for fine-pitch ICs, surface mount devices, and dense circuit boards.

Suited for Today's ICs

An exceptionally small and light probe tip (<1 gram) and an ultra thin cable make the 117XA family ideal for connecting to and probing fine-pitch ICs, surface mount devices, and dense circuit boards.

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

The probes fit directly onto standard board headers and IC clips. A range of accessories are available for you to optimize interfacing with surface mount devices. Wedge Probe Adapters make convenient and reliable connections to TQFP/PQFP package leads. See "Ordering Information" for a complete list of accessories.

When probing about the circuit in debug mode, the probes easily slip inside the included browsers. The browsers feature a crown point that digs into solder and avoids the danger of slipping off the test point and shorting to adjacent leads. A pogo pin allows hand movement on the probes without losing contact with the device under test.

The 117XA probes are compatible with the AutoProbe interface, which completely configures the Infiniium oscilloscope for the probe. A snap-on BNC connector simplifies attaching the probe to the scope.

Specifications

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

General Purpose Probes
Agilent 117XA Family Low Mass, Passive Voltage

Specifications

Operating Characteristics

Approximate Propagation Delay	1171A: 6.5 ns 1173A: 5.5 ns
Maximum Input Voltage	40 V (dc + peak ac), CAT I
Safety	Meets IEC1010-2-31
Pulling Strength (BNC to Probe Tip)	≤ 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

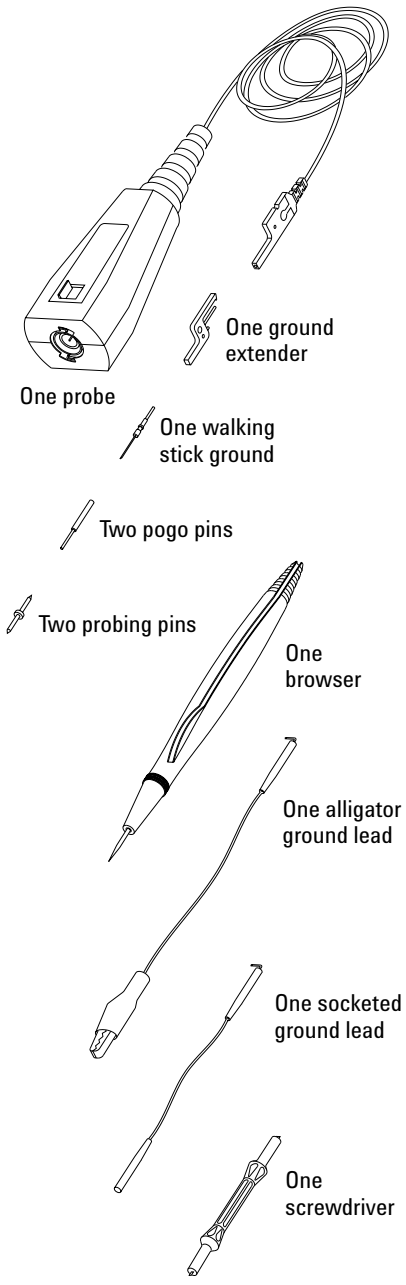
Probes and Accessories

Part #	Description	Quantity
1171A	10:1, 10 MΩ, 1.4 m, low mass passive probe	1
1173A	20:1, 10 MΩ, 1.2 m, low mass passive probe	1
	IC clips: See “Probing Accessories”	
	Wedge Probe Adapters: See “Probing Accessories”	

Replacement Parts

Part #	Description	Quantity
5063-2122	Browser	1

Probe Parts Supplied



Includes two IC clips, user’s guide, and one-year warranty.

High-Frequency Voltage Probes Overview

Active voltage probes contain an active component, usually a field-effect transistor (FET), and therefore need to be powered. A FET input has the advantage of providing a very low input capacitance, typically from less than 1 pF to a few pF. This low capacitance results in a high input impedance on frequencies up to 4 GHz. With such low loading, active probes can be used on high-impedance circuits that would be seriously loaded by passive probes.

New 4 GHz probe family. Agilent's unique design overcomes the resonance formed by the connection of a probe to a device. The Agilent 1156A/57A/58A probes optimize performance to make your job easier.

Resistive divider probes are passive probes. They feature low capacitive loading and accurate timing measurements with high-bandwidth signals at a much lower cost than active probes.

Figure 3.1. Agilent 1155A low-cost active probe.

Figure 3.2. Agilent 1156A/57A/58A active probes for signals up to 4 MHz.

Model	Probe Type	Applications and Use	Page
1155A	Active	Measure fast transitions on low-voltage signals, 2 channels	10
1156A/57A/58A	Active	Measure fast transitions on low-voltage signals up to 4 GHz	12
1163A	Resistive divider	Measure fast transitions on a wide range of signal voltages	4

High-Frequency Probe Advantages	Limitations
Timing measurements more accurate at high bandwidths	More expensive than general purpose passive probes
Resistive divider probes cost less than active probes	Relatively heavy resistive loading
Active probes are least intrusive to circuit under test, high input resistance	Low dynamic range compared to passive probes Low maximum voltage, easily damaged

High-Frequency Voltage Probes
Agilent 1155A Active Voltage

- **Easy connection to fine-pitch ICs, SMDs, and dense circuit boards**
- **Lightweight (< 1 gram), low mass probe tip**
- **Two channels, 750 MHz bandwidth**

Scope Compatibility	Probe
54810A*, 54815A*, 54820A*, 54825A* **NEW** 54830B/D*, 54831B/D*, 54832B/D* 54835A, 54845A/B, 54846A/B	1155A

* Recommended

Low Cost, Great Performance

Talk about big performance in a small package! The two-channel, low-mass 1155A 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 connecting to and testing fine-pitch ICs, surface mount devices, and dense circuit boards.

The 1155A probe joins high bandwidth (750 MHz), low input capacitance (2 pF), and high resistance (1 MΩ). These features are well suited for measuring fast transition times on low voltage signals that cannot tolerate the circuit loading of passive probes.

A Wedge Probe Adapter, included with the probe, allows for hands-free probing of 0.5 mm ICs. The Wedge provides accurate, mechanically non-invasive electrical contact to the IC legs with little chance of shorting. It's easy to insert and it stays put. For more information on the Wedge, see "Probing Accessories." Leads are available for connecting to a wide variety of test points. See "Ordering Information" for a complete list.

These probes are compatible with the AutoProbe interface, which completely configures the oscilloscope for use with the probe. Power for the active probe is supplied by the oscilloscope. A snap-on BNC connector simplifies attaching the probe to the scope.

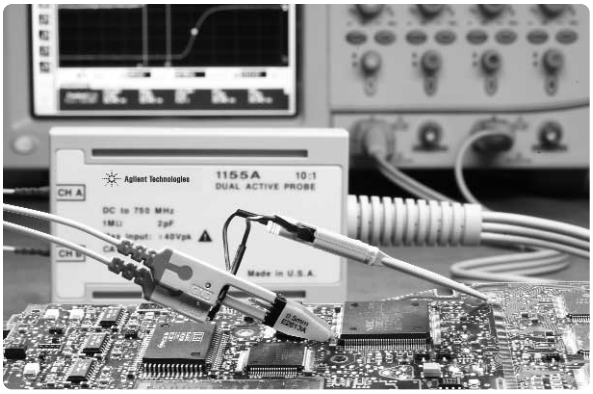


Figure 3.3. Agilent Wedge Probe Adapter for reliable, hands-free probing of 0.5 mm ICs.

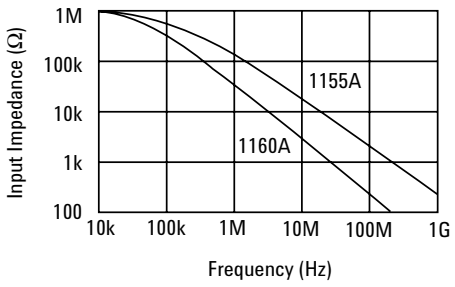


Figure 3.4. Comparison of input impedance versus frequency, showing the higher input impedance of the 1155A probe.

Figure 3.5. Agilent 1155A for fine-pitch ICs, SMDs, and dense circuit boards.

High-Frequency Voltage Probes
Agilent 1155A Active Voltage

Specifications

Operating Characteristics

Bandwidth (-3 dB)	dc to ≥ 750 MHz
System Bandwidth	500 MHz with 600 MHz 54830B/D, 31B/D scopes 670 MHz with 1.5 GHz 54845A/B scopes
Rise Time*	≤ 470 ps
Attenuation Factor*	10:1 ± 3%
dc input Resistance*	1 MΩ ± 2%
Input Capacitance	2 pF (typical)
Flatness	Less than ±10% for first 6 ns, ±4% from 6 ns 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

Probe and Accessories

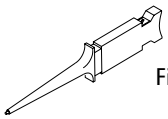
Part #	Description	Quantity
1155A	Low mass, 2-channel active probe	1
	IC clips: See "Probing Accessories"	
	Wedge Probe Adapters: See "Probing Accessories"	

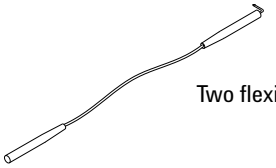
Replacement Parts

Part #	Description	Quantity
01145-61602	Probe tip and cable	1
16517-82104	SMT leads	4 red, 4 black
16517-82105	Spacing ground adapter	20
16517-82106	Flexible leads	20
16517-82107	Pin probe kit	4
16517-82108	SMT clip	20

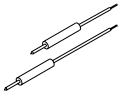
Accessories Supplied

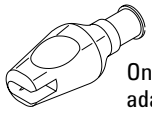

Four probing pins


Five SMT clips


Two flexible leads


Two spacing ground adapters


Two red, two black SMT leads


One BNC-to-probe tip adapter (E9638A)


Two 0.5 mm Wedge Probe Adapters

Includes user's guide and one-year warranty.

High-Frequency Voltage Probes

Agilent 1156A/57A/58A High-Bandwidth, Active Voltage

- **Ideal for a range of high-speed applications**
- **88 ps rise time (on 4 GHz model)**
- **100 kΩ, 0.8 pF, non-resonant input impedance**
- **5 V peak-to-peak dynamic range**
- **± 15 V offset**
- **Accessories designed for minimal device loading and optimal response**
- **Small size for easier probing**

Scope Compatibility	Probe
54810A*, 54815A*, 54820A*, 54825A* **NEW** 54830B/D*, 54831B/D*, 54832B/D* 54835A†, 54845A/B†, 54846A/B†	1156A, 1157A, 1158A

* Scopes recommended for 1156A, compatible with 1157A, 1158A
† Scopes recommended for 1156A, 1157A, 1158A
Optimizing Oscilloscope Measurement Accuracy on High-Performance Systems with Agilent Active Probes Application Note – publication number 5988-5021

As the speeds in your design increase, you may notice more overshoot, ringing, and other perturbations when connecting an oscilloscope probe. Probes form a resonant circuit where they connect to the device. If this resonance is within the bandwidth of the oscilloscope probe you are using, it will be difficult to determine if the measured perturbations are due to your circuit or the probe.

