TS Analyzer

IP, DVB-C and DVB-T/T2
compact analyzer

Portable MPEG TS monitoring device

STREAM LABS

MPEG TS **RFC 4445** **ETR 101 290**

TS Analyzer — Portable Small form factor Broadcast MPEG Transport Stream Analyzer with IP, ASI and RF (DVB-C, DVB-T/T2) interfaces.

TS Analyzer is a small form factor dedicated hardware platform enabling remote and local broadcast stream monitoring analysis and recording. It can be used to monitor and analyze transport streams, log errors, and send error alarms.

As a compact sized device, it can be placed in hard to reach locations, with little or no infrastructure for rack mounted equipment, such as remote head-ends, distribution hubs, broadcast towers and remote unattended and unmanned premises.

Designed to replace old-school PCI cards, USB-based dongles and other laptop-dependent devices, TS Analyzer is a complete free-standing unit with its own CPU and can be left to monitor signals by itself without the need for a host system.

For the most precise measurements, hardware-based decoding is the most efficient and accurate means to measure critical parameters such as jitter and delay. Unlike other software solutions, the precision that can be achieved with TS Analyzer is unparalleled.

In day-to-day field operations the TS analyzer is a powerful compact tool that can receive and decode IP, ASI, and RF signals in a single package. Thus, eliminating the need for multiple portable analysis tools such as RF analyzers and dedicated devices for troubleshooting broadcast signals. Capable of analyzing RF parameters such as MER, CNR, Eb/N0 and signal strength, TS Analyzer is a powerful and highly portable, self-contained instrument. TS Analyzer is all you need to verify signal, video quality and delivery path integrity.

Ease of use and efficiency are paramount for field operations. TS analyzer can be connected and configured in a matter of minutes, just assign an IP address and add a stream for analysis through a user friendly web interface.

TS Analyzer can simultaneously monitor up to 32 program streams. Transport stream errors are logged locally and can be sent to a remote Monitoring system.

TS analyzer allows you to monitor and analyze multiple transport and MPEG parameters at the lowest level. Accurately measure PCR, PTS, DTS, jitter and delay, SCTE 35 Ad insertion markers, ECM, EMM's and view and decode your EPG.

Acquire and locally store stream captures for further troubleshooting. TS analyzer is integrated into the Multiprobe monitoring platform and can also forward SNMP traps. It can also be managed via REST API calls.

Key Features

- RF, IP, ASI interfaces
- T2-MI de-encapsulation
- Up to 100 Mbit/s summary bitrate (depends on stream content)
- Up to 16 input transport streams
- Up to 32 summary transport services
- IP multicast/unicast/SSM
- UDP/IP header summary
- 2xASI inputs
- DVB-C/T/T2
- REST API and SNMP for remote configuration, alarms and polling
- Web-interface
- Fully integrated with MultiProbe Monitoring
- ASI to IP conversion functionality
- Receive and decode EPG
- Measure full level RSSI, Signal to noise ratio (dB), BER

Product Highlights

Hardware MDI measurements

Microsecond-accurate and detailed multicast packet monitoring, analysis and alarming with readout and alarming on key parameters relevant to video.

Use Media Delivery Index (MDI) to monitor the quality of delivered video as well as display system margin for IPTV systems by providing accurate measurements for jitter and delay at the network level, which are the main cases for quality loss.

Identifying and quantizing such problems in this kind of networks is key to maintaining high quality video delivery and providing indications that warn system operators with enough advance notice to allow corrective action.

Full support for the RFC 4445.

