



SL NEO 7000 Remote

LIVE SLOWMOTION SERVER

User Manual

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Abstract. This document describes SL NEO 7000 Remote Panel operation of SKYLARK media servers

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SkyLark Technology, Inc. is a Canadian developer and supplier of IT solutions for television companies, cable and satellite operators, content providers, and local broadcasters. SkyLark Technology offers its clients various options for production and broadcast IT systems in different price ranges, from economy- to premium-class.

SkyLark Technology was founded in 2009 by specialists with 20 years of experience in the media industry. The company's team includes engineers and programmers with a large amount of experience in developing and installing IT solutions for television companies. SkyLark offers a wide spectrum of media servers in the SKYLARK line and software for the production and automation of television broadcasting, Time Shift, broadcast graphics, multi-channel recording, virtual studios, media processors for the formation and monitoring of DVB streams, and HD/SD cross-convertors. The SKYLARK line comes in over 500 configurations.

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1. Introduction

Brief Overview

This manual contains a description of the functions and settings for the SL NEO 7000 Remote.

The SL NEO 7000 Series media server is the optimal solution for replays when broadcasting sporting events, for real-time highlights editing, and real-time playback of stories, ads, and promos during broadcasting. Also, this series of servers can serve as a convenient tool allowing referees to study disputed incidents.

Recording

Recording takes place on all channels, during the course of the entire sporting event, in parallel to playback of interesting moments and collections of stories.

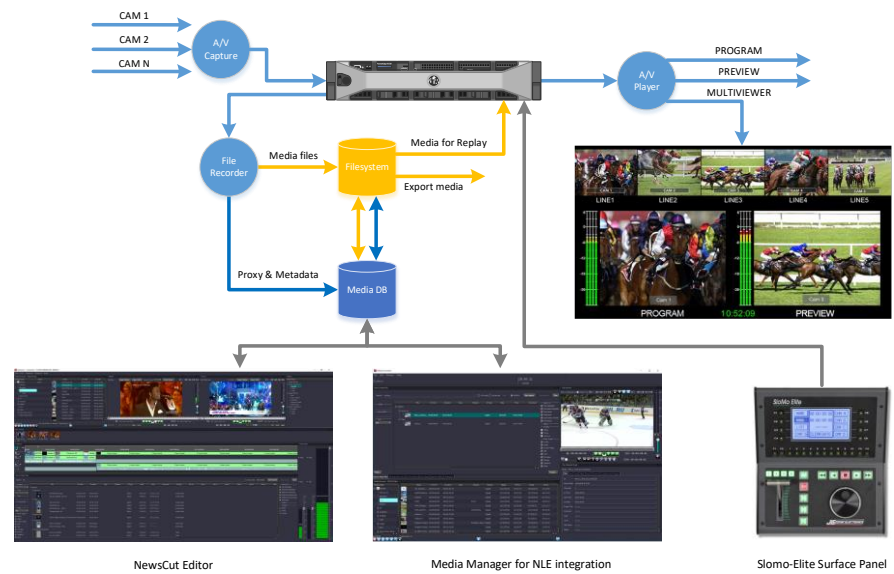
Server Control

Control of all server functions (and real-time editing) takes place locally with the use of a specialized control panel through USB or remotely via LAN and with the use of SL NEO platform client software.

SL NEO 7000 Series Features

- ▶ Simultaneous and independent recording and broadcast channel operation.
- ▶ Instantaneous switchover to slow playback mode without stopping the recording process; selection of playback input.
- ▶ Smooth speed regulation from 100% to frame-by-frame playback.
- ▶ Real-time formatting and creation of a clip database.
- ▶ Fast editing, collation, and playback of highlights.
- ▶ Execution of playlists as a sequence of events for broadcast channels (ads, promos).
- ▶ Automatic creation of low-res proxy copies of materials when recording or importing files.
- ▶ Import of media files with various types of compression and file containers from external production systems to the server's storage.
- ▶ Automatic background file transcoding during import if necessary; container exchange; sound level normalization.
- ▶ Automatic generation of metadata describing the media materials when they arrive in the operational server archive when recorded or imported, with the option of manual or automatic metadata entry and editing. Metadata archiving in a specialized SL NEO server database.
- ▶ Provision of network client stations of materials search services for metadata, as well as viewing and navigation services through low-definition copies for fast access to materials and for editing purposes.
- ▶ Editing and trimming of clips directly within the recording and broadcasting process; real-time editing of playlist lines while they are being executed; trimming of clips in a playlist lines, directly within the event implementation process.
- ▶ Export of media files to the SL NEO video server RAID in network work stations, to NLE, and to the archives.
- ▶ Protected archiving of content (media data and metadata) in the form of media and database files on a redundant array of inexpensive disks (RAID).
- ▶ Application of server backup schemes from N+1 to N+N for recording and broadcasting channels with synchronization of playlists from all channels,

including graphic design.