Combined with the Agilent 54846A/B Infiniium scope, the 1158A 4 GHz probe offers you a full 2.25 GHz of system bandwidth, giving you accurate insight into your high-speed devices.

These probes are compatible with the AutoProbe interface, which completely configures the oscilloscope for use with the probe. Power for the active probe is supplied by the oscilloscope.

Faithful Reproduction of Your Signal

Now you can accurately measure your high-speed signals without introducing errors from a probe that has a resonant input impedance or non-flat frequency response. With the new 1156A/57A/58A probes resistance is placed as close as possible to the point being probed, which keeps the input impedance from resonating low, and it also allows a flat frequency response across the entire bandwidth of the probe. Finally, there is a high-bandwidth active probe where the waveform onscreen matches the waveform at the probe tip. No other probe currently on the market offers a flat response for the entire bandwidth of a 4 GHz probe!

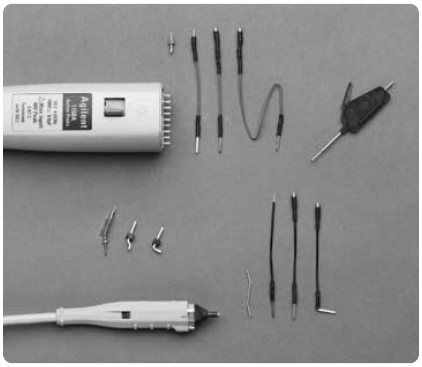


Figure 3.6. Agilent 1156A/57A/58A active probe for high-speed signals.

Small Size

Have you experienced problems with large, clunky probes? If so, you probably found your probe awkward to hold and had difficulty connecting to your signals. With the small size of the 1156A/57A/58A, you can handle the probe expertly and gain access to tight spaces. Plus, the low mass makes the probe more durable. Agilent makes your job easier–giving you performance that is easy to use.

Superior Accessories

Your device under test (DUT) determines the type of probing accessories you need. Of course, there are electrical trade-offs depending on the type of connection you use. Longer connections from your DUT produce lower performance probing systems.

Agilent offers a variety of accessories optimized to give you the most accurate reproduction of your signal. In addition, the performance of each accessory is characterized for you. Now you can make informed decisions and get the best measurement for your environment. Superior performance combined with the knowledge to use it–that's how Agilent helps you do your job better.

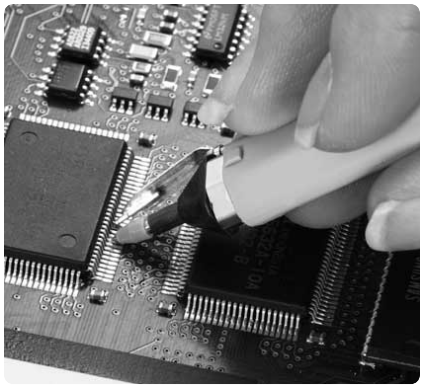


Figure 3.7. Probe with resistive signal pin and ground blade.

High-Frequency Voltage Probes
Agilent 1156A/57A/58A High-Bandwidth, Active Voltage

Specifications

Operating Characteristics

Bandwidth (-3 dB)	1156A: > 1.5 GHz; 1157A: > 2.5 GHz; 1158A: > 4 GHz
System Bandwidth	1156A with 54832B/D or 54835A scope: 1 GHz; 1157A with 54845A/B scopes: 1.5 GHz; 1158A with 54846A/B scopes: 2.25 GHz
Rise and Fall Time (10% to 90%) calculated from t_r = 0.35/bandwidth	1156A: < 233 ps; 1157A: < 140 ps; 1158A: < 88 ps
Input Capacitance	0.8 pF
Input Resistance [1]	100 kΩ 1%
Flatness, Swept Response	0.2 dB: 100 kHz to 100 MHz; 0.4 dB: 100 MHz to 2.5 GHz; 2.0 dB: 2.5 GHz to 4.0 GHz
Flatness, Step Response	15% overshoot: 35 ps input edge; 10% overshoot: 75 ps input edge; 2%: 1 ns after edge
Dynamic Range [2]	> 5.0 V peak-to-peak
dc attenuation [1]	10:1 ± 3% before calibration [4]; 10:1 ± 1% after calibration [4]
Zero Offset Error Referred to Input [1]	< 30 mV before calibration [4]; < 5 mV after calibration [4]
Offset Range [1]	±15.0 V
Offset Accuracy [1]	< 3% of setting before calibration [4]; 1% of setting after calibration [4]
Noise Referred to Input	3.0 mVrms
Propagation Delay	5.5 ns
Maximum Input Voltage	40 V peak, CAT I [3]
ESD Tolerance	> 5 kV from 100 pF, 300 Ω HBM
Temperature Drift	Offset: < 1.0 mV/°C; Attenuation (Gain): 0.1 %/°C

[1] Denotes warranted specifications, all others are typical.
[2] For waveforms with edges > 3 ns, the dynamic range is > 12.0 V peak-to-peak.
[3] Installation category (over voltage category) I: Signal level, special equipment, or parts of equipment, telecommunication, electronic, etc., with smaller transient overvoltage than installation category (overvoltage category) II.
[4] Probe calibrated to scope channel (under Probes Setup menu).

Environmental Characteristics

Temperature	Operating: 0° C to +55° C; Non-operating: -40° C to +70° C
Humidity	Operating: Up to 95% relative humidity (non-condensing) at +40° C; Non-operating: Up to 90% relative humidity at +65° C

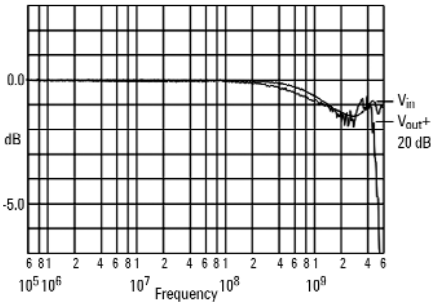


Figure 3.8. Notice how closely output matches input. Graph shows V_{in} and V_{out} when driven from a 25 Ω source.

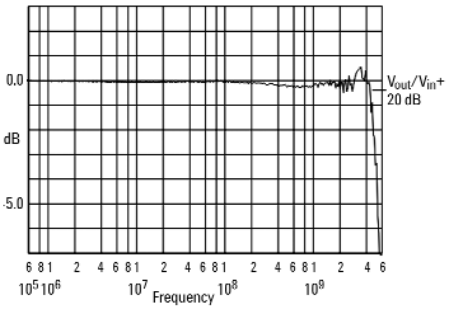


Figure 3.9. The flat response means the waveform on the scope screen will match the waveform at the probe tip—across an entire 4 GHz bandwidth. Graph shows response (V_{out}/V_{in}).

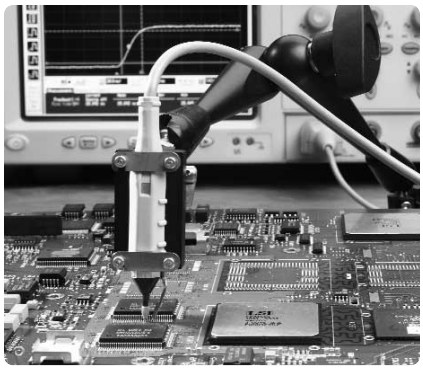


Figure 3.10. Agilent E2654A EZ-Probe Positioner option provides stable and accurate X,Y, Z probe positioning (see "EZ-Probe Positioner" in the "Probing Accessories" section of this document).

High-Frequency Voltage Probes

Agilent 1156A/57A/58A High-Bandwidth, Active Voltage

Probe Recommendations

Be sure your probe has enough bandwidth to utilize the full performance your scope offers. Use the selection table below for recommended configurations.

Infiniium 54800 Series Oscilloscope	Probe	System Bandwidth
54835A (1.0 GHz)	1156A (1.5 GHz)	1.0 GHz
54845A/B (1.5 GHz)	1157A (2.5 GHz)	1.5 GHz
54846A/B (2.25 GHz)	1158A (4.0 GHz)	2.25 GHz

Ordering Information

With the purchase of a new 54800 Series Infiniium oscilloscope:

Part #	Description	Quantity
Option #12	1156A 1.5 GHz active probe for 54830B/D, 31B/D, 32B/D scopes	1
Option #13	1157A 2.5 GHz active probe for 54845A/B scopes	1
Option #14	1158A 4 GHz active probe for 54846A/B scopes	1

For already purchased 54800 Series Infiniium oscilloscopes:

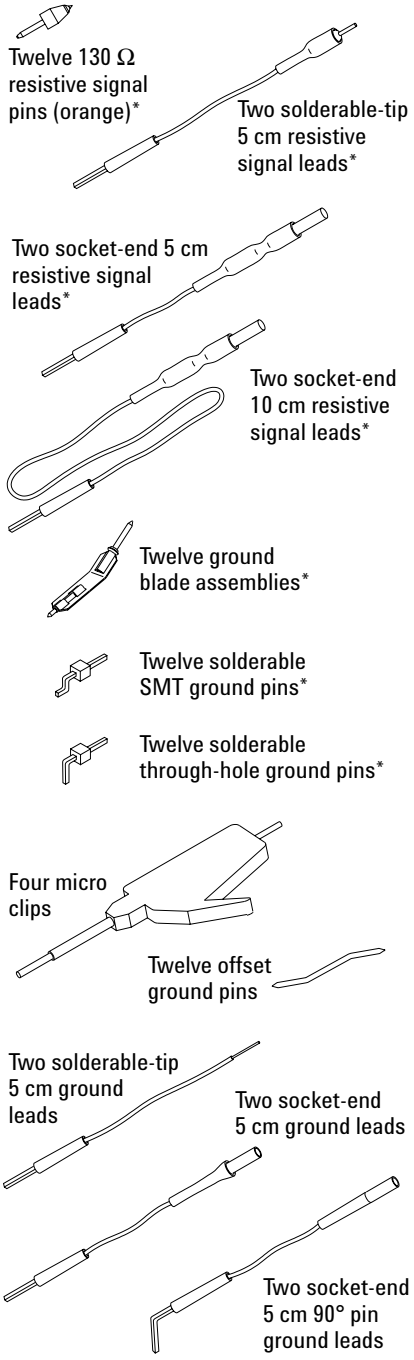
Part #	Description	Quantity
1156A	1.5 GHz active probe*	1
1157A	2.5 GHz active probe*	1
1158A	4 GHz active probe*	1

*The Infiniium 54800 Series scope requires version A.04.30 or greater of the application software to work with the 1156A/7A/8A probes. An LS-120 drive is required for this upgrade. To receive your free Infiniium software update, go to the Infiniium web site: www.agilent.com/find/Infiniium_software

Accessories

Part #	Description	Quantity
E2637A	Precision measurement kit (includes 2 solderable ground sockets with 2 green resistive signal pins)	1
E2638A	Solderable-tip 5 cm resistive signal leads (10) with ground leads (3)	1
E2639A	Micro clips	4
E2640A	Resistive signal pins, (orange)	8
E2641A	Ground blade assembly	8
E2654A	EZ-Probe® Positioner	1

Accessories Supplied



Includes user's guide and one-year warranty.

