



1.5.2000

PROCON video server management system

PROCON is designed to make the use of video servers easy and powerful. PROCON is extensively used in the continuity studios of the TV stations as well as in commercials assembly preparation studios of the time broker companies.

PROCON contains the database of clips allowing easy and quick clip management. PROCON is designed as a multi-user system, with the video servers' channels, database and other resources sharing. Users may dispose of different access rights and access priorities (broadcasting usually has the top priority). All of these features can be configured to suit your needs.

PROCON also supports full video server mirroring in installations where extra security is requested.

The system is network-based, where certain computers act as the servers and others as the terminals for operators. The system can be extended from one computer providing both roles to many computers in many locations. It can control several video servers, many VTRs as well as matrices for signal distribution. Station traffic system can be interfaced to PROCON.

Using PROCON is easy and straightforward. Operator in the continuity just opens the playlist and parks the first clip. Then he can forget about PROCON and just focus on the master switcher. PROCON listens to the switcher status via GPI. When the video server output goes on air, PROCON starts the playout. When it goes off air, PROCON stops the playout and cues the next clips instantly.

PROCON is actually the subset of the ASTRA master control system and can be easily expanded to the full master control functionality.



PROCON hardware

PC's are used to form a hardware platform. PROCON uses a client-server model in both software and hardware. There are PC servers which run Database management, Playlist management and Device control together with PC terminals which run the graphic user interface and client applications.

Server:

The server contains a VRP video genlock card and optionally a number of the ILC (Intelligent line controller) and other communication cards. An Ethernet network card connects this server to a network of PROCON terminals. If the connection to a station host computer is required, another network card is installed for this purpose. For back-up purposes, a secondary hard disk can be installed to mirror the system software and operational data. There can be one or more servers installed in the system. There are two different versions of this server available:

Server, industrial version:

A rack mount industrial PC is used for the server. It is built in the rugged 19" chassis with dust filters and contains large number of slots for the expansion cards. This gives the possibility to control a large number of items. The server can be installed in a central equipment area remote from the continuity studio. It runs server software modules and a character based interface used for system maintenance.

Server, minitower version:

A minitower PC is used for the server. This PC runs server software modules as well as the graphical user interface and client applications (terminal extension). The minitower variant is cost-effective and is used where a standalone unit or small network with two or three workplaces is required and a small number of devices are to be controlled.

Terminal:

A PC capable of running the GUI (graphical user interface) and the client applications is called a terminal. This is a basic PC and does not include a hard disk. Keyboard, mouse and dedicated user control panel with transport control buttons, jog wheel and other dedicated buttons are used by the station operators.

VRP card:

The server uses a VRP genlock card for locking up to the studio reference signal. The card also holds eight optoisolated GPI inputs and sixteen GPI relay outputs.

ILC card:

Intelligent line controller card manages four RS422 lines. There is a microprocessor placed on each ILC card that manages RS422 traffic using SONY, Odetics, Louth and Profile Native protocol.



General purpose serial communication card:

This is used for communication with the devices controlled by other than SONY, Odetics, Louth or Profile Native protocols, either via RS422 or RS232.

System software

Operating system:

QNX real-time operating system is used. This is the POSIX compliant multitasking multi-user operating system that runs in real-time. This provides a frame accurate environment – one of the keys to ensure precision timing is maintained.

Database engine:

Sybase SQL Anywhere is used for managing data. Thanks to its excellent connectivity the data can be accessed from almost any environment.

Graphic user interface:

QNX Photon is used to drive the front-end GUI. This provides reliability and seamless integration with the real-time system core.

PROCON software

Database:

Database is used for maintaining descriptions of clips located on the various video servers.

Database browsers allow clips to be searched and inserted into schedules or blocks.

The system can use also parts of clips (subclips). The description of such parts can be stored in the database for future use. This allows to have a complete version of the clip recorded on video server while the description of short versions and several stills pointing to the same clip are stored in the database with no need to re-record the video material several times.

The database can be very large, tens of thousands of records and more. To simplify searching, criteria describing clip content can be added (e.g. jingles, commercials, announces, promotions... or something completely different). These criteria are user defined.

Database browsers can filter the database by set criteria, duration range, clip type and warranty. Searching for clips conforming to selected duration range, quick name-search and other similar functions help the user to work with the database.

A 'Usage counter' is attached to every clip, which shows the utilisation of particular clips and helps with video server disc space management. Clip Warranty is another disc space management tool. Clip Warranty is the date of the last proposed use of a clip and can be attached to each independent clip making it quick and easy to find and delete outdated clips, which have an expired time.

Blocks:

Blocks are series of clips or parts of the clips. Blocks can be created, edited, stored and



broadcast. There are last minute changes allowed, such as break line insertion or skipping / reinstating of clips. Using In and Out points allows for broadcasting parts of clips and another parts to be omitted.

Multi-user access to opened blocks is supported, which allows several users to have the block open on several terminals simultaneously.

