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	DEPARTMENT Engineering	CREATED BY: L. Brown	EFFECTIVE DATE November 17, 2020	REVIEWED BY: D. Eyre	

RS20i Software Updates

This document describes the latest software update for the RS20i. Software updates can be easily done on the RS20i through an internet connection, or through a USB memory stick.

Software updates usually contain a variety of improvements, new features, and or bug fixes. In some cases updates may affect the setup and operation. Please read the summary of updates for this release before updating the RS20i. Additional information on features can be found in the RS20i manual.

How to Check if an Update is Required

The current RS20i software version may be found by selecting Setup → System → System Info. The current version is displayed in the box on the upper left of the screen. If your RS20i has an earlier software version you will need to update the software to use the features described in this document for V1.05.07.

Current version: 105.07
Build Date Wed Oct 21 17:24:17 PDT 2020

Check with Datasat Digital Entertainment Technical support at www.datasatdigital.com for the latest update.

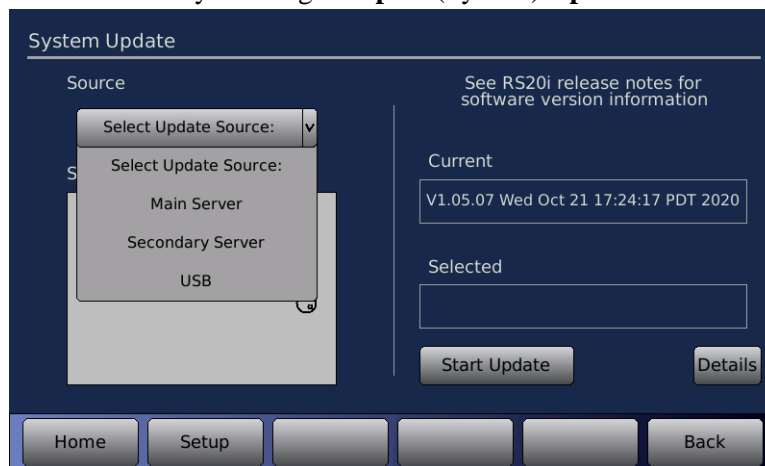
Software Update Procedure

The easiest way to update the RS20i is through the network. However, if an error occurs while downloading the update, then there may be a network security firewall at your facility that is preventing access to the Datasat web site.

If this or any other reason prevents the network update from working, then see the **Updating using a USB device** section for an alternate update method.

Updating to V1.05.07 using the network

Select **Setup → Network** to view the network screen. Verify the Link Up status at the bottom of the network screen. Select the update menu screen by entering **Setup → (System) Update**.




Using the **Select Update Source** pull down menu, choose **Main Server**, or **Secondary Server**. Both will provide the same information. If you successfully connect to the server a list will appear of all available software versions. The most current will always be at the top of the list. Use the adjustment knob to highlight the desired software version.

The current version of software loaded on the RS20i is displayed under **Current** on the right side of the screen. After pressing the Details button, the highlighted software version will display under **Selected** on the right side of the screen.

Press the **Start Update** button.

The RS20i should immediately start downloading the update file.

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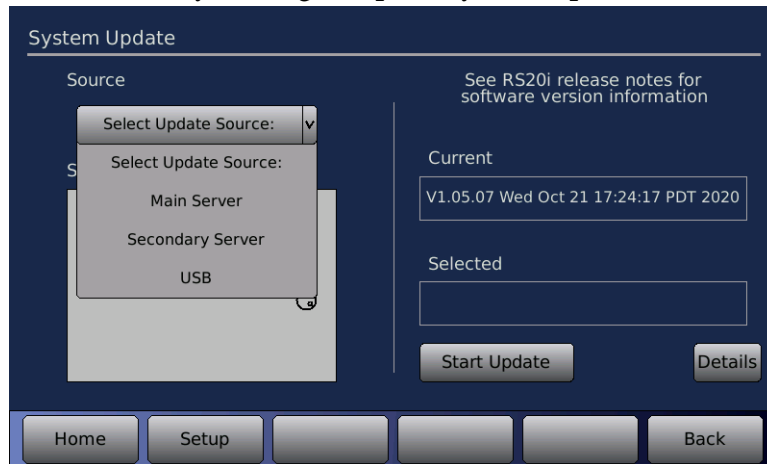
When the installation process is finished, the RS20i will automatically reboot.
 Wait for the Home screen to appear when the reboot completes.
 Check the **Setup** → (System) **Info** screen and verify that V1.05.07 is installed.

Updating to V1.05.07 using a USB Device


Download the RS20i update file and copy it to a USB memory device in the root directory. (Check with Datasat Digital Entertainment Technical support for instructions). The correct filename is: ciRS20v10507_rel.upd.

Connect the USB device to the USB connector on the front of the RS20i.

Select the update menu screen by entering **Setup** → (System) **Update**.

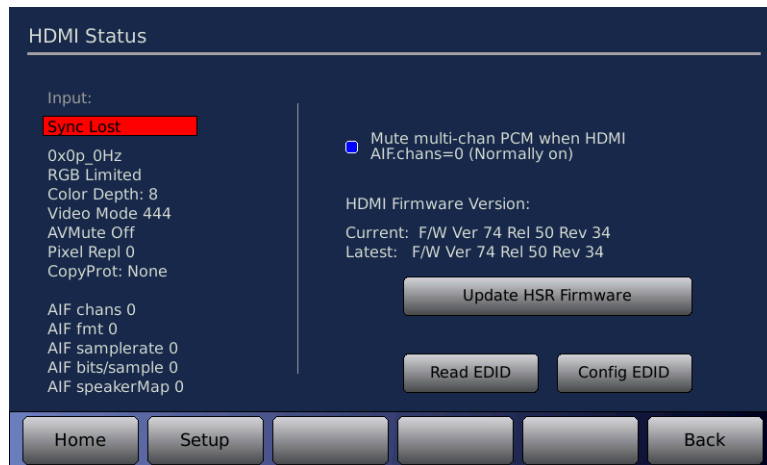


Using the **Select Update Source** pull down menu, choose USB.
 Select the update file.
 Press the **Start Update** button.
 The RS20i should immediately start downloading the update file.
 When the installation process is finished, the RS20i will automatically reboot.
 Wait for the Home screen to appear when the reboot completes.
 Check the **Setup** → (System) **Info** screen and verify that V1.05.07 is installed.