Server Specification

System

Processors	Intel® Xeon® Processor series 16 to 56 cores configurations per node
RAM	32GB to 256GB DDR4 ECC
OS drives	2 x 480GB SSD
Media Storage	3.84 TB to 30TB Effective in RAID 10 (Up to 16 SSD disks).
Network	2 x 1GbE-T or 2 x 10GbE-T
Power Supply	Dual hot-swap (1+1) 1100W to 2400W AC 115 to 120 V, 200 to 240 V, auto select
OS	Windows family

Broadcast I/O

SDI I/Os	12G SDI in accordance with SMPTE ST 2082-101 3 SDI in accordance to ST 424M and ST 425M-AB 1.5G SDI in accordance to ST 292M SD SDI in accordance with ST 259M
Genlock	SD Bi-level and HD Tri-level sync input
IP I/Os	SMPTE ST 2110 Suite NDI version 4.5

Video Formats	12G UHD1: 2160p50/60M/60 3G HD: 1080p50/60M/p60 1.5 HD: 1080i50/60M/60 1080p24M/24/25/30/30M 720p50/60M/60 SD: PAL (4:3 & 16:9), NTSC (4:3 & 16:9)
Audio I/O	8 pairs embedded per I/O channel 8 AES/EBU pairs per video I/O channel* * AES/EBU only available on FHD models with 6 SDI inputs or less
Audio Processing	16, 20, or 24-bit PCM, 48kHz.
Timecode	NTP client over Ethernet, LTC in (option)

Surface Panel

Graphic Display	4.5" x 2.5" LED Backlit White, 240 x 128 pixels
T-bar	Hi-Res 10 Bit Hall Effect T-Bar Mechanism
Jog/Shuttle	Electro-Magnetic Jog Wheel

Media File Formats

File Containers	AVI, MOV, MP4, MXF D-10/OP1A, RAW DV/DIF, MPEG PS/TS, MPG
UHD Codecs	XAVC-S 420, XAVC-I/L 420/422 ProRes HQ, ProRes, ProRes LT, ProRes Proxy, ProRes 4444* *2160p ProRes 4444 is only available with NVME configurations.
HD Codecs	MPEG-2, MPEG 2 422 up to 100Mbps XDCAM EX 25/35, XDCAM HD 18/25/35 HDV 25, DVCPRO HD 100 XDCAM HD 422 50 AVCHD, H.264, H.264 422 up to 100Mbps AVC-Intra 50/100 DNxHD 120 and 185 ProRes HQ, ProRes, ProRes LT, ProRes Proxy, ProRes 4444
SD Codecs	DVCAM 25 Mbps, DVCPRO 25/ 50 MPEG-2, MPEG 2 422 700Kbps-30Mbps XDCAM IMX-30/40/50 H.264, H.264 422 200 Kbps-20Mbps AVCHD up to 24 Mbps ProRes HQ, ProRes, ProRes LT, ProRes Proxy, ProRes 4444

2. Modes of Operation and Surface Panel Overview

Modes of Operation

The controller has three main modes of operation: **Real-Time** or **Preview modes** for **Live Operation** and **Playlist** for playing sequence of replays and clips.

Real-Time Mode

This is the default mode on system start-up. Real-time mode allows operators to work with the recording tray to prepare replays for immediate playback or mark positions for future use. Operators can begin playback of a position or clip using the **PLAY** button.

In Real-time mode, the Preview and Program monitors are identical. Switching cameras will affect both monitors.

Preview Mode

The Preview mode is accessed by pressing the **PVW** button. This mode allows operators to work with the recording tray and preparing new fragments for replays simultaneously with playback of the current replay.

In Preview mode, switching the cameras will affect the Preview monitor only.

Playlist Mode

The Playlist mode is accessed by pressing the **PL** button. This mode allows the operators to compose, edit and playback playlists. Note that operators can work with playlists without switching to playlist mode. While in Live Operation modes, the operators can quickly mark or recall clips and append them to a playlist, then later change the clip order as well as the clip speed, transition and audio settings. The operator would only switch to playlist mode in order to playback the playlist.

Surface Panel

The surface panel contains all functions of the replay server is implemented with the professional control panel, included to the server delivery set.

Work with clips and cue points, compose and edit playlists, and playback playlists are performed via the panel.

