

QxL | QxP

Advanced Toolset Option



Audio and Video Generation [PHQXLO-GEN / PHQXPO-GEN]

Overview

Simultaneously generate and analyze a comprehensive set of SDI and IP formats with the audio and video generation option.

Moving test patterns with up to 32 channels of embedded audio per link or sub-field (up to 128 channels on 12G interfaces). The Generator toolset provides not only the core full screen SDI Pathological stress patterns (Eq, PLL, Clk, CheckField), but uniquely also allows the user to define a percentage combination of the SDI pathological and conventional generator patterns up to full frame. Importing TIFF files for checking of HDR/WCG graphics or display and evaluation with usercreated test images is also included.

The QxL and QxP offer a ST 2110-20 2K/HD, 4K/UHD video flow generator, 2110-30/-31 80 channel audio generator and 2110-40 ANC flow generator. Uniquely, the QxL and QxP can also generate both pattern and UI 2022-7 flow pairs. The GUI as a flow offers 1 x ST 2110-20 user interface video and 1 x 2110-30/-31 2.0 stereo monitoring bus audio with ST 2022-7. An IP Transmit configuration tool provides an at-a-glance view of transmitted flow status and selected formats.

Key Features

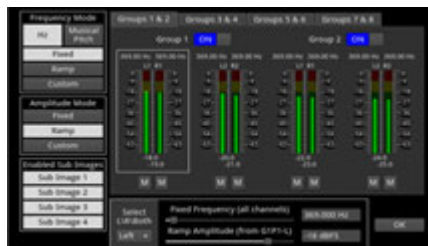
- **Generate and Analyze SDI and IP formats**
- **ST 2110-20 2K/HD, 4K/UHD video flow generator, 2110-30/-31 80 channel audio generator and 2110-40 ANC flow generator**
- **12G/6G/3G/1.5G 4K/UHD and 2K/HD SDI signal generation**
- **Support for Single, Dual, Quad link SDI formats. Square division, 2SI, Level A & B**
- **422, 444, 4224 and 4444, YCbCr and RGB formats, 10/12 bit, full range, full protected range and narrow range**
- **Generate pattern and UI 2022-7 flow pairs**
- **GUI as a flow offers 1 x ST 2110-20 user interface video and 1 x 2110-30/-31 2.0 stereo monitoring bus audio with ST 2022-7**
- **Moving test patterns (bouncing box)**
- **SDI Pathological Generation including conventional stress patterns, Eq, PLL and Checkfield**

SDI Video Generation



- Confirms generated Video Standard and Test Pattern details
- BNC output, SFP output and sub-image/full image mapping information
- Video Reference, output offset adjustment and Jitter insertion (with optional SDI STRESS Toolkit) details
- Reporting of SDI-STRESS pathological insertion statistics
- Moving test patterns (bouncing box)
- Import/display TIFF images

SDI Audio Generation

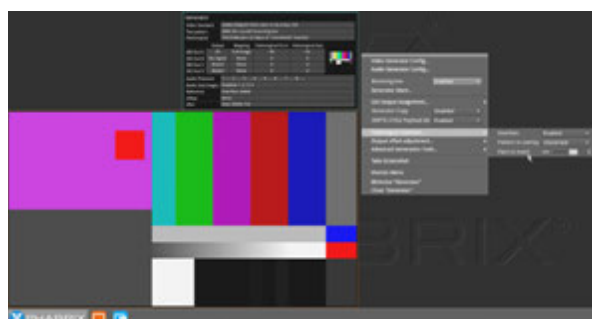


- Choice of fixed tones or chromatic scale – to help with channel identification
- Choice of fixed or ramp levels – to help with channel identification
- Custom config of number of active audio groups and channels
- Master gain control
- ST 2022-6: 32 channel audio generation can be replicated in all sub frames providing a total of up to 128 channels

SDI Configuration Dialog



- 12G/6G/3G/1.5G 4K/UHD and 2K/HD SDI signal generation
- Support for Single, Dual, Quad link SDI formats. Square division, 2SI, Level A & B
- 422, 444, 4224 and 4444, YCbCr and RGB formats, 10/12 bit