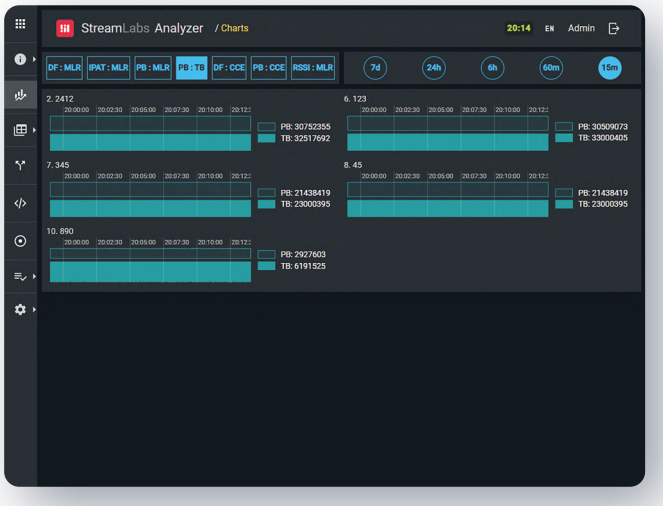
Streams Capture to local SD Card

The device supports recording incoming streams to a local SD card. Local captures are an invaluable tool when working with remote locations that are hard to gain physical access to.

Graphical Visualization

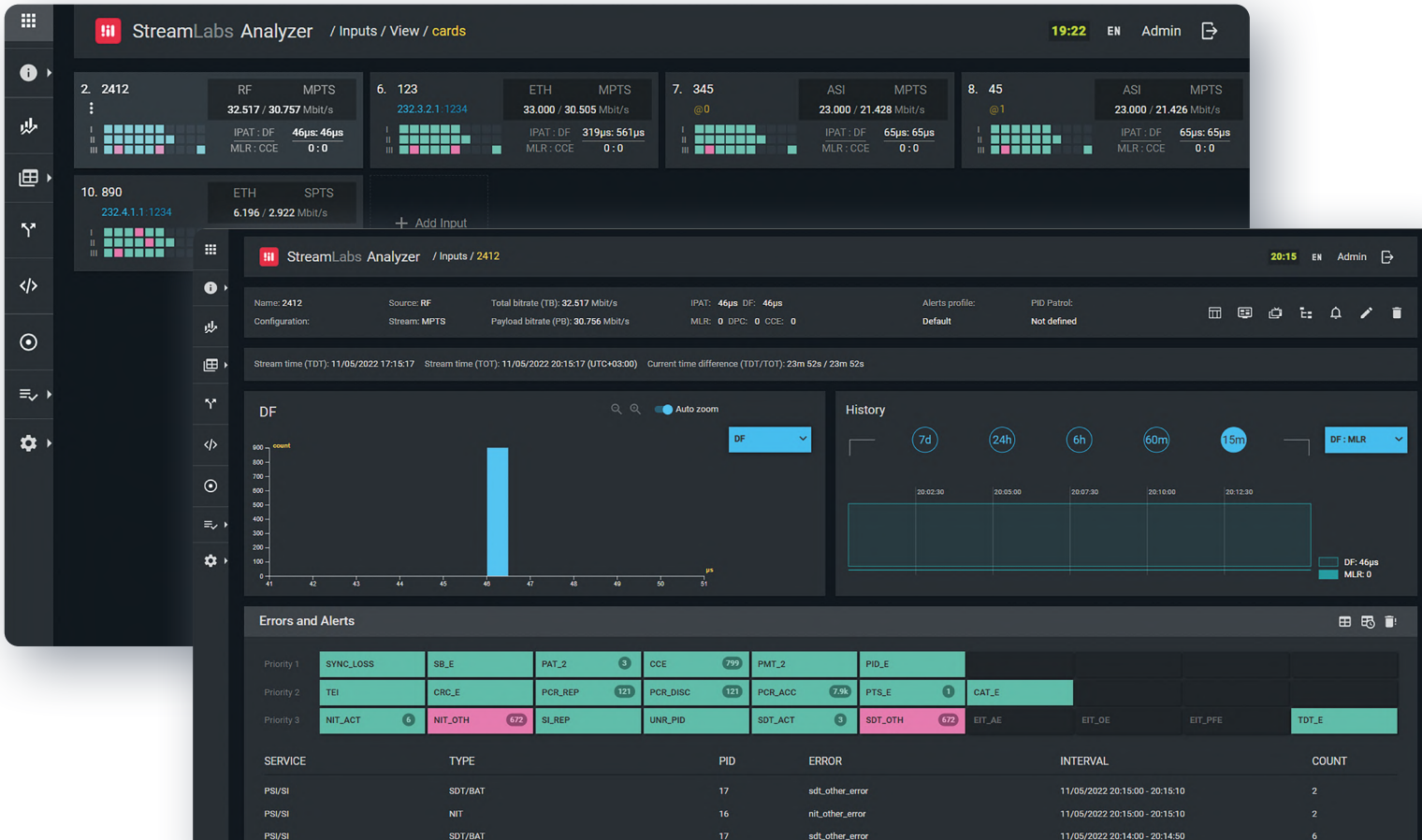
TS Analyzer comes with built-in advanced graphing capabilities that allow the operator to use visual comparison tools to view selective synchronized metrics. Multiple parameters may be graphed in real time and displayed simultaneously in synch for comparison purposes. For example:

