

# Leader



## LVB440

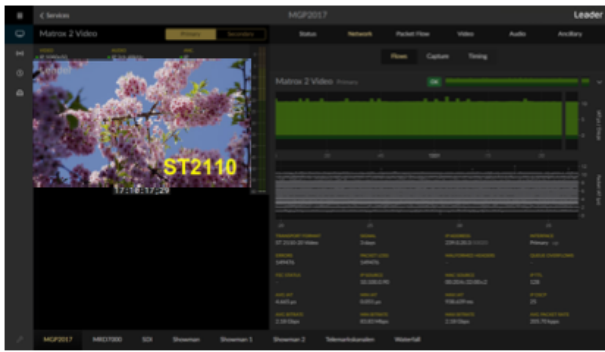
IP ANALYSZER

### / General

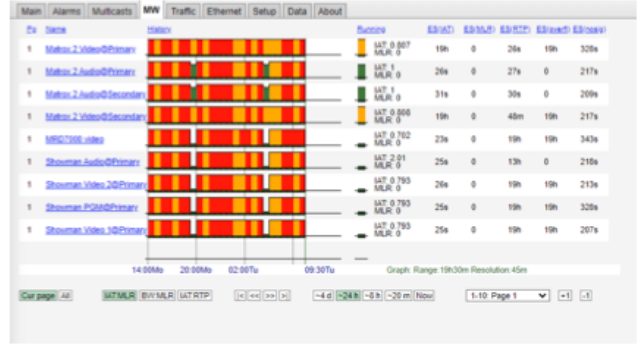
The LVB440 High Bit Rate IP Packet Monitor provides revolutionary monitoring and analysis capabilities for IP media traffic found in outside production, broadcast studios and master control centre's allowing for quick troubleshooting and quality improvement. The LVB440 supports ST2110, and ST2022-6 flows at dual 40 Gbps bitrate, and dual 60 Gbps with additional options. Streams from SD to 4K (UHD) can be monitored, with 8K monitoring configurations available. The LVB440 offers familiar visualization tools such as vector scope, picture monitor, audio pairs, and waveform monitor allowing broadcast and production crews to easily manage real-time analysis and troubleshooting of IP-based network audio and video streams. Packet analysis of uncompressed video and audio is available with microsecond accuracy. As standard, the LVB440 support (2) two concurrent user clients, which can be upgraded to a total of (8) eight with the addition of the LVB440-SER20 software licence and can view the analysis data in a standard web browser at the same time for simplified remote operation.

### / Features

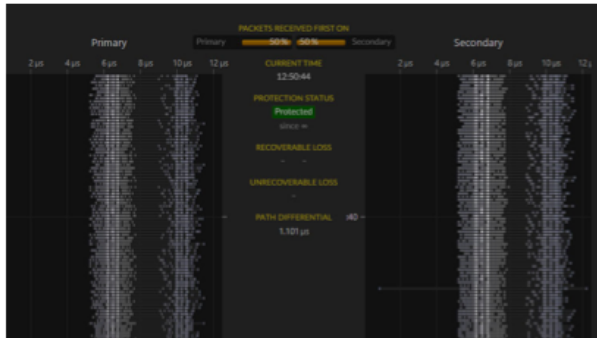
- Up to (8) eight users can access the LVB440 simultaneously, remotely (via web browser / HTML5).
- Video can be confirmed with a minimum delay of 2 frames.
- ST2110 and ST2022-6 IP standard compatible.
- Supports dual SFP 10G, 25G, 40G, 100G
- Dual 40 Gbps support; dual 60 Gbps analysis bandwidth with LVB440-SER21 additional software licence options.
- Check packet loss and jitter on both primary and secondary network lines.
- IP Jitter allows you to visualize changes in arrival time between two adjacent IP packets.
- Comprehensive error logging for up to 4 days, including packet loss.
- Check PTP lock status, grandmaster information, Clock identity, time delay, ANC.
- Easily verify video stream available on the network.
- Various error settings such as freeze, error, colour freeze error, silence error, phase shift voice error FEC packet loss, RTP packet loss, synchronisation error, etc. are possible.
- Support for JPEG XS (SMPTE ST 2110-22) with software licence LVB440-SER22 (max 8)
- Multiple packets can be monitored at the same time.
- Primary and secondary video streams can be checked by simply alternating tabs.
- IP Test Pattern generator with Idents LVB440-SER23 software licence.
- Network status history recorded and displayed graphically for ease of troubleshooting.
- NMOS compliant for simplified automation and integration.
- Video, audio and ANC packet status can be verified at a glance.
- Key statistics and alarming available including.
- Video format, number of errors, bit rate, packet rate, angle of view, frame rate and packet capture function, up to 50 video frames and up to 10,000 packets.
- Audio analysis capable of maintaining 64 channels grouped into any required audio bond, from monoaural and stereo channels to fully immersive 7.1.4
- Measure primary and secondary packet delays.
- Analysis of Dolby audio comes as standard.



