

# Agilent Technologies 54600-Series Oscilloscope Probes and Accessories

Selection Guide Data Sheet

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To get the most out of your scope, you need the right probes and accessories for your particular application. That's why Agilent Technologies offers a complete family of innovative probes and accessories for the 54600-Series scopes.



# 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 54600-Series oscilloscope.

Probe Type	Probe Model	54621A/D, 54622A/D, 54624A	54641A/D, 54642A/D
Passive Probes Page 3	10070C 1:1 20MHz	Recommended	Recommended
	10073C 10:1 500MHz (Included in 54640-Series)	Compatible	Recommended
	10074C 10:1 150MHz (Included in 54620-Series)	Recommended	Compatible
High-voltage Passive Probes Page 4	10076A 4KV	Recommended	Recommended
	N2771A 30kV	Recommended	Recommended
Differential Probes Page 5	N2772A 20MHz (with N2773A)	Recommended	Recommended
	1141A 200MHz (with 1142A)	Compatible	Recommended
Active Probes Page 6	1144A 800MHz (with 1142A)	Incompatible	Recommended
	1145A 750MHz 2-ch (with 1142A)	Incompatible	Recommended
Mixed Signal Oscilloscope Logic Probes* Page 7	10085-68701 2x8-channel	Recommended	Recommended
	54620-68701 16-channel (included in 54621D/22D/41D/42D)	Recommended	Recommended
Current Probes Page 8	1146A 100kHz	Recommended	Recommended
	N2774A 50MHz (with N2775A)	Recommended	Recommended

\* Recommended for 54621D/22D/41D/42D MSOs only

# Passive Probes

- **Designed for optimal performance with your Agilent 54600-Series scope**
- **1:1 and 10:1 attenuation**
- **20 to 500 MHz**

## Rugged, high-quality probes at a reasonable price

Agilent 10070-family passive probes are a great choice if you're looking for high quality at a very reasonable price. These general-purpose probes are designed specifically to give you optimal performance with your 54600-Series oscilloscopes. Ruggedized for general-purpose measurements, they feature a durable cable and a solid stainless steel probe body encased with a hard, fracture-resistant plastic. They're designed and tested to ensure the probes operate in the toughest of conditions.

Probes come with the following accessories:

- General-purpose retractable hook tip hooks onto wires and test points for hands-free probing
- Ground bayonet provides short, flexible ground lead for high-frequency measurements
- General-purpose alligator clip ground lead for versatile grounding
- Color tags (2 orange, 2 white, 2 blue and 2 green) to place at both ends of probe cable to help you quickly identify probes

## Accessories available for passive probes

5081-7705 Probe-tip-to-BNC (m) adapter

8710-2063 Dual-lead adapter provides easy connection from probe signal and ground to fine-pitch probing accessories.

10072A Fine-pitch probing kit includes 10 SMT clips and 2 dual-lead adapters.

10075A 0.5 mm IC probing kit. contains four 0.5 mm IC clips and 2 dual-lead adapters.

## Ordering Information for Agilent Technologies Passive Probes

All 10070-family passive probes include one retractable hook tip, one ground bayonet, one IC probing tip, one alligator ground lead and a compensation screwdriver.

10070C 1:1 20 MHz passive probe

10073C 10:1 500 MHz passive probe

10074C 10:1 150 MHz passive probe

10072A Fine-pitch probing kit

10075A 0.5 mm IC probing kit

5081-7705 Probe-tip-to-BNC (m) adapter

8710-2063 Dual-lead adapter



**10074C Passive Probe**

## Specifications for Agilent Technologies 10070 Family Passive Probes

	10070C	10073C	10074C
Bandwidth	20 MHz	500 MHz	150 MHz
Risetime (Calculated)	< 17.5 ns	< 700 ps	< 2.33 ns
Attenuation Ratio	1:1	10:1	10:1
Input Resistance (when terminated into 1 MΩ)	1 MΩ	2.2 MΩ	10 MΩ
Input Capacitance	Approx 70 pF	Approx 12 pF	Approx 15 pF
Maximum Input (dc + peak ac)	500 V CAT I (mains isolated) 400 V CAT II (post receptacle mains)	500 V CAT I (mains isolated) 400 V CAT II (post receptacle mains)	500 V CAT I (mains isolated) 400 V CAT II (post receptacle mains)
Compensation Range	None	6 - 15 pF	9 - 17 pF
Probe Readout	Yes	Yes	Yes
Cable Length	1.5 m	1.5 m	1.5 m