- DF and MLR
- IPAT and MLR
- PTS and PCR
- DTS and PCR
- Full bitrate and MLR
- Full bitrate and multiplexed bitrate
- Total number of continuity errors and total bitrate
- Deviation values of PCR/DTS/PTS timestamps



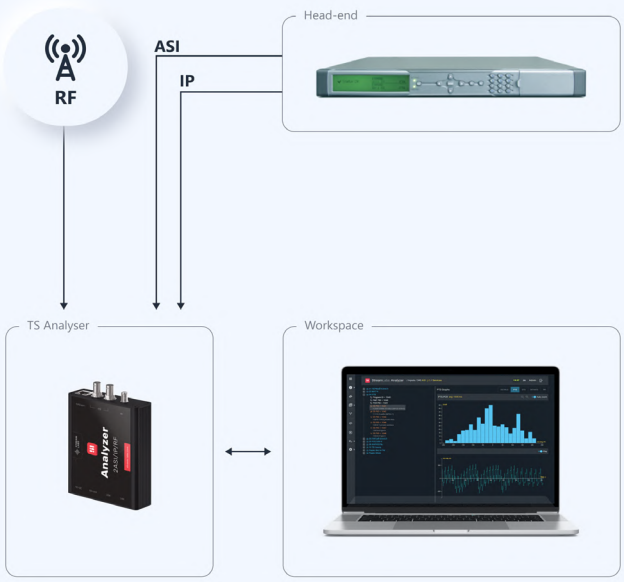
Use Cases

- Headend Monitoring for Quality of Service
- Monitoring in unattended premises
- Convenient mobile monitoring tool from technicians on the go
- Converting ASI to IP Streams
- Traffic flow captures for control logging or further detailed analysis
- Used to send metrics to a distributed monitoring system

