

Keysight N1046A

75/85/>100 GHz 1/2/4

Channel Remote Head Module

For 86100D Infiniium DCA-X Oscilloscope Mainframe

Data Sheet

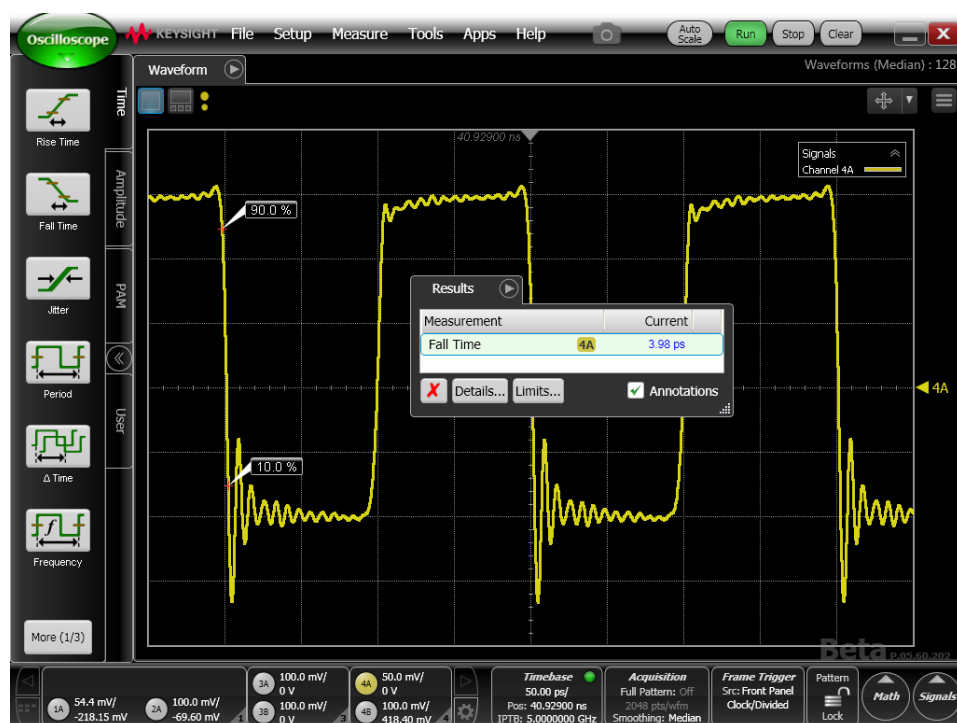
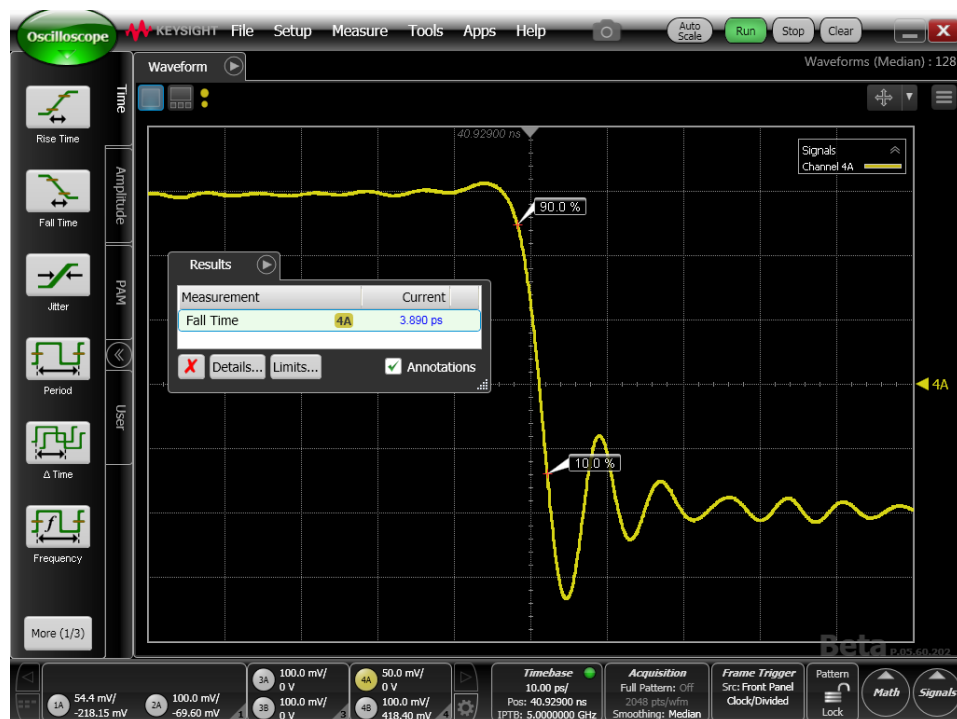