# High-voltage Passive Probes

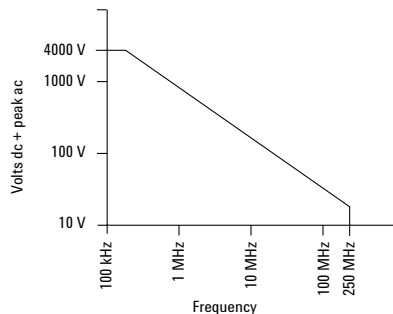
- Ideal for measuring up to 30 kV
- Up to 250 MHz bandwidth
- 100:1 or 1000:1 attenuation

## 10076A makes high-voltage measurements with ease

The Agilent 10076A 4 kV 100:1 passive probe gives you the voltage and bandwidth you need for making high-voltage measurements. Its compact design makes it easier to probe today's small power electronics components and its rugged construction means it can withstand rough handling without breaking.

### Specifications for Agilent Technologies 10076A High-Voltage Probe

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



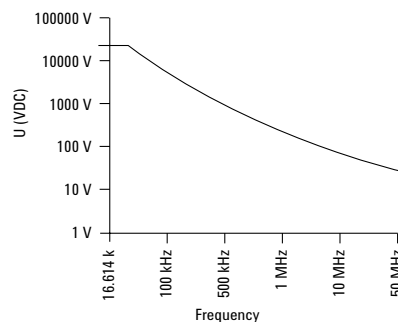
10076A Derating Curve

## N2771A High-voltage Probe

The N2771A is a 1000:1 divider probe for the measurement of fast high voltage signals. Up to 30 kV dc + peak ac, 10 kV rms.

The probe's large size and rugged construction provides superior protection. The ground lead is fed through the body of the probe and protrudes behind the safety barrier, keeping the ground connection away from the high voltage. Typical applications include PMT's, motor drives, high voltage switches, magnetrons and modern projection systems.

Bandwidth	50 MHz (-3dB)
Risetime	<7 ns
Attenuation Ratio	1000:1
Input Resistance	100 MΩ (when terminated into 1 MΩ)
Input Capacitance	1 pF
Compensation Range	7-25 pF
Max. Voltage	15 kV dc, 10 kV rms, 30 kV dc + peak ac
Operating Temperature	0°C to +50°C, 80% RH
Storage Temperature	-20°C to +70°C, 90% RH
Dimensions	2 cm (max width of probe stem after handle) x 33 cm 7.5 cm (max probe width at probe handle) x 33 cm



N2771A Derating Curve

## Ordering Information for Agilent Technologies High-voltage Probe

10076A	High-voltage probe includes one retractable hook tip, one ground bayonet, one IC probing tip, one alligator ground lead and a compensation screwdriver
N2771A	High-voltage probe includes alligator ground lead, 1 sharp probe tip
10077A	Accessory kit for 10076A includes one retractable pincher tip, one ground lead, one insulation cap, two measuring pins and two colored tags



10076A Passive Probe



N2771A High-voltage Probe

# Differential Probes

- 20 MHz to 200 MHz bandwidth
- Switchable attenuation
- Measure up to 600 V CAT III and 1000 V CAT II

## Versatile probing for your differential signals

Use the Agilent N2772A Differential Probe with any of the 54600-Series oscilloscopes to safely measure floating circuits with the oscilloscope grounded. With 20 MHz bandwidth and switchable attenuation of 20:1 and 200:1, it provides the versatility for a broad range of applications including high-voltage circuits, motor speed controls, power supply design, and electronic high-power converters.

Each probe comes with 2 sharp probe tips for use on small components and in tight places, 2 retractable probe hooks for connecting to smaller wires and through-hole components, and 2 alligator clips for use with larger cables.

This probe requires a 9 V battery or Agilent N2773A power supply.

## Specifications for N2772A Differential Probe

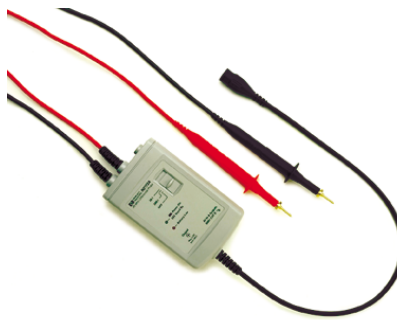
Bandwidth	20 MHz
Risetime	17.5 ns
Attenuation Ratio	20:1 and 200:1 selectable via switch on probe
High CMRR	80 dB @ 60 Hz, 50 dB @ 1 MHz
Input Impedance	Between inputs: 10 M $\Omega$ , 5 pF
Measure up to 600 V CAT III	

## 1141A 200 MHz Differential Probe

The 1141A is a 1x FET differential probe with 200 MHz bandwidth and a 3000:1 CMRR. The probe has a high-input resistance and low input capacitance of 7 pF to minimize circuit loading. The 1141A must be used with 1142A probe control and power module, which controls input coupling modes dc, dc with variable offset, and dc reject. Two attenuators, 10x and 100x are provided to expand the linear differential input range to  $\pm 30$ V. This probe works with any 50  $\Omega$  input oscilloscope including 54640-Series.

