

Solid State Logic

S O U N D | | V I S I O N

C100 HD

Digital Broadcast Console

V4.5/0 Software Update and Install Notes

Applicable to upgrades from V4.2/21 onwards

Packing List

Please check that the V4.5/0 Software Upgrade Kit (706C10ZP – ZIP only) contains the following items:

| | | |
|---|-----------------------------|-----------------|
| I | V4.5/0 Update Notes | (this document) |
| I | C100 HD Software Disk (ZIP) | P94010ZP |
| I | C100 HD Software Licence | P94012CP |

If any of the listed items are missing, please contact your local SSL representative before attempting the upgrade

This document contains essential information – please read it carefully before making any attempt to upgrade the system

Solid State Logic

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E&OE

Introduction

This document describes new options and bug fixes incorporated in the V4.5/0 software upgrade and details the hardware and software installation procedure required to update your system to this latest release of C100 HD software.

Please note that this release is only applicable to those systems that have previously been installed with V4.2/21 or greater software. If you have any questions about this release, please contact your local SSL Office or Distributor.

Software Installation

Please carry out the following steps carefully

1. Check the contents of the Software Upgrade Kit against the packing list; if there are any omissions, please contact your local SSL Office or Distributor before proceeding further.
2. As with all software installations, we strongly advise you to first generate an archive or 'mirror' copy of the C100 HD System Disk.

Archiving the System Disk

3. Format a new ZIP or Compact Flash disk using the **MISC / Tools / Format** function.
4. In the **FILE / Data** menu, select **Copy**.
5. In the resulting pop-up, stab on the large grey box beneath **Source**, which will present a list of the contents of the System Disk at root level; if not, stab the box next to **System** on the left of the pop-up.
6. Stab on the **Current Dir** box, which will select everything visible on screen (the entire contents of the System Disk). Once done, you will be returned to the **Copy** pop-up, which should now list one source item, the name given to the System Disk.
7. Stab in the small grey box beneath **Destination**, and stab the box next to **ZIP Disk/Mem Card** on the left of the resulting pop-up. This should display the root-level contents of the ZIP or Compact Flash disk which, if newly formatted (Step 3.), should display no content.
8. Stab on the **Current Dir** box to select the current level of the ZIP or Compact Flash disk. This will return you to the **Copy** pop-up, which should list the volume name of the ZIP or Compact Flash disk as the destination.
9. Stab **Start Copy** at the foot of the **Copy** pop-up. When the copy process has completed, stab on the yellow **Copy** box to quit the pop-up and dismount the disk. Remove the ZIP or Compact Flash disk, label it and store safely.

Installing the System Software

10. Carefully read the licence agreement that is printed on the label that seals the Software Licence envelope. When you break the seal on this envelope (see later) you will be bound by the conditions in this agreement. The agreement is also printed on the last page of this document. If you do not agree to the terms of the agreement then do not open the package, discontinue the installation process and contact your local SSL representative for advice.
11. Place the Software Release Disk in the processor's ZIP or Compact Flash drive.
12. Via the **System / Install** menu, and at the prompts, respond accordingly:
 - i. Stab on the **Start** box.
 - ii When instructed *Stab on device to install from*, stab on the **ZIP Disk/Mem Card** box.
 - iii When instructed *Stab on device to copy to*, stab on the **System Disk** box.
 - iv When the screen indicates **Install Completed**, remove the disk from the drive, and then stab on **Reboot** (at the top right of the **Install** pop-up).
13. Store the software disk in a safe place.

CI00 HD Software Update

14. When the system has booted, stab on the tablet with the pen and a pop-up will appear on screen inviting you to enable the software.

Please note that you will not be able to use the console until the Software Licence has been updated.

15. Open the Software Licence envelope containing your licence string and type this carefully using the console's keyboard.
16. Once the system has verified the licence validity, the Software Licence Agreement will appear on-screen. Stab on the **I Agree** box at the top of the pop-up to complete the licensing procedure.
17. Remember to store the Software Licence string in a safe place along with the software disk.

