BitWise
LABORATORIES, INC

Pattern Generator (PPG2CHA)

BitWise Laboratories Pattern Generator

Key Features

- Compact 2-Channel Pattern Generator
- 1-28 Gbps per Channel
- PRBS and User Patterns
- Synchronized Channel Output
- Independent 4 Tap Pre-emphasis
- Internal Synthesizer or External Clock Input
- Single-ended or Differential
- AC/DC-coupled Data Outputs
- Ideal for PAM4 Combining

Applications

- BER Testing
- PAM4 Signal Generation
- Crosstalk Source
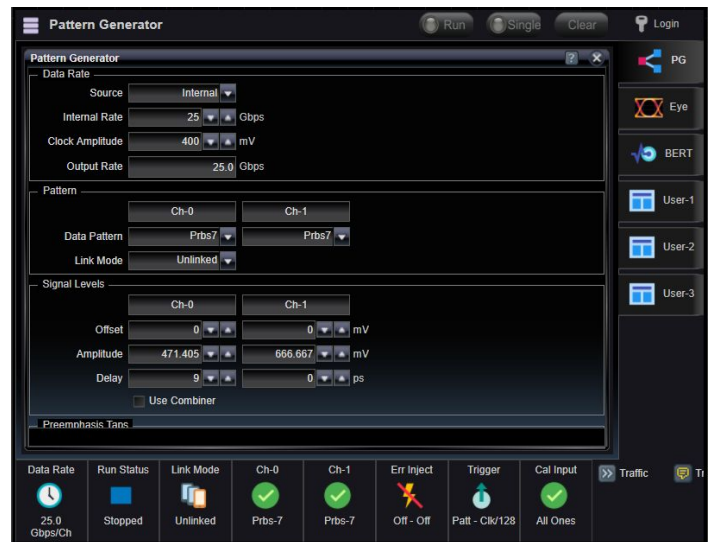- 56 Gbps systems 2-Ch Mux Source

BitWise Laboratories Pattern Generator creates data patterns used as stimulus for developing and evaluating digital communications systems and components. The Pattern Generators offers flexibility to create data streams of varying PRBS or user-defined patterns, with selectable data rate,, timing and pre-emphasis to help you create the test signals you need.

The Pattern Generator is a compact instrument that uses a built-in synthesizer or accepts an external clock input that is used to generate two channels of NRZ data at rates from 1 to 28 Gbps. Each channel is DC-coupled and supports 4 Tap pre-emphasis with differential amplitude up to 2 Vpp. Channel pattern sequence output can be synchronized to combine properly to form a higher speed 2:1 multiplex. External triggers can be used to trigger your oscilloscope on clock- or pattern-based triggers. A built-in error injector with selectable error profiles enables creating single-shot and repeating error signatures.

Variable output delay is available on each channel for precise phase alignment. A unique built-in calibration input channel is provided for conveniently checking your output signals using Quasi-eye diagram analysis and sub-rate BER detection.

A DDR5 Accessory (DDR5SA) is available for creating SI/SJ/RJ and other helpful signals for DDR5 DIMM testing.

