

# SD-4K SDI, HDR/WCG, SD-HD IP Rasterizer

## 10GbE / 12G-SDI



### Feature-rich 12G-SDI Rasterizer

If your focus is on a classical SDI based HD facility and you would like to future-proof your operation for realtime IP, then the Qx will address your needs. The Qx features SD/HD/3G over SDI as standard, with 10G IP, UHD-SDI (6G/12G). Dolby E Decode, IP Measure, PCAP and HDR available as optional in-field license upgrades. Support for UHD/4K formats in SDI, including some HD/2K extended mode formats, can be added as an optional license.

### In-field license upgrades

The flexible architecture of the Qx offers in-field license upgrades for SDI-UHD/4K, PCAP, Dolby E Decode, HDR, AV test signal generation as well as engineering grade data view and ANC packet inspection tools.

### Optional 10G-IP Monitoring and Analysis

The Qx's optional IP toolset supports payloads on native 10G SFP+ interfaces using generic IP SFPs, giving full access to be able to monitor and measure the IP traffic to SMPTE standards. In ST 2110 you can simultaneously analyze ST 2110-10/20/30/31/40 JT-NM tested\* flows with Class C Audio (up to 80 channels at 125  $\mu$ s packet time) all under ST 2022-7 Seamless IP Protection Switching (SIPS) and AMWA NMOS IS-04 discovery and IS-05 device connection management.

Optional in-field upgrades for IP-MEAS and PCAP provide a comprehensive set of tools for ST 2110 compliance verification and commissioning of your IP systems.

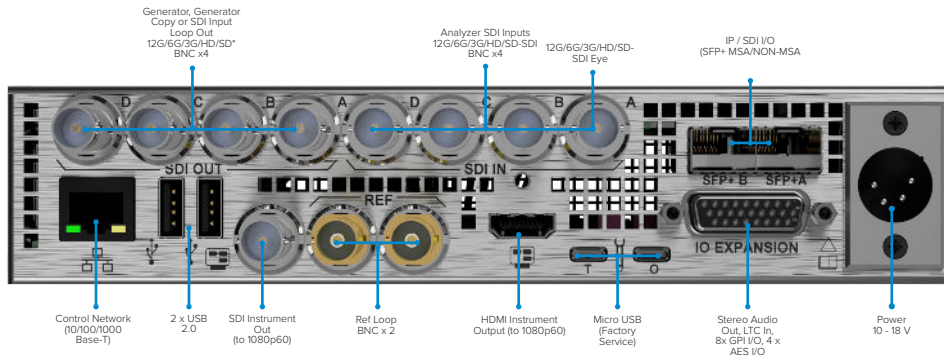
### Flexible architecture for advanced Physical Layer Analysis

A factory fitted hardware option provides RTE™ realtime SDI eye and jitter analysis with the further option of a highly advanced SDI-STRESS toolset.

### Key Features

- Innovative app style interface - with presets - Qx puts you in control
- Display up to 16 instruments on a single 1920 x 1080 screen
- Class-leading Waveforms
- Available in: SDI only, IP & SDI, IP & SDI Eye & Jitter
- Options for 10G IP, SDI-UHD/4K, PCAP, Dolby E Decode, HDR, IP-MEAS, AV-ANC Gen and SDI-STRESS
- Core media analysis tools for broadcast operator HD-SDI environments include picture view, waveform analyzer, vectorscope
- Fully-featured SDI toolset: audio, Dolby-detect, Data view, ANC status and ANC Inspector included as standard
- Simultaneous video/audio generation and analysis (12G/2x6G/4x3G/6G/3G/HD)
- Supports payloads on native 10G SFP+ interfaces using generic IP SFPs
- AMWA NMOS IS-04, IS-05 and PTP system resource discovery via IS-09
- IP-MEAS test suite provides a comprehensive set of tools for SMPTE 2110 and 2059 (PTP) compliance verification and commissioning
- 128 SDI audio channels, ST 2110-30 Class C, 32 channel metering, 5.1/2.0 Loudness measurement
- 12G Real-Time Eye (RTE) for testing SMPTE compliance with indication of DC offset
- SDI-STRESS option for stress testing and R&D evaluations of SDI interfaces up to 12G
- Remote access and control with remote browser access using noVNC