## Specifications for 1141A Differential Probe

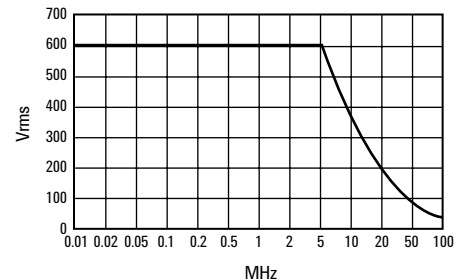
Bandwidth	200 MHz
Risetime (Calculated)	1.75 ns
Attenuation Ratio	10:1 and 100:1 with attenuator
High CMRR	3000:1 at 1 MHz 10:1 at 100 MHz
Input Impedance	Between inputs: 1 M $\Omega$ , 7 pF
Maximum Input Voltage	200 Vdc + peak ac (probe alone) 500 Vdc + peak ac (with attenuator)



N2772 20 MHz Differential Probe

## Ordering Information for Agilent Technologies Differential Probes and Power Supply

N2772A	20 MHz differential probe, supplied with a retractable hook, sharp probe tips and alligator clips
N2773A	Power supply for N2772A
1141A	200 MHz differential probe
1142A	Probe control and power module for 1141A



Derating of each input for the N2772A



1141A 200 MHz Differential Probe

# Active Probes

## Agilent 1144A active probe

The 1144A features 800 MHz bandwidth, 1 MΩ input resistance, 2 pF input capacitance, 10:1 attenuation and ±40 Vdc + peak ac maximum input voltage. An FET at the input allows a high input resistance and low input capacitance which minimizes the loading of the circuit under test. The output impedance of the probe is 50 Ω which allows the probe cable to be extended with a 50 Ω coaxial cable. To use this probe with 54640-Series oscilloscope, the 1142A power supply is required. The 01144-61604 adapter can be used with the power supply to provide power for two channels of active probing.

### Specifications for 1144A Active Probe

Bandwidth	800 MHz
Risetime (Calculated)	440 ps
Attenuation Ratio	10:1, ±2%
Input Resistance	1 MΩ, ±5%
Maximum Input Voltage	±40 Vdc + peak ac



1144A Active Probe

## Agilent 1145A 2-channel active probe

The two-channel 1145A low-mass active probe has a probe tip that weighs less than 1 gram making it ideal for attaching to find pitch ICs and probing surface mount components. The probe combines high bandwidth (750 MHz), low input capacitance (2 pF) and high input resistance (1 MΩ). A versatile set of accessories are provided and when used in conjunction with the Wedge adapter, the 1145A provides a hands-free solution for probing 0.5 mm and 0.65 mm IC packages. To use this probe with 54640-Series oscilloscope, the 1142A power supply is required.

### Specifications for 1145A Active Probe

Bandwidth	750 MHz
Risetime (Calculated)	470 ps
Attenuation Ratio	10:1, ±3%
Input Resistance	1 MΩ, ±2%
Maximum Input Voltage	±40 Vdc + peak ac



1145A Active Probe

## Ordering Information for Agilent Technologies Active Probes

1144A	800 MHz active probe
1145A	2-channel 750 MHz active probe
1142A	Power supply for 1144A and 1145A
01144-61604	Splitter cable assy

# Mixed Signal Oscilloscope Logic Probes

- Same cables used for high-performance logic analyzers
- Flying leads offer flexibility and convenience

## MSO probes offer great value and performance

These probes for the 54621D, 54622D, 54641D, and 54642D Mixed Signal Oscilloscopes (MSOs) are the same ones used with Agilent industry-leading 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 54620-68701 2 x 8-signal logic probe with flying leads makes it possible to connect at several different places on your device under test. The probe cable is divided into two sets of eight channels so you can probe pins that are far apart and work conveniently with only one set if that's all you require. For optimal signal fidelity, it is possible to connect ground at each logic probe, in addition to taking a common ground to all eight signals via a separate ground connector on the probe pod. This probe is included with 54621D, 54622D, 54641D, and 54642D MSOs.