These accessories are properly damped to give you a flat transmitted response and non-resonant input impedance. Use these supplied accessories to get the best performance from your probe.

Differential Probes Overview

Differential probes are active probes with two inputs, one positive and one negative, as well as a separate ground lead. They are used to look at signals that are referenced to each other instead of earth ground and to look at small signals in the presence of large dc offsets or other common mode signals such as noise. The differential amplifier in the probe rejects signals that are common to the two inputs, removing the dc or common mode signals and leaving the signal of interest. The common mode rejection ratio (CMRR) characterizes how effectively the probe rejects signals common to each input. The CMRR for differential signals is much higher than using two passive probes and subtracting the signals with a math function.

Differential probes are used with RF communication ICs, semiconductor characterization (RAMBUS, Double Data Rate, DRAM, AGP), battery-powered communication and computing equipment (cellular phone, laptop computer, etc.), disk drive read-write channel signals, power supply design and verification, motor speed controls, electronic high-power converters, and other applications where signals are "floating" above ground.

Figure 4.1. Agilent 1153A for probing low-bandwidth differential signals.

Figure 4.2. Agilent 1154A/59A for probing high-bandwidth differential signals.

Model	Probe Type	Applications and Use	Page
1153A	Differential	Low-bandwidth differential signals	16
1154A/59A	Differential	High-bandwidth differential signals	19

Differential Probe Advantages	Limitations
View small signals in the presence of dc or other common mode signals	More expensive than general-purpose probes Less dynamic range than using two passive probes
1153A probes both low- and high-voltage differential signals	200 MHz bandwidth
1154A/59A probe high-frequency differential signals	Lower maximum input voltage than Agilent 1153A probe

Differential Probes
Agilent 1153A Low Bandwidth

- **View of low-bandwidth differential signals in the presence of much larger common-mode signals**
- **dc to 200 MHz bandwidth**
- **Input from ±300 mV (dc + peak ac) to ±30 V with attenuation**
- **3000:1 CMRR at 1 MHz**
- **Input coupling: dc offset, low-frequency reject, ac coupling**
- **Low dc thermal drift**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	1153A

Figure 4.3. Agilent 1153A 1:1 FET differential probe with 200 MHz bandwidth.

Reliable Probing of Low-Bandwidth Signals

The Agilent 1153A is a 1:1 FET differential probe with 200 MHz bandwidth and 3000:1 CMRR (Common Mode Rejection Ratio) at 1 MHz. Two attenuators, 10:1 and 100:1, expand the dynamic range of the inputs up to + 30 V. The probe has a high input resistance of 1 MΩ and low input capacitance of 7 pF to minimize circuit loading.

Input coupling modes include dc, dc with variable offset, and low-frequency (LF) reject. The probe also comes with an ac coupling adapter for those cases where the input dc voltage level prevents the use of LF 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. The probe's dual-path amplifier design provides superior dc stability by reducing the drift to less than 50 µV dc per degree Celsius.

The 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. Special attention is paid to isolating critical parts from shock.

The probe is compatible with the AutoProbe interface, which completely configures the Infiniium scope for the probe. The probe interface recognizes the probe and automatically sets up the proper power, coupling modes, 50 Ω impedance, and offset range. A snap-on BNC connector simplifies connecting the probe to the scope.

Differential Probes
Agilent 1153A Low Bandwidth

Specifications

Operating Characteristics

Bandwidth (-3 dB)	dc to 200 MHz [1]
Rise Time	1.75 ns calculated from t_r = (0.35/bandwidth)
dc gain Accuracy*	2% (with 50 ± 0.1 Ω load)
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: ±18 V (1:1); ±180 V (10:1); ±500 V (100:1) dc to 30 Hz: linearly decreased to 30 Hz value 30 Hz to 200 MHz: ±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 (-3 dB) is selectable independent of attenuators at 1.7 Hz (LFR1) and 0.14 Hz (LFR2).
CMRR*	See graph on next page.
ac coupling	15 Hz (1:1); 1.5 Hz (10:1). Low-Frequency Response (-3 dB) with ac coupling adapter and input 1.5 Hz (100:1) coupling set to dc.
dc thermal Drift	≤ 50 µV dc/°C
Input RC	1:1 R: 1 MΩ C: 7 pF 10:1 R: 9 MΩ C: 3.5 pF 100:1 R: 10 MΩ C: 2.0 pF
Output Termination Impedance	50 Ω
Safety	Meets IEC 1010-2-31

Environmental Characteristics

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

Differential Probes
Agilent 1153A Low Bandwidth

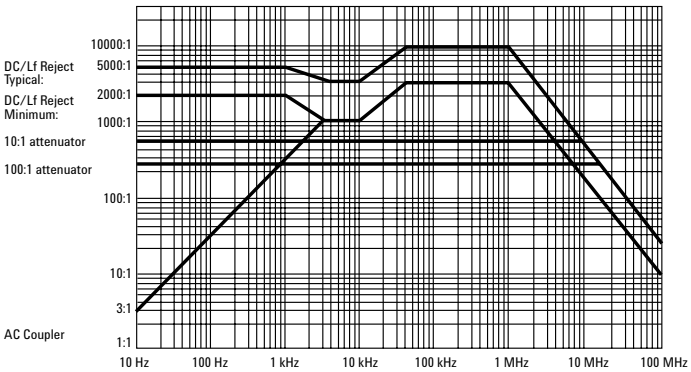


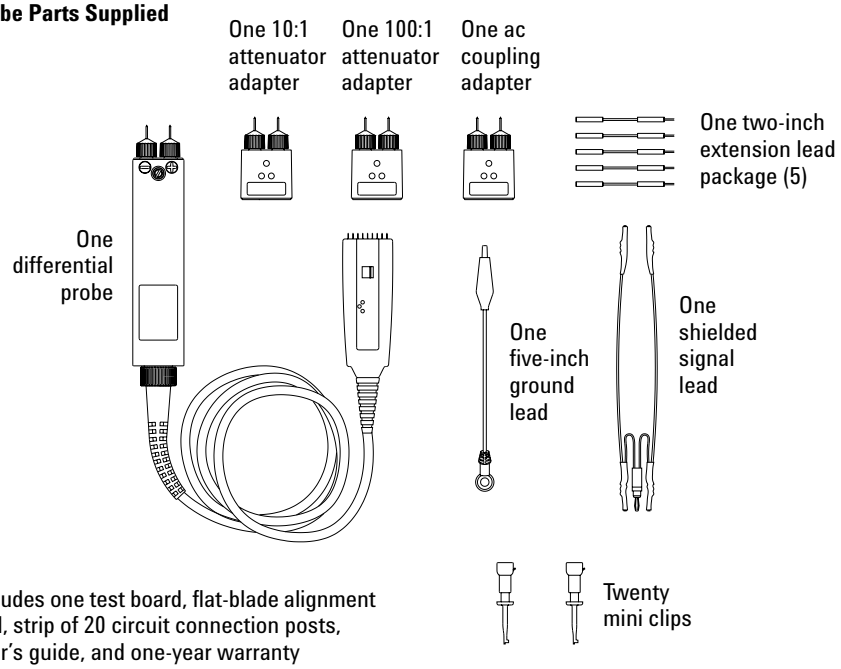
Figure 4.4. dc component in a signal blocked using low-frequency reject without degrading low-frequency CMRR.

Ordering Information

Probe and Accessories

Part #	Description	Quantity
1153A	200 MHz differential probe	1
5959-9335	Long (5.5 inch) test lead	5
	IC clips: See “Probing Accessories”	

Probe Parts Supplied



Includes one test board, flat-blade alignment tool, strip of 20 circuit connection posts, user’s guide, and one-year warranty

Differential Probes
Agilent 1154A/59A High Bandwidth

- **View of high-bandwidth differential signals**
- **1 GHz model with 1:1 attenuation for fast, low-voltage signals**
- **500 MHz model with 10X gain and 10:1 attenuation for a wide range of applications**
- **External attenuators and ac coupler**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	1154A, 1159A

High-Bandwidth Probing for Differential Signals

Get a better look at the small, fast signals prevalent in today's designs. Features of the 1154A and 1159A probes include low noise, low input capacitance, high common mode rejection (CMRR), and field effect transistor (FET) buffered inputs in the probe head. User-selectable offset means additional flexibility to measure a large range of signal types. Plug-on attenuators and ac coupling accessories further the application range.

Included accessories allow connection to surface mount and through-hole components with minimal signal degradation. Input receptacles in the probe head are compatible with standard 0.025 inch (0.0635 mm) square pins, which provide a convenient low-cost method of creating device characterization test fixtures.

The probes are compatible with the AutoProbe interface, which completely configures the Infiniium scope for the probe. The probe interface recognizes the probe and automatically sets up the proper power, coupling modes, 50 Ω impedance, coupling offset, internally selectable attenuation, and gain. A snap-on BNC connector simplifies connecting the probe to the scope.

Figure 4.5. Agilent 1159A for fast, low-voltage differential logic.

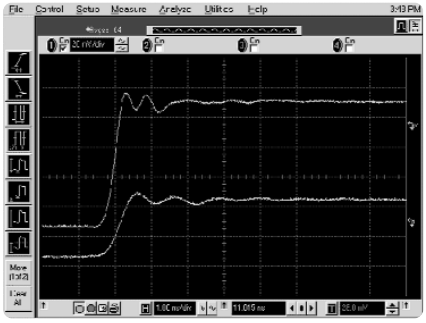


Figure 4.6. Superior display of a 40 mV signal using Agilent 1159A (top), compared to a typical passive probe (bottom).