Monitor packets



Display errors that occurred in chronological order

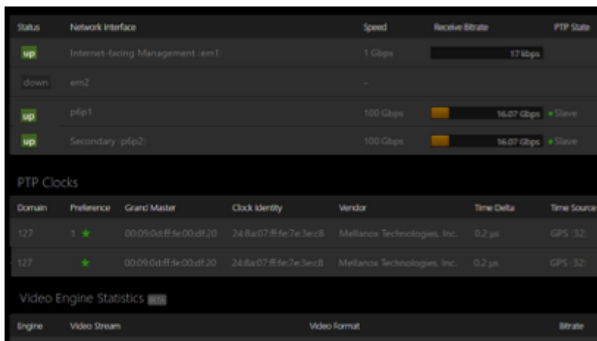


Packet loss and jitter on the primary and secondary flows in ST.2022-7 operation

All alarms

#	Status	Col	Time	Type	Stream	Description
1	Active	Yellow	Aug 30 02:01:46	ETH	JPEG_XS@Primary	Bitrate overflow (1307.4 >= 50)
2	Active	Yellow	Aug 30 01:57:10	ETH	JPEG_XS@Secondary	Bitrate overflow (1307.4 >= 50)
3	Active	Red	Aug 30 01:47:20	ETH	NC_SC_AN_2	No signal
4	Active	Red	Aug 30 01:47:12	ETH	NC_SC_AN_1	No signal
5	Active	Yellow	Aug 30 01:46:44	ETH	NC_SC_V_2	Bitrate overflow (1307.4 >= 30)
6	Active	Yellow	Aug 30 01:46:32	ETH	NC_SC_V_1	Bitrate overflow (1307.4 >= 30)
7	Active	Yellow	Aug 30 01:35:29	ETH	NC_LV5600_V_2	Bitrate overflow (1305.8 >= 30)
8	Active	Yellow	Aug 30 01:35:29	ETH	NC_LV5600_V_1	Bitrate overflow (1305.8 >= 30)
9	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_L_A_2_2	Bitrate overflow (9.6 >= 1)
10	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_L_A_2_1	Bitrate overflow (9.6 >= 1)
11	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_L_A_1@Secondary	Bitrate overflow (9.6 >= 1)
12	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_L_A_1@Primary	Bitrate overflow (9.6 >= 1)
13	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_V_2_2	Bitrate overflow (1307.4 >= 50)
14	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_V_2_1	Bitrate overflow (1307.4 >= 50)
15	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_V_1@Secondary	Bitrate overflow (1307.4 >= 50)
16	Active	Yellow	Aug 30 01:34:31	ETH	NC_New_V_1@Primary	Bitrate overflow (1307.4 >= 50)
17	Event	Green	Aug 30 02:45:44	SYS		Ethernet CRC Errors on interface e
18	Event	Green	Aug 30 02:06:15	SYS		Ethernet CRC Errors on interface e
19	Event	Green	Aug 30 02:02:08	ETH	JPEG_XS@Secondary	RTP Packet drops 629
20	Cleared	Green	Aug 30 02:00:55	ETH	JPEG_XS@Primary	No signal (Aug 30 01:55:54 - Aug 3
21	Event	Green	Aug 30 01:57:02	SYS		Ethernet CRC Errors on interface e
22	Cleared	Green	Aug 30 01:57:00	FTH	J.PFFR.XX/AN/vvvvvvv	No signal (Aug 30 01:55:59 - Aug 3

