



Concepts of operational reliability of AVECO automation systems

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The goal of these concepts is to keep the station on air in case of failure of various components of the TV station. This includes failures of the automation system, planning system, videosever, master switcher and others.

If the feature depends on the automation, then there is mentioned whether the feature is included in the standard package or if it is optional. In the later case also the appropriate module name is mentioned.

Automation system diagnostics

System diagnostics:

AVECO automation systems contain internal diagnostics which checks the status of the automation system as well as status of all components which are connected to the automation system, such as TV equipment, cooperating systems etc. When the diagnostics determines internal problem or problem on the other connected systems (if the connected system allows for it), the warning is issued or an error announced on the automation screen. This feature allows for detecting and solving problems before they affect on-air playout.

(Standard feature)

GSM messaging:

This module is the expansion of the diagnostics subsystem, which sends SMS message to the predefined set of phone numbers, when critical error is announced by the diagnostics.

When the error is solved, the message about solving the particular error is sent again. The module consists of the hardware (GSM modem) and the software running on automation.

(Optional feature - GSM messaging)

Failure of an automation component

Terminal failure:

There is a number of automation terminals which allow the users to control the automation system features. The terminals can be configured in a way that in the case of emergency any

of them can offer the users all the features needed. There is the possibility to control any of the TV channel from any of the terminals, even up to multiple channels from one terminal.

(Standard feature, configuration dependant)

Server system disk failure:

The automation server has two system disks built-in. Each of them contains the complete system installation and the data are distributed to both disks regularly. In case of main system disk failure automation can start and run from the second system disk. The failed disk can be exchanged from the front panel without the need to remove the server from the rack.

(Standard feature)

Server failure:

The hot standby server can be installed. The hot standby server is equipped with the hardware and software modules identically to the main server and the data are fully mirrored. In case of main server failure automation can start and run from the hot standby server. There is the serial switchover unit installed which allows for switching all serial lines from main to hot standby server by pressing a button, without the need of recabling.

(Optional feature - Hot standby server)

The mirrored server can be installed. This server is on, the automation software is running synchronously with the main server and data changes as well as all commands are transferred to this server. There is the serial switchover unit installed which allows for switching all serial lines from main to mirror server, without the need of recabling. When mirror server detects the failure of the main server it takes over the control lines by switching the serial unit and takes over the control of playlists as well as the devices.

Mirroring of control servers is designed to keep the station on air, so only the features related to playout are mirrored.

(Optional feature - Mirrored control server)

Failure of a videosever

Videosever disk failure:

The videosevers use the RAID disk storage which is immune against single disk failure. The failed disk can be hot swapped.

Playout videosever channel failure:

a) configuration change

The configuration of the automation system can be quickly changed so that another videosever channel is used for the playout.

(Standard feature)

b) parallel playout

The main playout videosever channel is backed up with the backup playout channel. The playout is parallel so signal can be switched from the main to the backup anytime.

The two channels can be on the same videosever or on different videosevers (see videosever failure).

(Optional feature - Videosever mirroring)

Playout videosever failure:

a) videosever mirroring

The main playout videosever can be backed up by the backup videosever. The playout is parallel (see also Playout videosever channel failure).

The content of the main videosever is mirrored to the backup videosever fully (full mirroring) or there can be only the next number of hours according to the playlist backed up to the backup videosever (partial mirroring). In case of main videosever failure the partial mirroring concept gives still a number of hours for solving problem, fixing the videosever failure or organizing emergency workflow.

(Optional feature - Videosever mirroring)

b) tape backup

Blocks, particular commercial breaks, sequence of videosever clips from playlist or individual clips can be recorded on tape. The tape can be then used in the continuity for playout of commercial breaks or any sequence of videomaterial, or as the backup media.

The tape docs can be printed out which contains names and identification codes of clips, timecode in points, out points and duration for each break (sequence).

The tape can be loaded in the VTR and before each commercial break which goes on air from videosever the tape is cued to the start point of the same break to get ready for emergency situations.

(Optional feature - Tape backup)

Loading videosever failure:

a) single videosever is used

Any record channel can be used for loading, so if one encoder fails, another one can be used.

(Standard feature)

b) multiple videosevers are used

Any of the videosevers can be used for loading. Once the media exchange infrastructure is installed (FibreChannel, SDI, Ethernet, ...) the automation makes sure that the requested clip is delivered to the playout videosever.

(Optional feature - Fibre Channel support)

Failure of other components

Signal loss:

Devices which detect the signal loss can be incorporated into the system. Automation can be informed about the loss of signal by GPI, serial or Ethernet connection and take appropriate action. Among these actions there is switching from master switcher to bypass router, switching from main videosever channel to backup videosever channel and others.

(Optional feature - Videosever mirroring)

Generic failure:

When operator recognizes the on-air problem, by pressing one button he can get the emergency event on air. There can be a number of emergency events configured in automation system such as stills located on still store, videosever clips or live feeds. These emergency events can be played out by pressing one of the emergency buttons or by selection from the list of emergency events.

(Standard feature)

VTR failure:

There VTRs available can be considered to be a shared pool. In case of emergency any of the VTRs can be used for playout on any of the TV channels or as a source for clip loading.

If the failure occurs while the VTR is on air, the automation registers the timecode when the airing is interrupted so after loading the tape to another VTR the operator just cues up to that position and gets back on air.

(Standard feature)

Master switcher failure:

The signal router can be used as bypass switcher. One bus from the central router can be used for this purpose as well as independent bypass router can be installed. During the broadcasting the bypass router is controlled in parallel with the master switcher. The switch from the master switcher to the bypass output can be made anytime.

(Standard feature)

Planning system failure:

The automation can receive the whole day playlist from the planning system in advance. Then it can operate independently regardless of the status of the planning system. The automation allows also for creating the playlist as well as last minute changes.

When the network connection to the planning system fails, there is always the possibility to exchange the playlists and as-run logs via floppy.

(Standard feature)



Program failures:

Unexpected program supply failures can happen such as lack of the scheduled program, shortages of the live events and others. automation has the whole range of tools for solving these situations. The playlist can hold the sequences of alternative events or skipped events, which are ready to go to air and when needed the sequences can be started instantly to fill up the program gap.

There can be also the blocks of clips prepared in advance and stored in automation. The blocks contain the material which can be used anytime for playout.

The blocks can be also backed up on VTR tape and played out from VTR when needed.

(Standard feature)

Unauthorized access protection:

Automation has built in access restriction system where each user and/or each role is awarded the priority and access rights to the system features and devices controlled. All of this is freely configurable and usually is configured during the installation. During the testing and training or anytime later the configuration can be changed to agree with the operational workflow.

(Standard feature)

Emergency scenarios:

The emergency scenarios for different situations can be discussed, tested and the operators trained. When the failure happens, the operator can then proceed according to the written instructions and solve it.