Eos Remote Processor Unit

The Eos Remote Processor Unit provides main and backup for Eos lighting control systems. It can be used in conjunction with Eos consoles and can also be used as a stand-alone lighting playback unit.

The RPU is a 3U 19" rack mount device.

Controls on the front of the unit include the following:

- Power Switch
- USB
- Read Only CD drive
- 10x2 user programmable buttons

Controls on the back of the unit include the following:

- Power input
- Dual video output (DVI/SVGA – 1280x1024 minimum resolution)
- Ethernet
- 4x USB

The 20 user-programmable buttons on the front of the RPU having default mapping, as follows:

Top Row:	Bottom Row:
Live	Blind
Tab	Scroll/Page
Escape	Page Left
Page Up	Page Down
Select	Page Right
Macro 901	Macro 905

Macro 902	Macro 906
Macro 903	Macro 907
Macro 904	Macro 908
Stop/Back	Go

The RPU has six LEDs on the front, as follows:

- Primary. This LED is illuminated on the RPU that is configured as primary.
- Backup. This LED is illuminated on the RPU that is configured as backup.
- Client. This LED is illuminated on any RPU that is configured as a client. This means that the RPU is not directly charged with outputting to the rig, but is a secondary processor to the main and backup processors.
- Master. This LED is illuminated on the RPU that is currently controlling the rig. If the RPU is configured as a backup and has control, this LED blinks.
- Tracking. This LED is illuminated on all RPUs when they are synchronized, and blinks if tracking is lost.
- Expand. This LED is reserved for future functionality.

The assignment of an RPU as Main, Backup or Client is selected at the log in screen.

The 20 buttons on the RPU can be reconfigured via a programming tool in the Eos Shell. See the Eos Operations Manual for instructions on accessing the shell. Each of the 20 buttons may be configured to any single Eos command.

An option to copy the configuration to/from a USB drive is provided, allowing transfer of the configuration from one RPU to another.

Synchronized Backup – Theory of Operation

Synchronized Backup features provide redundancy for an Eos system. Two or more consoles or RPUs must be used together to enable this feature. At all times during programming and playback the primary and backup consoles (or RPUs) are synchronized. If the primary console (or RPU) fails or is otherwise disconnected from the lighting system, the backup is immediately available with the current show data and state.

1 Definitions

- Primary – The console or RPU that is designated as the primary console. The primary will control the lighting system by default. There is only one primary console in each system. This is a configuration setting.
- Backup – A single console or RPU that is capable of taking control of the system if the primary fails. In the event of a primary failure, the backup may be configured to take control automatically or via user intervention. There is only one backup in each system. This is a configuration setting.
- Client – Any console or RPU that is configured to have the show synchronized with the primary, but is not capable of taking control if the primary fails. Consoles or RPUs configured as Clients can be used as additional users while

the Primary is operating normally. Clients may change their Primary console at anytime. This is a configuration setting.

- Master – The console or RPU that is currently controlling the lighting system is the Master. Normally, the Primary is also the master.
- Tracking – Any backup or client console indicates when it is synchronized with the current Master.

2 Hardware options

Any combination of Eos consoles and Eos RPUs may be used together when Backup is required.

The output of the system is based on the lowest parameter count between the Primary and its Backup. For example, if a Backup with a 4k dongle connects to a Primary with an 8k dongle, the Primary's output will be limited to only 4k. Clients do not limit the channel count of the system.

Console to Console

Two consoles can be used together to provide backup. Either console can be configured as the primary. The other can be configured as either backup or client.

Configuring a console as backup provides full redundancy for a single console system. This configuration of the console allows it to be used as a separate user.

Configuring a console as a client allows that console to be used as a separate user while still backing up the show data and playback.

This will be a common configuration for touring multi-user applications. The configuration may be changed between rehearsals and performance. During rehearsal, the consoles will be configured as primary and client, allowing data backup and multi-user. During performance the system will be configured as primary and backup, for best reliability and switching time.

The least expensive backup option is one console and one server. In our preferred configuration, the RPU is used as the primary and the console as the backup. This is preferred because the RPU has the least UI burden and should therefore have better performance and reliability. This configuration can be extended to include multiple consoles.

If complete automatic backup is required in a multiuser system, two RPUs should be used. One RPU is configured as the primary and the other as the backup. Systems of this configuration can support many consoles at one time. Each console can be turned on and off as needed without resetting the RPUs. This is the most expensive option, but will be preferred in permanent installations. The RPUs will often be permanently installed in an equipment rack.

Startup Behavior
Consoles and RPU's are started either automatically on boot, or manually by the user. If the startup is automatic, the console or RPU will start in the last used configuration. The user may also start the console or RPU from the shell, by manually selecting their startup configuration.

Normal Operation
When the system is powered up, the console configured as primary takes control of the rig and is set as Master and the consoles configured as backup and client synchronize with the primary.

During programming and playback the following should be synchronized from the master to the backup and client consoles:

- Playback
- Record operations
- Manually set information

Manual Switching
At any time the user can force any console or RPU to be the master. When this is done, that console takes control of the rig and all other consoles start to track the new master. A branch labeled "Network>Configure" shall be available in the browser. This will bring up a dialog allowing the user to "Take Control" or "Release Control" when appropriate.

Master Failure
In the event that the master console fails or is disconnected from the lighting system…

- A dialog is displayed on the CIA of each console that indicates information about the failure. This dialog will include a list of consoles and RPUs that can take control of the system.
- If a console or RPU is configured as backup and it is configured for "autoswitch" is enabled, it will automatically take control of the lighting system and all clients consoles will synchronize with the new master. This will be indicated at each console via the dialog.
- If no console is configured as a backup, the user is prompted to select which client unit should take control.

Indicators
Indicators shall be provided in the status area of the CIA of the master console to indicate it is currently the master and to indicate if a backup is synchronized with it. Complimentary indicators will be provided on the backup and client consoles if the unit is currently synchronized with a master. The User ID, role, and status of the device shall be indicated. The roles shall include Primary, Backup, Client and Offline. Status indicators shall include Tracking and Master.

LEDs are provided on the front panel of the RPU to indicate role and status of the RPU.