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HDMI Firmware Update Procedure

Updating the HDMI board firmware requires a separate update procedure from the main RS20i software update. Update the RS20i software before updating the HDMI firmware. This will assure that the latest HDMI firmware is available. To access the firmware update menu select **Setup** → **Decoder** → **HDMI**. The current loaded version and latest available version for the installed HDMI board will be displayed. Select the **Update HSR Firmware** button if an update is needed. Once the update is completed, reboot the RS20i. Verify that the latest version is installed.




- Note:** Not all input sources will have the Decoder selection available. If this is not displayed, set the input source for HDMI.


Updates for V1.05.07 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.07 since the previous software version V1.05.06.

Current version: 105.07
Build Date Wed Oct 21 17:24:17 PDT 2020


-  **Important.** The software upgrade to V1.05.07 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

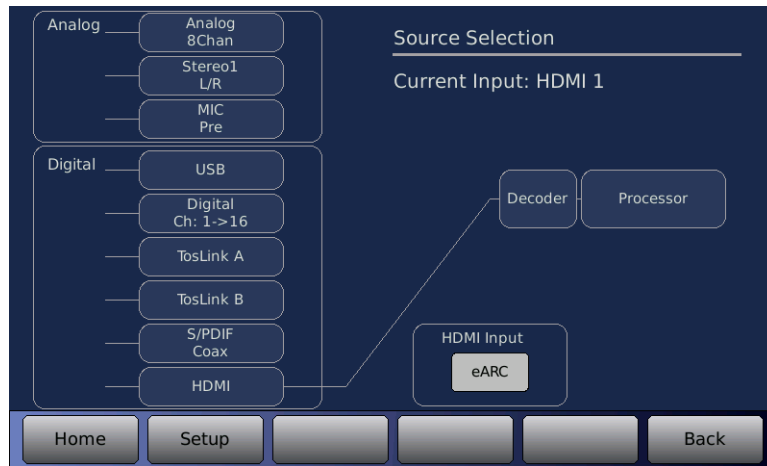
- Note:** Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.07.

-  **Important.** When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.07

1. Added **eARC** (Enhanced Audio Return Channel):
 - Added eARC as an input on the RS20i. This is accessed by selecting HDMI as the input source and then selecting eARC from the HDMI Input button.

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- eARC link state is displayed on the RS20i Home screen if in error state.
 - eARC may be selected through network or serial automation with “INPUT eARC”.
 - Note:** eARC is only available with the latest HDMI board, HSR-41T.
- Updated **HSR-41T HDMI board firmware**, now Ver. 74 Rel. 50 Rev. 34. This firmware fixes the following HDMI issues:
 - Fixed a rare issue with loss of audio channels if using an Apple TV 4K source. This was most often noticed in the center channel, but involved loss of all channels other than LR.
 - Fixed issue in which the hardware mute could be turned off if an invalid audio frequency was received.

Updates for V1.05.06 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.06 since the previous software version V1.05.05.

Current version: 105.06
Build Date Tue Jun 9 13:14:31 PDT 2020


⚠ Important. The software upgrade to V1.05.06 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.06.

⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.06

- Updated **HSR-41T HDMI board firmware**, now Ver. 74 Rel. 50 Rev. 29. This firmware fixes the following HDMI issues:
 - Mute stuck ON when DSD audio extraction is active.
 - Powering off a TV when it is in off/standby would result in the loss of audio extraction from the currently active Source device.
 - Inactive input ports would leave some Source devices thinking that they should send a signal and authenticate with the HSR41T. Since the authentication could not be completed, these Source devices could get themselves into a bad state requiring a reset or power cycle to start working again.

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- There was a timing issue when, with no TV connected, at startup if the Host commanded the HSR41T to select input 4 this would result in no signal received on the input port. Note: There is now a longer delay in the application startup (500-600 ms).
 - Occasionally, with some Source devices, 1080p video would be selected instead of the expected video format.
2. Reinstated button for Time/Date which was accidentally disabled when adding AES67.

Updates for V1.05.05 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.05 since the previous software version V1.05.04.

Current version: 105.05
Build Date Tue Dec 10 13:00:32 PST 2019

⚠ Important. The software upgrade to V1.05.05 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.05.

⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.05

1. Updated **HSR-41T HDMI card firmware** to Version 74 Release 50 rev. 22. This version fixes compatibility issues with older equipment.
Note: This update only applies to RS20i units that have the HSR-41T HDMI card. To check the card version and firmware loaded, check the RS20i info screen: Setup > Info. HSR Firmware is updated manually by navigating the RS20i menus to Setup > Decoder > HDMI. Select "Update HSR Firmware". After the update is complete, reboot the RS20i from the back panel and verify that the firmware is loaded by checking the info screen.
2. Fixed issue with EDID menu not appearing with HSR41T.

Updates for V1.05.04 Software Release


This section describes any new features, enhancements and bug fixes that are included in V1.05.04 since the previous software version V1.05.03.

