



# Qx Series Advanced Toolset Option

## SDI-STRESS Testing

[PHQXO-SDI-STRESS, PHQXLO-SDI-STRESS, PHQXPO-SDI-STRESS]

### Overview

The advanced SDI-STRESS option is available for stress testing and R&D evaluations of SDI interfaces up to 12G. The STRESS-testing analysis instruments provide additional SDI stress testing functions to complement the Physical Layer Analysis instruments and requires a [PHQX01E-3G, PHQXL01E-3G or PHQXP01E-3G] mezzanine factory-fitted hardware option.

The option includes the ability, under automation control, to insert SDI clock jitter from 10 Hz to 10 MHz (128 UI max) peak-to-peak, mute any of the SDI outputs, and control the SDI scrambler, sync-bit insertion, pre-emphasis, rise time and driver amplitude. A comprehensive API is included for rapid automation testing.

The SDI-STRESS Eye amplitude measurement provides both Shorth Mean or Mode, with a histogram overlay and a user-defined window for the exploration of eye amplitude.

Pseudo-Random Binary Sequence (PRBS) generation and analysis of PRBS-7, -9, -15, -23, -31 allows for deterministic measurement of link Bit Error Rates (BER).

### Key Features

- Stress testing and evaluation of SDI interfaces up to 12G
- API for automation testing
- Control over SDI scrambler switch-off
- Sync-bit insertion
- PRBS mode for end-to-end bit error rate testing (BERT)
- Advanced jitter generation controls
- Slew rate adjustment
- SDI output gain control
- Driver pre-emphasis
- Cable compensation

### Available for:

- **Qx Rasterizer**
- **QxL Rasterizer**
- **QxP Portable Waveform Monitor**

### Adv. Generator Tools



- Control of jitter insertion frequency and amplitude
- SDI scrambler
- SDI Bit Error (BER) insertion tool
- Sync bit removal function in the Data view instrument for 6G-SDI and 12G -SDI video standards
- Control of SDI driver amplitude +/- 13%
- Control of pre-emphasis, rise/fall time
- Slew rate adjustment
- Cable compensation

### PRBS Analyzer

	Clock Rate	Total Rx (Gb)	Total Errors	BER
SDI A	385	3		1.9315e-10
SDI B	385	3		1.9315e-10
SDI C	385	3		1.9315e-10
SDI D	385	3		1.9315e-10

- Indication of PRBS cumulative received data and PRBS type
- Generation of PRBS-7, -9, -15, -23, -31
- Reported cumulative errors
- Calculated Bit Error Rate (BER)