Differential Probes
Agilent 1154A/59A High Bandwidth

Agilent 1154A (500 MHz)

You'll appreciate the versatility of this high-performance, general purpose probe. Selectable 10X gain and 10:1 attenuation are built directly into the probe as well as an external attenuator for a maximum of 100:1 attenuation. The probe also features external ac coupling to eliminate dc for simplified measurement of ac voltages.

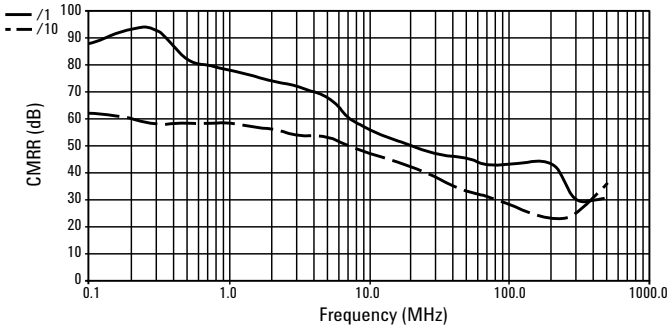


Figure 4.7. Typical CMRR for the Agilent 1154A.

Agilent 1159A (1 GHz)

You don't have to attenuate the signal when you're looking at high-speed, low-level signals with the 1159A differential probe. Because it's a 1:1 probe, the 1159A has TEN times the gain of a typical 10:1 active or passive probe. That makes it ideal for dealing with today's fast, low-voltage differential signals. The isolation provided by the differential probe makes it easier to characterize those signals and find noise spikes, ground noise problems, and cross coupling.

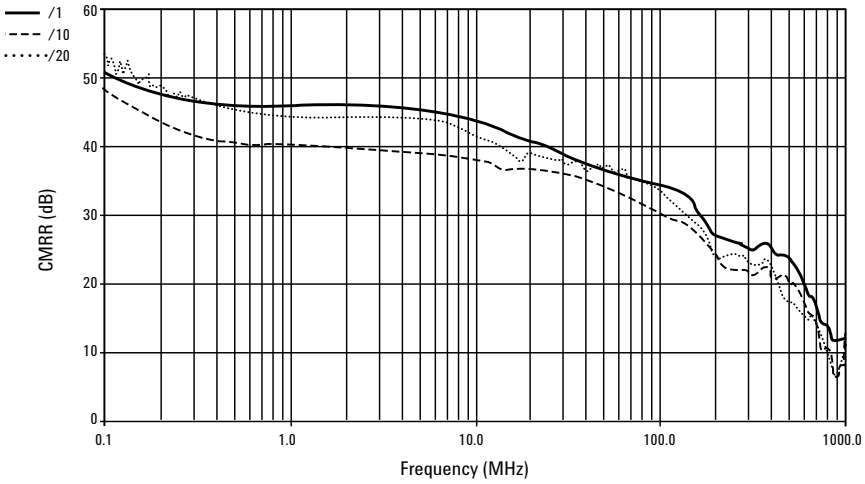
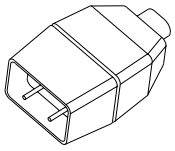
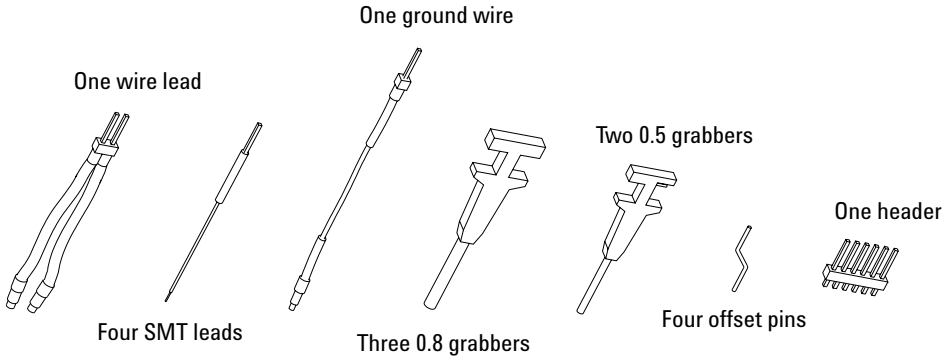


Figure 4.8. Typical CMRR for the Agilent 1159A.

Accessories Supplied



One ac coupler
One 10:1 attenuator
One 20:1 attenuator
(1159A probe only)



Differential Probes
Agilent 1154A/59A High Bandwidth

Specifications

Operating Characteristics	1154A 500 MHz Probe	1159A 1 GHz Probe
Probe Bandwidth (-3 dB)	dc to < 500 MHz	dc to 1 GHz
Rise Time, Probe Only	10:1 attenuation < 700 ps; 1:1* < 875 ps	1:1* < 350 ps
Input Resistance	Each side to ground 1 MΩ	Each side to ground 1 MΩ
Input Capacitance	Between inputs 10:1* < 1.6 pF Between inputs 1:1* < 3.1 pF Each side to ground 10:1* < 3 pF Each side to ground 1:1* < 6 pF	Between inputs 1:1* < 0.85 pF Each side to ground 1:1* < 1.5 pF
Gain and Attenuation	Internal 10X, 1:1, 10:1; External 10:1	External 10:1; 20:1
Linear Differential Input Range	10x < ±40 mV 1:1 < ±400 mV 10:1 < ±4 V 100:1 < ±40 V	1:1 < ±400 mV 10:1 < ±4 V 20:1 < ±8 V
Common Mode Operating Range	1:1 ±4.2 V 10:1 and 100:1 ±42 V	1:1 ±4.2 V 10:1 and 20:1 ±42 V
Maximum Allowable Input Voltage	42 V (dc + peak ac)	42 V (dc + peak ac)
Offset	10x 0.4 V 1:1 0.4 V 10:1 4 V 100:1 40 V	1:1 1.6 V 10:1 16 V 20:1 32 V 100:1 n/a
Input Coupling	dc ac coupling provided by external adapter LF cutoff frequency at 16 Hz	dc ac coupling provided by external adapter LF cutoff frequency at 16 Hz
CMRR	See graph on previous page.	See graph on previous page.
Output Termination Impedance	50 Ω	50 Ω
Safety	Meets IEC 1010-2-31	Meets IEC 1010-2-31

*No external attenuator

Environmental Characteristics

Temperature	Operating: 0° C to +55° C; Non-operating: -40° C to +70° C	Operating: 0° C to +55° C; Non-operating: -40° C to +70° C
Humidity	Operating: 80% relative humidity; Non-operating: 80% relative humidity at 65° C	Operating: 80% relative humidity; Non-operating: 80% relative humidity at 65° C
Altitude	Operating: Up to 4,600 m (15,000 ft); Non-operating: Up to 15,300 m (50,000 ft)	Operating: Up to 4,600 m (15,000 ft); Non-operating: Up to 15,300 m (50,000 ft)

Ordering Information

Probes and Accessories

Part #	Description	Quantity
1154A	500 MHz differential probe	1
1159A	1 GHz differential probe	1
01154-60004	Connector kit	1

Current Probes Overview

Current probes sense the current flowing through a conductor and convert it to a voltage that can be viewed and measured on an oscilloscope. There are two types of current probes for oscilloscopes, ac current probes (usually passive probes) and ac/dc current probes (usually active probes). Both types use the same principle of transformer action for sensing ac current in a conductor. The alternating current flowing through a conductor causes a flux field to build and collapse according to the amplitude and direction of current flow. The ac current probe head is actually a coil—when placed in this field the changing flux field induces a voltage across the coil. The ac/dc current probes also contain a Hall Effect device to sense dc and low frequency ac. Because dc doesn't cause a changing flux field it cannot be sensed by transformer action. Also, at frequencies very close to dc, the flux field may not change fast enough for measurable transformer action.

Figure 5.1. Agilent 1146A low-cost ac/dc current probe.

Figure 5.2. Agilent 1147A general-purpose ac/dc current probe.

Model	Probe Type	Applications and Use	Page
1146A	ac/dc Current	Measure dc and ac current simultaneously	23
1147A	ac/dc Current	Measure dc and ac current simultaneously	25

Current Probe Advantages	Limitations
1146A low-cost model measures ac and dc current to 100 Arms without breaking into the circuit	100 kHz bandwidth
1147A measures ac and dc current to 50 MHz without breaking into the circuit	Maximum 15 A peak (ac + dc)

Current Probes
Agilent 1146A ac/dc

- **Low-cost solution**
- **ac/dc currents measured simultaneously**
- **Accurate measurements of currents: 100 mA to 100 Arms, dc to 100 kHz**
- **Load impedance > 1 MΩ/100 pF**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	1146A

Within Budget, Without Compromise

The low-cost 1146A probe expands oscilloscope applications in industrial, automotive and power environments and is ideal for analysis and measurement of distorted current waveforms and harmonics. Accurate display and measurement of currents from 100 mA to 100 Arms, dc to 100 kHz, are made by using Hall Effect technology, eliminating the need for an electrical connection to the circuit.

Figure 5.3. Agilent 1146A 100 mA to 100 Arms, dc to 100 kHz probe.

Low phase shift makes this probe ideal for power quality measurements, while the high sensitivity makes it a great tool for measuring low-voltage signals. For true root mean square (RMS) measurements, the 1146A lets you measure the dc and ac output signals proportional to the total current. A battery level indicator and overload indicator help insure proper readings.

A narrow, elongated clamping mechanism lets you easily probe in crowded cable bundles and circuit boards. The probe connects directly to an oscilloscope through a 2 meter coaxial cable with an insulated BNC.

Probe power is provided by the battery, so there is no need for an external amplifier or power supply.