Engineered for Uncompromised Performance to 100 GHz and Beyond

Characterize your highest-performance designs for 56 GBaud and beyond

Unprecedented performance

- World's highest-bandwidth equivalent time sampling oscilloscope.
- World's smallest oscilloscope remote heads enable direct or near-direct connection from the instrument to your DUT, maximizing signal integrity.
- When paired with an 86100D with option 86100D-PTB, the N1046A module has intrinsic jitter as low as 100 fs to enable accurate characterization of your device.



Engineered for Uncompromised Performance to 100 GHz and Beyond (Continued)

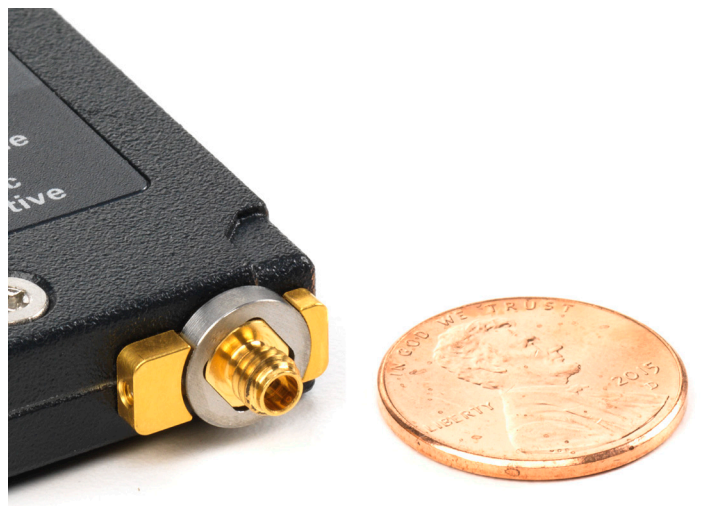
Unmatched value

- Lowest cost > 100 GHz oscilloscope solution.
- Bandwidth upgradable – Buy what you need today and upgrade to more performance as you need it.
- Modular – N1046A modules are available with 1, 2 or 4 channels. Configure your system to meet your specific needs, from 1 to 16 channels with bandwidths of 75 GHz, 85 GHz or > 100 GHz. Or use the N1046A in combination with TDR and/or optical measurement modules.

Configure each module with 1, 2 or 4 channels

Choose the maximum available bandwidth to meet your current needs: 75 GHz, 85 GHz or > 100 GHz (Return-to-Keysight bandwidth upgrades are available.)

All channels come with a 1 mm (f) connector



Configuration Guide

Model option number	Description
N1046A	100 GHz, 1/2/4 port electrical remote sampling head
N1046A-71F	1 channel, 75 GHz remote head, 1 mm, female
N1046A-81F	1 channel, 85 GHz remote head, 1 mm, female
N1046A-11F	1 channel, 100 GHz remote head, 1 mm, female
N1046A-72F	2 channel, 75 GHz remote head, 1 mm, female
N1046A-82F	2 channel, 85 GHz remote head, 1 mm, female
N1046A-12F	2 channel, 100 GHz remote head, 1 mm, female
N1046A-74F	4 channel, 75 GHz remote head, 1 mm, female
N1046A-84F	4 channel, 85 GHz remote head, 1 mm, female
N1046A-14F	4 channel, 100 GHz remote head, 1 mm, female

What comes in the box?