## Specifications for Agilent Technologies 54620-68701 Logic Probe

Input Impedance	100 k $\Omega$
Input Capacitance	8 pF

The 10085-68701 16-channel logic probe and termination adapter is designed to make it easy to connect to industry-standard, 20-pin board connectors. For use with the 54621D, 54622D, 54641D, and 54642D Mixed Signal Oscilloscopes, this probe consists of a 2 m logic analyzer probe cable and a 01650-63203 termination adapter that provides the proper RC networks in a very convenient package. Three 20-pin, low-profile, straight board connectors are included. Additional board connectors can be ordered from Agilent Technologies or 3M.

## Specifications for Agilent Technologies 10085-68701 Logic Probe and Termination Adapter

Input Impedance	100 k $\Omega$
Input Capacitance	12 pF



10085-68701 Logic Probe



54620-68701 Logic Probe

## Ordering Information for Agilent Technologies Logic Probes

54620-68701 Logic probe with 2 x 8 flying leads. Includes 20 IC clips and 5 ground leads

10085-68701 Logic probe and termination adapter

### Board Connectors

1251-8106 (3M part #2520-6002) 20-Pin, low profile (straight)

1251-8473 (3M part #2520-5002) 20-Pin, low profile (right angle)



Termination adapter included in the 10085-68701



# Current Probes

- Choice of dc-100 kHz and dc-50 MHz bandwidth
- Hybrid technology to measure ac and dc
- Compatible with any 1 M $\Omega$  scope input

## Accurate current measurements without breaking the circuit

Compatible with any scope or voltage measuring instruments with BNC input, the 1146A and N2774A offer accurate and reliable solutions for measuring dc and ac currents. The probes use a hybrid technology that includes a Hall effect sensor, which senses the dc current and a current transformer, which senses the ac current, making it unnecessary to make an electrical connection to the circuit.

### 1146A 100 kHz Current Probe

The 1146A ac/dc current probe provides accurate display and measurement of currents from 100 mA to 100 Arms, dc to 100 kHz, without breaking into the circuit. A battery level indicator and overload indicator help ensure proper readings. It connects directly to the scope through a 2 m coaxial cable with an insulated BNC.



1146A 100 kHz current probe

### N2774A 50 MHz Current Probe

The N2774A is a high bandwidth, active current probe, featuring flat bandwidth (dc-50 MHz), low noise (<2.5 mArms) and low circuit insertion loss. In conjunction with the power supply (model N2775A), this probe can be used with any oscilloscope having a BNC input. The companion power supply N2775A (2x 12 Vdc output) lets you connect two N2774As to a single power supply.



N2774A 50 MHz current probe and N2775A power supply



## Current Probes (continued)

### Characteristics of the 1146A Current Probe

Bandwidth*	dc to 100 kHz (-3 dB)
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*	
Range:	100 mV/A (50 mA to 10 A peak)
Accuracy:	3% of reading $\pm$ 50 mA
Range:	10 mV/A (500 mA to 40 A peak)
Accuracy:	4% of reading $\pm$ 50 mA
Range:	10 mV/A (40 A to 100 A peak)
Accuracy:	15% max at 100 A
Phase Shift	< 1° from dc to 65 Hz on 10 mV/A < 1.5° from dc to 65 Hz on 100 mV/A
Noise	Range 10 mV/A: 480 $\mu$ V Range 100 mV/A: 3 mV
Slew Rate	Range 10 mV/A: 20 mV/ $\mu$ s Range 100 mV/A: 0.3 V/ $\mu$ s
Insertion Impedance	(50/60 Hz) 0.01 $\Omega$
Rise or Fall Time	Range 100 mV/A: 3 $\mu$ s Range 10 mV/A: 4 $\mu$ s
Maximum Working Voltage	600 Vrms max.
Maximum Common Mode Voltage	600 Vrms max.
Influence of Adjacent Conductor	<0.2 mA/A AC
Influence of Conductor Position	0.5% of reading at 1 kHz in jaw
Battery	9 V alkaline (NEDA 1604A, IEC 6LR61)
Low battery	green LED when >6.5 V
Battery Life	55 hours typical

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

Note: Reference conditions 23°C  $\pm$  5°C, 20 to 75% relative humidity, dc to 1 kHz, probe zeroed, 1-minute warmup, batteries at 9 V + 0.1 V, external magnetic field <40 A/m, no dc component, no external current carrying conductor, 1 M $\Omega$ / 100 pF load, conductor centered in jaw.

