

9000RF-PROBE Series

In Service, Real-Time RF and TS Monitoring System



The RF Probe is a real-time RF and TS monitoring system that is able to monitor multiple RF sources simultaneously. Each RF Probe is 1RU rack-based unit and comes in three different flavours: 8x, 16x or 32x RF inputs.

The compact monitoring system offers features such as integrated spectrum analyzer, transport stream analyzer, channel cycling and more. The monitoring system interface operates via web-based GUI which allows the user to monitor signals remotely.

The user may configure thresholds and notifications based on critical RF parameters such as RF power level to ensure signal continuity.

The RF Probe is able to tune and demodulate all types of signal, including satellite DVBS/S2/S2x, ATSC, DVBT/T2, ISDBT, QAM and DVBC/C2 signals.

Configuration

Each RF input is individually configurable to perform 24/7 static monitoring for high importance channels/transponders or dynamic cycling to monitor multiple channels/transponders within a single RF feed. Up to 12x channels per input may be cycled for a total of 384x channels/transponders for the 32-input configuration.

Scalability

The monitoring system is able to monitor RF sources at one localized location, as well as monitor sites across a wide geographical area within the same network; achievable by simply installing the RF Probe at each location, sending the information to a centralized graphical interface.

Web GUI

The RF Probe provides an intuitive web-based GUI, facilitating rapid deployment and easy configuration. The user has the ability to export data and integrate with third-party NMS using standard protocols. The RF Probe provides a 10/100/1000Base-TX Ethernet port. This provides a single point of access to communicate with multiple RF Probe units located across the globe.

Features & Benefits

- Individually configurable inputs for 24/7 static monitoring of high importance channels or dynamic cycling of multiple channels in a single RF feed
- Able to monitor sources at one location or across a wide geographical area
- Intuitive web-based GUI facilitates rapid deployment and configuration
- Customizable alarms and notifications
- Optional built-in remote spectrum analyzer with carrier monitoring
- Optional integrated transport stream analyzer for full TR101, P1, P2 and P3 errors and analysis
- Optional integrated historical data logger for reporting based on long term analytics and pattern recognition

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Monitoring

Customizable alarms and notifications are available through standalone web GUI and Evertz' own VistaLINK® PRO NMS software. User is able to log, store, plot and report critical parameters. In addition to critical RF parameters, constellation diagram is another level of visual indication and monitoring the health and quality of RF signals coming into facility.

Spectrum Analyzer

The RF Probe offers an optional built-in remote spectrum analyzer with carrier monitoring. Any source can be routed to the spectrum analyzer for further monitoring, controllable using web GUI interface. Evertz' spectrum analyzer is well-suited to measure any type of satellite, cable or terrestrial wireless carrier, including very small carriers, beacon signals and for carrier monitoring applications. Requires +SA-HW hardware option.

Transport Stream Analyzer

The RF Probe offers an optional integrated transport stream analyzer for full TR101, P1, P2 and P3 errors and analysis. Evertz' transport stream analyzer is software capable up to 32x transport streams for the 32x RF input system. Requires +PROCM hardware option and applicable transport stream software application and licenses.

TR101290 P1	TR101290 P2	TR101290 P3 (DVB)	TR101290 P4 (ATSC)
1.1 TS_sync_loss 1.2 Sync_byte_error 1.3 Pat_error 1.4 Continuity_count_error 1.5 PMT_error	2.1 Transport_error 2.2 CRC_error 2.3 PCR_error 2.4 PCR_accuracy_error 2.5 PTS_error 2.6 CAT_error	3.1 NIT_repetition 3.2 NIT_error 3.3 Unreferenced_PID 3.4 SDT_repetition 3.5 SDT_error 3.6 EIT_repetition 3.7 EIT_error 3.8 RST_repetition 3.9 RST_error 3.10 TDT_repetition 3.11 TDT_error	4.1 MGT_repetition 4.2 TVCT_repetition 4.3 CVCT_repetition 4.4 EIT_repetition 4.5 RRT_repetition 4.6 STT_repetition

Historical Data Analytics

Optional integrated historical data logger for long term data analytic and pattern recognition for historical data and reporting. Software is capable up to 12x streams per input for a total of 384x channels/transponders for the 32x RF input system. The unit can log up to 2 hours of critical parameters such as EsNo, BER, MER, RF power, etc. and present it in JSON table. This table can be accessed through web GUI of each individual module. The module will also provide access to JSON table to the logged data when requested via HTTP JSON RPC 2.0 GET via WEB API of the frame controller over Internet. JSON logs has to be requested by a software for own collection. Requires +PROCM hardware option and applicable inSITE software application and licenses.

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Specifications

Monitored Parameters:

- Demodulator lock
- EsNo ratio/margin
- Packet errors
- CC errors
- RF power
- MER/BER
- Modulation/FEC
- PIDs and services
- Constellation
- Sync byte and loss
- Total bitrate, and more

TS Analyzer Specifications:

- Real-time T-STD buffer analysis
- Presence, bitrate analysis
- TR101290 Level 1, Level 2, Level 3
- Complete TS and PID bitrate measurement from 100kb/s to 200Mb/s with configurable limits
- Display of transport stream tree (PID tree view)
- Program properties (name, program ID, etc.)
- Video/audio/data component properties (PID, type, codec, bitrate, resolution, sampling rate, etc.)
- Pre-defined PID list and TSID verification
- Comparing of same stream at different location in network

RF Input:

Number: 8, 16 or 32 (depending on hardware options)
 Connector: 75Ω BNC per IEC 61169-8 Annex A (F-Type optional)
 Frequency Range: SAT version: 950-2150MHz
 DVBT/DVBC/ISDBT/ATSC versions: 50-860MHz
 Input Power: -20dBm to -60dBm