Current Probes
Agilent 1146A ac/dc

Specifications

Operating Characteristics

Current Range*	100 mV/A: 100 mA to 10 A peak; 10 mV/A: 1 to 100 A peak	
Output Signal	1000 mV peak max	
ac current Accuracy* (after calibration and for one year) (zero probe before making measurement)	Range 100 mVA (50 mA to 10 A peak) 10 mVA (500 mA to 40 A peak) 10 mVA (40 A to 100 A peak)	Accuracy 3% of reading ± 50 mA 4% of reading ± 50 mA 15% max at 100 A
Phase Shift [1]	< 1° from dc to 65 Hz on 10 mV/A < 1.5° from dc to 65 Hz on 100 mV/A	
Frequency Range*	dc to 100 kHz (-3 dB with current derating)	
Noise	Range 10 mV/A: 480 µV; Range 100 mV/A: 3 mV	
Slew Rate	Range 10 mV/A: 20 mV/µs; Range 100 mV/A: 0.3 V/µs	
Load Impedance	> 1 MΩ/100 pF	
Insertion Impedance (50/60 Hz)	0.01 Ω	
Rise or Fall Time	Range 100 mV/A: 3 µs; Range 10 mV/A: 4 µs	
Working Voltage	600 Vrms maximum	
Common Mode Voltage	600 Vrms maximum	
Influence of Adjacent Conductor	< 0.2 mA/A ac	
Influence of Conductor Position in Jaw	0.5% of reading at 1 kHz	
Battery	9 V alkaline (NEDA 1604A, IEC 6LR61)	
Low Battery	Green LED when ≥ 6.5 V	
Overload Indication	Red LED indicates input greater than selected range	
Typical Consumption	8.6 mA	
Battery Life	55 hours typical	

*Characteristics marked with asterisks are specified performance. Others are typical characteristics.

[1] Reference conditions 23° C ± 5° C, 20 to 75% relative humidity, dc to 1 kHz, probe zeroed, one minute warmup, batteries at 9 V + 0.1 V, external magnetic field < 40 A/m, no dc component, no external current carrying conductor, 1 MΩ/100 pF load, conductor centered in jaw.

Ordering Information

Part #	Description	Quantity
1146A	ac/dc oscilloscope current probe. Includes user's guide and battery.	1

Current Probes
Agilent 1147A High Bandwidth ac/dc

- **General purpose, high-frequency current probing**
- **ac, dc currents measured simultaneously**
- **dc to 50 MHz bandwidth**
- **15 A continuous, 50 A peak dc and ac pulse current**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	1147A

Accurate Current Measurements Without Breaking the Circuit

The 1147A is a wide bandwidth, dc to 50 MHz, current probe. The probe offers flat frequency response across the entire dc to 50 MHz bandwidth, low noise (< 2.5 mArms) and low-circuit insertion loss, making it ideal for general-purpose, high-frequency current probing in lab and bench environments. This probe is the best choice for measuring steady state or transient current of motor drives, switching power supplies, inverters, controllers, disk drives, LCD displays, and current amplifiers driving inductive loads.

The probe's hybrid technology includes a Hall Effect device to sense the dc current and a current transformer to sense the ac current, making an electrical connection to the circuit unnecessary. Using split core construction, the probe easily clips on and off of a conductor up to 5 mm in diameter.

A Degauss function allows the removal of any residual magnetism that has built up in the magnetic core due to power on/off switching or excessive input. In addition, voltage offset or temperature drift on the probe can be easily corrected by using the zero adjustment dial.

Figure 5.5. Agilent 1147A 15A continuous, 50 A peak dc + ac current.

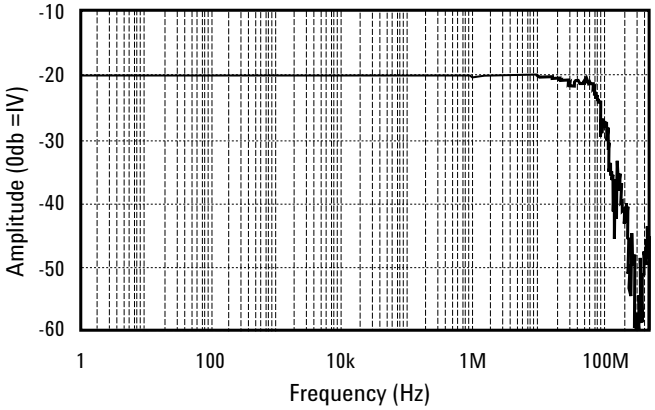


Figure 5.6. Frequency response chart showing the accuracy of the 1147A for probing wide bandwidth currents.

The 1147A is compatible with the AutoProbe interface, which completely configures the oscilloscope for the probe. Probe power is provided by the scope, so there is no need for an external amplifier or power supply. A snap-on BNC connector simplifies connecting the probe to the scope.

Current Probes
Agilent 1147A High Bandwidth ac/dc

Specifications

Operating Characteristics

Bandwidth (-3 dB)	dc to 50 MHz
Rise Time	7 ns or less
Rated Current	15 A peak (ac + dc components)
Maximum Peak Current	30 A peak; Non-continuous 50 A peak; at pulse width ±10 µs
Output Voltage Rate	0.1 V/A
Amplitude Accuracy	±0.5% rdg, ±1 mV (dc and 45 to 66 Hz, rated current)
Noise	Equivalent to 2.5 mArms or less (for 20 MHz band width measuring instrument)
Effect of External Magnetic Fields	Equivalent to a maximum of 20 mA (in a dc to 60 Hz, 400 A/m magnetic field)
Maximum Rated Power	3 VA (with rated current)
Diameter of Measurable Conductors	5 mm diameter (0.2 inch diameter)
Cable Lengths	Sensor cable: Approximately 1.5 m (59.0 inch)

Note: The above specifications are guaranteed at 23° C ± 3° C (or 73° F ± 5° F).

Environmental Characteristics

Temperature Coefficient for Sensitivity	±2% or less (within a range of 0° C to 40° C or 32° F to 104° F)

Ordering Information

Part #	Description	Quantity
1147A	50 MHz current probe. Requires Infiniium software rev. 4.0 or later. Includes user's guide and one-year warranty.	1

High-Voltage Probes Overview

High-voltage probes are used for voltages higher than can be handled safely with general-purpose 10:1 passive probes. For example, the maximum voltage for the 116XA general-purpose passive probes included with most Infiniium models is 300 volts (dc + peak ac). Agilent's high-voltage probes have maximum ratings as high as 15,000 volts.

Figure 6.1. Agilent 10076A, 100:1, high-voltage probe.

Figure 6.2. Agilent N2771A, 1000:1, high-voltage probe.

Model	Probe Type	Applications and Use	Page
10076A	High Voltage	Measure voltages above 300 V	28
N2771A	High Voltage	Measure voltages above 300 V	29

High-Voltage Probe Advantages	Limitations
Safely measure voltages to 15 kV	Limited bandwidth
10076A features a small size, low cost	Measure to 4 kV
N2771A provides measurements to 15 kV	Large size

High-Voltage Probes
Agilent 10076A (100:1)

- **Measure voltages up to 4 kV peak**
- **250 MHz bandwidth**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	10076A

The 10076A provides the features you need to capture fast, high-voltage signals. Its compact design makes it easy to probe today's small, power electronics components. Rugged construction enables it to withstand rough handling without breaking.

Figure 6.3. Compact design and long cable of the Agilent 10076A for probing small, power electronics components.

Specifications

Operating Characteristics

Bandwidth (-3 dB)	250 MHz
Rise Time (Calculated)	< 1.4 ns
Attenuation Ratio	100:1
Input Resistance	66.7 MΩ (when terminated into 1 MΩ)
Input Capacitance	Approximately 3 pF
Maximum Input	4000 Vpk
Compensation Range	6 - 20 pF
Probe Readout	Yes
Cable Length	1.8 m

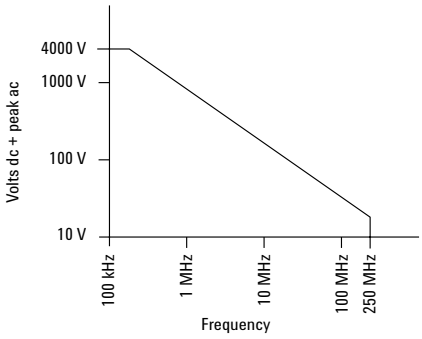


Figure 6.4. Derating curve showing bandwidth characteristics of the 10076A probe.

Ordering Information

Probe and Accessories

Part #	**Description**	**Quantity**
10076A	High-voltage probe includes one retractable hook tip, one ground bayonet, one IC probing tip, one alligator ground lead, a compensation screwdriver, and user's guide	1

High-Voltage Probes
Agilent N2771A (1000:1)

- **Measure voltages up to 30 kV dc + peak ac, 10 kVrms**
- **50 MHz bandwidth**
- **Superior protection and safety**

Scope Compatibility (all scopes recommended)	**Probe**
54810A, 54815A, 54820A, 54825A **NEW** 54830B/D, 54831B/D, 54832B/D 54835A, 54845A/B, 54846A/B	N2771A

For safe and accurate insight into very high-voltage designs check out our model N2771A probe. Typical applications include PMTs, motor drives, high-voltage switches, magnetrons, and modern projection systems. The probe's large size and rugged construction provide superior protection. The ground lead feeds through the body of the probe and protrudes behind the safety barrier, keeping the ground connection away from the high voltage.

Figure 6.5. Agilent N2771A for measuring voltages up to 30 kV dc + peak ac, 10 kVrms.

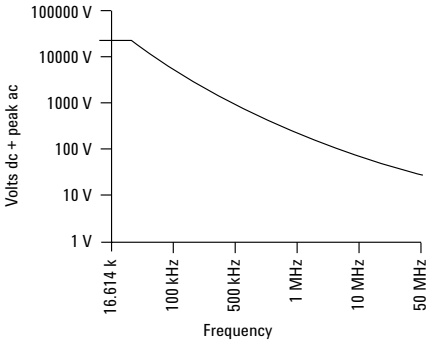


Figure 6.6. Derating curve showing bandwidth characteristics of the N2771A probe.

Specifications

Operating Characteristics

Bandwidth (-3 dB)	50 MHz
Rise Time (Calculated)	< 7 ns
Attenuation Ratio	1000:1
Input Resistance	100 MΩ (when terminated into 1 MΩ)
Input Capacitance	1 pF
Compensation Range	7 - 25 pF
Maximum Voltage	15 kV dc, 10 kVrms, 30 kV dc + peak ac
Dimensions	2 cm (maximum width of probe stem after handle) x 33 cm; 7.5 cm (maximum probe width at probe handle) x 33 cm

Ordering Information

Probe and Accessories

Part #	**Description**	**Quantity**
N2771A	High-voltage probe includes one alligator ground lead, one sharp probe tip, one hook probe tip, and user's guide	1

Mixed-Signal Oscilloscope Logic Probe Kit

- **Same cable used for high-performance Agilent logic analyzers**
- **Flying leads offer flexibility and convenience**
- **IC clips with twin hooks are designed for fine surface mounted components**

MSO probes offer great value and performance

The mixed-signal oscilloscope logic probe for the Agilent 54830D/31D/32D mixed-signal oscilloscopes is the same one used with Agilent's high-performance logic analyzers. This means we can offer the best performance, great value, and access to the industry's broadest range of logic probing accessories.