SDI Pathological Generation

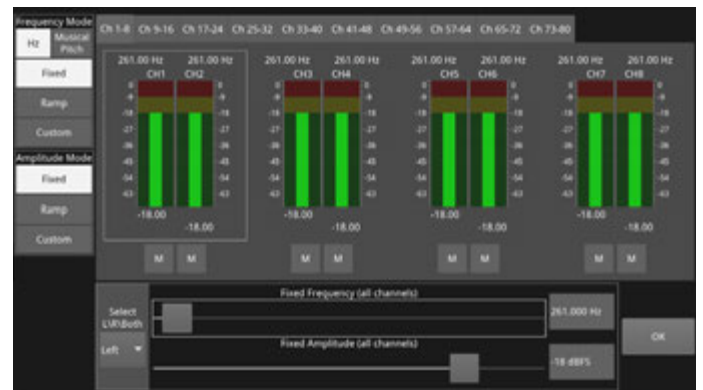
- Conventional SDI pathological stress patterns, Eq, PLL and CheckField
- New proposed SMPTE combined pathological stress pattern: Eq + PLL + Color Bars + Clock
- Define a percentage combination of SMPTE or SDI pathological and conventional patterns up to full frame

Audio Generator Config (Optional SDI)

The screenshot shows the Audio Generator Config interface with the following callouts:

- Audio Group and Channel Selection & Mute Controls:** Points to the top section showing groups (Groups 1 & 2, Groups 3 & 4, Groups 5 & 6, Groups 7 & 8) and their activation status (ON/OFF).
- Group Activation Toggle:** Points to the ON/OFF buttons for each group.
- Frequency Values:** Points to the frequency display (369.00 Hz) for each channel.
- Amplitude Values (dBFS):** Points to the amplitude level meters (e.g., -18.0, -19.0, -20.0, -21.0, -22.0, -23.0, -24.0, -25.0).
- Mute/Unmute:** Points to the M (Mute) buttons for each channel.
- Frequency/Amplitude Adjustment Controls & Target Channel Selector for Custom Modes:** Points to the bottom section with sliders for Fixed Frequency (all channels) and Ramp Amplitude (from G1P1-L).
- Set Audio frequency by Hz or Musical Pitch:** Points to the Hz/Musical Pitch toggle.
- Apply Fixed, Ramp or Custom frequency to Selected Channel(s):** Points to the Fixed/Ramp/Custom frequency mode buttons.
- Apply Fixed, Ramp or Custom amplitudes to Selected Channel(s):** Points to the Fixed/Ramp/Custom amplitude mode buttons.
- Enable/Disable Sub Images:** Points to the Sub Image 1-4 selection buttons.

2110 IP Generation



2110 Video/ANC Generation

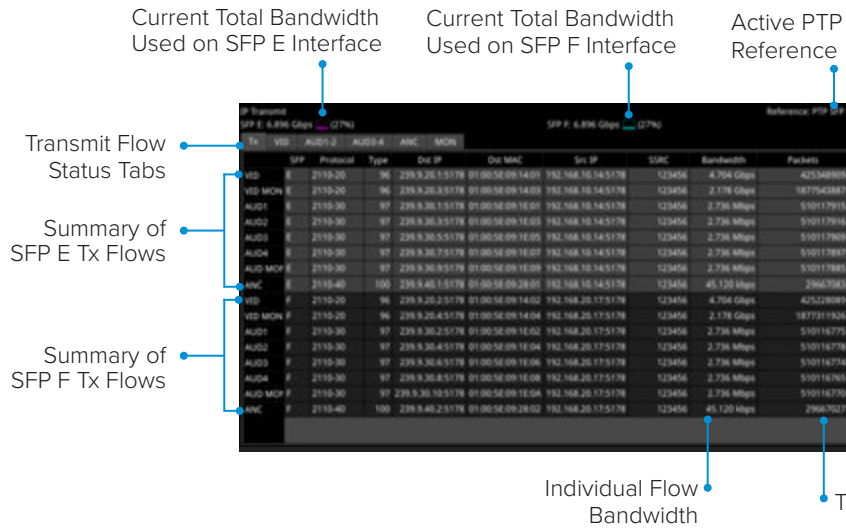
- 2110: Generate ST 2110/2022-7 Test Signals as a flow
- 2110: Monitor (GUI) as a flow
- 2110-20: 2K/HD, 4K/UHD video flow generator (422/444, YCbCr/RBG, 10/12-bit)
- Support for Full Range (FR), Full Protected Range (FP) and Narrow Range (NR)
- 2110-40: 1 x ANC flow generator
- Timecode Generator ATC_LTC, ATC_VITC, locked to PTP or Local Time with Jam Sync and Drop Frame, VITC1/2 Reverse and signaling of SDI Line number and H Offset
- Import of TIFF images
- Bouncing Box pattern movement
- ST 2110-20 EUHD 47.95-60p RGB YCbCr 444 formats [PHQXLO-EUHD / PHQXPO-EUHD]

2110 Audio Generation

- 2110: Generate up to four ST 2110/2022-7 audio flows
- 2110-30/-31: Up to:
 - 80 audio channels 2110-30 at 125 μ s
 - 60 audio channels 2110-31 at 125 μ s
 - 10 audio channels 2110-30 at 1 ms
 - 7 audio channels 2110-31 at 1 ms