### Characteristics of the N2774A Current Probe

Bandwidth (-3 dB)	dc to 50 MHz
Risetime	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 at 10 $\mu$ s
Output Voltage Rate	0.1 V/A
Amplitude Accuracy	$\pm$ 0.5% rdg, $\pm$ 1 mV (dc and 45 to 66 Hz, rated current)
Noise	Equivalent to 2.5 mArms or less (for 20 MHz bandwidth measuring instrument)
Temperature Coefficient for Sensitivity	$\pm$ 2% or less (within a range of 0 °C to 40 °C or 32 °F to 104 °F)
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)
Rated Supply Voltage	dc $\pm$ 12 V $\pm$ 1 V
Diameter of Measurable Conductors	5 mm dia. (0.2" dia.)
Cable Lengths	Sensor cable: Approx. 1.5 m (59.0") Power supply cable: Approx. 1 m (39.4")

Note: The above specifications are guaranteed at 23 °C  $\pm$  3 °C (or 73 °F  $\pm$  5 °F)

### Ordering information for Agilent 1146A and N2774A current probe

1146A	100 kHz current probe
N2774A	50 MHz current probe
N2775A	Power supply for N2774A

# Agilent Wedge Probe Adapter

- **Easy connection to surface mount ICs**
- **Safe, with no chance of shorting**
- **Mechanically non-invasive contact**
- **3-, 8-, and 16-signal versions**
- **Supports 0.5 mm and 0.65 mm TQFP and PQFP packages**

## Problem-free probing

The Agilent Wedge Probe Adapter eliminates many of the frustrations associated with probing surface mount components. If you've ever accidentally shorted IC pins together, experienced electrical and/or mechanical problems with soldering small wires onto leads, or gotten frustrated juggling multiple probes while you're trying to operate your scope, the Wedge was designed with you in mind.

## Make the inaccessible accessible

When you use the Wedge, you don't have to worry about 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.

## Electrical reliability

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

## IC Clip Kits

An inexpensive solution for probing fine-pitch ICs, the 10072A SMT Kit includes ten IC clips and two dual-lead adapters that connect the clips directly to 10070-family probes.

The 10075A 0.5 mm IC Clip Kit is ideal for connecting to IC's as fine as 0.5 mm. The clip body allows many clips to be mounted side-by-side. The kit includes four 0.5 mm IC clips and two dual-lead adapters that connect the IC clips directly to 10070-family probes.

## Agilent Wedge Electrical Characteristics

Operating Voltage	<40 V dc + peak ac
Operating Current	0.5 A maximum
Capacitance Between Contacts	2 pF typical (all except Agilent E2643A/44A) 4.33 pF typical at 1 MHz (Agilent E2643A/44A)
Self-Inductance	15 nH typical (all except Agilent E2643A/44A) 37 nH typical at 1 MHz (Agilent E2642A/44A)
Cross Coupling	-31 dB typical at 100 MHz (Agilent E2643A/44A)
Contact Resistance	<0.1 $\Omega$

## Ordering Information

E2613A	0.5 mm Wedge probe adapter 3-signal, qty 1
E2613B	0.5 mm Wedge probe adapter, 3-signal, qty 2
E2614A	0.5 mm Wedge probe adapter, 8-signal, qty 1
E2643A	0.5 mm Wedge probe adapter, 16-signal, qty 1
E2615A	0.65 mm Wedge probe adapter, 3-signal, qty 1
E2615B	0.65 mm Wedge probe adapter, 3-signal, qty 2
E2616A	0.65 mm Wedge probe adapter, 8-signal, qty 1
E2644A	0.65 mm Wedge probe adapter, 16-signal, qty 1
10072A	SMT kit for 10070 probe family
10075A	0.5 mm IC clip kit



# Printer Kit

- Easily print screens and setups
- No separate power supply required

## Everything you need for easy and portable documentation

The Agilent N2727A printer kit comes complete with everything you need for easy documentation directly from your 54600-Series scope. It lets you easily print screen displays and key setup parameters so you can include them in reports and share them with colleagues.

You don't need a separate power supply with this thermal printer because it's powered directly from your oscilloscope. And it includes a specially designed short, flat, parallel cable to make it easy to connect to your scope.

Store the printer in the special pouch that fits on top of your scope – it includes a separate compartment where you can conveniently store your probes and accessories, too. It comes with three rolls of printer paper – enough for you to print 200 screen captures with setup information.