Most buttons on the panel contain two commands. Pressing a button will activate the bottom command; pressing and releasing **SHIFT [F1]** then pressing a button will active the **top command**.

The controller is divided into two main areas:

- ▶ In all modes, the top buttons (beside the display screen) are used for composing and editing playlists. This allows operators to compose playlists while in Real-Time and Preview modes. For example, operators can quickly append clips to a playlist then later edit the playlist to prepare it for playback (rearrange clips, change transitions or speed, etc.).
- ▶ The buttons below the display screen and the bottom buttons are used to setup and playback instant replays (**Real-Time** and **Preview** modes) and to navigate and playback playlists (**Playlist** mode). Press **PL** to switch between Real-Time or Preview modes to Playlist mode.



Playlist Editing Controls

 Real-time and Preview Mode Controls & Navigation Control and Playlist Playback

COMMON CONTROLS

Control	Description
1, 2, 3, 4	Switch cameras 1-4. Use the SHIFT [F1] button for cameras 5-8.
REC	Pressing the REC button switches the tray to the mode of working with Live video from cameras (the Real-Time mode). The system in this mode works as a usual video switcher: buttons switch the live signal from cameras, not recorded video tracks. In the real-time mode, the REC button is red.
Jog/Shuttle Wheel	<p>Use the Jog/Shuttle Wheel to locate a position in the recording tray or in a playlist. In jog mode, turning the wheel moves through the video media frame by frame. In shuttle mode, turning the wheel moves through the video quickly.</p> <p>The Jog/Shuttle Wheel is also used to navigate menus and select options on the controller display screen.</p> <p>Press the wheel to switch between jog and shuttle modes. Note that the implementation of the Jog/Shuttle Wheel depends on the controller.</p>

IN and OUT	<p>Use the wheel to change the position and press the IN and OUT button to define the segment input and output points for the replay. IN and OUT buttons turn green once the points have been selected.</p> <p>Pressing SHIFT [F1] and IN or OUT buttons instantaneously rewind video to the IN or OUT point, GoTo IN & GoTo OUT respectively. You can delete the IN point by clicking the Clear button, and then the IN button. The OUT point is deleted similarly: Clear and OUT. After pressing Clear, IN and OUT buttons turn red. If you change your mind about deleting IN/OUT points, press Clear again.</p>
T-bar	<p>Use the T-bar to start playback and control the playback speed. Playback will begin at the current position selected with the Jog/Shuttle Wheel.</p> <p>By default, the T-bar down position is zero speed and the top position is 100% speed. The T-bar should always be left in the down position. This allows you to start from zero speed and gradually increase the speed of the video playback.</p> <p>The T-bar values can be reversed by holding down SHIFT [F1] while moving the T-bar. This changes the top position to zero speed and the down position to 100% speed. This is useful if the T-bar has been left in the top position.</p> <p>Note: The T-bar speed settings can be changed in the Options menu</p>
PVW	<p>Launch the Preview mode. In this mode, the operator can work with the Preview output, whereas the program output implements the replay. Switching cameras and rewinding will be displayed only at the Preview output.</p>
TAKE	<p>In Preview mode the operator can find the needed position at the preview output and send it to the program output with the Take button.</p>
CLIP	<p>Switch to clip mode. When clip mode is active, the CLIP button is green.</p> <p>Note: If the OUT point is less than 10 seconds from the current position, the CLIP button will turn red to indicate you are close to the OUT point.</p>
GOTO TC	<p>Go to a timecode.</p>
FAST JOG	<p>Enable fast jogging for a faster forward and rewind function.</p>
PL	<p>Switch between Playlist mode and the Real-Time and Preview modes.</p>
▶ (PLAY)	<p>Start playback at 100% speed in Real-Time mode.</p> <p>The ▶ button starts the playback of the current playlist. During video playback, the buttons for switching cameras switch video tracks. All tracks recorded from cameras are played synchronously, that is why switching tracks during playback is similar to switching cameras at the video switcher. The clips will be played at the speed(s) specified in the playlist. Use the T-bar to manually control the clip playback speed and press ▶ to return to the clip default speed value specified in the playlist</p>
PAGE	<p>Select a clip page.</p>
1 - 10	<p>Store and retrieve cue points, clips and playlists; enter timecodes. Note that the 10 button has the value 0.</p> <p>To switch the page, press PAGE and the 1-10 digit.</p> <p>To switch the bank, press SHIFT [F1] and the 1-10 digit.</p>