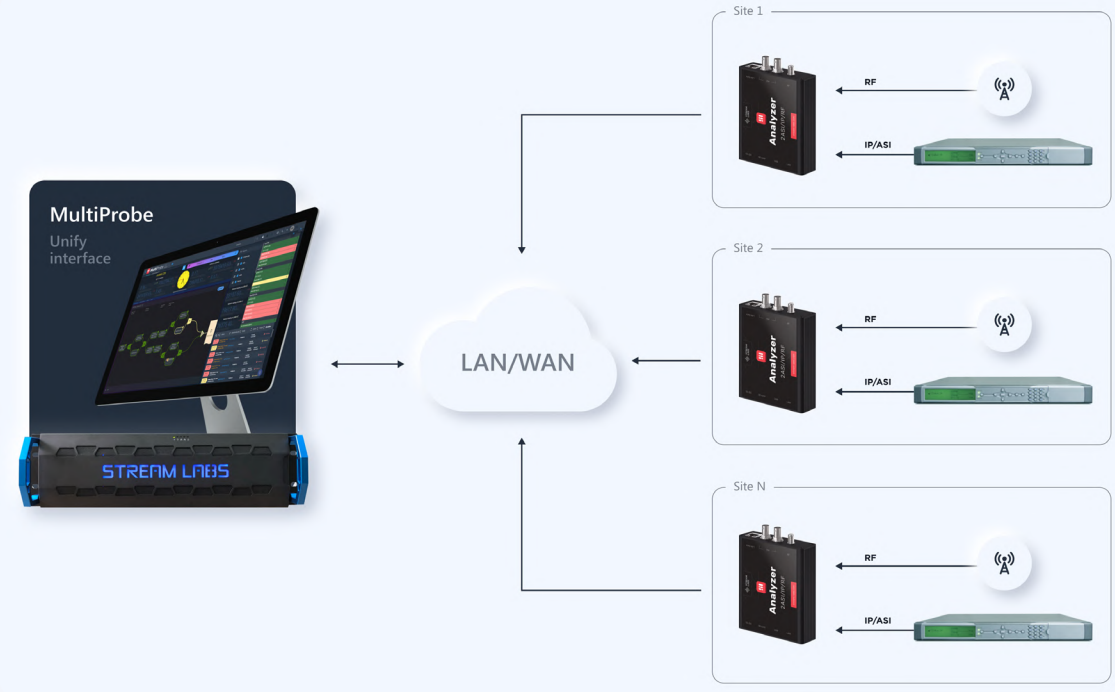


Architecture

MPEG TS transport streams arrive at the device via a 1G Ethernet input or through 2 ASI or 1 RF(DVB-C, DVB-T/T2) interfaces.



An onboard processor provides all the necessary signal control and monitoring as well as a built-in web interface.



Above is an example where an operator may use multiple TS analyzers in different parts of their network to monitor and aggregate data and analytics as well as provide alarm services to an upper level Broadcast monitoring system such as Multiprobe.

Specifications

Measured parameters

Transport stream and PSI/SI

- Full/effective bitrate
- Media loss rate (MLR), delay factor (DF), inter-packet arrival time (IPAT)
- Combined time graphs and histograms
- Service tree: service structure, component types, component summaries
- PSI/SI tree: tables, bitrates, repetition rates, CCE stats, descriptors
- PSI/SI can be downloaded and later uploaded for offline viewing
- PCR, PTS, DTS histograms and time graphs

PIDs

- Bitrate
- Repetition rate
- Packet counter
- CCE counter
- Status (OK, Unreferenced, Absent, Obsolete)
- Last status and change time
- PES header parsing

Video and audio

- Video and audio codec information (for FTA only)
- Video keyframe decoding

CAS statistics

- ECM
- EMM
- Crypto period for each stream
- CAS provider info

Alert log

- Single events are summarized within minute intervals
- PSI/SI and service events
- Service type, service name, PID, time interval, event and count are logged
- Filtering and sorting
- Log download

SCTE-35

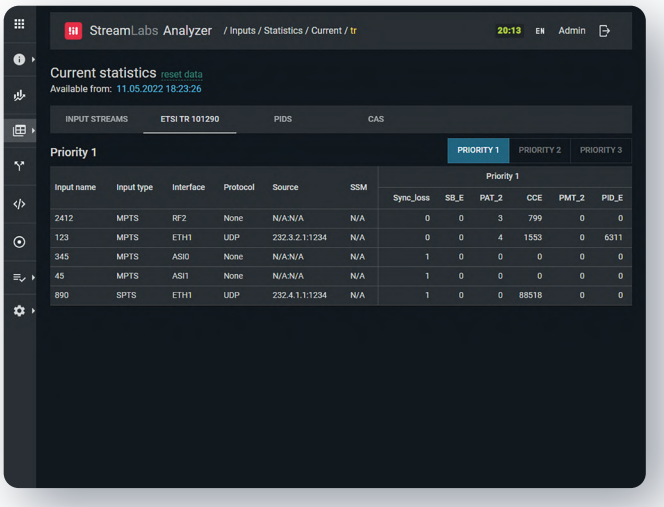
- Automatic SCTE-35 discovery
- Selectively disable monitoring for any SCTE-35 PID
- SCTE-35 events downloadable log
- Message parsing