## Specifications for Agilent Technologies N2727A Printer Kit

Dimensions (Printer)	166 mm x 166 mm x 66 mm
Typical Print Speed	2:33 minutes
Typical Scope Spool Time	9 seconds

## Ordering information

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N2727A Printer kit (includes Seiko DPU-414 thermal printer, printer pouch, power cable, special parallel cable, 3 rolls of printer paper)

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N2728A 10 rolls of printer paper (Can also be purchased directly from a Seiko distributor.) Dimension of paper roll 4-3/8" width x 1-13/16" diameter

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# CAN Trigger Module

- Trigger on CAN 2.0A/B message frames with user specified IDs and/or data
- Trigger on Error frames
- Differential CAN
- Acknowledge On/Off
- Built In QuickHelp
- Remote Control via GPIB/RS232
- Compatible with 54621D, 54622D, 54641D, 54642D

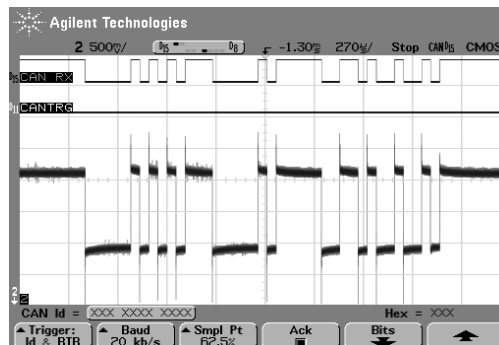
The N2758A CAN trigger module extends your Mixed Signal Oscilloscope's (MSO) capabilities beyond the standard CAN SOF trigger. The module enables the MSO to isolate and trigger on a particular frame's content. This triggering allows you to:

- sort through frame traffic on the bus
- isolate frames of interest
- specify particular frame characteristics
- trigger and measure latency between CAN frames meeting the user specification

The CAN trigger module is ideal for analyzing all traffic on the broadcast network. Quickly find frames that meet the specifications you select with an isolating capability similar to pattern triggering across multiple channels in the parallel domain. Synchronize to the particular frame then examine the system behavior of interest.



The N2758A kit includes the CAN trigger module, digital cable, ten grabbers, and two probe ground leads.



Use the N2758A CAN trigger module with the 54621D, 54622D, 54641D, 54642D Mixed Signal Oscilloscopes (MSOs) for quick and easy triggering.

### Ordering Information

Accessories included: one digital probe with eight general purpose digital channels and 16-pin ribbon cable connection to connect to CAN trigger module, ten grabbers, two probe ground leads, User's Guide, and software upgrade

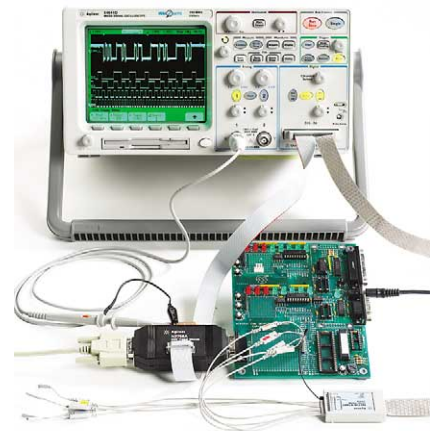
### Additional Orderable Accessories

5090-4833	Grabbers (Qty 20)
5959-9333	Probe Lead (Qty 5)
5959-9334	Probe Grounds (Qty 5)
5959-9335	Pod Ground (Qty 5)

