MultiTuner

Device for multi-channel monitoring
of FM radio station signals

FM Monitoring, Compliance recording and streaming

STREAM LABS

Radio signal level (RFL/SNR)

Monitor up to 16 FM channels

Receive and decode RDS

MultiTuner is a broadcast quality solution for multi-channel FM monitoring, compliance recording, retransmission and web streaming.

With a user friendly and convenient web user interface, MultiTuner can be used to monitor and measure FM RF signals, perform real-time analysis and allows you to remotely monitor your facilities. MultiTuner is also used by many operators to receive multiple FM channels over the air and rebroadcast them over the internet.

Managing multiple or remote geographic locations can now be easily achieved. Through a friendly web interface you can remotely manage MultiTuner and stream all the channels for monitoring or compliance recording. Coupled with the MultiProbe Broadcast Monitoring system you can take full control of you radio channels.

Architecture

Radio signals are received via a feeder antenna (not included) and supplied to the RF input port of the MultiTuner. Internally, the signals are fed to a splitter from which they are fed to receiver modules.

On the motherboard there are 4 connectors for the receiver modules and each module contains 4 RF receivers. The number of installed modules determines the configuration of the device.

The receiver modules amplify, demodulate, de-multiplex and decode the received RF signals and provide signal measurements in real time for monitoring. Any received signal can be routed to the monitoring output, at the front of the unit, for listening.

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

MultiTuner supports receiving and streaming over IP networks up to 16 stereo broadcast channels. The number of channels is dependent on the device version: 4/8/12 or 16 channel.

MultiTuner performs the encoding and compression of the FM channels with the ability of setting bitrates. All signal parameters can be displayed on a dashboard interface accessible remotely via a web interface.

Front Panel

The front panel has a power button, an operating status indicator and an audio monitoring connector (3.5 mm Jack). The device case is rack mountable in a standard 19" rack.

Rear view

On the rear panel there is a 110/220V power connector, an RJ45 connector for the Ethernet port and an RF connector for the feeder antenna.

Main functionality

- Operating Range: FM, VHF (64-108 MHz)
- Number of monitoring channels: 4/8/12/16
- Analog monitor output: 3.5 mm Jack
- SNMP TRAP and REST API
- Web-interface
- Receive and decode RDS

Measured parameters:

- Radio signal level (RFL)
- Signal to noise ration (dB)
- Multipath indicator (in % 0-100)
- Sound level for right or left channel, and also stereoblend

- Streaming to UDP unicast/multicast with AAC compression (ISO/IEC 13818-7), bitrate setting
- Multi-channel setup manager for automatic or manual configuration of slots
- Internal non-volatile memory (NVRAM) for configuration storage
- Standard 19" 1 RU rack mountable