To help you get your new high-performance scope module to work as quickly as possible, Keysight provides a long list of “standard” accessories with every N1046A:

- 1 mm (m) to 1.85 mm (f) adapters for every channel
- A torque wrench for 1 mm connectors
- A torque wrench for 1.85 mm connectors
- Cable management clips to manage/dress the remote head cables
- For modules with > 1 channel, clips to hold two heads together
- A case to hold all of the above

Other accessories you may need

Model	Description
11920A	1 mm (m) to 1 mm (f)
11920B	1 mm (f) to 1 mm (f)
11920C	1 mm (m) to 1 mm (f)
11921E	1 mm (m) to 1.85 mm (m)
11921F	1 mm (f) to 1.85 mm (f)
11921G	1 mm (m) to 1.85 mm (f)
11921H	1 mm (f) to 1.85 mm (m)

Specifications

Specifications describe warranted performance while characteristics provide useful, nonwarranted information and performance. Characteristics are listed below in italics.

Multiple electrical channel modules		N1046A	
Channel options	71F/72F/74F	81F/82F/84F	11F/12F/14F
Number of channels	1/2/4	1/2/4	1/2/4
Electrical channel bandwidth (maximum) ¹	75 GHz	85 GHz	100 GHz
Electrical channel bandwidth settings (user-selectable)	45, 60, 75 GHz	45, 60, 75, 85 GHz	45, 50, 75, 85, 100, 122 GHz (<i>characteristic</i>)
Transmission time (10 to 90% calculated from TR = 0.35/bandwidth)	7.8, 5.9, 4.7 ps	7.8, 5.9, 4.7, 4.2 ps	7.8, 5.9, 4.7, 4.2, 3.5, < 3.2 ps
Channel-to-channel skew range	± 100 ps	± 100 ps	± 100 ps
RMS noise			
Characteristic	400, 580, 740 μ V	400, 580, 740, 860 μ V	400, 580, 740, 860, 1005, 2000 μ V
Maximum	550, 700, 950 μ V	550, 700, 950, 1150 μ V	550, 700, 950, 1150, 1350, 2000 (<i>characteristic</i>) μ V
Scale factor (per division)			
– Minimum	1 mV/division	1 mV/division	1 mV/division
– Maximum	100 mV/division	100 mV/division	100 mV/division
DC accuracy (V_{AVG} measurement)			
– Specified at calibration temperature ± 0.5 °C. (Perform a new module calibration if hardware skew has been applied.)	± 2 mV (<i>characteristic</i>)		
– Specified at calibration temperature ± 5 °C	± 2 mV ± 4% of (reading – channel offset)		
DC offset range (referenced from center of screen)	± 500 mV	± 500 mV	± 500 mV
Input dynamic range (relative to channel offset)	± 400 mV	± 400 mV	± 400 mV
Maximum input signal	± 2V (+16 dBm)	± 2V (+16 dBm)	± 2V (+16 dBm)
Nominal impedance (<i>characteristic</i>)	50 Ω	50 Ω	50 Ω

How Does Keysight Test and Setup your Module?

The N1046A bandwidth is tested using a very fast electrical impulse that is generated by a photodiode driven by a femtosecond optical impulse source. The high bandwidth photodiode is calibrated and NIST traceable through 110 GHz. For frequencies beyond 110 GHz, photodiode performance is based on a linear extrapolation of the photodiode response through 110 GHz but test data beyond 110 GHz is not provided.

User note:

For customers needing the maximum possible bandwidth, the 122 GHz setting is recommended. For customers needing high bandwidth with “matched” performance across channels, the 100 GHz setting is recommended.

1. Tuned to be –3 dB (± measurement uncertainty) at stated bandwidth(s) EXCEPT for the 122 GHz setting which is tuned for maximum bandwidth while keeping channel noise ≤ 2.5 mV RMS.



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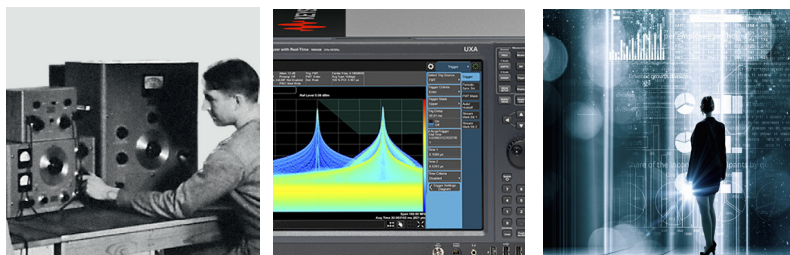


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