SHIFT [F1]	Many buttons contain an upper and lower control. To use the upper control, first press and release the SHIFT button. A green light appears on the SHIFT button when this button is active.
OPTION [F2]	Enter to the Options menu to setup default configuration.
CLEAR [F3]	Exits the Option Menu and used with other button as IN and OUT button for deletion functions.
ENTER [F4]	ENTER button enables access to a parameter and sets a configuration defined configuration value.
Display Screen	Contains the following information: <ul style="list-style-type: none">▶ currently loaded playlist▶ camera status▶ IN/OUT points of current clips▶ Real-Time Mode: IN/OUT points and duration selected in the recording tray▶ playlist mode: IN/OUT points and duration of the selected clip in the current playlist▶ timecodes▶ Options menu (press OPTION [F2] to access)

For further information on Playlist Editing Control please refer to the [Playlist Operation Overview section](#).

3. System Start-up

Use the recording control to start-up the SL NEO 7000 Live Slomotion Replay system.

Recording Control

Launching Recording

In order to start using the Live Slowmotion Server, we need to start the recorders.

Enter the **Option menu** of the panel by pressing the **OPTION [F2]** button. Use the wheel to move between menu items and select the **Start REC** item. Press **ENTER [F4]** button to apply the selection. Press **CLEAR [F3]** button to exit the menu.

Recording Tray

The recording tray is the instrument for working with multi-track video. The tray allows users to navigate the recording, switch between tracks, implement playback with the regulated speed. The tray output always displays a signal from one of the cameras. The tray may be conditionally compared to the multi-track video recorder.

Turning Off Recording

Once we have finished our production, we shall stop the recordings before shutting down the server.

Enter the **Option menu** of the panel by pressing the **OPTION [F2]** button. Select the **Stop REC** item; use the wheel to move between menu items. Press **ENTER [F4]**. To exit the menu, press **CLEAR [F3]**.

Preview Output Monitor Labels



The following information is shown on the Preview monitor.

Information	Description
TC	Real-Time Mode: Timecode relative to the recording tray. Playlist mode: Timecode relative to the start of the playlist.
Cx	The selected camera, where x is the camera number.
PV	Indicates the activated Preview mode.
DL	Real-Time Mode: Delay timecode relative to the current recording point. Playlist mode: Delay timecode relative to the start of the current clip.
PR	Playback speed percentage.

4. Real-Time Mode Basic Operation

The **Live Operation** during an event is provided with the **Real-time mode** or the **Preview mode**. Beneath are detailed the specific operation in Real-time mode.

Start Recording the Camera inputs

Launching Recording

In order to start using the Live Slowmotion Server, we need to start the recorders.

Enter the **Option menu** of the panel by pressing the **OPTION [F2]** button. Use the wheel to move between menu items and select the **Start REC** item. Press **ENTER [F4]** button to apply the selection. Press **CLEAR [F3]** button to exit the menu.

Switching Cameras

Press the **1, 2, 3,** and **4** buttons to quickly switch between cameras. Use **SHIFT [F1]** and press **1, 2, 3,** and **4** to switch between cameras **5, 6, 7, 8** respectively

How to do a Replay in Real-Time Mode

1. Press **REC** to view the recording tray.
2. Use the **Jog/Shuttle Wheel** to locate a position.
Note: You may also locate a position using a timecode or clip.
3. Select a camera using the **1, 2, 3,** and **4** buttons.
4. Report about the replay readiness to the director.
5. Press **PLAY** to start the playback at 100% speed by the director's command.
6. Use the **T-bar** to control the playback speed.
7. When done, press **REC** to switch back to the current position in the recording tray.

How to use Clip Mode in Real-Time Mode

In Real-Time mode, clip mode sets the playback boundaries for the replay. When clip mode is active, playback will stop when the clip OUT point is reached.

1. Press and release **SHIFT [F1]** then press **CLIP** to activate or deactivate clip mode at any time. The **CLIP** button is green when clip mode is active.
Note: If the OUT point is less than 10 seconds from the current position, the **CLIP** button will turn red to indicate you are close to the OUT point.
2. Select a clip from the recording tray. This can be a manually marked clip or a saved clip (see [Clips Management](#)).
3. Start playback.
 - ▶ Press and release **SHIFT [F1]** then press **PLAY**. This starts playback at 100% speed.
4. If clip mode is active, playback stops when the clip OUT point is reached.

5. Preview Mode Basic Operation

Beneath are detailed the specific operations when working in Preview mode.

Start Recording the Camera inputs

Launching Recording

In order to start using the Live Slowmotion Server, we need to start the recorders.

Enter the **Option menu** of the panel by pressing the **OPTION [F2]** button. Use the wheel to move between menu items and select the **Start REC** item. Press **ENTER [F4]** button to apply the selection. Press **CLEAR [F3]** button to exit the menu.