Important Information

Please Note

- C100 HD V4.5/0 software is a free of charge upgrade and is compatible with all Centuri Processors whether fitted with the older 626940 CPU card or the newer 626960 CPU card. Customers with the 626960 CPU card will however require FSB847 to be applied to their CPU card in order to use the Production Automation option. Please contact your local SSL Office or Distributor for further information.
- For customers whose Centuri Processor is fitted with a Compact Flash drive this upgrade is available as a download from our website. Full instructions on how to create a bootable Compact Flash disk will also be found on the website. *Electronic software distribution is only available to clients with Compact Flash equipped Centuri Processors.*
- For customers whose Centuri Processor is fitted with the older ZIP drive, it will be necessary to purchase an upgrade kit which will include a bootable ZIP disk containing the software. *A Compact Flash upgrade kit is available for these systems if required.*
- Whether booted from Compact Flash or ZIP, the software installation process is the same regardless.

C100 HD V4.5 Software

Creating a ZIP disk from a disk image file is a less than straightforward process. Therefore for Centuri Processors equipped with a ZIP drive, a software upgrade kit is available.

| SSL Part No. | Description |
|--------------|------------------------------------|
| 706C10ZP | Kit C100 Software U/G V4.5/0 (ZIP) |

C100 HD Compact Flash Upgrade

For Centuri Processors equipped with a ZIP drive, a kit to upgrade to a Compact Flash drive is available.

| SSL Part No. | Description |
|--------------|----------------------------------|
| 726750CF | Centuri Processor CF Upgrade Kit |

C100 HD V4.5 Software Chargeable Options

This software release now includes two chargeable options; DAW Control and the new Production Automation option.

| SSL Part No. | Description |
|--------------|----------------------------------------------------------------------------------------------------|
| Custom | DAW Control <i>Please contact SSL Project Engineering for part number and order information</i> |
| 626PAU1A | Production Automation – using Ross Overdrive® or Sony ELC® protocols |

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New Optional Features

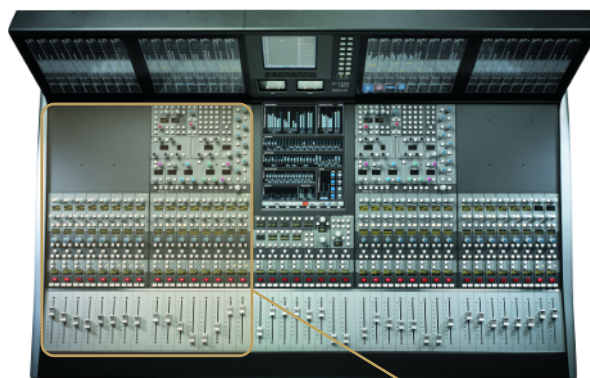
The following new feature is a chargeable option introduced with this C100 HD V4.5 software update.

SSL Production Automation Interface

The C100 HD supports both the Ross Overdrive and Sony ELC automation systems. Both systems connect to an RS422 port on the Centuri Processor and use serial communication to send and receive data to and from the console. (In the case of the Sony system, their Ethernet based control is converted to Serial with a Lantronix Ethernet to Serial convertor.) Information about the wiring of these interfaces can be found in the relevant **Console Installation Guide**. For the purposes of these notes, we'll assume the wiring and any necessary ancillary hardware is in place and working.

Switching Automation On

Automation capability is enabled through a software licence and is set-up in an editable text file stored with the other system set-up files. This file specifies whether the automation is enabled or disabled, the format for the serial communication (baud rate etc.) and the number of channels under automation control. The number of channels always starts with the console's first channel and counts up from there.



Automation control size can be specified from a single channel to all channels of the console but typically eg. 16 of 64 channels (not fader strips; see below).

Channels & Formatted Channels

Automation always controls 'formatted channel 1 and up'. On the C100 HD a 'formatted channel' is a single fader strip (this may be mono, stereo or 5.1 format). Therefore, if the automation asks to raise channel 1 in the console and channel 1 is set to be a 5.1 formatted channel, all 5.1 signals will change level. To understand how the C100 HD console configures its channels, please refer to:

- **C100 HD Operator's Reference Manual**, Section 2, Page 36

Simultaneous Automation and Operator Control

Using custom layers, the channel faders under control can be hidden from the operator's view of the surface so that the console can be used simultaneously by both an operator and the automation system without distraction.