Error log



PTP lock status, grandmaster information, Clock Identity, time delay, ANC Information

SCTE104 Primary Overview

Line	DID	SDID	Spec	Application	Per Frame
9-11	80h		ST 291	Packet Marked for Deletion	2 / 51
9	61h	01h	ST 334-1	Closed Captioning (CEA-708)	1 / 43
9-10	60h	60h	ST 12-2	Ancillary Time Code	2 / 32
10	41h	01h	ST 352	Payload Identification Codes	1 / 4

Ancillary Data and SCTE-104

Disc Audio Nor	3 days	ST 2110-30 Audio
Disc Video	35 days	ST 2110-20 Video
Matrox 2 Audio@Primary	35 days	ST 2110-30 Audio
Matrox 2 Audio@Secondary	35 days	ST 2110-30 Audio
Matrox 2 Video@Primary	35 days	ST 2110-20 Video
Matrox 2 Video@Secondary	35 days	ST 2110-20 Video
Matrox 4 Anc@Primary	35 days	ST 2110-40 Anc.

Flow displays



Audio monitoring

### Measurement Items

- RTP error average, minimum / maximum per flow.
- Average CRC error, minimum / maximum per flow.
- IAT average, minimum / maximum per flow.
- Bitrate average, minimum / maximum per flow.
- PTP delay average, minimum / maximum per flow.
- Average packet rate.
- DSCP QoS parameter settings per flow
- Packet TTL per flow

### Monitoring band

- Monitoring bandwidth LVB440 standard
- Dual configuration PORT-A: 40G, PORT-B: 40G
- Single configuration PORT-A only: 40G
  
- Monitoring bandwidth LVB440 + LVB440SER21
- Dual configuration PORT-A: 60G, PORT-B: 60G
- Single configuration PORT-A only: 80G

### Corresponding standard

- ST 2110-20/21/30/31/40, ST 2022-6
- ST 2110-22 Compressed (Option)
- ST 2022-7 Redundant stream via dual interface
- OP-47/SMPTE RDD 8, CEA 608/708 Subtitling
- PTP v2 SMPTE 2059 / IEEE 1588-2008
- NMOS IS-04/05/07 & 09

## / Options

- **List of Options**

Product Name	Product Description
<b>Leader LVB440 IP Analyser</b>	
LVB440	High-Performance appliance with (2) two Instrument View Analytics of ST 2110 and ST 2022-6, capable of dual stream analysis of complete ST 2022-7 redundancy analysis.  - Dual 100G-QSFP interfaces for 10G, 25G, 40G, 50G and 100G connectivity - 40Gbps data rate - (2) Two simultaneous Instrument View (IV) users
LVB440-SER20	Additional Instrument View Licence (Max 6)
LVB440-SER21	Additional 40Gbps analysis capability spread across the dual interface for a total of 2x60Gbps data rate when utilising ST 2022-7 redundancy. (Maximum bandwidth on one interface is 80Gbps).
LVB440-SER22	The JPEG-XS option enables monitoring and analysis of the ST 2110-22 standardised low-latency compression JPEG-XS streams (up to 8 in total)
LVB440-SER23	The Signal Generator allows for placeholder reference signals to be generated and test network performance when setting up a studio, OB Van or production environment. Ability to generate up to (5) five signals.

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