Current version: 105.04
Build Date Thu Oct 24 13:46:53 PDT 2019

⚠ Important. The software upgrade to V1.05.04 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.04.

⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

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Improvements for V1.05.04

3. **AES67.** Added support for optional AES67 output card (H790). The H790 converts audio channels from the RS20i to AES67 format, allowing streaming over an Ethernet cable.
1. Added support for new **HSR-41T** HDMI board. This board has improved stability over the previous version. Note: The HSR-41T firmware is Release 50 Rev. 16.
4. Fixed issue in which the **HDCP** type did not always update on the front panel display.
5. Fixed an issue with **Surround** popup screen from the Home screen. The **Decoder Postprocess** options sometimes didn't all fit on the screen if too many were available.

Updates for V1.05.03 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.03 since the previous software version V1.05.02.

Current version: 105.03
Build Date Tue Mar 12 17:00:28 PDT 2019

⚠ Important. The software upgrade to V1.05.03 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.03.

⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.03

1. Added latest version of HSR-41Q HDMI board firmware (release 46 rev. 52). This version improves performance with some equipment, notably Apple TV.
2. Added remote commands:
 - a. VIDRES displays current video resolution
 - b. VIDPROT displays current video security (HDCP, etc.).
3. Fixed issue with Auro 5.1 content in which DTS decoder remapped and lost Auro information.

Updates for V1.05.02 Software Release


This section describes any new features, enhancements and bug fixes that are included in V1.05.02 since the previous software version V1.05.01.

Current version: 105.02
Build Date Thu Apr 12 16:34:09 PDT 2018

⚠ Important. The software upgrade to V1.05.02 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.02.

⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

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Improvements for V1.05.02

- Added latest version of HSR-41Q HDMI board firmware. V1.05.01 had an earlier firmware version in the update menu then was programmed on the HDMI board itself. This caused issues if an HSR firmware update from the RS20i menu was performed.
- Added two “Auto” mode selections for decoders (Setup > Decoder > Postprocess). This feature selects the appropriate upmixer for the content being played:

Auto1:

Content	Upmixer
DTS	Neural:X
Dolby	Dolby Surround
LPCM	Neural:X

Auto2:


Content	Upmixer
DTS	Neural:X
Dolby	Dolby Surround
LPCM	Dolby Surround

- The Auto settings are not available when Auro speaker configurations are selected.
- Added an “Off” setting to the routing matrix for each channel (Setup > Routing). This feature is useful if there are multiple output profiles, where some of them do not use that speaker.
 - Added a “Restart Unit” button to the menus to allow remote unit restart (Setup > More > Restart Unit).
 - Added “Apply” button to network screen to allow network settings changes to be applied remotely (Setup > Network > Apply). Selecting “Apply” will bring up a popup menu asking permission to restart the unit.
 - Implemented new Dolby required restriction on upmixing legacy Dolby to height speakers with other brands of upmixer.


Updates for V1.05.01 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.01 since the previous software version V1.05.00.

Current version: 105.01
Build Date Thu Oct 12 15:43:39 PDT 2017

 **Important.** The software upgrade to V1.05.01 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.00.


 **Important.** When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.01

- Added support for new **HSR-41Q** HDMI board. This board supports:
 - HDMI 1.4 & 2.0b mandatory formats
 - Up to “4K” pixel rates at 24-60 Hz (4:4:4)
 - 4K 4:2:0 format video at 60 Hz
 - Up to 12 bit Deep Color and HDR
 - All typical color spaces
 - Audio extraction (I2S standard) and loop through

This board does not support on screen display (OSD).

- Added "DTS:X" to status display on home screen.

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Known issue

V1.05.01 software does not contain the latest HSR-41Q firmware version, which is already programmed into the board. **Do not** update the HDMI firmware through the RS20i menus (Setup > Decoder > HDMI > Update HSR Firmware).

Updates for V1.05.00 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.05.00 since the previous software version V1.04.03.

Current version: 105.00
Build Date Thu Jun 8 13:53:05 PDT 2017

⚠ Important. The software upgrade to V1.05.00 from V1.00.05 or below is part of the Datasat Decoder Upgrade for RS20i package that includes a new decoder hardware card (H555 or H693). The decoder card **must be installed** in the RS20i. Without a decoder card installed, the software does not perform the Dolby, DTS and Bass Management functions.

Note: Installations using Digital Output on the RS20i, and updating from V1.02.01 or earlier, must reconfigure the digital output rate after updating the RS20i to V1.05.00.

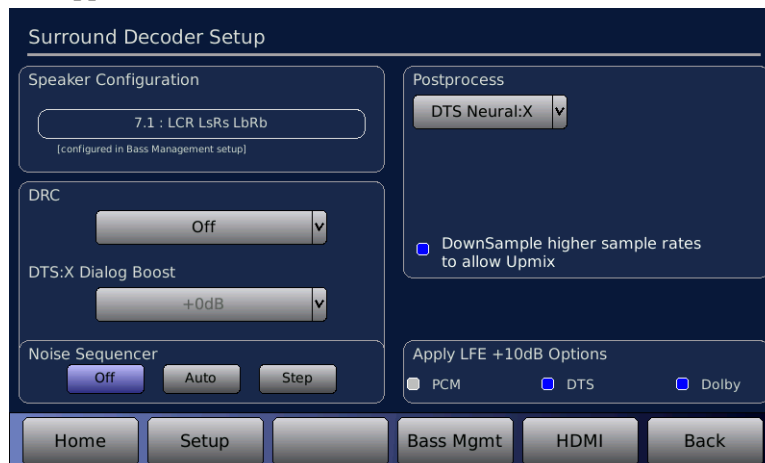
⚠ Important. When upgrading to an H693 Dolby® Atmos Decoder card, it replaces the H555 decoder card (if installed). The RS20i will not function with both decoder cards installed.