The User Interface

From the console, the operator interface for automation control is a simple 'soft key' command labelled **REMOTE ON** that can be programmed onto a centre section switch. This enables the control of the processing from the automation system. The status of this soft key is saved with the console project data, so that when a project is recalled with Automation control enabled, this function is also enabled.

Commands

Although largely the same, there are some minor differences in the console control functions that the Ross and Sony interfaces can support, as listed below.

| Function | Ross Overdrive | Sony ELC |
|------------------------------|-----------------------|-----------------|
| Master (Program) Fader Level | ✓ | ✓ |
| Channel Fader Level | ✓ | ✓ |
| Channel Pan | ✓ | ✗ |
| Channel On/Off | ✓ | ✓ |
| Channel PFL On/Off | ✓ | ✓ |
| Utility Bus Routing | ✗ | ✓ |

In Use

Fundamentally the SSL Production Automation interface provides the Ross or Sony automation system with a remote controlled mixer. This mixer follows commands issued from the automation system (or the vision mixer/switcher) and thus controls the audio mix of the production.

The automation system works in parallel with the console's physical controls, so if you adjust the level of a channel under automation control, the audio will change level. The fact that the level has changed will also be flagged to the automation system.

The limited abilities of the automation system (fader level, on/off etc.) mean that the console will most likely have to be pre-configured for a specific show, to set mic gains, EQ, master bus settings etc. This can all be simplified by the creation of projects to work with specific automated productions, other advantages are listed at the end of this section.

Ross Overdrive

For the Ross Overdrive to SSL Console interface to operate, the Ross Large Audio Mixer Interface option and the SSL Production Automation Interface option need to be purchased from their respective manufacturers (Ross & SSL) and installed as part of the automation system and console configuration.

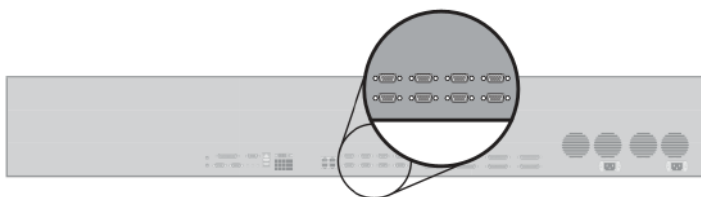
Connection

The C100 HD communicates directly to the Ross video switcher/mixer using an RS422 serial communication link between the Centuri Processor and the communication ports on the rear of the vision switcher/mixer. The Centuri Processor RS422 serial ports are located on the CPU card front panel:

- 626940 Card Discrete 9-pin 'D' connectors labelled 'Serial 1' through 'Serial 8' (some ports are dedicated to other functions)
- 626960 Card A single 62-pin high-density connector which is accessed with a 62-pin to 8 x 9-pin 'D' connector loom, the tails of which are labelled either 'P1' through to 'P8' or 'A' to 'H'.

The eighth port – 'Serial 8' or 'P8' (or 'H') – is used for connection to the video switcher.

If serial port 8 on the Centuri Processor is currently being used for Pro-Bel label imports, this should be moved to serial port 4 ('P4' or 'D' on the 626960 card depending on the loom) and the **Switcher_Serial_Config** file located in **Sysfiles** should be edited, changing the port number from '6' to '4' to complete the change. Note that the definition of physical port 8 (or H) in the serial control files is actually '6' rather than '8' as you might expect because physical ports 6 and 7 are dedicated to other functions...



Rear view of the Ross Vision Switcher Control Panel; the RS422 cable can connect to any of these ports.

| Vision Switcher | | | SSL Centuri | |
|-----------------|-----------|---|-------------|-----------|
| Remote Port | Signal | | RS422 | Signal |
| 1 | n/c | | | |
| 2 | RxA (Rx-) | ← | 8 | TxA (Tx-) |
| 3 | TxB (Tx+) | → | 7 | RxB (Rx+) |
| 4 | Gnd | | 5 | Gnd |
| 5 | Gnd | | | |
| 6 | n/c | | 5 | Gnd |
| 7 | RxB (Rx+) | ← | 3 | TxB (Tx+) |
| 8 | TxA (Tx-) | → | 2 | RxA (Rx-) |
| 9 | n/c | | | |

Vision Switcher/Mixer to Centuri Processor cable

Configuration

Information on how to set-up the Audio Mixer control is detailed in the Ross 'Vision Audio Mixer' document. This may be updated to include specific information about SSL, but largely the current set-up information for Calrec consoles is very similar with the exception of the cable wiring as detailed above.