The user interface is served as a website from the device and is accessible from any desktop or mobile web browser. The device does not require connection to the Internet. Automation control is provided via TCP/IP socket interface using ASCII commands.
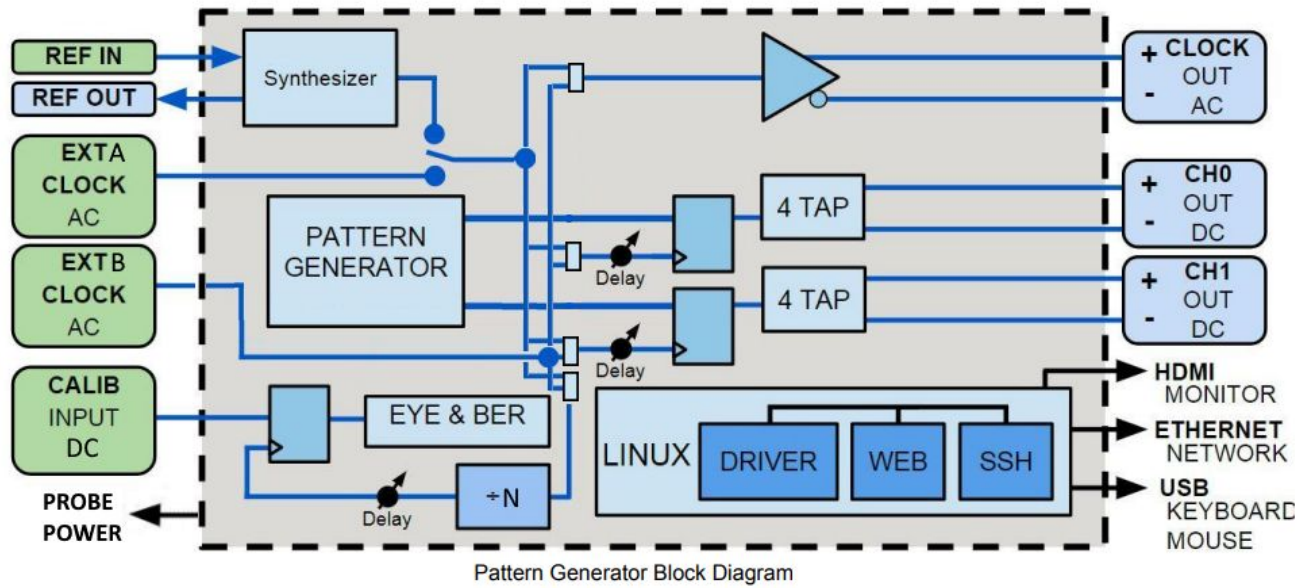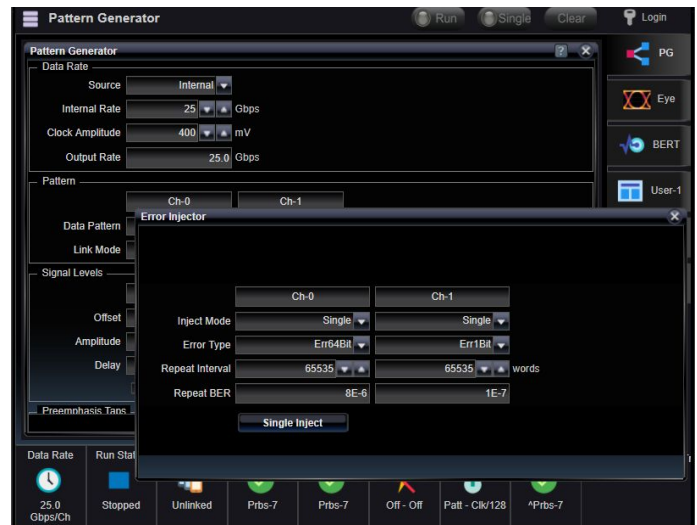

Web Browser User Interface

Basic Pattern Generator settings are configured using the web browser user interface. Status Bar indicators along the bottom show the current operating status. On the right, the user can easily access other pages of the user interface.
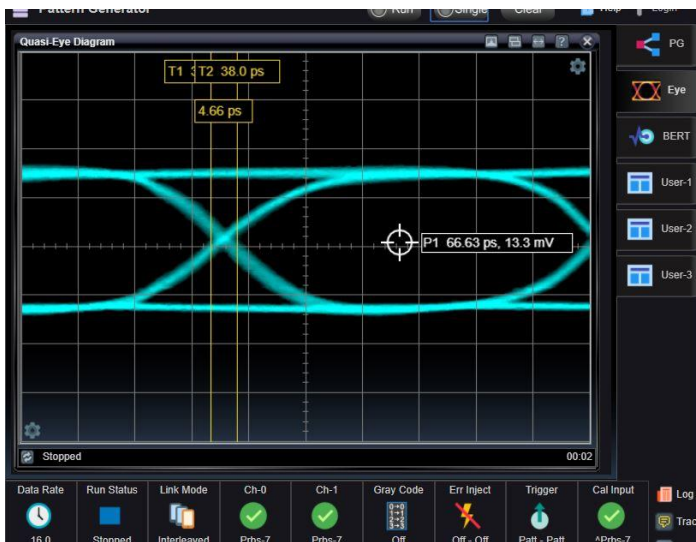
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Pattern Generator Block Diagram

A quick glance at the Status Bar indicators at the bottom of the user interface describes the configuration of the pattern generator including the channel output status, pattern synchronization, error injector status and Calibration channel utilization. Popup dialogs provide means for making selections and entering specific parameters This image shows the setup of the internal error injector that supports injecting error signatures in single-shot and repeating modes.