Improvements for V1.05.00

1. This version adds **DTS:X**, including **Neural:X upmixer**.


To access DTS **Neural:X** post processing, navigate to the Surround Decoder Setup screen (System > BassMan > Decoder) and select from the Postprocess dropdown menu. When Neural:X is selected, you may also choose to DownSample higher sample rates to allow Upmix.

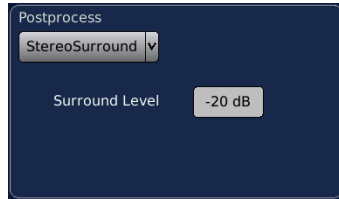
DTS:X Dialog Boost level may also be selected from this screen. Dialog may be boosted by up to +6dB for content which supports this feature.



2. Added “**Stereo Surround**” Postprocess mode. When this mode is selected, 2-channel content only will copy L to the all Left floor-level speakers and R to all Right floor-level speakers. An LR mix will go to Center. Note: Non 2.0 content will pass through without being changed (as if the Postprocess selection were set to “none”). There is also a Surround Level attenuation that may be set from 0 to -20dB for the speakers other than L & R themselves.

3. To access this feature navigate to the Surround Decoder Setup screen (System > BassMan > Decoder) and select StereoSurround from the Postprocess dropdown menu.

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4. Added display of **HDCP type** to the home screen.
5. Fixed an issue that caused the **1/3 octave EQ** filters to not be correctly enabled on startup.
6. Changed factory default **Dirac** version from 1 to 2.
7. Renamed Atmos Speaker settings to Height Speaker settings. This removed the separate Atmos speaker configurations from the drop down menu. Removed settings will migrate automatically to the new ones.

Updates for V1.04.03 Software Release

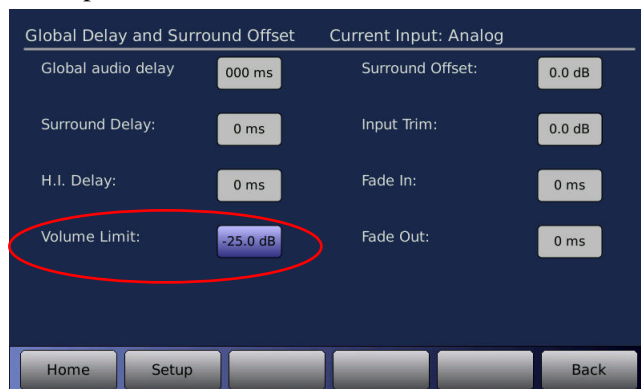
This section describes any new features, enhancements and bug fixes that are included in V1.04.03 since the previous software version V1.04.01.

Current version: 104.03
Build Date Mon Nov 21 11:33:18 PST 2016

Improvements for V1.04.03

1. Updated PIC program to correct an issue with programming the H693 decoder card flash memory.
2. Added **Volume Limit** feature. This optional setting allows the installer to set the maximum volume level on the RS20i, which prevents the user from raising the volume past a safe volume level. Factory setting is for maximum volume or 0.0 dB.


To use this feature select Setup on the Home Screen and then select the “GlobDel” button in the Input group on the left. The screen below should now appear. To set, simply touch the volume Limit value box, then use the volume knob to adjust desired maximum volume level setting. Once set the volume can not be adjusted past this level, in the example below the maximum volume level is -25dB.



Updates for V1.04.01 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.04.01 since the previous software version V1.04.00.

Current version: 104.01
Build Date Fri Sep 30 13:05:33 PDT 2016

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Improvements for V1.04.01

1. Updated channel level adjustments applied during Dirac2 measurements to make them non-persistent.
Note: Requires Dirac2 setup software V1.00.02 or above.
2. **Channel Delays** screen now has an added “Units” button which allows the user to select display of the delays in either milliseconds (ms), centimeters (cm) or inches (in). This selection is non-persistent and does not affect internal operation.
3. The current **video resolution** is now displayed on the **Home** screen.
4. Decreased delay after update of HSR (HDMI) firmware. Previous delay was long enough that the unit might appear to hang.
5. VU display:
 - a. VU Channel display enable. Selecting **Set Channel Names** in the Bass Management screen now also enables display of the appropriate channels in the VU display of the Home screen.
 - b. Fixed an issue that caused the wrong bars to be active for pink noise and the noise sequencer when channels rerouted.
 - c. Fixed an issue with the VU meters not bouncing after changing input while muted.
6. Fixed a display issue with 9.1W in the **Surround Decoder Setup** screen.
7. Fixed an issue that sometimes caused the pink noise generator to be intermittent.

Updates for V1.04.00 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.04.00 since the previous software version V1.03.05.

Current version: 104.00
Build Date Tue Mar 8 11:42:00 PST 2016


Improvements for V1.04.00

1. Support for new Dolby® Atmos decoder card **H693**.
 - a. Add menu options for Atmos Speaker Configuration in the Bass Management screen.
 - b. Add Atmos configuration error display to relevant screens.
 - c. Add support for H693 Audio USB input.
 - d. Add Bass Management for Dolby Enabled Speakers (DES).
2. Add **Set Channel Names** button in Bass Management screen to automatically fill in the channel names menu. This information will be seen on the **Home** screen VU meters. Note: VU meters for these channels must still be switched on manually.
3. Add sample rate display for PCM streams.
4. Change Parametric filters to be full frequency range.

Updates for V1.03.05 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.03.05 since the previous software version V1.03.04.