If the system is configured and connected correctly, enabling **REMOTE ON** on the SSL console (via the 'soft-key') will connect the system and faders, PFL etc. will respond as described in the Ross documentation. The soft-key label for this function appears as 'RAP' on the key label and on the touch screen key. Remember that the channels 'under remote control' will be from console channel 1 up, as defined by the `CONTROLLED_CHANS` parameter in the `ross_config` file described in the *Technical Set-Up Information* section of this document.

Operation

For information on how to use the Ross Automation Interface, please refer to:

- **Ross Vision Operator's Manual** (Ross Part No. 4800DR-403), Ops Section 10, Pages 10 to 12.

Sony ELC Interface

For the Sony to SSL Console Interface to operate, the Sony ELC-MVS01 system will need to have both the Sony BZEL-MVS41 Sony Audio Mixer I/F Software option and the SSL Production Automation Interface option purchased from their respective manufacturers (Sony & SSL) and installed as part of the automation system and console configuration.

Connection

The C100 HD uses an RS422 Serial Connection to communicate with the Sony ELC automation system. The Sony ELC interconnection uses a Lantronix UDSI 100 External Device Server to translate between its native Ethernet communication and RS422 Serial protocol. (www.lantronix.com/device-networking/external-device-servers/udsi100.html)



This unit is configured using the Lantronix Device Installer application provided on the CD-ROM that ships with the unit. This application scans the local network and returns the IP address of any connected Lantronix UDSI 100 interfaces. Selecting the appropriate 'found' interface, then displays a screen which allows configuration of the Serial Port (interface format, baud rate, parity etc.). This should be set to match the default settings as detailed in the 'ross_config' file in the **Technical Set-Up Information** section of this document.

The Lantronix UDSI 100 ships with a 9-pin to 25-pin D-type cable. This is wired for RS232 and is therefore not useable in this application. A custom RS422 9-pin to 25-pin cable will be required. The RS422 25way pin-out is detailed in the Lantronix User Documentation supplied with the unit whilst the SSL 9-pin wiring is detailed in the appropriate **Console Installation Guide**. The completed cable should connect to the eighth serial port on the Centuri Processor as detailed in the Ross Overdrive instructions on the previous pages.

Configuration and Operation

Information on how to set-up and use the Audio Mixer control is detailed in the **Sony Live Production Control Software ELC-MVS01 User's Guide**. At the time of writing, this is at 1st revision for software V1.2.0 and later. Useful page references are:

- Pages 11 & 12, System Configuration How the automation system and audio mixer work together
- Page 20, Audio Mixer Settings Window Configuring the audio mixer within the ELC software
- Pages 47 to 53, Making the Audio Mixer Settings Describes how the audio mixer is controlled in detail
- Pages 148 to 151, Controlling the Audio Level Manually Describes control of the mixer via ELC when On-Air

If the system is configured and connected correctly, enabling **REMOTE ON** in the SSL console (via the 'soft-key') will connect the system and faders, PFL etc. will respond as described in the Sony documentation. Remember that the channels 'under remote control' will be from console channel 1 up, as defined by the CONTROLLED_CHANS parameter in the ross_config file described in the **Technical Set-Up** section over leaf.

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Technical Set-up Information

Hardware

Both the Ross Overdrive and Sony ELC Broadcast Automation Systems connect to an RS422 serial connector on the CPU card in the Centuri processor. Further connection information is detailed in the latest **Console Installation Guide**.

Production Automation is only supported by C100 HD V4.5 – or later – software

Software

SSL System Configuration

Production Automation is a software licence enabled feature. If the software option for the console has been purchased, there will be a licence string for the console that enables the feature.

If either the licence string or the feature is missing, please contact SSL Support for assistance.

If the feature is enabled, there will be a plain text file located in the `sysfiles` directory named `ross_config`. This file controls the configuration of the interface and is usually set-up on system installation and shouldn't need to be changed.

This file is called `ross_config` for both Ross and Sony interfaces.