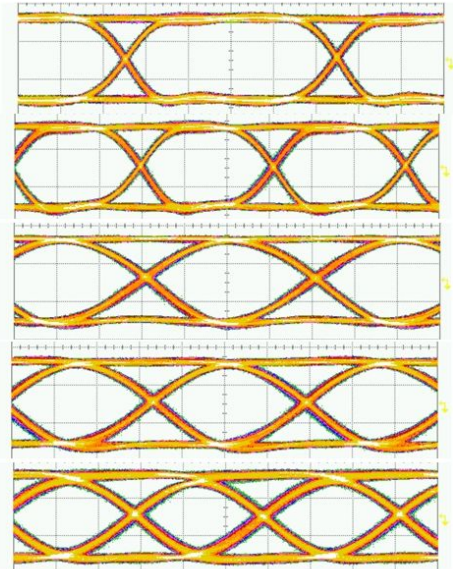Output Settings on the User Interface

Calibration Channel Eye Diagram at 16 Gbps

The built-in Calibration input channel performs Eye diagramming of signals synchronous to the pattern generator. Comparative measurements of jitter and amplitude and timing help ensure that your test signal is correct. Calibration channel also supports measuring sub-rate bit error rate.
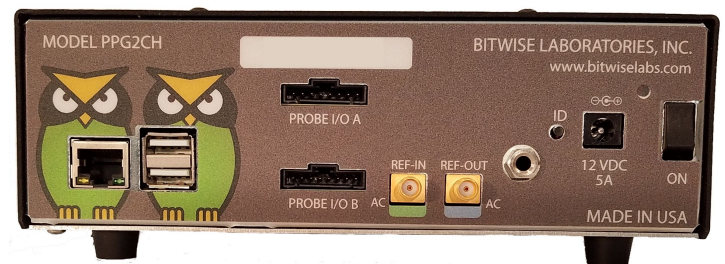
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Performance

Data Rate	*1-28 Gbps per channel, synchronous*
Amplitude	*Up to 2 Vpp, Differential*
Rise/Fall TImes	*15 ps (20/80, typical)*
Jitter	*Clock:350 fsRMS, Data: 600 fsRMS (typical)*
Offset	*V-high to 2 V, V-low to -2 V*
Variable Delay	*0-150 psec (0.1 psec resolution)*
Pre-emphasis	*4 Taps for each channel (T2 is always 1.0)*
Patterns	*4 Mbit or PRBSn (n=7,11,13,15,20,23,31)*
Output Data	*2.92 mm, current protected*
Output Clock	*50 Ohm AC, SMA*
Triggers	*Clock or pattern output triggers*
Network	*10/100 Mb Ethernet, RJ45*
Power Supply	*100-240 VAC to 12 V, 5A, CE/FCC/UL Certified*
Power	*70 watt (typical)*
Dimensions	*6" (L) x 7-1/2" (W) x 2-1/2" (H)*

10G

16G

25G

28G

32G

Warranty

Products from BitWise Laboratories. come with a one year limited warranty. BitWise Laboratories will repair or, at its option, replace any defective product returned to BitWise Laboratories within one year of the date of purchase. This warranty applies to defects that are not due to misuse, neglect, accident or by abnormal operating conditions. Contact us for return material authorization. An additional 2-year warranty extension is available at the time of purchase.

MODEL PPG2CH
BITWISE LABORATORIES, INC.
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PROBE I/O A
PROBE I/O B   AC
REF-IN   REF-OUT
AC
ID
12 VDC
5A
ON
MADE IN USA

BitWise Pattern Generator Rear Panel

Ordering Information

PPG2CHA	**Pattern Generator**
DDR5SA	**DDR5 Stress Accessory**
WARRANTY2YR	**Additional 2 year warranty**

Send email requests to: sales@bitwiselabs.com

Company

BitWise Laboratories is located in California USA in the heart of Silicon Valley. Our founders have spent decades in Test & Measurement specializing in creating innovative tools that are easy to use and provide more diagnostic information for development and test engineering. The BitWise Laboratories line of products builds on this legacy and provides RF and PAM4 tools for today's communications engineering challenges. We provide compact and economical instruments that utilize world-class SiGe technology to achieve uncompromising performance. We provide innovative software with convenient multi-user web browser user interfaces for viewing and easy data download with complete remote control automation.   And we listen to our customers to help us define the next generation of features that will make our tools even better.

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