Switching Cameras

Press the **1, 2, 3,** and **4** buttons to quickly switch between cameras. Use **SHIFT [F1]** and press **1, 2, 3,** and **4** to switch between cameras **5, 6, 7, 8** respectively

How to do a Replay in Preview Mode

1. Press **REC** to view the recording tray.
2. Press **PVW** to switch from Real-Time mode to Preview mode. Both REC and PVW shall be displayed in red.
3. Use the **Jog/Shuttle Wheel** to rewind to the end of the interesting moment in the Preview output.
4. Select a camera using the **1, 2, 3,** and **4** buttons.
5. Press the **OUT** button.
6. Use the **Jog/Shuttle Wheel** to rewind to the start of the interesting moment.
7. Press the **IN** button (not necessary).
8. Report about the replay readiness to the director.
9. Press **TAKE** to start replay playback at the Program output by the director's command.
10. Use the **T-bar** to control the playback speed.
11. Press **REC** to switch Preview to the current position in the recording tray. You may prepare a new fragment for replay at the Preview output while previous replay is playing at Program output.

How to do Back-to-Back Replays in Preview Mode

You can set up back-to-back replays in Preview mode. You can control the playback of the current replay on the Program monitor using the **T-bar** while simultaneously using the Preview monitor to work with the recording tray and prepare the next replay.

Note: Instead of using **TAKE**, you can use **CLIP** to switch to the next replay automatically when the current replay playback reaches the OUT point.

1. Do the first replay as usual. See [How to do a Replay in Preview Mode](#) for details.
2. Press **PVW** to switch to Preview mode.
3. While the replay is running on the Program monitor, use the Preview monitor to locate the position of the next replay and select a camera using the **1, 2, 3,** and **4** buttons.
4. When you are ready to start the next replay, press **TAKE**. The Program monitor jumps to the position currently shown on the Preview monitor.
5. Repeat steps 3–4 to continue playing additional back-to-back replays.

Using a Timecode to Locate a Position

Enter a timecode to locate a specific position. The timecode format is HH:MM:SS:FF.

1. Select a camera using the **1**, **2**, **3**, and **4** buttons.
2. Press and release **SHIFT [F1]** then press **GOTO TC**.
3. Enter the timecode using the number **1-10** buttons. The timecode is shown on the controller display screen as you enter it.
4. Press **ENTER [F4]**.

Using Clip Function in Preview Mode

Clip function allows operators to create back-to-back replays or playback individual clips.

When using the Clip function, replays execution is implemented in the cycled mode, from the IN to OUT point. After reaching the Out point, playback returns to the In point. This is useful when replaying the same position from different camera angles.

If the In point is not set, playback returns to the current point at the Preview output.

If no Out point is marked in the recording tray at the time of a switch, or if a manual **TAKE** is performed, the next switch must be done using a manual **TAKE**.

To activate this function, press **SHIFT [F1]** and **CLIP** buttons. The **CLIP** button will turn **green**.

1. To activate or deactivate clip mode at any time, press and release **SHIFT [F1]** then press **CLIP** button. The **CLIP** button is green when clip mode is active.
Note: If the OUT point is less than 10 seconds from the current position, the **CLIP** button will turn red to indicate you are close to the OUT point.
2. Select a clip from the recording tray. This can be a manually marked clip or a saved clip (see [Clips Management](#)).
3. Press and release **SHIFT [F1]** then pressing **GoTo IN** to go to the IN point.
4. Start playback. Press the **TAKE** button: replay playback will start at the program output.
 - ▶ Use the **T-bar**. This allows you to control the playback speed.
5. Select the next camera angle using the **1**, **2**, **3**, and **4** buttons.
6. When the OUT point is reached, the replay will switch back to the IN point using the new camera angle. 10 seconds before the playback end, the Clip button will turn from green to red.
7. Repeat steps 5–6 to continue selecting new camera angles.
8. Repeat step 2 to playback a new segment prepared in Preview and automatically start.
9. When done working in clip mode, press **CLIP** to deactivate clip mode.

6. Clips Management

The controller can store up to 1000 segments and 1000 playlists. Segments are assigned a 3-digit address that identifies where is stored as a clip in the media database; playlists are also assigned a 3-digit address in the same way.

- ▶ The **first** digit identifies the **page** where the clip or playlist is stored.
- ▶ The **second** digit identifies the **bank** where the clip or playlist is stored.
- ▶ The **third** digit identifies the **cell** where the clip or playlist is stored.