Current version: 103.05
Build Date Tue Oct 6 12:24:22 PDT 2015

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Improvements for V1.03.05

1. Support for new HDMI board **HSR-41.2**. This board supports a sub-set of the HDMI 2.0 spec. It also supports HDCP 2.2 security on the output and input #4 only.
 - a. HSR-41.2 firmware is Ver 44 Rel 43 Rev 17 Tx 1.1.1 Rx 1.2.2.
 - b. Programming firmware now programs additional devices on board.
 - c. Uses new API to get resolution info.
 - d. Status display of HDCP modes.
2. Added option to send Magic Packet/Wake on LAN from automation send TCP action.
3. **Dirac 2** – Moved **apply levels** and **apply delays** options from Output Profile to Global configuration.
4. Fine tuned decoder error handling.


Updates for V1.03.04 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.03.04 since the previous software version V1.03.03.

Current version: 103.04
Build Date Wed Jun 10 13:21:31 PDT 2015

Improvements for V1.03.04

1. **HDMI:**
 - a. New firmware for HSR41 board: Ver 24 Rel 42 Rev. 11. Note: HSR5 latest firmware is still Ver 11 Rel 39 Rev 5.
 - b. Updated HDMI Status screen to list description of 4K resolutions, when present.
 - c. Added "HDMIRESTART" automation command to address site-specific sequencing problems.
 - d. Added detection and correction of some HDMI related error conditions.
 - e. Extended HDMI logging information to aid with trouble shooting.
 - f. Improved reliability of HDMI board firmware updating to address issue seen on a small number of boards.
2. **Automation Serial Setup.** Added Parity selections of Odd, Even or None with 7 or 8 Data Bits.
3. **Channel Names screen (Setup → (Output Preset) ChNames).** Added options for Vu display of internal channels routed to two or more output channels.
 - a. **Vu On (Sum):** The displayed Vu is the sum of the levels of the routed outputs. This would be used in the case of a crossed-over channel. For example if channel 1 is crossed to the low end on channel 1 output and high end on channel 2 output, the 2 are summed to indicated the full level of channel 1.
 - b. **Vu On (max):** The displayed Vu is whichever one of the routed outputs is at the higher level. This would be used if the outputs are just copies of the internal channel. For example, channel 1 is routed to output channels 1 and 2 without any low/high pass filters.
4. Added **AutoOff** function to shutdown RS20i after a period of no audio (**Setup**→ (System) **System**→**More**). This may be set for **Disabled, 5 minutes, 30 minutes** or **1 hour**.
5. Moved **Identity** fields **Screen, Info1** and **Info2** from the **System**→**More** screen to the **Access Control** screen (**Setup** → (System) **Access**).
6. Added option to **Enable Mic** with Stereo1 or Stereo2 source inputs (**Setup**→ (Input) **Inputs**→**Input Options**→**Stereo Level**). Note: Stereo-postprocessing will be disabled when the Mic is enabled.

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7. Dirac 2

- a. On Channel Delays screen, only display Dirac delays when Dirac is actually enabled
- b. Fix issue with wrong gains being applied to channels 9→16
- c. Fix issue with wrong invert settings being applied to channels 9→16
- d. Fix even number channel being set flat when previous odd-number channel had no filter assigned.
- e. Change to IIR filter settings to use higher resolution coefficients for better filter accuracy
- f. Adjustment to IIR filter settings. Some settings would produce non-optimal filter results.
- g. Fixed issue: When "Apply D2 levels" or "Apply D2 levels" settings were changed, setting was not saved unless some other profile-specific setting changed.

Updates for V1.03.03 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.03.03 since the previous software version V1.03.02.

Current version: 103.03
Build Date Wed Nov 12 09:59:23 PST 2014


Improvements for V1.03.03

1. Audio Processing:

- a. Added 'Native' mode to the options for Auro-3D listening mode. Under Auro-3D Native mode, the processor decodes any Auro-3D content, but does not perform additional upmixing, or any upmixing on non-Auro-3D content.
- b. Added option to allow additional 10dB gain. This can be enabled with the 'Relax Analog Gain Limit' on the System > More screen.
- c. Fix for a possible clicking issue when using Dirac 2. The Dirac 2 pass-thru filters were adding a minimal gain and that caused the near full scale digital signal to over flow and cause the clicks. This is fixed by compensating for the gain and adding a proper digital limiter to the filtered signal.
- d. Fix handling of bitstream mono content for Auro and Neo:X.
- e. Fix an initialization problem where under certain circumstances the Auro configuration would not be properly set after a change in the primary decoder.
- f. Added support for connecting to a Digital Cinema server. An Input Option button labeled 'Digital Cinema Options' is included when the source input Digital 1-16. This supports channel routing options when using the 16 channel digital input with a digital cinema server. The following DCP (Digital Cinema Package) formats are supported:
 - 1) 5.1 DCP
 - 2) 7.1 DCP
 - 3) 5.1 DCP with 7.1 Speaker configuration (copies side surrounds to the back surrounds)
 - 4) Media block decoded Auro 11.1 for Cinema
- g. Fix +10dB LFE boost for HDMI multichannel PCM.
- h. The DRC setting is now set to 'Off' after a factory reset.
- i. Fixed noise level for pink noise sequencer.

2. GUI Updates:

- a. The Setup screen now includes numerous buttons to directly access many of the setup sub-menus. This Setup screen format was available in previous versions only when "Expert" Nav Mode was selected. Expert Nav Mode is no longer included in v1.03.03.