Statistics

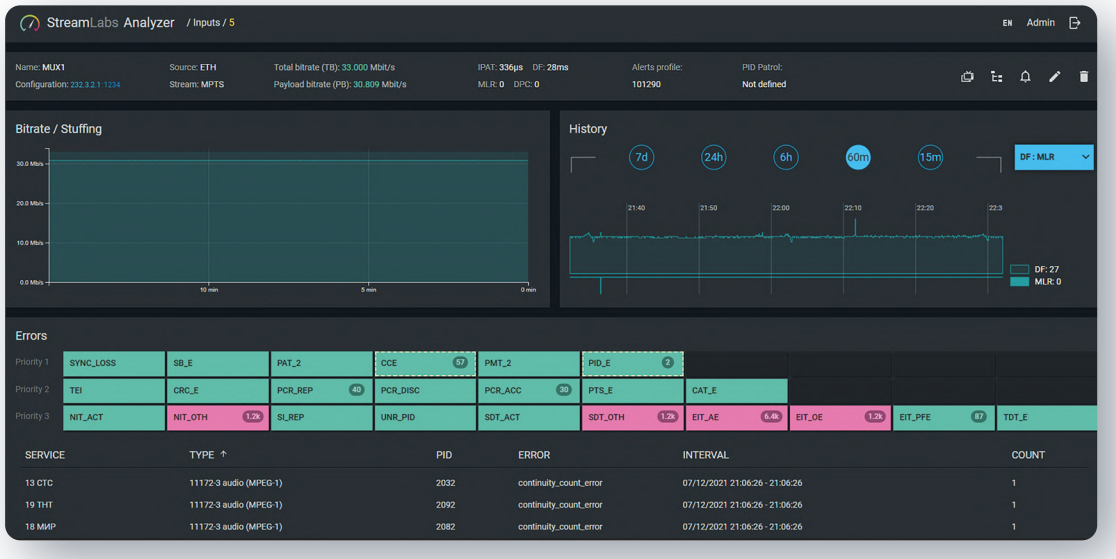
- Current and archived stats (for 7 days)
- All measured and counted values are stored in current stats
- Input and TS errors are stored in archived stats
- Min, average and max values for continued values
- Counts for countable events
- Bouncing across timeline by 1, 10, 60 minutes intervals from a chosen moment
- Manual stats reset

Summary stat tables for

- Input streams
- ETSI TR 101 290 events
- PIDs
- CAS



	Characteristic	Meaning
Input Interfaces	Signal Input Interfaces	2xASI, 1xGbE, 1xRF (DVB-C, DVB-T/T2)
	Management Interface	1xGbE
	Upgrade interface	USB-C
	Storage Memory Cards	SDHC up to 256 GB
Protocols	MPEG Codecs	MPEG-2, H.264/AVC, and H.265/HEVC
	Network Protocols	RTP, UDP (Multicast, Unicast)
	Video Streaming Control Protocols	IGMP v2, v3
	Traffic flows	MPEG TS (MPTS/SPTS)
	Device Management Protocols	SNMP, REST/XML
Events to be logged	Events on MPEG TS transport streams	ETSI TR 101 290, all levels, 35 errors/states
	Network Protocol Events	RFC 4445, EBU TECH 3337
	Measurement Profiles	MGB1… 5, MGF1… 4
Physical characteristics	Dimensions (preliminary), WxDxH, mm	170x110x40
	Weight (preliminary), kg	0,5
	Power supply	110/220V, universal power supply included
	Power consumption	25 W
	Operating temperature range, C	from +5 to +40



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