The controller contains a set of up to 10 pages to store clips and another set of up to 10 pages to store playlists. Each page contains 10 banks; each bank contains 10 cells. By default, clips/playlists are stored starting on page 0. The first item is stored in page 0, bank 0, cell 0; the second item is stored in page 0, bank 0, cell 1 and so on.

Note that clips and playlists are stored independently in the media database. Therefore, it is possible for a clip and a playlist to have the same 3-digit address. For example, the clip N123 and the playlist N123 can both exist at the same time.

Switching to a Page and Bank

1. Press and release **SHIFT [F1]** then press **PAGE**.
2. Select a page number using the **1-10** buttons. Note **10** value is represented as **0**.
3. Press and release **SHIFT [F1]**.
4. Select a bank number using the **1-10** buttons. A **red** light is shown on cells containing clips or playlists.

Creating Clips

Clips are stored in the currently selected page and bank.

The default clip length will be used if the clip OUT point is not defined. If both the IN and OUT points are not defined, the clip will be created using the default length and with the current position in the middle of the clip. The default clip length is specified in the [Options menu](#).

1. If necessary, switch to the page and bank where you want to store the clip (see the previous section [Switching to a Page and Bank](#)).
2. Press **IN** to mark the clip IN point.
3. Press **OUT** to mark the clip OUT point.
4. Use the **1-10** buttons to select a cell to store the clip. The digit button will be highlighted in **green**.
5. If the selected slot already contains a saved clip, the panel screen will display the message. To overwrite the slot, press **ENTER [F4]**.

Herewith, clips with names like `irplay_#pbc-{k}` appear in the server database, where p is the page number, b – bank number, c – digit-button number, and k – video track number.

Loading Clips

1. If necessary, switch to the page and bank containing the clip you want to load (see the previous section [Switching to a Page and Bank](#)).
2. The number button will be highlighted **red**, if the current slot already contains a saved clip. Use the **1-10** buttons in **red** to select the cell containing the clip you want to load.
3. The clip will be loaded and the button number will turn from **red** to **green**.

Deleting Clips

1. If necessary, switch to the page and bank containing the clip you want to delete (see the previous section [Switching to a Page and Bank](#)).
2. Press **CLEAR (F3)**. A red light is shown on cells containing clips.
3. Use the **1-10** buttons to select the cell containing the clip you want to delete.

Trimming Clips

You can shorten or extend a clip's IN and OUT points.

1. Select a clip.
 - ▶ Select a stored clip (see Loading Clips).
 - ▶ Or select a clip from a playlist (see Playlist Navigation).
2. Change the IN or OUT point to the currently selected position.
 - ▶ Press IN to change the IN point.
 - ▶ Press OUT to change the OUT point.
3. The fragment will be updated.
4. If you are working in Real-Time or Preview Mode (not playlist mode), you must store the clip in order to save the new marker positions.
 - ▶ Press **ENTER [F4]**.
 - ▶ Use the 1-10 buttons to select a cell to store the clip. A **red** light is shown on cells containing clips.

Protection of Memory Pages

Memory pages can be protected from erasing.

1. Enter the panel menu with **OPTION [F2]**.
2. Select the Protected Pages... item.
3. Mark the pages, for which the Clear Page function will not be called. (Page 0 – 10th page, Page 1 – 1st page, Page 2 – 2nd and so forth).

7. Playlist Operation Overview

Switching to Playlist Mode

To switch between immediate and playlist modes, press **PL**. When in playlist mode, the **T-bar**, **Jog/Shuttle Wheel** and the controller buttons are used for playlist operations.

When the **MOVE**, **TRANSITION**, **SPEED**, and **ALL** buttons are pressed, the button become active (a red light is shown). Press the button again to deactivate it when the current playlist editing operation is complete.

The controller can store up to 1000 clips and 1000 playlists. Playlist are assigned a 3-digit address that identifies where the playlist is stored in the media database.

Stored playlist appears with names like `irlist_#pbc` in the database, where p is the page number, b – the bank number, c – the digit-button number. For example, `irlist_#243`.

Playlist Playback and Navigation Controls

The following controls are used in playlist mode. When in playlist mode, the bottom controller buttons, as well as the **T-bar** and **Jog/Shuttle Wheel**, are used for playlist operations.

Press **PL** to switch between playlist and Real-Time Modes.