# Qx Rear Panel



## Specifications

User Interface	
HDMI instrument output, 1920 x 1080, 4:4:4 RGB, Type A	HDMI 1,4
3G-SDI instrument output, 1920 x 1080, 4:2:2 YCbCr	BNC
Remote browser GUI access	noVNC
Ethernet IP Inputs / Outputs (Accepts Generic SFPs)	
2 x SFP+ 10G Cages (also MSA / Non-MSA 12Gbps copper or fiber SDI SFPs)	Standard
Networking & Control	
10 / 100 / 1000 BASE-T	RJ45
8 x Bidirectional GPI Socket	26 pin HD D-Type
SDI Inputs / Outputs	
4 x SDI inputs, SD*/HD/3G, 75 ohm terminated BNC	Standard
2 x SFP+ MSA / Non-MSA cages (12 Gbps copper or fiber SDI interfaces)	Standard
4 x SDI outputs, SD* / HD / 3G, 75 ohm BNC	Standard
RTE™ Real-Time Eye input (12G/6G/3G/HD/SD-SDI) x 1 (SDI input A) BNC	Factory Option
Formats Supported	
SDI I/O	Standard
ST 2110-20/-30/-31/-40 / 2022-7 / 2022-6 Analysis over 10G Ethernet	Software Option
ST 2022-6 Generation	Software Option
3G / 1.5G / 270M-SDI HD / SD Analysis	Standard
3G / 1.5G / 270M-SDI HD Generation	Software Option
12G / 6G / 3G / 1.5G-SDI UHD Over SDI	Software Option
Audio Inputs / Outputs	
4 x 75 ohm AES selectable I/O (26 pin high-density D-Type socket)	26 pin HD D-Type
1 x Stereo analog audio output (26 pin high-density D-Type socket)	26 pin HD D-Type
8 channel 48 kHz PCM audio	HDMI & SDI Instrument Out
Reference	
BNC looping reference input, tri-level or B&B with cross lock	2 x 75 ohm BNC
Form Factor	
Size (Width x Height x Depth - excluding projections)	211 x 44 x 253 mm
Weight	1.9 kg
Electrical	
Power consumption	50 W typical, 70 W max
4 Pin XLR power connector	10-18V, 70W typical, 100W max
AC power adapter	90-264 VAC, 120 W

## Ordering Information

### Qx Chassis Options

<b>PHQX01-3G</b>	Qx 1U SD/HD/2K SDI Rasterizer, Analyser only
<b>PHQX01E-3G</b>	Qx 1U SD/HD/2K SDI Rasterizer with Eye & Jitter, Analyser only
<b>PHQXM-01E</b>	Qx Eye/Jitter return to factory upgrade (for PHQX01-3G chassis)

### Qx SDI Options

<b>PHQXO-UHD</b>	SDI 2K Extended + UHD/4K 4xHD/6G/4x3G/2x6G/12G-SDI
<b>PHQXO-SDI-STRESS</b>	12G-SDI Stress Test Toolset (requires PHQX01E3G, PHQXO-UHD, PHQXO-GEN)
<b>PHSFP-RT12-1310</b>	SFP+ SM(10km) LC Non-MSA, Tx 1310nm, Rx 1260-1620nm 12G/6G/3G/HD/SD*-SDI

### Qx SDI/IP Software Options

<b>PHQXO-DOLBY</b>	Dolby E Decoder, Metadata Analyser, LtRt/LoRo downmix, metering
<b>PHQXO-GEN</b>	SDI/2022-6 AV Test Signal Generator (2022-6 requires PHQXO-IP-STND)
<b>PHQXO-HDR</b>	HDR/WCG, CIE1931, HDR Heat map (PQ, HLG, S-Log3, SR Live)

### Qx IP Options

<b>PHQXO-IP-STND</b>	2022-6 Encap/Decap, 2110 Decap with 2022-7, dual PTP, NMOS IS-04/05
<b>PHQXO-IP-MEAS</b>	IP Measurement 2110-21, PIT histograms, timing (requires PHQXO-IP-STND)
<b>PHQXO-IP-PCAP</b>	PCAP 2x10Gbps line rate capture tool, 1GB max. (requires PHQXO-IP-STND)
<b>PHQXO-IP-NGT</b>	2022-6 IP Network traffic Generator Tool (requires PHQXO-IP-STND, PHQXO-GEN)
<b>PHSFP-10GE-SR</b>	SFP+ 10GBASE-SR Ethernet MM 850nm 300m (requires PHQXO-IP-STND)
<b>PHSFP-10GE-LR</b>	SFP+ 10GBASE-LR Ethernet SM 1310nm 10km (requires PHQXO-IP-STND)

### Qx Fitting Kits / Cables

<b>PHQXC-1</b>	12G-SDI Eye Measurement Test Cable 1m
<b>PHQXK1</b>	19 inch rackmount kit (1x Qx/QxL chassis)
<b>PHQXK2</b>	19 inch rackmount kit (2x Qx/QxL chassis)
<b>PHQXK3</b>	9.5 inch rackmount kit (1x Qx/QxL chassis)

### Qx Extended Warranty

<b>PHQX01-3YEAR</b>	PHQX01 Upgrade from 1 to 3 Year Warranty (excludes SFP)
<b>PHQX01-5YEAR</b>	PHQX01 Upgrade from 1 to 5 Year Warranty (excludes SFP)
<b>PHQX01E-3YEAR</b>	PHQX01E Upgrade from 1 to 3 Year Warranty (excludes SFP)
<b>PHQX01E-5YEAR</b>	PHQX01E Upgrade from 1 to 5 Year Warranty (excludes SFP)

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\* Future software release.

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