### Pathological Detector

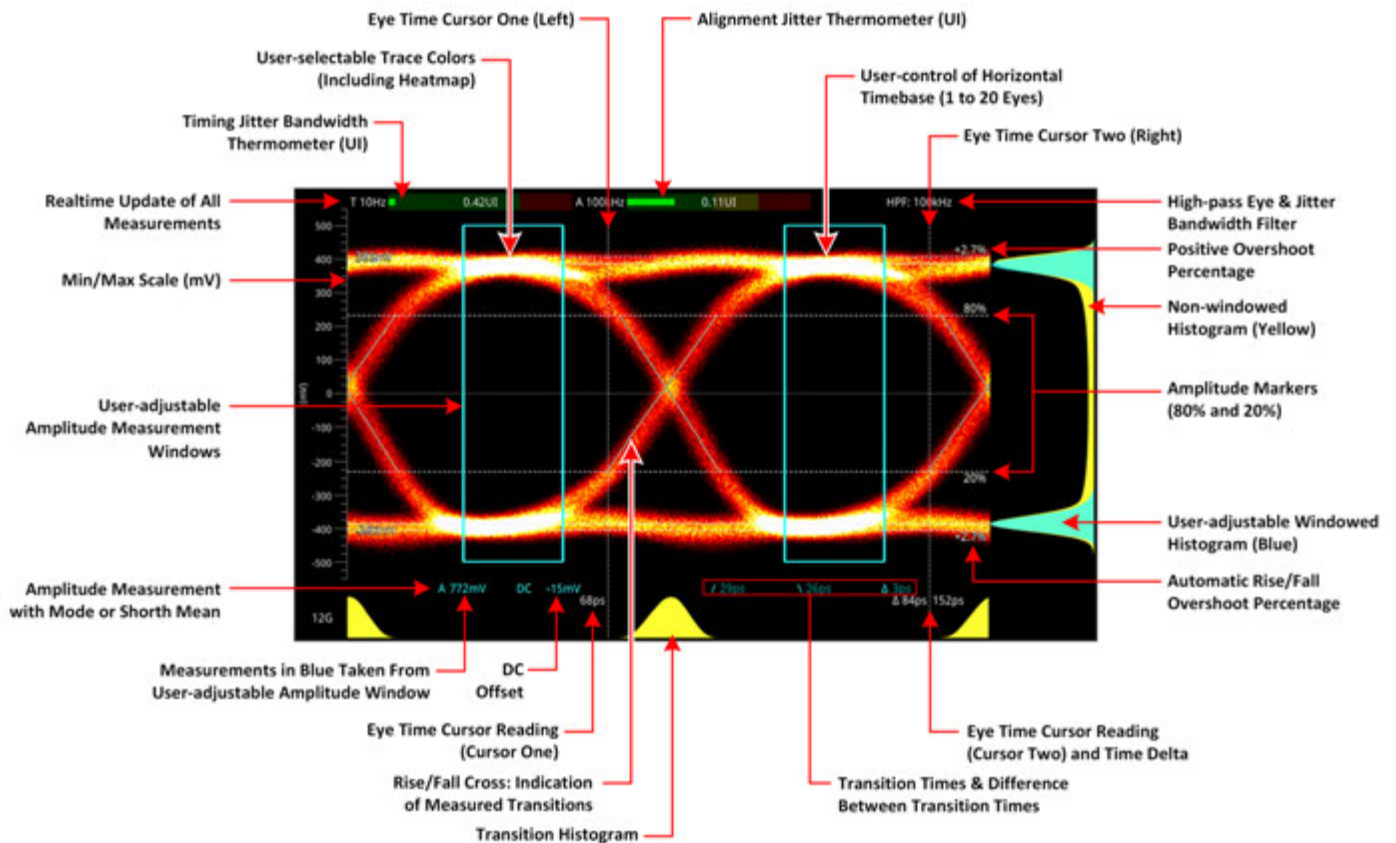


- Generator status indication of rate at which the video pattern generator is creating SDI pathological conditions
- Indication of PLL and EQ pathological rates per second
- Detection on each active SDI link
- Realtime GPI outputs of pathological detect for external equipment triggering

## Advanced Eye Analysis - SDI Stress Mode

The instrument Eye - SDI in A, provides additional tools for stress testing and R&D evaluations of your SDI interfaces from 270 Mbps to 12 Gbps. An analog front-end supplies a bandwidth of more than 30 GHz (5th harmonic of the 6 GHz fundamental for 12G-SDI.) The GUI uses PHABRIX Real Time Eye (RTE™) to generate a reliable, AC-coupled, instantaneous physical layer display with automatic measurements to SMPTE standards.

You can receive accurate measurements within seconds of connecting an SDI signal. The unit enables you to measure both rise and fall overshoot at the top and bottom of the waveform. In addition, the unit displays amplitude, rise and fall overshoot delta and DC offset - all compulsory measurements when testing against SMPTE standards. The unit highlights any measurements exceeding the specification (for example, an eye amplitude greater than 10 %) in red.



The Eye - SDI In A instrument display also provides:

- Timing jitter thermometer color-coded according to the analyzed SDI standard
- Alignment jitter thermometer color-coded according to the analyzed SDI standard
- Positive and negative Eye amplitude values
- On screen indication of 20 % and 80 % levels for rise and fall time measurement
- Horizontal time histogram of eye crossing point (0 mV threshold)
- Vertical amplitude histogram indicating energy distribution across all samples
- Eye coupled to AC with display of DC offset measurement
- A pair of vertical Eye time cursors to generate and display time measurements across the Eye display.

### Order codes:

**[Qx] PHQXO-SDI-STRESS** - Advanced 12G-SDI Stress Testing  
[requires PHQX01E-3G, PHQX0-UHD, PHQX0-GEN]

**[QxL] PHQXLO-SDI-STRESS** - Advanced 12G-SDI Stress Test  
[requires PHQXL01E3G, PHQXLO-UHD, PHQXLO-GEN]

**[QxP] PHQXPO-SDI-STRESS** - Advanced 12G-SDI Stress Test  
[requires PHQXP01E-3G, PHQXP0-UHD, PHQXP0-GEN]