PLAYLIST CONTROLS

Control	Description
PL	Switch between playlist and Real-Time Modes.
PVW	Go to the beginning of the current playlist.
TAKE	Go to the end of the current playlist.
PAGE	Select a page.
GOTO TC	Go to a timecode.
GoTo IN	Go to the beginning of the currently selected clip.
GoTo OUT	Go to the end of the currently selected clip.
IN	Change the IN or OUT point for a clip to the currently selected position.
OUT	Change the IN or OUT point for a clip to the currently selected position.
▶ (PLAY)	Start playback of the current playlist. The clips will be played at the speed(s) specified in the playlist. Note: Use the T-bar to manually control the clip playback speed. Press ▶ to return to the clip speed specified in the playlist.

Playlist Navigation

- ▶ Press **NEXT** to select the next clip in the playlist.
- ▶ Press **PREV** to select the previous clip in the playlist.
- ▶ Press **PVW** to jump to the beginning of the current playlist (only in the Playlist

mode).

- ▶ Press **TAKE** to jump to the end of the current playlist (only in the Playlist mode).
- ▶ Use the **Jog/Shuttle Wheel** to scroll through the clips in a playlist and select a clip.
- ▶ Press ▶ to start playback of the current playlist

Other buttons as **PAGE**, **GOTO TC**, **GoTo IN**, **GoTo OUT**, **IN** and **OUT** have same functionality in all modes.

Playlist Editing Controls

The following controls are used to compose and edit playlists. These buttons are located at the top of the controller and are used solely for playlists.

When the **MOVE**, **TRANSITION**, **SPEED**, and **ALL** buttons are pressed, the button become active (a red light is shown). Press the button again to deactivate it when the current playlist editing operation is complete.

Insert	DISPLAY	Browse
Append		Delete
Undo		Trans
Move		Speed
All		Clear PL
Prev		Aux Audio
A. Level		Load PL
Next		Store PL

PLAYLIST EDITING CONTROLS

Control	Description
INSERT	Insert a clip (taken from the recording tray) into the current position in the playlist.
APPEND	Append a clip (taken from the recording tray) to the end of the playlist.
UNDO	Undo the previous playlist editing operation.
MOVE	Move the currently selected clip to a new location in the playlist. Use the Jog/Shuttle Wheel to move the clip.
ALL	Apply an editing operation to all clips in the playlist. Press ALL , then perform the editing operation (change speed, transition or audio level; delete all clips). Press ALL again to deactivate the button.
PREV	Select the previous clip in the playlist. Select the next clip in the playlist.
AUDIO LEVEL	Change the clip audio level. Use the T-bar to change the level.
NEXT	Select the next clip in the playlist.

DELETE	Delete the currently selected clip.
BROWSE	Browse the clips in the media database.
TRANSITION	Change the clip transition type and duration. Use the Jog/Shuttle Wheel to change the type; use the T-bar to change the duration.
SPEED	Change the clip speed. Use the T-bar to change the speed.
CLEAR PL	Delete a playlist from the current page and bank. Use the 1-10 buttons to select the cell containing the playlist you want to delete.
AUX AUDIO	Select a background audio file.
LOAD PL	Load a playlist from the media database.
STORE PL	Save the current playlist to the media database.

Creating and Editing Playlists

Adding a Clip to a Playlist

1. In **Real-Time** or **Preview mode**, mark a clip using the **IN** and **OUT** buttons.
2. Add the clip to the playlist.
 - ▶ Press **INSERT** to insert the clip into the current position in the playlist.
 - ▶ Press **APPEND** to add the clip to the end of the playlist.

Moving a Clip to a New Location in a Playlist

1. Select a clip.
2. Press **MOVE**.
3. Use the **Jog/Shuttle Wheel** to move the clip.

Deleting a Clip

1. Select a clip.
2. Press **DELETE**.

Changing the Audio Level for a Clip

1. Select a clip.
2. Press **AUDIO LEVEL**.
3. Use the **T-bar** to change the level. Possible values are 0 to 200%.

Changing the Transition for a Clip

1. Select a clip.
2. Press **TRANSITION**.
3. Use the **Jog/Shuttle Wheel** to select the transition type: cut, vmix (fade to black), or xmix (dissolving).
4. Use the **T-bar** to select the transition duration (top position = 0 seconds; bottom position = 2 seconds).

Changing the Speed for a Clip

1. Select a clip.
2. Press **SPEED**.
3. Use the **T-bar** to select the clip speed.

Selecting a Background Audio File

- ▶ Press **AUX AUDIO**.

Applying an Editing Operation to All Clips

You can apply the following editing operations to all clips in a playlist: change speed, transition or audio level; delete all clips.

1. Press **ALL**.
2. Perform the editing operation.
3. When done, press **ALL**.

Undoing the Previous Playlist Editing Operation

- ▶ Press **UNDO**.