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- b. Text changes have been made to some of the setup screens for creating Input Presets, EQs, and Output Presets. Editing text on these screens has been updated to better reflect its functionality in a simplified form. See the latest RS20i manual for details.
 - c. Moved the Monitor button (MON) from Home screen to the System Setup (2) screen. To navigate to the System Setup (2) screen, select Setup > System > More.
 - d. On the HDMI Status screen there is text that shows the 'Current' and 'Latest' firmware for the HSR card, or HDMI interface card. The 'Current' version is what is currently running in the HSR card. The 'Latest' is the version to be programmed on the HSR card after selecting the 'Update HSR Firmware' button. To navigate to the HDMI Status screen, select Setup > Inputs > Input Options > Decoder Setup > HDMI.
 - e. In the Home screen, Surround popup menu, updates in the configuration sent from a remote command now show in the popup window while it is open.
 - f. A fix was made for the System Info screen so that it will always correctly display the Auro version when the Auro-3D license is installed.
 - g. On the Automation Edit Action screen, the entry text in the Action Type dropdown list for “Fader” was changed to “Volume”.
 - h. The GUI to set the Speaker parametric filters was updated to graphically show the enabled filters. This screen is found in Setup > Out Prst > Spk Filt.
 - i. On the Automation Events screen, the text color on the Delete Event confirmation dialog box was fixed.
 - j. On the home screen the SURROUND button is disabled when the source is Digital (Digital Ch: 1-16). There are no decoder functions available with that source selection.
 - k. Open Source notice available on the GUI. See Setup > Info > Notices
 - l. A screen was added to allow setting the system time and date. This should be used if the time is not set through the network using the NTP server. The time and date is useful to have proper timestamps on configuration files saved from the RS20i, and timestamps for the log files. To set the time and date, navigate to the screen located at Setup > System > More > Time/Date.
3. **Automation / Remote Control:**
- a. For remote control API, added parameter '+' to the MUTED command that allows the mute state to be toggled.
Example:
@MUTED +<cr>
 - b. Fixed automation triggers during the power-on process so that triggers will not be left enabled when the unit automatically goes to Standby mode after a power-on from power switch.
 - c. Updated the noise sequencer (on Decoder screen) channel sequence to correctly handle the speaker configuration 9.1hw and all Auro configurations.
4. **Configuration.** Fix for saving the channel 'Invert' configuration. Previously inverted selections were not saved.

Updates for V1.03.02 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.03.02 since the previous software version V1.02.02.

Current version: 103.02
Build Date Thu Aug 28 16:42:14 PDT 2014

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Improvements for V1.03.02

1. Auro-3D Decoder & Upmixer is now available with Auro-3D Option only. See TN_H687-01 for details on operation and related menus.
2. HSR-41 HDMI card firmware updated from Release 41 Version 24 Rev 7 to Release 41 Version 24 Rev 20. HSR5 firmware is unchanged at Release 39 Version 11 Rev 5.
3. Touchscreen GUI updates.
 - Updated color scheme used on most setup menus with dark blue background.
 - Surround button added to home screen for immediate access to decoder post processing modes (see TN_H687-01). The monitor button was moved next to the Setup button to allow room.
 - Improved organizational layout for “Expert Nav” mode setup screen.
 - Improved graphics for parametric filter configuration screen.
4. An option was added that allows the network interface to be used to synchronize two RS20i units. The operation for networked linked units is similar to serial link. The RS20i sends commands to the address of the linked RS20i unit when changes are made in volume, input and mute status. The linked RS20i unit must have the exact same input names in order for the commands to work.

To set the address of the linked RS20i unit, go to the System > More screen. In the “Network Linked RS20i” box, select “Enable” and enter the IP address for the linked RS20i unit. This should be done for both RS20i units.

5. Dirac 2 capable. For future use with upcoming Dirac Live software update. Setup operation will be provided in upcoming Dirac 2 Live operators manual. The original Dirac functionality is still operating in the RS20i unit. In order to load Dirac 2 calibration coefficients, the unit must be switched to Dirac 2.

To switch the unit to Dirac 2, go to the System > More screen. In the “Dirac Version:” box, select “Dirac2”. After switching the unit must be powered off and back on.

6. Digital volume default. The default digital volume after a factory reset is now set to -0.0dB. That allows the digital volume level to be attenuated at any volume level if the Digital volume enable is checked.
7. Bass Management
 - a. See TN_H687-01 for Bass Management with Auro-3D speakers.
 - b. New option for Left Surround and Right Surround: Cross with L/R
 - c. New option for Left Back and Right Back: Cross with L/R
 - d. New option for Left High and Right High: Cross with L/R
 - e. When “no subs” selected, the LFE can be mixed only with L, R and/or LS,RS speakers.


Updates for V1.02.02 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.02.02 since the previous software version V1.02.01.


Current version: 102.02
Build Date Thu Feb 13 12:12:35 PST 2014

Improvements for V1.02.02

1. The software now includes support for the HSR-41 HDMI card.
 - a. System Info screen Displays HSR41 or HSR5 depending on which board is installed.
 - b. Added release version of HSR41 firmware: Release 41 Version 24 Rev 7