The `ross_config` file should normally contain the following:

```
<Ross_Setup>
ENABLED 1
PORT 6
BAUD_RATE 115200
PARITY ODD
DATA_BITS 8
STOP_BITS 1
TX_TIMEOUT 25
SEND_ACKS 1
EXPECT_ACKS 0
REPORT_CHANGES 1
MAX_UPDATES_PER_SEC 10
CONTROLLED_CHANS 256
/<Ross_Setup>
```

The table on the page over leaf provides details each of these entries.

Config File Explanation

| Entry | Default | Description |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ENABLED | 1 | Switches on Production Automation <i>Set to 1 to enable, can be set to 0 to disable.</i> |
| PORT | 6 | Selects the system serial port <i>Set to 6 (physical port 8 or H). No other port can be used for production automation.</i> |
| BAUD_RATE | 115200 | Baud rate for communication <i>This should match the automation system's serial setting.</i> |
| PARITY | ODD | Parity format for communication <i>This should match the automation system's serial setting; options are NONE, ODD and EVEN.</i> |
| DATA_BITS | 8 | Data Bits used for communication <i>This should match the automation system's serial setting.</i> |
| STOP_BITS | 1 | Stop Bits used for communication <i>This should match the automation system's serial setting.</i> |
| TX_TIMEOUT | 25 | Communication timeout (in milliseconds) after which the console will re-send a command if no acknowledge has been received <i>This is currently unused in both Ross Overdrive & Sony ELC systems.</i> |
| SEND_ACKS | 1 | Enable/Disable sending communication acknowledge messages <i>Value should be 1 (enabled) for both Ross Overdrive and Sony ELC systems.</i> |
| EXPECT_ACKS | 0 | Enable/Disable expecting communication acknowledge messages <i>Value should be 0 (disabled) for both Ross Overdrive and Sony ELC systems.</i> |
| REPORT_CHANGES | 1 | Enable/Disable announcing local console changes to the automation system <i>Value should be 0 (disabled) for Ross Overdrive and 1 (enabled) for Sony ELC systems.</i> |
| MAX_UPDATES_PER_SEC | 10 | Controls the messaging limit to the automation system <i>Ross Overdrive specifies a limit of 10 changes per second per control, hence the default value of 10 which also works for the Sony ELC system. If set to 0, the console sends messages as fast as possible.</i> |
| CONTROLLED_CHANS | 256 | Number of channels under Production Automation control <i>This allows a limit to the number of automation controlled channels that are reported to the external automation system. The minimum value is 1, the maximum value is 256. The actual number of controllable channels reported will be limited by the size of the console's licensed processing channels. Ideally this number should be optimised to the number of console channels that require automation control, rather than just the size of the console. Doing so will speed up the polling of the console by the external automation system.</i> |

Automation Support Features

The following is a list of the SSL Broadcast Console features that can help the smooth workflow of an automated production environment.

| Feature | Benefit |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project System Configuration | Allows a preset show to be recalled for the whole console, ready for the automation system to control the show with no set-up. |
| Delay Compensation Tools | Delay Compensation in the console allows video and audio to be synchronised, even with complex production chains that include graphics and caption insertion devices |
| Source Linking | Selection of a channel's source sets up the console processing automatically with preset values – “This is Sandy's Mic and here are the normal EQ, Dynamics etc settings that this uses” – all achieved at the press of a button. |
| Utility Busses | With show set-ups that have multiple presenters or external sources, the ability to create audio monitoring feeds including mixes ‘minus’ the source feed are essential. |
| 5.1 Capable | With the commonplace use of High Definition production, consistent 5.1 performance is important. The C100 HD has a complete set of surround tools including dedicated channel configurations and monitoring. The console also handles down-mixing to stereo automatically too. |

Bug Fixes

The following is a list of the bugs fixed or resolved in this release:

- The '@' symbol is now displayed more correctly @ certain screens.
- Ref 11147 Delay control no longer 'sticks' when set to ms and running at 44.1kHz.
- Ref 11097 Tallies now work correctly for the bottom four 'Utility Tile' switches on Ethernet front panels.
- Ref 11093 Copy and swap lists no longer flicker when reaching the end of the list, thus delaying navigation of the list in the opposite direction.
- Ref 11183 Updating the code on the TFT Display Driver cards in the console is now more reliable.
- Ref 11337 Lockup of the routing pop-up when using attention keys to select a path more than once, has been addressed.

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