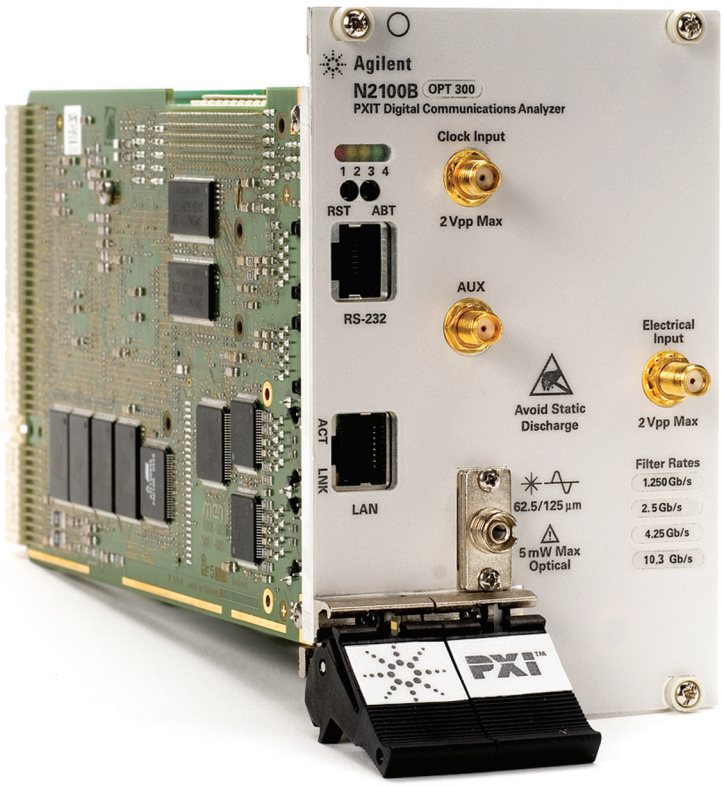
Agilent
PXIT 10.3125 Gb/s Digital Communication Analyzer N2100B

Data Sheet

The N2100B PXIT Digital Communications Analyzer (DCA) implements a coherent patented vector under-sampling technique which combines the benefits and measurement capabilities of a real time scope with the bandwidth of a sampling scope. This PXI instrument uniquely combines the functionality of several traditional instruments in a single PXI module. The N2100B performs accurate eye diagram analysis to characterize the quality of transmitters from 155 Mb/s to 10.3125 Gb/s.

Features

- PON and 10GigE filters available
- Smart Post Processsing
- ER Correction Factor
- Eye diagram, mask and jitter testing in a single instrument
- High throughput measurement engine
- Small form-factor 4-slot PXI module allowing multiple instruments to be deployed in a single chassis
- Ideal for manufacturing environments
- Wide optical bandwidth coverage from 750 nm to 1650 nm
- Single ended electrical input
- 4 Bessel Thomson filters (in software and hardware)
- Integral clock recovery for measurements up to 2.7 Gb/s
- External reference clock input (SMA)



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Applications

The N2100B is primarily targeted at production automated test applications. The wideband optical input is ideally suited to electro-optical transceivers, short reach parallel optics modules and transmitter optical sub-assemblies (TOSAs). The electrical input is suited to high-speed serial data interconnects and receiver optical sub-assemblies (ROSAs).

Typical applications include:

- Transceiver Test
- Telecomms Equipment Test
- Fibre Channel, Ethernet, PON, Parallel Optics, etc*
- Multi-port system testing
- High port count burn-in test

(* Compliance filters for other rates available on request)

New Features

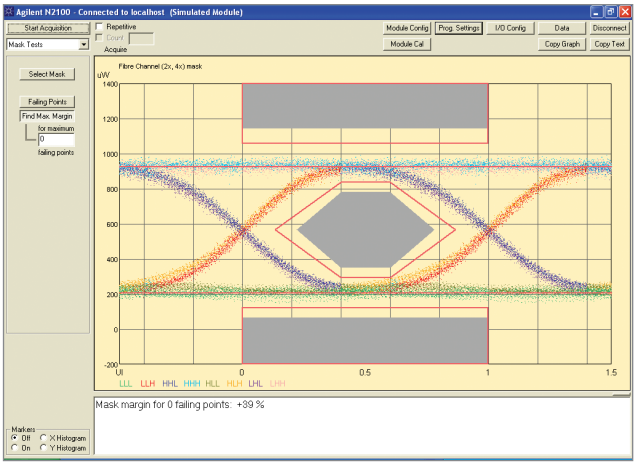
Smart Post Processing enables multiple acquisitions to be made but without any processing of the data occurring at the same time. The user can determine the optimal time to perform the processing of the acquired data. Processing the data is slower than acquiring the data so this will allow optical transceiver manufacturers increase throughput by deferring the processing to a time where the DCA would normally not be in-use.