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- c. Latest release version for HSR5 board is Release 39 Version 11 Rev 5 (unchanged).
2. Added selection to disable the digital audio output as a global system setup option.
 - a. The control “Digital Out Rate” on the system setup screen was changed to read “Digital Out Setup”.
 - b. The option “Off” was added to the list of sample rate options. The “Off” selection should be used whenever analog outputs only are used—this gives the best quality audio signal for the analog outputs.
 - c. The factory default setting for this is “Off”.
3. Added option for volume control display in cinema format (1.5 to 10.0). Only the display is affected, internal operation is not changed.
 - The GUI menu control to select “Use Cinema-Style Volume Display” is located in the System > More screen.
4. The audio is now disabled if the volume is reduced below -70dB. The display will indicate “---“ when this occurs.
5. An option was added that allows the serial port to be used to synchronize two RS20i units with respect to volume, input and mute status. Commands are sent to the linked RS20i unit whenever one of those items changes. The serial cable between the RS20s must have tx and rx crossed.
6. A decoder options pop-up menu can now be accessed from the home screen by tapping on the decoder status to the left of the volume display. Close the pop-up by tapping at the same location. The pop-up menu options are identical to those listed on the decoder setup screen.
7. Fixed a Dirac clip issue that occurred with non-contiguous channel assignment.
 - If a Dirac room tune was performed with the previous software version and one of the RS20i channels was skipped, then the compensation for the Dirac filters would be omitted from the highest Dirac channel. This allowed the possibility that the signal on that channel would clip. In order to fix this with current Dirac coefficients, the Dirac coefficients must be retransferred from the PC program to the RS20i.
8. Fixed an issue where a UI control may be triggered when tapping on the screen to exit the screen saver. During screen saver mode, the first tap on the screen will exit the screen saver but not activate any controls that may be behind the screen saver.
9. On the home screen the input-trim text next to the fader box was moved in order to avoid overlapping other information on the status bar.
10. Fixed GUI bugs on Input/Eq/Prof Edit screens that caused screen taps or clicks to be applied to items hidden underneath the combos controls.
11. Fixed an issue with the RTA screen in that caused the RTA input to be disabled when Mic input was selected and pink noise was disabled.
12. Fixed an Automation bug where certain IP address ranges would cause parsing problems with a tcp-send command in macro.
13. Fixed issue with channel name command parsing, where last name would be lost if the command was missing a trailing comma.
14. Changed the voltage tolerance on the H335 1.3V to allow +- .05 (permitted range) + 3% (possible reference error).
15. Fixed the channel mute operation when playing pink noise so that it is independent of any bass management routing.
16. An RS20i with a H335 rev 5 or below as shown on the System info screen will not be allowed to downgrade the software below this version (V1.02.02).

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Updates for V1.02.01 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.02.01 since the previous software version V1.02.00.

Current version: 102.01
Build Date Tue Nov 5 13:54:11 PDT 2013

Improvements for V1.02.01

1. Changed the way that Multichannel LPCM from HDMI is recognized. This corrects an issue that some devices had playing HD audio.
2. Corrected the downmix mode for DD/DD+ on 4.1 speaker configuration.
3. Changed menu item for mute on AIF.chans==0 to make it clear that it applies to PCM only


Updates for V1.02.00 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.02.00 since the previous software version V1.01.02.

Current version: 102.00
Build Date Fri Sep 20 13:21:06 PDT 2013

Improvements for V1.02.00

1. Channel delay screen
 - a. Output delay can now go up to 120ms.
 - b. Total delay of ch1-ch8 or ch9-ch16 must be ≤ 353 ms.
2. Added mono subwoofers for 2, 3 or 4 subwoofers in GUI.
3. HSR firmware update (Current HSR5 update version is: Release 39 Version 11 Rev. 5). Note: A power cycle must occur in order to update the HSR5 version text on the System Information screen.
4. Reset HDMI interface whenever a mute occurs.
5. A fix was made on the gain calculations during the Dirac coefficients ingest in order to avoid clipping when high level content is played.
6. Changed the pink noise sequencing operation in order to remove possible noises heard during the transition.
7. Zero out the VU meters whenever the audio is muted by the decoder.
8. Modified decoder operation to prevent unnecessary decoder reconfiguration when the decoder is not in use (caused by, for example, HDMI activity even though HDMI not selected).
9. Removed the Bass Management level offsets when Bass Management is disabled due to playing calibration pink noise.
10. Software update no longer requires reboot by back power switch.
11. Selection of an EQ preset can now be done from the home screen. Tap the EQ label to bring up the Select EQ screen. Tap the desired EQ button to select.

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Tap EQ to bring up
EQ Select screen



Updates for V1.01.02 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.01.02 since the previous software version V1.01.01.

Current version: 101.02
Build Date Thu Jun 13 17:58:53 PDT 2013

Improvements for V1.01.02

1. Added HSR firmware update. Note: Current HSR5 update version is: Release 39 Version 11 Rev. 4
In the HDMI menu screen (System > Inputs > Input Options > Decoder Setup > HDMI), added an “Update HSR Firmware” button. Programming will be retried once if it fails the first time. A power cycle must occur in order to update the HSR5 version text on the System Information screen.
2. Added option to mute HDMI multichannel PCM audio when the Channels field of the Audio Information Frame (AIF) is zero. This will prevent any possible noise issues being introduced into the RS20i from other equipment.
In the HDMI Status menu screen (System > Inputs > Input Options > Decoder Setup > HDMI) this appears as a check box “Mute when HDMI AIF.chans=0 (normally on)”. Note: This option may need to be turned off when using some DIRECTV STBs to allow 2-channel playback on HDMI.
3. Added option to generate an LFE channel when using Neo:X with a 2-channel input source.
 - f. In the Decoder Setup menu screen this appears as a check box “Neo:X: Generate Sub from 2-chan content” when DTS Neo:X is selected.
 - g. Net command = @NEOXLFE [0,1]
The parameter is 0 to disable or 1 to enable this feature.


Updates for V1.01.01 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.01.01 since the previous software version V1.01.00.

Version: 101.01
Build Date Thu May 9 13:52:05 PDT 2013

Improvements for V1.01.01

1. Fixed an issue with 2 channel PCM with DIRECTV.
2. Fixed 38400 baud rate for serial automation. The rate was set wrong through the GUI in previous versions.