The 54826-68701 16-channel logic probe kit with flying leads makes it possible to connect at several different places on your device under test. The entire probe lead set can be grounded through the common ground. This requires only one connection but may cause poor signal fidelity in systems with fast transition times. The recommended method is to individually ground each logic probe lead. This yields optimal signal fidelity and is required for signals with fast transition times (<4-5 ns). This probe kit is included with the 54830D, 54831D, and 54832D Infiniium mixed-signal oscilloscopes.

Scope Compatibility	Probe
NEW 54830D, 54831D, 54832D	54826-68701

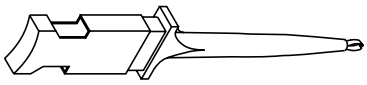
Ordering information

Part #	Description	Quantity
54826-68701	Logic Probe Kit for 54830 Series MSO	1

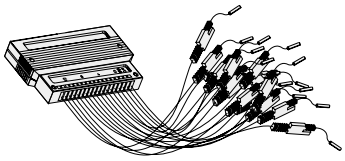
Kit parts supplied

16-channel probe lead set x1
Ground leads x5
SMT IC clips x20
External digital cable x1

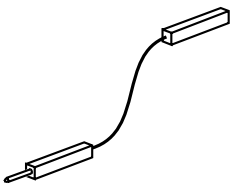
External digital cable (part number 54826-61605)



SMT IC clip (part number 5090-4833)



Sixteen-channel probe lead set (part number 54838-61608)



Ground leads contain 5 short ground leads (part number 5959-9334)

Probing Accessories
Wedge Adapters

Agilent Wedge Probe Adapters

- **Secure connection to 0.5 mm and 0.65 mm TQFP and PQFP devices**
- **Won't fall off, short against adjacent legs, or degrade signal quality**
- **Can be inserted while the board is active**
- **3, 8, and 16 signal versions**

The Agilent Wedge Probe Adapter provides a highly reliable, mechanically non-invasive connection to fine-pitch TQFP and PQFP surface mount ICs. Compressible dual conductors inserted in the space between adjacent IC pins conform to the size and shape of each pin to ensure tight contact. The redundant physical connection created by two contact points on each pin of the IC and the short electrical length of the probe adapter dramatically increase the reliability of the electrical connection. Because the Wedge does not latch directly onto the IC and does not require expansion beforehand (unlike a clip) it can be inserted while the board is active.

Once the Wedge is inserted you can easily complete the connection to your scope. The Wedge connects directly to the 1155A and the 117XA family of low-mass probes and the dual-lead adapter provided with the 116XA passive probe family.

For more information on how the Wedge Probe Adapter works with your Infiniium scope, please refer to "Related Literature" at the back of this document.

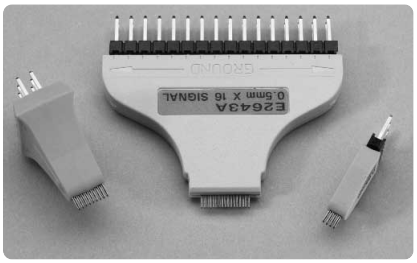


Figure 7.1. Agilent Wedge Probe Adapters for secure connections to TQFP and PQFP devices.

Specifications

Operating Characteristics

Operating Voltage	< 40 V (dc + peak ac)
Operating Current	0.5 A maximum
Capacitance Between Contacts	2 pF (typical); 4.3 pF at 1 MHz (Agilent E2643/44A)
Self-inductance	15 nH (typical); 37 nH at 1 MHz (Agilent E2643A/44A)
Contact Resistance	< 0.1 Ω

Ordering Information

Part #	Description	Quantity
E2613A	IC pin spacing: 0.5 mm, 3 signal	1
E2613B	IC pin spacing: 0.5 mm, 3 signal	2
E2614A	IC pin spacing: 0.5 mm, 8 signal	1
E2615A	IC pin spacing: 0.65 mm, 3 signal	1
E2615B	IC pin spacing: 0.65 mm, 3 signal	2
E2616A	IC pin spacing: 0.65 mm, 8 signal	1
E2643A	IC pin spacing: 0.5 mm, 16 signal	1
E2644A	IC pin spacing: 0.65 mm, 16 signal	1

Probing Accessories
0.5 mm IC Clips, PC Board Mini-Probe Sockets

0.5 mm IC Clips

- **Extremely small size**
- **Thin body for mounting multiple clips side-by side**
- **Connection to PQFP and SOIC SMT packages from 0.5 to 0.8 mm (0.020 in. to 0.032 in.) lead pitch**

The 0.5 mm IC clips connect directly to the 1155A and the 117XA family of low mass probes and the dual-lead adapter provided with the 116XA family of passive probes. Maximum input voltage is + 40 V.

Figure 7.2. Extremely small-sized clips for probing PQFP and SOIC SMT packages.

Specifications

Operating Characteristics

Length	31.75 mm (1.25 inch)
Tip Diameter	0.75 mm (0.029 inch)
Pin Diameter	0.75 mm (0.029 inch)

Ordering Information

Part #	Description	Quantity
10467-68701	0.5 mm IC clips	4

PC Board Mini-Probe Sockets

- **Hands-free probing of through-hole devices**
- **Compatible with 116XA family probes**

The PC board mini-probe sockets are ideal for reliable and convenient connection between the probe tip and the circuit under test.

Figure 7.3. Horizontal and vertical versions of the PC board mini-probe socket make it easy to fit into your target board.

Ordering Information

Part #	Description	Quantity
N2765A	Horizontal mini-probe socket	5
N2766A	Horizontal mini-probe socket	25
N2767A	Vertical mini-probe socket	5
N2768A	Vertical mini-probe socket	25

Probing Accessories
EZ-Probe Positioner

EZ-Probe Positioner

- **Stable X, Y, Z positioning**
- **3-D joystick, 3:1 motion reduction**
- **Compatible with all Agilent hand-held probes**

The revolutionary EZ-Probe Positioner provides stable, accurate X, Y, and Z positioning in one fluid motion. Its unique 3-D joystick, with 3:1 motion reduction and single-clutch, fully articulated arm, allow simple, precise positioning in anything from card cages to MCMs. And, since you can easily attach any of your current handheld probes, it instantly integrates into your current probing environment.

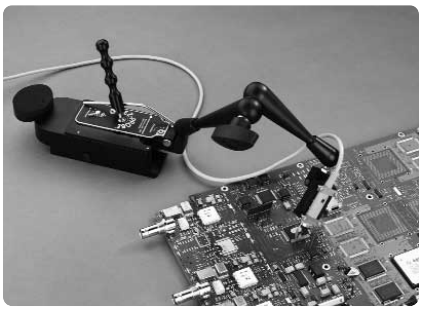


Figure 7.4. A fully articulated arm allows positioning in a variety of applications.

Specifications

Operating Characteristics

Vacuum Base Area	82.3 x 53.3 mm (3.2 x 2.1 inch)
Weight	1.2 kg (2.65 lb.)
Joystick X-Y-Z Travel	17 x 17 x 13 mm (0.65 x 0.65 x 0.5 inch)
Arm Adjustment Reach	100 - 220 mm (3.9 - 8.7 inch)
Arm Adjustment Height	0 - 300 mm (0 - 11.8 inch)
Arm Sweep Angle	+90°
Probe Rotation Range	Infinite

Note: The EZ-Probe Position's vacuum base requires up to -15.75 inch Hg vacuum for proper operation. Cascade Microtech offers vacuum pumps as well as many other EZ-Probe accessories.

Ordering Information

Part #	Description	Quantity
E2654A	EZ-Probe Positioner includes base, joystick, and articulating arm	1

Logic Analyzer/Oscilloscope Time Correlation

- **Verify correct logical relationships between analog and digital portions of a design**
- **Cross-trigger and time-correlate oscilloscope and logic analyzer measurements**
- **Simultaneously display oscilloscope and logic analyzer waveforms**

Some of the toughest measurement test problems involve linking the analog measurements of an oscilloscope and the digital measurements of a logic analyzer. But it's too time consuming to trigger your oscilloscope from your logic analyzer and manually correlate events.

The Agilent E5850A can bridge both worlds. The Infiniium time markers work with the global markers of an Agilent 16700 Series logic analysis system to help you track down and isolate hard-to-find problems. With the time-correlation feature, you can trigger the Infiniium oscilloscope from an Agilent 16700 Series logic analyzer (or vice versa), automatically deskew the waveforms, and simultaneously view the Infiniium waveforms and the logic analyzer's timing waveforms on the analyzer screen.

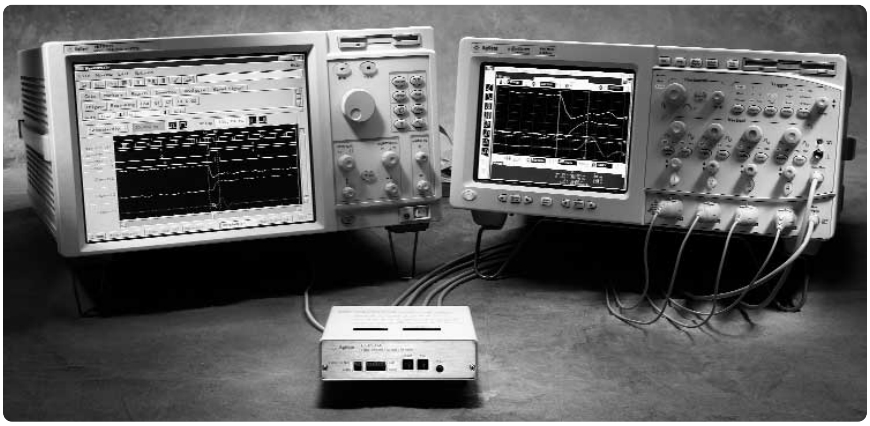


Figure 8.1. Agilent 5850A time-correlation fixture bridges the analog and digital worlds to track down problems more quickly.

Ordering Information

Part #	Description	Quantity
E5850A	Agilent E5850A time-correlation fixture	1

VoiceControl

- **Hands-free scope operation**
- **Speaker and gender independent**
- **Uses simple English commands**

If you're making multi-channel measurements on target systems with densely packed ICs, your hands are tied up holding probes, making it difficult to turn knobs and press buttons on the front panel of your oscilloscope.

To solve this problem, Infiniium scopes can be controlled with VoiceControl. Using a collar-mounted microphone, which is included, you can control front panel functions with the use of voice controls (English only), allowing hands-free operation of the scope. VoiceControl is both speaker and gender independent and does not require the oscilloscope to be trained.