N2758A CAN trigger hardware module

## CAN Trigger Module (continued)

<b>Specifications/Characteristics</b>		<b>N2758A</b>
Compatibility	54621D, 54622D, 54641D, 54642D	
Probe	Dedicated Probe module – DB9 connector to CAN bus	
Sample point control	Baud rate dependent: 68% at 10 kb/s; 60.0%, 70.0%, 80.0% selectable at 800 kb/s; 62.5%, 75.0%, and 87.5% selectable at all other baud rates	
Supported baud rates	10k / 20k / 33.3k / 50k / 62.5k / 83.3k / 100k / 125k / 250k / 500k / 800k / 1Mb/s (Superset of CiA Specifications)	
Synchronous view of other channels	Yes – 2 analog + 8 digital	
Ack	User enable/disable of Acknowledge Generation	
<b>Electrical</b>		
Input, CAN_L, CAN_H	ISO 11898-24 V Compliant (Differential) The CAN_H, CAN_L lines can swing from +/- 36V, CAT I	
Separate pass through current	Support pass through of 4 Amperes on CAN Power signal on standard CiA DB9 pinout. 40V DC, Max. CAT I	
<b>Mechanical</b>		
Weight	0.51 kg (1.125 lb)	
Probe points	CAN_H, CAN_L	
Digital probe length	1710 mm (67.3 in)	
CAN probe length	500 mm (19.7 in)	
Size	190 mm x 294 mm x 40 mm	
Connector	Supports connection to System Under Test via CiA standard DB9 connectors and pinouts. Provides a tee breakout connection scheme, no extra cable or converters needed to probe standard DB9 systems	
<b>Environmental</b>		
Ambient temperature	Operating 0°C to +50°C; Non-operating –40°C to +70°C	
Humidity	50% to 95% RH at +25°C to +40°C for 24 hours	
Altitude	To 3048 m (10,000 ft)	
Pollution Degree2	Normally only dry non-conductive pollution occurs. Occasionally a temporary conductivity caused by condensation must be expected.	
Indoor use only	This instrument is rated for indoor use only.	
Installation categories	CAT I: Mains isolated	
<b>Trigger</b>		
Trigger	Supports user specified ID's and/or Data for CAN 2.0A and CAN 2.0B compliant messages	
ID trigger	Standard (11 bit) and extended (29 bit) ID's supported, Per bit ID specification includes Don't Care, allowing for trigger on groups of ID's	
Trigger modes		
Start of Frame	will trigger on the Start of Frame (SOF) bit of a Data frame, Remote Transfer Request (RTR) frame, or an Overload frame	
Remote Frame ID (RTR)	will trigger on CAN frames matching the specified ID of a Remote frame	
Data Frame ID (~RTR)	will trigger on CAN frames matching the specified ID of a Data frame	
Remote or Data Frame ID	will trigger on the specified ID, regardless if it is a Remote frame or a Data frame	
Data Frame ID and Data	will trigger on CAN Data frames matching the specified ID, Data, and the DLC (Data length code can be set from 1 to 8 bytes)	
Error Frame	will trigger on CAN active Error frames	
Max trigger rate	Max CAN Frame Rate @ 1 Mbit/s	
Trigger delay	~ 20 µs from EOF delimiter completion of matching message, typical	
Viewable trigger signal	Digital channel 11	
Viewable RX signal	Digital channel 15	



The N2758A CAN trigger module reduces the time required to debug your mixed signal CAN based designs.



The N2758A CAN trigger module makes it easy to sort through frame traffic and isolate a specific frame.

# PC Connectivity

- **Ideal for documentation and archiving**
- **Works in familiar Microsoft® Excel and Word environments**
- **Leverage the power of Excel for data analysis and advanced graphing**
- **ActiveX controls provided for more flexible scope programming**
- **It's included standard!**

## Get scope data into your PC without programming with Agilent IntuiLink

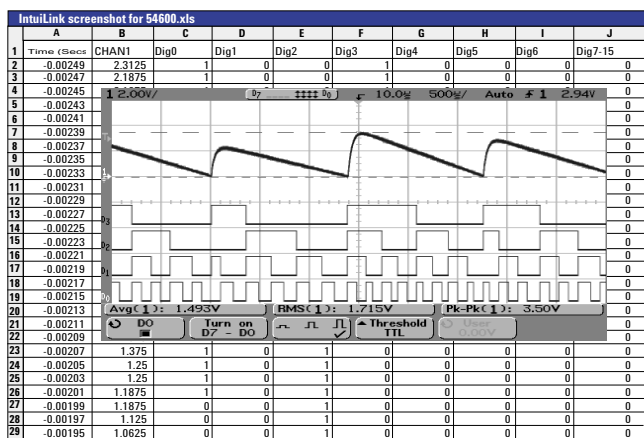
To simplify the task of transferring images and waveform data to your PC, Agilent IntuiLink

software is included free with 100 MHz, 350 MHz, and 500 MHz 54600-Series scopes. IntuiLink provides easy access to the scope data and images from within your standard PC applications. You work in a familiar environment at all times, using PC applications such as Microsoft Excel or Word to analyze, interpret, display, print, and document the data you get from the scope. The IntuiLink application toolbar makes it easy, providing a simple way to download data and screenshots into a spreadsheet or document. You can also save the scope settings and retrieve them later to repro-

duce difficult setups like glitch capture and complex triggering.

Programmers can use an ActiveX control to program instruments directly using high-level toolbar functions. With IntuiLink, programmers also have access to the scope's SCPI commands to tackle complex tasks. IntuiLink brings the barriers down, simplifying the way you do your job.