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3. Fixed DPL2Mode selection, which displayed wrong mode if current mode was invalid for post processing selection.
4. Fixed a possible occurrence of system reset in the RTA screen.

Updates for V1.01.00 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.01.00 since the previous software version V1.00.05.

Version: 101.00
Build Date Tue Apr 16 11:01:06 PDT 2013

Improvements for V1.01.00

1. Support for new H555 Decoder card. The H555 decoder card is designed to be installed in the top slot of the RS20i unit in order to support the latest DTS and Dolby technologies.
2. Added support for DTS DTS-Neo:X post processing. This replaces Neo:6 functions.
Note: The input setups that were configured to Neo:6 will have to be reprogrammed with Neo:X, or optionally Dolby Pro Logic IIx.
3. Added Dolby technologies:
 - Dolby TrueHD,
 - Dolby Pro Logic IIx,
 - Dolby Pro Logic IIz,
 - Dolby Digital Plus.
4. New Surround Decoder Setup screen.
5. Additional speaker configurations. See Decoder Card Setup (TN-H620) for the list of speaker configuration options and operations.
6. Updated Bass Management feature to support for Front-High and Front Wide speaker configurations: 7.1h, 7.1w, 9.1hw, 9.1h, 9.1w, 11.1hw.
7. Subwoofer channel assignments have been changed for SW 2-4. The Subwoofer channels, which were channels 9-11 on the previous software version, have been changed to channels 13-15. See Decoder Card Setup (TN-H620) for additional details.


Note: If the system is currently running V1.00.XX and installed with the multiple Subwoofers setting on the RS20i, you must move the SW2-SW4 channel configuration in the RS20i channels to be correct for operating with V1.01.00. This includes Dirac filters, 3rd Octave EQ, Parametric Filters, and channel levels.

8. System menu Changes.

The menu at System>System Access Control has been divided into 2 menus and the new menu is given the name **System>More**. The **System Access** screen now contains only access related configuration items, which are the **NetCmd Password**, **Setup Password**, and the **Relock Setup** button. The remaining items have been moved to the **System->More** screen. The **System->More** screen includes the following:

- a. **Power-On State.** This is a new feature that defines the power On/Off state after power has been removed from the back power switch, or power fault. The options are **On**, **Off**, or **Last Power State**.
 - b. **Feature Key.** To enable software features (for future use).
 - c. **View Log File.**
 - d. **Expert Nav Mode.**
 - e. **VNC: Disable Hextile Encoding.**
 - f. **Identity.**
9. **Input Source** menu Changes
- a. **HDMI Input**

When HDMI is selected for the audio source, this control selects the HDMI port number for the audio

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and video input. When any other audio source for the RS20i is selected (not HDMI), the **HDMI Input** can be used to select an HDMI port for video to pass through to the RS20i HDMI output.

Options for this are **1 - 4** or **Off**.

b. **Input Chans.**

Input source screen has a new **Input Chans** select box. This box appears when selecting one of the following 8 channel sources: **Analog 8 Ch**, **Digital 1->8** or **Digital 9->16**. This is used to determine the inputs for DTS Neo:X post processing. For example, a 2 channel analog signal expands L/R inputs to the 7.1 configuration, but a 5.1 analog input should use all 6 channels to create the 7.1 configuration. Options for **Input Chans** are 2.0, 5.1, or 7.1 (see **TN-H620**).

10. Expanded System info screen – now toggles between 2 pages a) board revisions and b) voltage/temperatures.
11. The Expert Nav Setup menu will now have buttons disabled and grayed for any options that are not available for the currently selected source.
12. This version now implements all 16 channels for the Dirac configuration.
13. Added 11.4 speaker/subwoofer configuration choice to the **Copy Default to Output Preset** feature (System>Inputs>Output Preset>Edit Output Presets). This creates a default Output Preset with the proper channel assignments for use with Dolby Pro Logic IIz, DTS Neo:X, and Bass Management that includes all 4 Subwoofers.

Updates for V1.00.05 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.00.05 since the previous software version V1.00.04.

Version: 100.05
Build Date Jan 23 12:15:09 PST 2013

Improvements for V1.00.05

1. A fix was made to correct an issue with a DSP1 error when Dirac software is started.
2. Resets the bass management after a Dirac setup process.
3. Copy side surrounds to rear surrounds with nonsync
4. Plays DD2.0 with neo6
5. No longer reboots in case programming hsr fails. Added error boxes when hsr program instead. This avoids an endless reboot cycle that has been known to occur on at least one unit.
6. Update for HSR5. Firmware Release 39, Version 11, Rev3. (MDS Released version based off of Rev2)
 - h. - Minor adjustments to HDCP Authentication behavior.
 - i. - Minor fix to EDID parsing issue (extremely rare).

Updates for V1.00.04 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.00.04 since the previous software version V1.00.03.

Version: 100.04
Build Date Nov 9 15:10:55 PST 2012


A fix was made to correct a spurious software restart that may occur during the initialization process. An RS232 serial command received during the initialization process was discovered to cause this problem. This problem has been noticed on systems that use serial control automation that continuously polls the unit.

Updates for V1.00.03 Software Release

This section describes any new features, enhancements and bug fixes that are included in V1.00.03 since the previous software version V1.00.00.

Version: 100.03
Build Date Oct 11 14:14:42 PST 2012

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A fix was made to correct a problem with the HDMI card software. It was possible for the audio clock to go out of range and could cause thumping on the output when switching inputs. The current HDMI firmware is: HSR5 HDMI 1.4 F/W Release 39 Version 11 Rev 2.

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