Saving a Playlists

1. If necessary, select the page and bank where you want to store the playlist (see the previous section [Switching to a Page and Bank](#)).
2. Press **STORE PL**.
3. Use the **1-10** buttons to select a cell to save the playlist in. A green light is shown on cells containing playlists.

Loading a Playlist

1. If necessary, select the page and bank containing the playlist (see the previous section [Switching to a Page and Bank](#)).
2. Press **LOAD PL**.
3. Use the **1-10** buttons to select the cell containing the playlist you want to load. A green light is shown on cells containing playlists.

Deleting a Playlist

1. If necessary, select the page and bank containing the playlist (see the previous section [Switching to a Page and Bank](#)).
2. Press **CLEAR PL**. A red light is shown on cells containing playlists.
3. Use the **1-10** buttons to select the cell containing the playlist you want to delete.

Browsing the Clips in the Media Database

- ▶ Press **Browse**. Use the **Jog/Shuttle Wheel** to navigate the menus and fields in the media database.

Playback the Current Playlist

During playback of a playlist, you can switch between using the clip speed defined in the playlist (press play **PLAY**) and manually controlling the speed (move the **T-bar**).

Note: Moving the Jog/Shuttle Wheel will stop playback.

1. Use the **Jog/Shuttle Wheel** or the playlist navigation buttons to select a position. Playback will begin at this position.

2. Start playback.

- ▶ Press and release **SHIFT [F1]** then press play ▶. The clips will be played at the speed defined in the playlist.
- ▶ Use the **T-bar**. This allows you to control the clip speed.

8. Pre-sets and Options Menu

Use the Options menu to start and stop recording as well as change the controller settings.

1. To access the Options menu, press **OPTION [F2]**.
2. Use the **Jog/Shuttle Wheel** to select an item in the menu, then press **ENTER [F4]** to make changes to the item. See the following table for a list of menu items.
3. To exit the Options menu, press **OPTION [F2]** or **CLEAR [F3]**.

OPTIONS MENU

Menu Item	Description
Export Clip	select the option for export. In case of adding several tasks, they are placed to the export queue, which is executed consequently. Export Tray Clip – clip export from tray. Export Playlist – export of the loaded playlist. Export Playlist (Multicam) – export of the loaded playlist.
Cancel Current	cancels the current task in the queue.
Cancel All	cancels the task queue.
Start Rec	launches recording services.
Stop Rec	stops recording services.
T-bar range	Change the speed range of the T-bar . Default range is 0 to 100%. Other options include -100 to +100% and -200 to +200%.
Shuttle speed	sets the speed of wheel rewinding in the Shuttle mode.
Fast jog speed	sets the speed of wheel rewinding in the Jog mode with the pressed Fast Jog button.
Audio	Turn audio on or off during playback.
Def. Clip Dur.	Default clip duration. sets the default clip timing (when IN/OUT points are not set). HH:MM:SS:FF timecode values.
Set CUE on IN	(ON/OFF values) – allows marking by pressing the IN button. If this option is enabled, a cue point is created automatically when a clip IN point is marked in recording mode (the REC button is red).
Dissolve Dur.	(0) Dissolve duration during the TAKE operation. Applies to manual TAKE operations and TAKE operations occurring in clip mode.
Take Swaps PVW	(ON/OFF values) – swaps PGM and PVW windows. We recommend turning off this function by setting the OFF value. Determines the behaviour of the Preview monitor when the TAKE operation occurs. Two options are available: 1 - Switch the Preview and Program monitors. 2 - Send the Preview position to the Program monitor. (Preview position remains the same.)
Rev Rec/Play	(ON/OFF values) – swaps REC and PLAY buttons.

JOG stops at	(Fields/Frames values) – sets the type of wheel rewinding. Rewinding can be implemented by fields or frames.
Rev Enter / SHIFT [F1]+ ENTER [F4]	(ON/OFF values) – swaps actions set for the buttons (setting the marker ↔ adding a clip to the playlist).
Def. Playlist Mix Mode	(vmix/xmix/over values) – sets the default transition type between playlists.
Def. Playlist Mix Dur	(frame values) – duration of mix-transitions between playlist elements.
Space Alarm	(values in GB) – the operation threshold for the message about the lack of free space.
Overwrite Clips	(ON/OFF values) – allows overwriting clips.
Display Delay	(ON/OFF values) – turns on/off displaying the DL parameter on the screen.
Protected Pages...	<p>opens the dialog for selecting protected pages (added in the 2.0.122 version).</p> <p>Pages 0-9 - setting protection for 0-9 pages ("Page 0" – 10 page, "Page 1" – 1 page, "Page 2" – 2 page etc.).</p>