If you choose one of the 60 MHz 54600-Series scopes, you can download free Agilent IntuiLink software available at [www.agilent.com/find/intuilink](http://www.agilent.com/find/intuilink)



Simple transfer of images and data with IntuiLink

## Specifications for Agilent Technologies IntuiLink

Minimum PC Configuration Requirement	Windows® 95/98/NT® 4.0 SP4 or higher/Windows 2000, Pentium 90, 32MB RAM, 50 MB free disk space, installed GPIB I/O
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Environment supported Applications	Microsoft Excel 97 and 2000 Microsoft Word 97 and 2000
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Software Development	Visual Basic® 5.0/6.0 VBA 5.0/6.0 Agilent VEE 5.0 or greater LabView 5.1 or greater Visual C/C++ 5.0/6.0
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Model	Agilent 82341C	Agilent 82341D	Agilent 82350A
Descriptive	High-performance GPIB interface for PC	Plug&play, high-performance GPIB interface for PC	High-performance GPIB interface for PCI bus computers
Operating System	Windows 3.1, 95, 98, NT	Windows 95, 98	Windows 95, 98, NT
I/O Library	SICL/VISA	SICL/VISA	SICL/VISA
Backplane	ISA/EISA	ISA/EISA	PCI
Max. Speed	750 KB/s	750 KB/s	750 KB/s
Buffering	Built-in	Built-in	Built-in
Languages Supported	C/C++, HTBASIC for Windows, Visual Basic, Agilent VEE	C/C++, HTBASIC for Windows, Visual Basic, Agilent VEE	C/C++, HTBASIC for Windows, Visual Basic, Agilent VEE



## PC Connectivity (continued)

### GPIB for fast data transfers

If you need fast data transfers, equip your 54600-Series scope with GPIB communication. Agilent offers a GPIB card for your PC, as well as a cable, and a GPIB I/O communication module that provides a GPIB port for your scope.

### RS-232 cable

If you need an RS-232 cable for your 60 MHz 54620-Series scope, order the Agilent 34398A RS-232 cable. It comes standard with 100 MHz, 350 MHz, and 500 MHz models.

### Ordering Information

IntuiLink download free from [www.agilent.com/find/intuilink](http://www.agilent.com/find/intuilink). For more comprehensive information, please see the IntuiLink data sheet, Agilent publication number 5980-3115EUS.

#### GPIB

N2757A	GPIB oscilloscope interface module
82341C	GPIB PC card
82350A	GPIB PC card
10834A	GPIB adapter Provides additional clearance between GPIB socket and PC chassis

10833A	GPIB cable, 1 m long
10833B	GPIB cable, 2 m long
10833D	GPIB cable, 0.5 m long

#### RS-232 cables

34398A	RS-232 cable, 9 pin (f) to 9 pin (f) plus 9 pin (m) to 25 pin (f) adapter
34399A	RS-232 adapter kit, includes 9 pin (m) to 25 pin (m) for use with PC or printer; 9 pin (m) to 25 pin (f) for use with PC or printer; 9 pin (m) to 25 pin (m) for use with modem 9 pin (m) to 9 pin (m) for use with modem

## Miscellaneous Accessories

### Testmobile

The sturdy Agilent 1183A Testmobile makes sharing your scope easy. Its large wheels make it easy to roll from place to place, and an adjustable-tilt tray lets you change the angle of your scope for easy viewing.

#### Specifications for the Agilent Technologies 1183A Testmobile

Dimensions	49.0 cm wide x 54.0 cm deep x 81.5 cm high
Upper tray	49.0 cm x 38.0 cm



### Carrying Case

The Agilent 1185A Carrying Case makes transporting and shipping your 54600-Series oscilloscope safe and simple. A scope, optional module and other accessories fit neatly inside the padded shell of hard plastic and the case is lockable for shipment.

#### Specifications for the Agilent Technologies 1185A Carrying Case

Dimensions (W x H x D)	45 cm x 42 cm x 31 cm
Material	Tough ABS Plastic

### Rackmount Kit

The Agilent 1186A Rackmount Kit positions your 54600-Series scope in the center of the rack. Each kit includes a custom shelf with rails, 6 BNC pass-throughs and all necessary screws.

#### Ordering Information

1183A	Testmobile
1185A	Carrying case
1186A	Rackmount kit



### 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.

#### Agilent T&M Software and Connectivity

Agilent's Test and Measurement software and connectivity products, solutions and developer network allows you to take time out of connecting your instruments to your computer with tools based on PC standards, so you can focus on your tasks, not on your connections. Visit [www.agilent.com/find/connectivity](http://www.agilent.com/find/connectivity) for more information.

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

**Online assistance:**  
[www.agilent.com/find/assist](http://www.agilent.com/find/assist)

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