Modulation Support:

SAT version:
 Symbol Rates: (per table)
 Roll-off Factor: 5-35%

Coding Rates:

FECFRAME:
 Normal/Short: (per table)
 ATSC version:
 Demodulation Standards:
 8VSB: ATSC per A53
 QAM: ITU-T J.83 Annex B, QAM64, 256

DVBC2/DVBT2/ISDBT2 versions:

Channel Bandwidth:
 6MHz, 7MHz, 8MHz
 Sub Format: QAM16-QAM256, QPSK
 Standard: DVB-T/T2, DVB-C/C2, ISDBTb (ITU-T J.83 Annex A and C)

Control:

- SNMP over Ethernet
- Web browser
- Rest API

Physical:

Form Factor: 1RU

Power Supply:

Dual/Redundant PS:
 Standard with all frames
 Separate per power supply
 Electrical: 100-240V AC, 50/60Hz

Environmental:

Temp. Range: 0-40°C
 Humidity: 10-90% non-condensing
 Ventilation: Fan-assisted

Modulation Support

Symbol Rate:	QPSK, 8PSK, 16APSK	32APSK	64APSK
Up to:	64 Msps	51 Msps	43 Msps

Coding Rates

	FECFRAME	DVB-S	DVB-S2	DVB-S2X
QPSK	Normal (64800 bits)	1/2, 2/3, 3/4, 5/6, 7/8	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 13/45, 9/20, 11/20
QPSK	Short (16200 bits)	—	—	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 11/45, 4/15, 14/45, 7/15, 8/15, 32/45
8PSK	Normal (64800 bits)	—	3/5, 2/3, 3/4, 5/6, 8/9, 9/10	3/5, 2/3, 3/4, 5/6, 8/9, 9/10, 23/36, 25/36, 13/18
8PSK	Short (16200 bits)	—	—	3/5, 2/3, 3/4, 5/6, 8/9, 7/15, 8/15, 26/45, 32/45
8APSK-L	Normal (64800 bits)	—	—	5/9, 26/45
16APSK	Normal (64800 bits)	—	2/3, 3/4, 4/5, 5/6, 8/9, 9/10	2/3, 3/4, 4/5, 5/6, 8/9, 9/10, 26/45, 3/5, 28/45, 23/36, 25/36, 13/18, 7/9, 77/90
16APSK	Short (16200 bits)	—	—	2/3, 3/4, 4/5, 5/6, 8/9, 7/15, 8/15, 26/45, 3/5, 32/45
16APSK-L	Normal (64800 bits)	—	—	5/9, 8/15, 1/2, 3/5, 2/3
32APSK	Normal (64800 bits)	—	3/4, 4/5, 5/6, 8/9, 9/10	3/4, 4/5, 5/6, 8/9, 9/10, 32/45, 11/15, 7/9
32APSK-L	Normal (64800 bits)	—	—	2/3
32APSK-L	Short (16200 bits)	—	—	2/3, 32/45
64APSK	Normal (64800 bits)	—	—	11/15, 7/9, 4/5, 5/6
64APSK-L	Normal (64800 bits)	—	—	32/45

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Ordering Information

9000RF8-PROBE-SAT	1RU DVBS/S2 Probe Monitoring System with capable of software expansion to enable 8 RF inputs and up to 12 Channel Cycling software keys per Input. HW options for Transport Stream Analyzer, Spectrum Analyzer and long term data analytics. Optional DVBS2x support. Dual PSU.
9000RF16-PROBE-SAT	1RU DVBS/S2 Probe Monitoring System with capable of software expansion to enable 16 RF inputs and up to 12 Channel Cycling software keys per Input. HW options for Transport Stream Analyzer, Spectrum Analyzer and long term data analytics. Optional DVBS2x support. Dual PSU.
9000RF32-PROBE-SAT	1RU DVBS/S2 Probe Monitoring System with capable of software expansion to enable 32 RF inputs and up to 12 Channel Cycling software keys per Input. HW options for Transport Stream Analyzer, Spectrum Analyzer and long term data analytics. Optional DVBS2x support. Dual PSU.

Ordering Options:

+SA-HW	On-board Remote Spectrum Analyzer for 9000RF Probe Series.
+PROCМ	HW Processing module for 9000 RF Probe Series. Software and Channel Keys sold separately.
9000PROBE-CK	Software channel key for 9000PROBE Series to activate one Input
RF-PROBE-FK-CC	Software feature key for 9000RF-Probe Series to enable channel cycling for one additional frequency/channel.
SpecAn-FK-CM	Feature Key to enable enhanced Carrier Monitoring on RF Spectrum analyzer. One license is available per HW module.
МXP-SW-APP-TSM	IP Transport Stream Monitor Container Application. Must purchase МXP-SW-FK-XXXX to enable functionality.
МXP-SW-FK-TSM	Feature Key to enable one input of TSM Monitoring on a 3482МXP-VM-APP-XXXX
RF-INSITE-SW	InSite SW for RF and TS monitoring and data collection applications. Software key required to add devices and channels.
RF-INSITE-FK-AD	InSite SW for RF and TS monitoring and data collection applications. Software key required to add devices and channels.
RF-INSITE-CK-PROBE	Software channel key to activate historical data logger for single RF input for 9000 Probe series. RF-InSITE-SW is required. – up to 12 channels per RF input.
7882DM-FK-S2X	License to enable DVB-S2X (Broadcast and DSNG profiles) demodulation standards, License is enabled per demod channel.

Note: for off-air, cable and QAM versions, please contact the factory.