



MULTICHANNEL AUTOMATIC LOOP RECORDING OF DIGITAL TV AND RADIO SIGNALS

TELEREC 8.0

TeleREC allows TV companies and communications service providers to ensure video and audio recording of TV and radio broadcasting both as part of control boxes and in the distribution networks.

Video recording

The TeleREC system provides for loop automatic video and audio recording of TV broadcasting of a wide range of professional TV and radio signals. The system can be used both as studios, Head-End stations or TV Service Providers and in the distribution networks or signal delivery lines. Depending on the system settings, the TeleREC system can record both signals/streams in the «as is» mode without changing the data structure, and in the coding/transcoding mode with the optionally reduced video resolution, as well as burn in timestamps and labels into the recorded video.

Support of a wide set of input interfaces

TeleREC is capable of performing simultaneous recording of a wide range of professional studio video and audio (SD/HD/3G/6G/12G-SDI, HDMI, DVB-ASI, IP, AES/EBU) signals, including analogue (PAL, SECAM, NTSC, FM/AM, CVBS) and digital (DVB-T/T2, -S/S2/S2X, -C/C2) radio-frequency signals used when organizing distribution network.

Support of a wide range of input IP streams

The TeleREC system carries out simultaneous recording of a wide range of professional video and audio streams sent over IP/Ethernet network, including MPEG-TS over IP (IP Multicast), SDI over IP (SMPTE ST 2022-6/7, ST 2110, NDI, SRT), HLS (RFC 8216) and MPEG-DASH (ISO/IEC 23009-1:2012). Also, the TeleREC system supports professional audio streams, including AES67, LiveWire, Dante.

Data Storage

The TeleREC system allows recording to both integrated and external network disk storage. The integrated disk storage can be equipped with hard disk drives and respective RAID controller in accordance with the requirements of the customer in terms of recording volumes and parameters of signal encoding/transcoding, as well as storage period for recorded data.

WEB User Interface

WEB UI allows ensuring remote control over the process of recording of broadcasting from any user device in the Internet. Regular user Internet connection (supported through FireWall,

NAT, etc.) is enough for efficient operation of TeleREC. The interface also allows accessing and viewing recorded data, as well as unloading selected fragments in various formats.

Virtualization

The TeleREC system can run on dedicated hardware or in the cloud, ensuring recording of sources in the cloud infrastructure of the client. If necessary, migration of the system from the cloud to the device and backwards is possible.

Optimization and upgrades

Based on the possibility to use TeleREC recording device of various capacity and functions, operators may optimize configuration and capabilities of the recording system in accordance with the current business objectives. When required, the capabilities of the TeleREC systems can be extended by installing additional interface cards and software licenses.

Logging of alarm situations

The TeleREC system logs alarm events related to problems with recorded signal/stream sources. All the events identified by TeleREC are stored in the event log to which each user gets user-friendly access interface. The system can also notify external monitoring systems of such events. The system supports both traditional standards of event data exchange (SNMP Get/Trap, Syslog) and modern high speed integration interface based on HTTP/JSON technology with guaranteed delivery of data.

Deep monitoring of alarm situations

The TeleREC system can be upgraded with a license to provide in-depth analysis and recording of alarm situations on the signal sources. This will allow the user not only to record broadcasting, but also to receive information about the reasons for alarm events.

Integration with current infrastructure

The TeleREC system can be integrated into the existing infrastructure of the Customer in accordance with their requirements. This can solve the problem of uploading recorded data to the external storage systems, or providing access to recorded data to be used by various services of the Customer.

DEVICE DESIGN

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|-----------|---|
| Rackmount | Dimensions: 1U/2U/3U PSU: 1+1 redundant Ethernet: 2x1000Base-TX |
| Mobile | Dimensions: 117x128x32mm PSU: external Ethernet: 2x1000Base-TX Cooling system: passive |
| Custom | by request |

DISK STORAGE

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|---------------------------------------|----------------------------------|
| Internal storage | HDD RAID (SATA/SAS (by request)) |
| External network storage | Supported (by request) |
| Storage capacity | by request |
| Access protocols to the recorded data | SMB, HTTP |

TECHNICAL DATA

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|--|---|
| Input video/audio interfaces | 10GBase-X (IEEE 802.3-2018, ST 2022-6/7, ST 2110, 10 Gbit/sec), 1000Base-TX (ETSI TS 102 034) DVB-ASI (ETSI EN 50083-9) SD-SDI (SMPTE-259M, 10 bit, 270 Mbit/sec), HD-SDI (SMPTE-292M, 10 bit, 1,5 Gbit/sec), 3G-SDI (SMPTE-372M, 424M), 6G/12G-SDI, SMPTE ST-2081, ST-2082) SDI/loP (SMPTE ST 2022-6/7, ST 2110, NDI, SRT) HDMI (v1.2) DVB-T/T2 (ETSI EN 300 744, 302 755), DVB-S/S2/S2X (ETSI EN 300 421, EN302 307-1/2, EN301 210), DVB-C (ETSI EN 300 429 Annex A/B/C), DVB-C2(ETSI EN 302 769) Analog RF (PAL, SECAM, NTSC, FM/AM), CVBS AES/EBU (24 бит/192 кГц) AES67, LiveWire, Dante |
| Input data streams (containers), protocols | MPEG-2 TS (ISO/IEC 13818-1), MPTS или SPTS T2-MI (ETSI TS 102 773, EN 302 755) RTP/RTSP (RFC 1889, 2326, 3550) HLS (RFC 8216) MPEG-DASH (ISO/IEC 23009-1) |
| Text overlay | Tunable parameters: timestamp, source name, additional data SCTE104 message content |

RECORDING DATA

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|---------------------------------------|--|
| Recording modes | Automatic loop recording (tunable parameters), Manual recording |
| MPEG-TS | TS container Raw stream data (as is) PID filtered transport stream (tunable parameters) Transcoded audio/video (tunable parameters) |
| SD/HD/3G-SDI, SDI/loP HDMI, Analog | TS container with encoded audio/video (tunable parameters) |
| AES67, LiveWire, Dante | TS container with encoded audio (tunable parameters) |

USERS INTERFACE

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|-------------------------------|---|
| System management and control | WEB interface (HTTP/HTTPS/HTML5) |
| Access control | Authentication: login/password Access control to the recorded data |
| Viewing of recorded fragments | Date and time positioning Viewing control (Play, Stop, Rew, FF, frame positioning) |
| Recorded data export | Manual selection of of start/end of fragment markers (WEB UI) TS container MP4 container Other containers – by request |

LOGGING

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|--|---|
| External notifications | SNMP Get/Trap (RFC 1155, 1212/13, 1157, 3411-18, STDOO62) Syslog (RFC 3164) HTTP/JSON |
| 3 rd party monitoring systems support | Zabbix (Zabbix Sender protocol) |
| Teletext and subtitles | Subtitles logging of input sources |