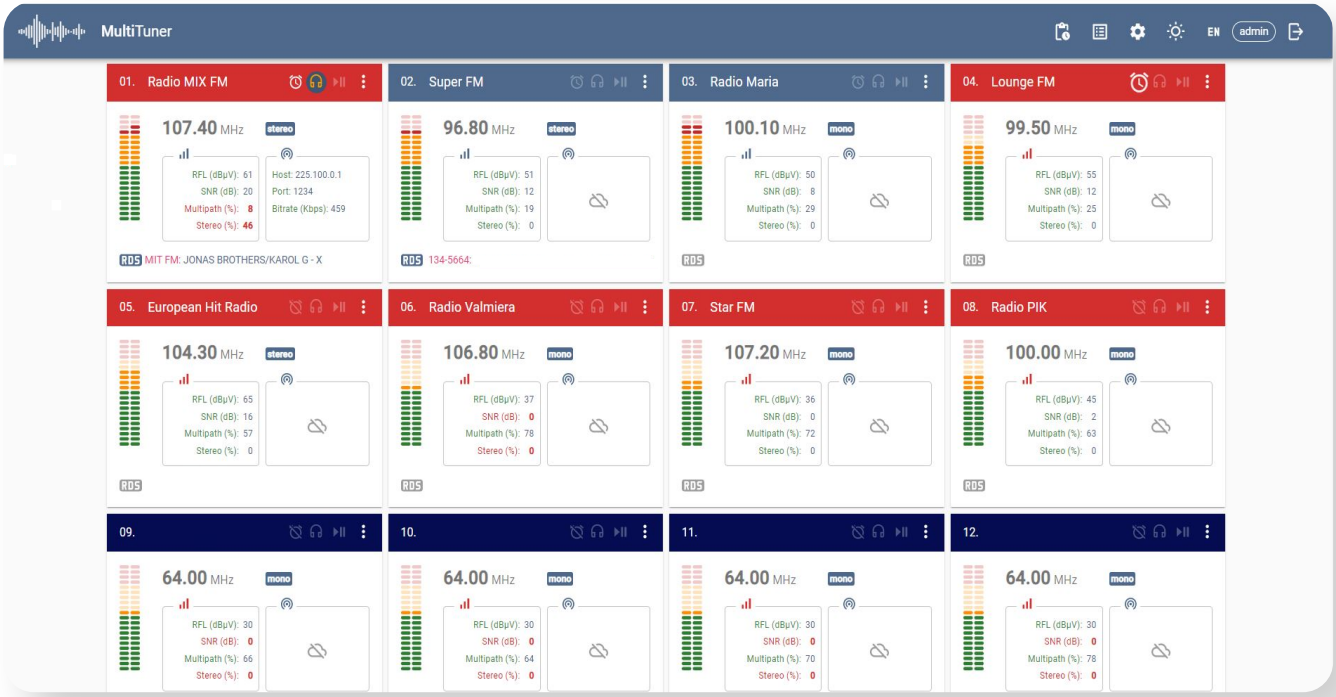
MultiTuner can be used for the following functions for monitoring or quality control:

- Operator broadcaster premises and government compliance organizations (onsite and offsite).
- As a segment for compliance recording.
- As part of a distributed monitoring network for remote and hard to reach maintenance free stations.
- As a gateway that converts broadcast signals into IP for rebroadcast over IP data networks and Internet streaming.

The device supports receiving and streaming into IP networks up to 16 stereo broadcast channels. The number of channels is dependent on the device version: 4/8/12 or 16 channels.

The device preforms encoding and compression of FM channels with the ability of changing bitrates. All signal parameters can be displayed on a dashboard interface accessible remotely via a web interface.

Figure displays the main monitoring window. This summary view provides the main parameters for each channel with and audio notification.



Specifications

Input (RF)

CHARACTERISTICS	MEASURE	VALUE
Frequency Range	MHz	64 - 108
Tuning increments	kHz	10
SNR sensitivity 26 dB, no worse than	µV	3.5
Input impedance	kΩ	4
Input capacitance	pF	5
Adjacent channel selectivity ±200kHz	dB	50
Amplitude modulation suppression Mmax=0.3	dB	40

Audio

CHARACTERISTICS	MEASURE	VALUE
Audio predistortion range	µs	50 or 75
Frequency range at -3 dB	Hz	30 - 15 000
Right and left channel separation, no worse than	dB	35
Right and left channel balancing accuracy	dB	1
SNR (Mono), no worse than	dB	58 (55)

Interfaces and Protocols

INTERFACE	VALUE
Antenna interface	IE61169-2, 75 ohm
Management interface	RJ-45, Ethernet
User interface	Built-in webserver
Management protocol	WEB
Output interface	RJ-45, Ethernet
Output formats	UDP, multicast, unicast, IGMPv2
Audio sound monitor output	RCA, 0 dB, 600 ohm

Physical characteristics

INTERFACE	MEASURE	VALUE
Overall dimensions (H*W*D) 1U, 19” rack	mm	44x482x250
Operating temperature range	ºC	5-40
Weight	Kg	2
Power supply voltage	V	110/220
Power consumption	W	10

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