The ER Correction Factor enables the user to apply an offset to the measured Extinction Ratio. This feature enables even tighter correlation with other instruments.

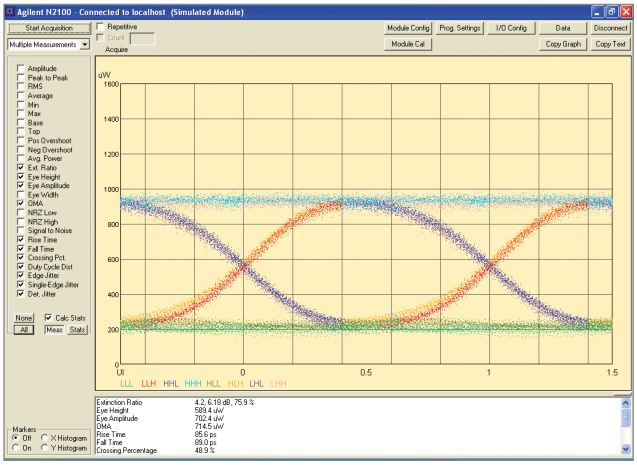
Measurements

Digital Communication Analysis

- Mask Margin (with a user friendly mask configuration tool)
- Alternate Mask Margin rules available
- The mask margin (positive or negative) can be extracted for a defined number of points that fail, thus allowing for DUT quality assessment, control and binning.
- The number of failed points for a region can be returned as well as the actual points that failed along with the 3 bit history of that failed point (as a result of vector sampling).
- Extinction Ratio / OMA measurements
- Eye opening, height, and width
- P-P and RMS noise measurements
- Duty-cycle distortion
- Rise and fall time
- Histogram measurements (GUI only)
- Deterministic jitter
- Random jitter

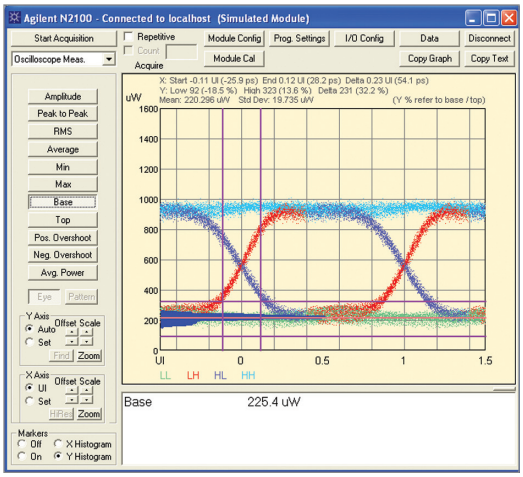


Automatic Mask Test Measurement including a call to determine the margin that x number of points fail the "Mask Margin Test"

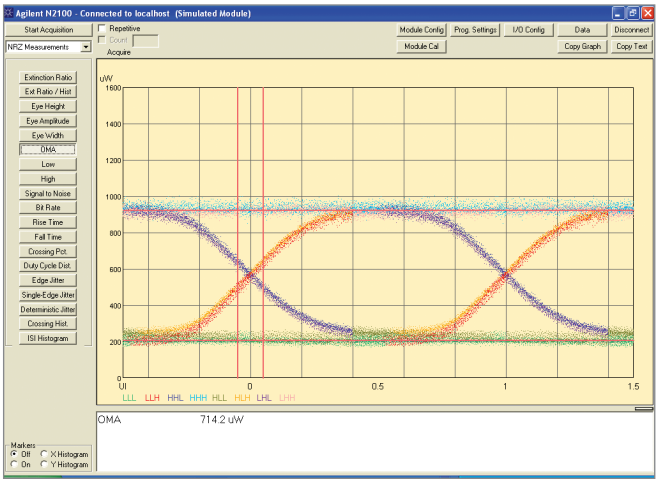


Multiple measurements can be made at the same time.