Block Preview:

Preview mode allows the operator to preview the whole block or a selected clip in the block. It allows also for jogging through selected clips, adjusting in and out points, editing clips and preview transitions between clips.

Block Parking:

Parking the block means establishing the connection between the block and the video server channel. This connection is then used for controlling the playback.

Clip selected by the operator is cued up on the video server channel to be ready for playout.

The associated GPI input is polled to identify the status of the master switcher.

Block playout:

Start of broadcasting of the block or playlist can then either be done manually by the button press or by the GPI from the master switcher.

There is the possibility to play back more than one video server channel on the particular TV channel at the same time simply by parking more than one block on the terminal. Of course there should be corresponding number of master switcher inputs coming from the video server.

As-run log:

The as-run log is generated that contains accurate time and duration of airing of each aired event.

When a data interface is included, the as-run log can be transferred back to the station planning system for evaluation and billing purposes.

Preview pictures:

Preview picture stamps (or thumbnails) are retrieved from the video server and stored in the database provided the controlled video server supports this feature. Automatic retrieval of the first frame of the clip by default is done when the clip is recorded. The operator can then change the selection to the a more appropriate frame. Any PROCON user can browse through the thumbnails using the database browser.

Recording on video server:

Sources for recording may be from Tape, video servers, Fibre Channel sources or live feeds.

Independent control of source VTR's allows searching of video material and marking in and out points of a particular clip. Clip descriptions may be added to the database records. The REC button is used to start recording on the video server. The database record data is saved



in the database whilst video is recorded on the video server.

The number of simultaneous recordings is limited only by the number of video server channels.

The source signal is automatically routed to an appropriate input channel of the video server, providing the router is also controlled by the system.

Clip transfer to the video server is frame accurate.

Video server mirroring:

PROCON media management keeps all content of two mirrored video servers synchronous.

The virtual video server driver controls synchronously pairs of video server channels, where one channel from the pair will be from the main video server and the other channel from the backup video server. This assures that playout proceeds on both main and backup video server synchronously. Both channels from the server pair are connected to the changeover which routes one of them for transmission.

Fibre Channel support:

The Fibre Channel transfer of clips between video servers is supported. The contents of the remote video server can be browsed and the selected clips transferred to the local video server.

VTRs:

VTRs are used as a source for recording clips to the videosever.

Routing switcher:

The control system manages routing of requested sources to the proper destinations. The signals are also routed to preview monitors in accordance to tasks done by the operators.

When recording clips on the video server the operator can select the correct source and PROCON will route the signal to the video server input.

There is also a possibility to control the routing switcher manually using the matrix control panel application.

The PROCON routing switcher control manages only the outputs dedicated to devices controlled by PROCON and can co-exist with other routing switcher controllers, providing this capability is supported by the routing switcher software.

Tape backup:

Blocks, particular commercial breaks or individual clips can be recorded on tape. The tape is then used in continuity for commercial break playout or as a backup.

There is a possibility to independently control VTR and search for in and out addresses. REC button starts the transfer from video server to tape. When clips included in a playlist cannot be located on a video server, black of the appropriate duration is recorded instead.

Black of predefined length is inserted between commercial breaks. There is the possibility to round the in point of the break to the nearest minute or 30 second boundary or to put a space



of predefined duration between breaks.

Tape documents can be printed out that contains names and identification codes of clips, timecode in points, out points and duration for each break.

Resource sharing:

The system is designed for multi-users, with sharing of video servers channels, VTR's or routing switcher outputs. These devices are known as resources. Users can have different access rights and access priorities (Broadcasting usually has the top priority). All of these features can be configured to suit the station requirements.

Once the user starts using a resource it is reserved for this exclusive use. If necessary, control of the reserved device may be taken by the user who is has a higher priority.

For example, when clips are being used for editing a user in continuity can take control of the video server channel, park and play back a block of clips to satisfy transmission playout requirements.

Traffic interface:

Data interface maintains the transfer of schedules from the station scheduling system to PROCON and optional transfer of as-run logs from PROCON back to the station planning system.

The cost of the data interface is estimated and included in this pricelist however it should be discussed on the case-by case basis.

There are various possibilities based on TCP/IP connection between PROCON and the station planning system:

- Transfer of ASCII files.
- Direct access of the PROCON database. The Sybase Anywhere SQL server is used for storing the data in PROCON systems. There are ODBC clients for various operating systems available which can be used to access the PROCON interface tables.

Data backup:

There is a secondary hard drive installed in the server with a mirrored backup copy of the system software.

There is a utility which saves the media management database to this secondary hard drive. This backup can be triggered either manually or as an automatic function.

In case of a primary hard disk failure the system can then run from the secondary one.

Modem:

The modem is installed for remote diagnostics.

GPS time signal receiver:

A GPS receiver can be attached to the PROCON server, which will synchronise the internal PROCON clock.



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Masterclock interface:

An interface to the station master clock, to a DCF receiver or to a GPS receiver can be added, which will synchronize the internal PROCON clock.