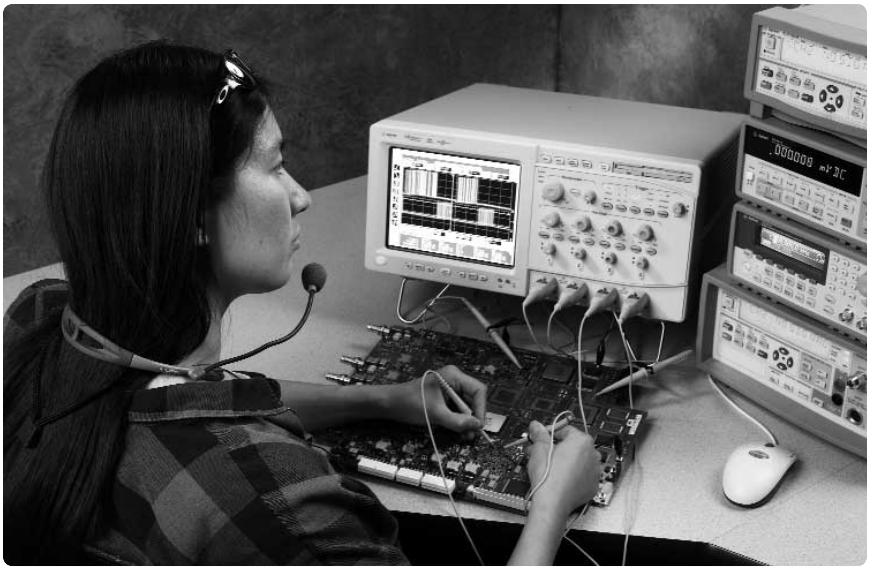


Figure 9.1. VoiceControl allows you to control the scope hands free.

VoiceControl Functions

- Run, stop, print, autoscale, default setup, clear screen.
- Vertical controls: volts/division, offset, coupling, input impedance, channel on/off.
- Horizontal controls: time/division, delay, delayed sweep.
- Trigger controls: mode, source, slope, sweep, coupling, trigger level.
- Storage controls: save waveforms and screen images.
- Waveform measurements.
- "Undo" and "again" commands to retract or repeat last command.
- Help for VoiceControl.

Ordering Information

Part #	Description	Quantity
200	VoiceControl for new purchases of Infiniium 54800A/B Series oscilloscopes	1
E2635A for[1] 54800A-Series N5850A for 54800B-Series	User installable retrofit kit for already purchased Infiniium oscilloscopes that have an "E2633A" product tag, or serial number prefix US3919 or higher	1
E2633-68704	VoiceControl upgrade kit for already purchased Infiniium oscilloscopes that do not have an "E2633A" product tag, or have a serial number prefix less than US3919. This kit lets you add VoiceControl software and VoiceControl hardware (sound card, collar-mounted microphone). Installation and calibration prices not included. Please contact your Agilent representative for pricing.	1

[1] To use the retrofit kit, you must have the following minimum Infiniium configuration: 300 MHz CPU, 64 MB RAM, Windows ® 98 , Version A03.50 or greater of the application software, LS-120 120 MB SuperDisk.
To determine if your Infiniium meets these configuration criteria, look at the back of your unit. If the serial number of your unit starts with US3919 or higher, you meet these requirements. If there is a product tag with "E2633A," "E2633-68703," or "E2633-68701," you meet the requirements.

Universal Serial Bus (USB) 2.0 Compliance Test Solution for Infiniium Oscilloscopes

- **In-the-box solution**
- **Faster, more reliable testing**
- **Lower cost than alternative solutions**

USB Testing	Scope
Low/full speed standard	54815A, 54825A, 54831B/D, 54832B/D, 54835A, 54845A/B, 54846A/B
High-speed standard	54846A/B

USB 2.0 Compliance Testing Made Easy

The Agilent USB test option makes USB signal integrity pre-compliance testing as simple as capturing the signals with your oscilloscope. Infiniium has significantly reduced the work associated with USB pre-compliance testing by eliminating the need to transfer scope signals to a PC. The Infiniium USB test option features run-time MATLAB embedded in the scope for use with the USB signal integrity scripts—a one-box solution.

Now USB signal integrity testing is as fast and easy as making an automatic measurement.

Simplify Testing with these Features:

- Embedded run-time MATLAB works with USB scripts, eliminating the need to transfer data to a PC for post-processing.
- Stored setups make scope configuration easy.
- Markers quickly bracket the packet of data for evaluation.
- Automatically generated pass/fail report is easy to share.
- In-the-scope solution reduces cost, speeds testing, improves efficiency and reliability.

Approved by the USB-IF Compliance Program

The USB-IF compliance program recognizes Infiniium as a recommended scope for use in low, full, and high-speed device compliance testing. In addition, all MATLAB scripts used with the USB test option come from the USB-IF organization.

For more information regarding the USB-IF compliance program and testing procedures, go to http://www.usb.org/developers/docs.html

Figure 10.1. The USB test option eliminates the need to transfer data to a PC for post-processing.

Universal Serial Bus (USB) 2.0 Compliance Test Solution for Infiniium Oscilloscopes

The Infiniium USB test option should be used for your internal signal integrity pre-compliance testing. Official USB compliance testing, including electrical and Gold Suite tests for certification, leads to inclusion on the USB-IF integrator's list, and is done only at sanctioned USB-IF test labs or USB-IF compliance workshops. Please review all requirements at the USB-IF web site http://www.usb.org

Testing as Simple as 1,2,3

Configuring your Infiniium scope for USB testing is fast and easy. Simply capture your low, full or high-speed data, run the test, and view the results.

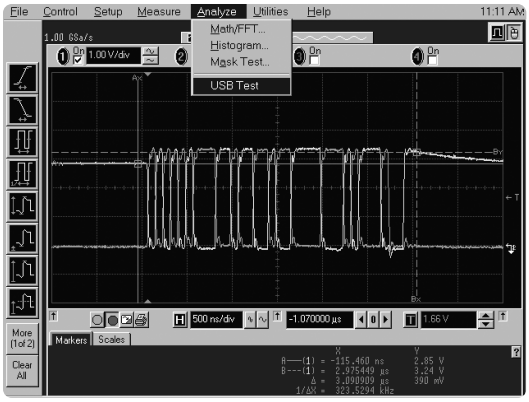


Figure 10.2. Capture the signal.

Automatic USB Test

Click on USB Test in the Analyze menu. Choose the signal integrity, in-rush current or drop/droop test of interest. Then start the test—the data packet is automatically stored and the USB MATLAB scripts are executed in Infiniium.

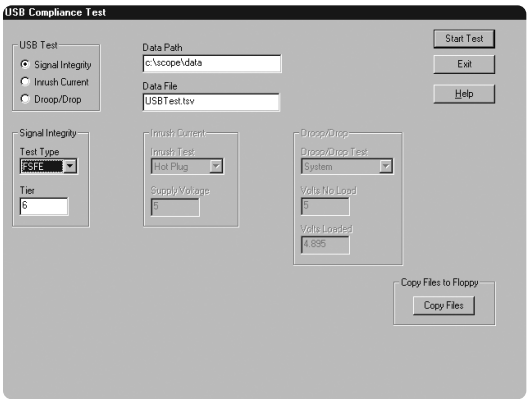


Figure 10.3. Run the test.

Pass/Fail Reports at the Click of the Mouse

Now it is easier than ever to share the results of your test. The final pass/fail test results are displayed on the scope screen, ready to be printed, stored to disk or shared over the LAN or web—all in Infiniium, all at the click of a mouse.

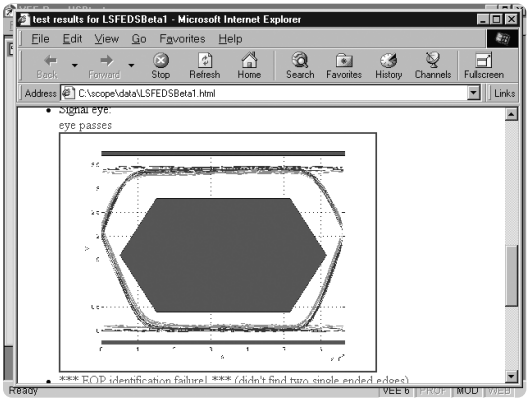


Figure 10.4. Review the results.

Universal Serial Bus (USB) 2.0 Compliance Test Solution for Infiniium Oscilloscopes

USB Test	Test Type	Report Output
Signal integrity	FSFE, LSFE, LSNE, HSFE, HSNE	Overall result, Signal eye, EOP width measurement, Signaling rate measurement Crossover voltage measurement, Jitter measurement, Signal data diagram, Eye diagram
Inrush Current	Hot Plug, Agilent Config, Agilent Resume, LP Config, LP Resume	Overall result, Inrush current measurement, Inrush current graph
Drop/Droop	System, Self Powered Hub, Bus Powered Hub	Overall Result, Voltage no load measurement, Voltage loaded measurement Drop measurement, Droop measurement

Table 10.1. Tests included with Agilent USB test option B30/E2645A/B.

Ordering Information

Low/Full Speed Standard (Using Agilent 54831B/D, 32B/D, 45B/46B Scopes Only)

Part #	Description
Option B30 or E2645A	USB 2.0 test option for new scope purchases. includes 1 SQiDD test fixture for low/full speed USB 2.0 testing USB 2.0 test option for already purchased scopes. includes 1 E2646A SQiDD test fixture for low/full speed USB 2.0 testing[1]
E2646A	Additional SQiDD (Signal Quality Inrush, Drop/Droop) test fixture for low/full speed USB 2.0 testing. (note that 1 E2646A is included in the option B30 and E2645A)
54846B Option 004	(Four) 1161A passive probes for new purchase of 54846B scopes only.
1147A	50 MHz current probe

High-Speed Standard (Using Agilent 54846A/B Scope Only) [2]

Option B30 or E2645A	USB 2.0 test option for new scope purchases. includes 1 SQiDD test fixture for low/full speed USB 2.0 testing USB 2.0 test option for already purchased scopes. includes 1 E2646A SQiDD test fixture for low/full speed USB 2.0 testing[1]
E2646A	Additional SQiDD (Signal Quality Inrush, Drop/Droop) test fixture for low/full speed USB 2.0 testing. (note that 1 E2646A is included in the option B30 and E2645A)
E2649A	High-speed USB 2.0 test fixture set consists of: E2645-66501 Device Signal Quality test fixture E2645-66502 Host Signal Quality test fixture E2645-66503 Receiver Sensitivity test fixture E2645-66504 Device TDR test fixture E2645-66505 Host TDR test fixture E2645-66506 Host Disconnect test fixture 0950-2546 Power supply
54846B Option 004	Adds (four) 1161A passive probes to the 54846B oscilloscope.
1147A	50 MHz current probe

[1] To use the retrofit kit, you must have the following minimum Infiniium configuration: 300 MHz CPU, 64 MB RAM, Windows 98, Versions A04.20 or greater of the application software, LS-120 120 MB SuperDisk. To determine if your Infiniium meets these configuration criteria, look at the back of your unit. If the serial number of your unit starts with US3919 or higher, you meet these requirements. Or if there is a product tag with "E2633A," "E2633-68703," or "E2633-68701," you meet the requirements. If you do not meet the minimum requirements, you must order an Infiniium oscilloscope performance upgrade in addition to the E2645A. (See "Infiniium Software and Hardware Upgrade" for information on selecting the right upgrade option for your Infiniium.)