Note: The color coding in the eye diagram highlights the transition history of the measured point - this is derived by using the vector sampling technique.



Base Measurement (with Y histogram shown)



OMA Measurement

Specifications

General

Sample rate	160 Ms/s
Number of points per acquisition	1024
Maximum number of acquisitions	1024
Clock recovery	<2.7 Gb/s
Pattern acquisition maximum length	2047 bits
Fixed number of points per bit in pattern acquisition mode	128

Electrical

Number of channels	1 single ended
BW of electrical input	*9.5 GHz (characteristic)*
RMS noise*	2.5mV RMS (Max) *1.3mV RMS (characteristic)*
Connection type	AC Coupled
AC input voltage range	1 V pp (Max)
Connector type	SMA
Maximum non-destruct I/P	2 V pp
Electrical return loss	–12 dB (Return Loss on electrical path when an optical signal is applied)

* Measured with no input signal and minimum **internal** gain setting.

Clock

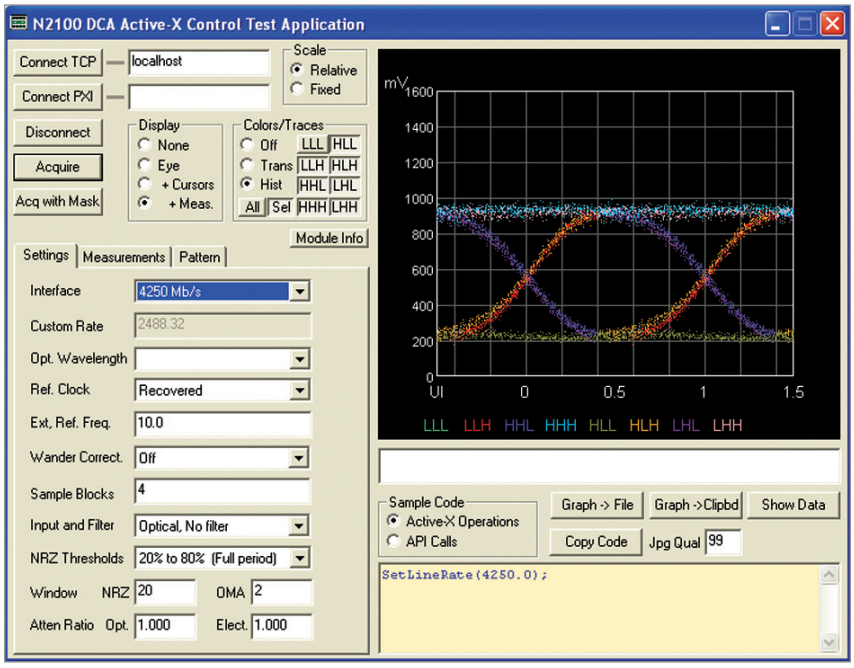
Clock input frequency range	10 MHz to 11.318 GHz *(characteristic)*
Clock input voltage range	0.5 to 1 V pp

Note: Unless stated otherwise nominal 50 ohm termination

The PXIT Family: N2099A,N2102B,N2101B & N2100B

Optical

Unfiltered optical BW	*7.5 GHz (characteristic)*
Available filter combinations	Choose 4 filters from the table on page 4
Optical responsivity	750-1650 nm
Optical connector	FC/PC
Fiber input	62/125 µm
Maximum non-destruct average	–3 dBm at 1310 nm
Maximum non-destruct peak	+7 dBm at 1310 nm
Average power monitor	–30 dBm to –2 dBm at 850 nm
Calibrated wavelengths	*850 nm, 1310 nm, 1550 nm*



The software simulator, ActiveX API and the training GUI's (see above) allow for ease of integration.

Ordering

Select:
N2100B PXIT DCA Option 300 (155 Mb/s to 10.3125 Gb/s)
Must choose any 4 different filter rates

Option 110	155 Mb/s
Option 120	622 Mb/s
Option 130	1.063 Gb/s
Option 140	1.25 Gb/s
Option 150	2.125 Gb/s
Option 160	2.488/2.5 Gb/s
Option 180	3.125 Gb/s
Option 190	4.25 Gb/s
Option 193	5.0 Gb/s
Option 195	6.25 Gb/s
Option 197	8.5 Gb/s
Option 210	9.95/10.3125 Gb/s

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Revised: June 8, 2011

Printed in USA, October 17, 2011
5989-7065EN

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