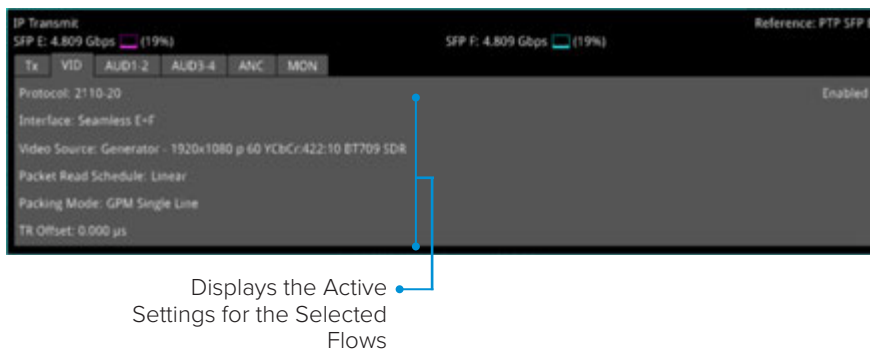
IP Transmit - Tx Status

The IP Transmit Instrument enables you to transmit two different types of flow from the unit: either Generator Flows or Monitor Flows. The Generator Flows are the video test patterns from the Video Generator together with the audio tones from the Audio Generator. The Monitor Flows are the video and audio signals for the HDMI and SDI monitor outputs or audio being monitored by the Analyzer - Audio Meters instrument, that is, the screen display and any audio feed to the unit's monitor. You can configure the currently generated Generator flows and the Monitor flows as IP video flows (2110-20), audio flows (2110-30/31) or ancillary (ANC) flows (2110-40) for transmission from either SFP E, SFP F or SFPs E+F (2022-7 Seamless Protection Switching mode).



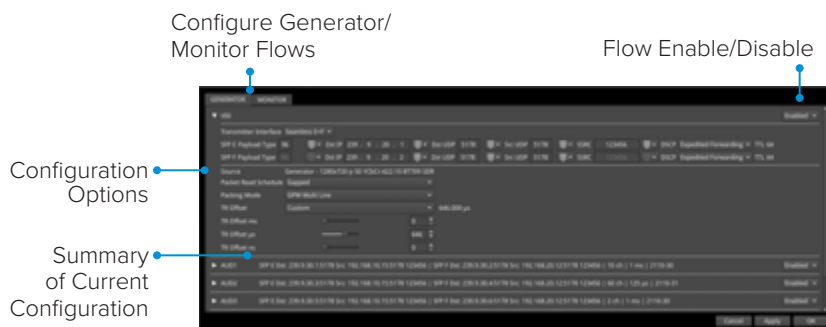
- At-a-glance status overview of all flows being encapsulated and transmitted
- Simultaneously transmit two different types of flow from the unit: Generator Flows and Monitor (GUI) Flows
- Displays a summary of the current status of all selected generator / monitor video, audio and ancillary flows being transmitted
- Use this tab as an overview of all flows actively being transmitted from the unit, together with the active PTP reference and an indication of bandwidth used by each stream and the total bandwidth used on each interface
- Displays the current information about the test pattern VID, AUD, ANC and monitor VID and AUD flows

IP Transmit - VID, AUD1-2, AUD3-4, ANC, MON Status



- The VID tab displays the active settings for the Video Generator: Protocol, Interface, Video Source, Packet Read Schedule, Packing Mode, TR Offset
- The AUD1-2, AUD3-4 tabs shows the active settings for the transmitted audio flows: Protocol, Packet Time, Channels, Audio Source
- The ANC tab displays the active settings for the Video Generator flows: Protocol, Interface, Packet Packing, Keep Alive, Timecode, TR Offset
- The MON tab displays the active settings for transmission of the Monitor flows: Protocol, Interface, Video Source, Packet Read Schedule, Audio Source, Packet Time, Channels,

Transmission Configuration



- List of available flows in an expandable list
- Each minimized flow provides a single line summary of the current settings for information
- Configure the VID, AUD1, AUD2, AUD3, AUD4 Generator Flows
- Configure the VID MON, AUD MON Monitor flows
- 2110-20: Gapped/Linear Packet Read Schedule, BPM/GPM Packing Mode
- SDI/Egress Time Stamp, user control of TR Offset
- 2110-40 ANC, Keep Alive and ATC-LTC or ATC-VITC Timecode locked to PTP or Local Time

Available for:

- QxL Rasterizer
- QxP Waveform Monitor

Order codes:

- [QxL] PHQXLO-GEN - SDI/IP AV Test Signal Generator
- [QxP] PHQXPO-GEN - SDI/IP AV Test Signal Generator