[2] Also requires a Tektronix P6248 differential probe with 1103 probe power supply provided by your local instrumentation dealership.

Communication Mask Test Kit

- **Easy access to and configuration of masks**
- **Variety of easy-to-use testing features**
- **Compatible with all Agilent Infiniium oscilloscopes**

Take the Frustration Out of Communications Testing

Now there's an easier way to prove your designs conform to industry standards with the Communication Mask Test Kit option. Infiniium's familiar Windows® interface makes it easy for you to access the masks you need and configure your tests. Plus you'll find a variety of special features that save you time and trouble. The Communication Mask Test Kit comes with a set of electrical communication adapters to ensure convenient, reliable, and accurate connections to your device under test.

Figure 11.1. A protective, hard-shell case stores all the software and accessories for the Communication Mask Test Kit.

Simplify Testing with these Features:

- Over 20 industry-standard ANSI T1.102, ITU-T G.703, and IEEE 802.3 communication signal mask templates.
- FCC Part 68 Option B and C masks for "line build-out" testing of DS1/T1 signals.
- Ability to load custom masks from ASCII text files.
- Mask testing for positive and negative pulses.
- GPIB programmability of mask test features for automated test applications.
- Electrical communication adapters optimized for use with Agilent Infiniium oscilloscopes.
- Automatic "isolated ones" triggering for all pulse mask templates.
- One-button alignment for best fit of mask templates to test waveforms, virtually eliminating manual oscilloscope adjustments.
- Automatic pass/fail comparison of mask templates to corresponding input waveforms.
- Failure highlighting for fast identification of mask failure areas.
- Flagging of out-of-specification waveform amplitudes for ANSI T1.102 masks.
- Mask failure waveform characterization with features such as color-grade persistence, histograms, drag and drop measurements, and eye diagram measurements.
- Screen annotation for complete documentation of measurements to electronic files or printers.

Communication Mask Test Kit

Agilent E2621A 100/110/120 Ω Termination Adapter

The Agilent E2621A ac-coupled, balanced adapter allows connection to differential communications signals by terminating the signal into 100, 110, or 120 Ω. It also adapts various connector styles (for example, bantam, RJ-48C and Siemens) to the oscilloscope's 50 Ω BNC input. You can select the termination impedance using the built-in, three-way switch. The AutoProbe interface allows the Infiniium oscilloscope to recognize the E2621A and read the termination switch setting. Furthermore, Infiniium will flag you when the switch setting differs from the standard's required termination impedance.

Characteristics

The E2621A complies with the following ANSI T1.102 and ITU-T G.703 standards:

- DS1: (1.544 Mb/s)
- DS1A: (2.048 Mb/s)
- DS1C: (3.152 Mb/s)
- DS2: 6.312 Mb/s)
- E1: (2.048 Mb/s)

Figure 11.2. The Agilent E2621A ac-coupled, balanced adapter allows connection to differential communications signals by terminating the signal into 100, 110, or 120 Ω.

Agilent E2622A 75 Ω Termination Adapter

The E2622A dc-coupled, unbalanced adapter allows you to connect communications signals such as DS3 and E3 to the oscilloscope's 50 Ω BNC input. The AutoProbe interface allows Infiniium to recognize the E2622A and automatically configure itself.

Characteristics

The E2622A complies with the following ANSI T1.102 and ITU-T G.703 standards:

- DS3: (44.736 Mb/s)
- DS4NA: (139.264 Mb/s)
- STS1: (51.840 Mb/s)
- STS3: (155.520 Mb/s)
- STM1E: (155.520 Mb/s)
- E1: (2.048 Mb/s)
- E2: (8.448 Mb/s)
- E3: (34.368 Mb/s)
- E4: (139.264 Mb/s)

Figure 11.3. The Agilent E2622A dc-coupled, unbalanced adapter allows you to connect communications signals, such as DS3 and E3, to the oscilloscope's 50 Ω BNC input.

Communication Mask Test Kit

Specifications

Operating Characteristics	E2621A Termination Adapter	E2622A Termination Adapter
Bandwidth (-3 dB)*	< 10 kHz to > 100 MHz	> 1 GHz*
Rise Time	< 3.5 ns	< 350 ps
Attenuation	5X (-14 dB) ± 3% (50 kHz to 30 MHz)	5X (-14 dB) ± 1.5%

*Full bandwidth only achievable with Agilent Technologies 54835A 1 GHz and 54845A/B 1.5 GHz oscilloscopes.

Ordering Information

Test Kit

Part #	Description	Quantity
Option 100	Communication Mask Test Kit for new purchases of Infiniium oscilloscopes. Includes all the individual items listed below and a hard shell case for storage of all kit accessories.	1
E2625A	Communication Mask Test Kit for already purchased Infiniium oscilloscopes. Same kit as Option 100; requires Infiniium version 3.0 or later of the Infiniium software.	1

Included (may be ordered separately)

E2621A	100/110/120 Ω balanced termination adapter with bantam (f) connector	1
E2622A	75 Ω unbalanced termination adapter with BNC (f) connector	1
E2629A	BNC (m) to BNC (f) 50-to-75 Ω adapter; for system verification of the E2622A adapter and the Infiniium oscilloscope	1
8120-1838	BNC (m) to BNC (m) cable, 30 cm long	1

Hardware/Software Upgrades

- **Increased waveform update rate on the scope screen**
- **Increased measurement speed**
- **Increased GBIP throughput**
- **Easier file sharing and instrument updating**
- **Many new features**

To ensure the optimal performance of your Infiniium scope Agilent offers hardware and software upgrades. You can also upgrade the instrument software yourself by ordering an upgrade kit or downloading files over the Internet. The type of upgrade you need is determined by the serial number of your scope (see "Ordering Information"). Some upgrade items include:

- Updating the scope processor, installing additional RAM and a LAN card.
- Installing a new LS-120 SuperDisk 120 Mbyte floppy drive (reads and writes to 3.5 inch floppy disks.
- Installing an updated version of the Infiniium scope application software.
- Performing other product adjustments as needed.

Figure 12.1. Hardware and software upgrades increase instrument performance.

Ordering Information

Part #	Description
E2633-68703	Order E2633-68703 for already purchased Infiniium oscilloscopes with serial number prefixes beginning with US3845. This kit lets you upgrade your oscilloscope to Windows 98 and a later version of the Infiniium application software, and replace the 1.44 MB floppy drive with an LS-120 SuperDisk 120 MB floppy. Installation and calibration prices are not included. Please contact your Agilent representative for pricing of upgrades performed at the Service Center.
E2633-68701	E2633-68701 should be ordered for already purchased Infiniium oscilloscopes with serial number prefixes less than US3844. This kit lets you upgrade to all E2633-68703 features including a 300 MHz processor, 64 MB RAM, and a LAN card. Installation and calibration prices are not included. Please contact your Agilent representative for pricing on upgrades performed at the Service Center.

You can find your scope's serial number by looking on the back of your scope.
To receive your free Infiniium software update, go to our Infiniium web site:
www.agilent.com/find/Infiniium_software

Input Devices

E2610A Keyboard

The E2610A keyboard, included with Agilent Infiniium oscilloscopes, occupies less space on your bench or test cart and fits neatly into the Infiniium accessory pouch.

Figure 13.2. The small-sized keyboard occupies minimal space on your bench.

Ordering Information

Part #	Description	Quantity
E2610A	Keyboard	1
E2612A	Touchpad	1

Storage Devices
E2609A Rackmount Kit, 1182B Testmobile, 1184B Testmobile

E2609A Rackmount Kit

The rackmount kit provides a support shelf and hardware for mounting Infiniium into EIA standard, 19 inch (487 mm) rack cabinets. When installed, the instrument occupies five vertical increments, 8.75 inches 222 mm each.

Figure 14.1. Infiniium scope ready to fit into EIA standard 19-inch cabinets.

Ordering Information

Kit and Accessories

Part #	Description	Quantity
E2609A	Rackmount kit (includes a support shelf, 2 rackmount rails, 1 Touchpad (E2612A), 2 brackets, hardware, and a user's guide)	1
1494-0015	Rackmount slide kit for fitting into EIA standard 19-inch cabinets	1

Figure 14.3. Agilent 1184B (left) and 1182B (right) help organize and transport Infiniium scopes.

1182B Testmobile

The 1182B is a testmobile for use with instruments up to 20 inches deep, including Infiniium oscilloscopes. Large, easy-to-maneuver wheels let you move your scope with ease from place to place. Includes an instrument tray with adjustable tilt and height. Additional accessories are available. For more information, see "Related Literature" at the end of this document.

1184A Testmobile

The Agilent 1184A testmobile gives you a convenient means of organizing and transporting your Infiniium oscilloscope and accessories. The testmobile includes a drawer for accessories (probes, cables, power cords, etc.) and a keyboard tray with adjustable tilt and height. For more information, refer to the "Agilent Test and Measurement Catalog" listed under "Related Literature" at the end of this document.

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Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

Agilent Email Updates

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Get the latest information on the products and applications you select.

Related Literature

Publication Title	Publication Type	Publication Number
Agilent Technologies Infiniium 54800 Series Oscilloscopes	Color Brochure/ Data Sheet	5988-3788EN/ENUS
Optimizing Oscilloscope Measurement Accuracy on High-Performance Systems with Agilent Active Probes	Application Note	5988-5021
Agilent Wedge for Probing High-Pitch ICs	Application Note	5968-7142E
Agilent 1182B Testmobile Instrument Cart	Data Sheet	5988-2777EN
Agilent 1156A/57A/58A Active Probes	Product Overview	5988-3361EN/EUS
Agilent Test and Measurement Catalog	Catalog	5980-0973EUS

By internet, phone, or fax, get assistance with all your test & measurement needs

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