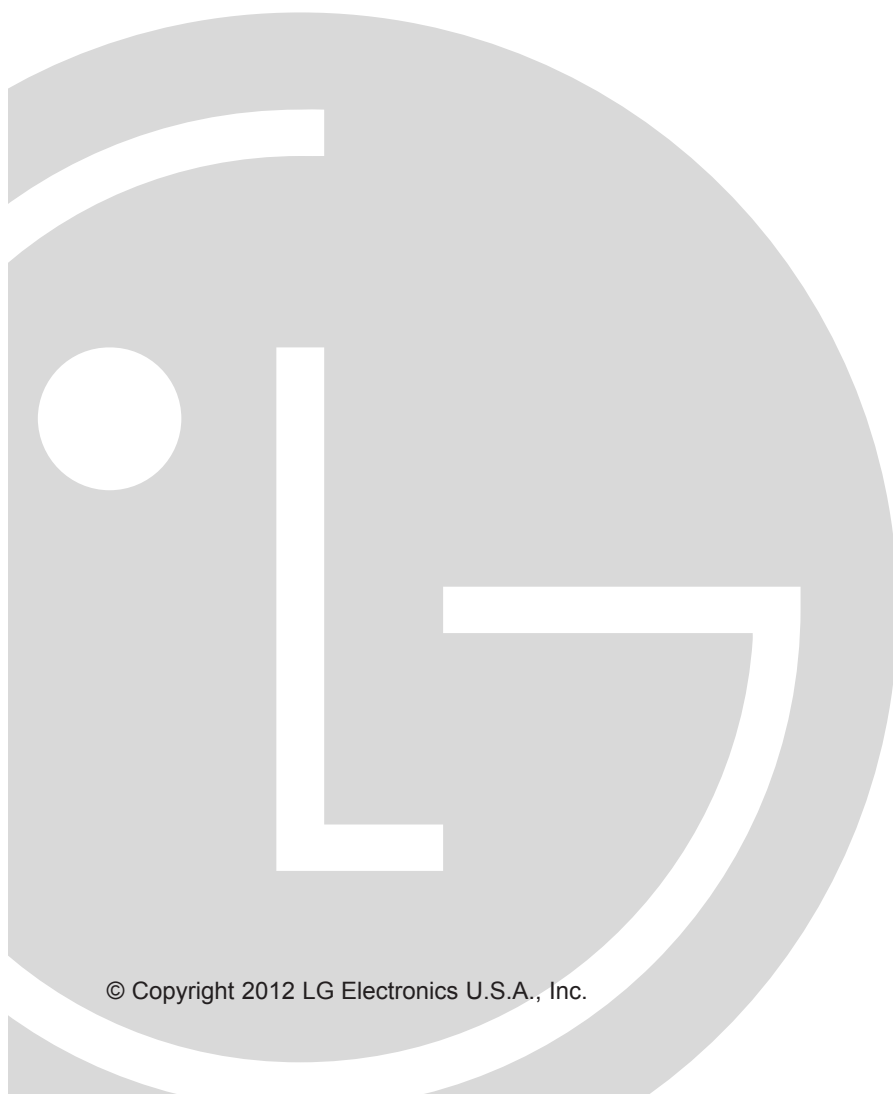# LG
Life's Good

HCS6150R CodePlus™ Series Card Frame with Power Supply

Installation & Setup Guide
Warranty

For Customer Support/Service, please call: **1-888-865-3026**

The latest product information and documentation is available online at:
www.LGsolutions.com/products

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING:

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL. ALL CARDS USED IN THE HCS6150R MUST BE INSERTED AND REMOVED BY QUALIFIED SERVICE PERSONNEL ONLY.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

L'appareil ne doit pas être exposé à des égouttements d'eau ou des éclaboussures et de plus qu'aucun objet rempli de liquide tel que des vases ne doit être placé sur l'appareil.

REGULATORY INFORMATION:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user should be required to correct the interference at his own expense.

CAUTION:

Do not attempt to modify this product in any way without written authorization from LG Electronics U.S.A., Inc. Unauthorized modification could void the user's authority to operate this product.

NOTE TO SATELLITE DISH INSTALLER:

This reminder is provided to call your attention to Articles 810 and 820 of the 2002 National Electrical code. Refer to Article 810, in particular 810-1 and 810-15, for required grounding of the metal dish antenna. Refer also to 810-2 which, by reference to Article 820, requires that the satellite dish coaxial cable shield be connected to the grounding system of the building as close to the point of cable entry as practical.

COMPLIANCE:

The responsible party for this product's compliance is: LG Electronics U.S.A., Inc.
2000 Millbrook Drive, Lincolnshire, IL 60069, USA • Phone: 1-847-941-8000

Marketed and Distributed in the United States by LG Electronics U.S.A., Inc.
2000 Millbrook Drive, Lincolnshire, IL 60069

IMPORTANT SAFETY INSTRUCTIONS

Important safeguards for you and your new product

THIS PRODUCT HAS BEEN MANUFACTURED AND TESTED WITH SAFETY IN MIND. IMPROPER USE, HOWEVER, CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARDS. TO AVOID DEFEATING THE SAFEGUARDS THAT HAVE BEEN BUILT INTO THIS PRODUCT, PLEASE READ AND OBSERVE THE FOLLOWING SAFETY POINTS WHEN INSTALLING AND USING THIS PRODUCT.

1. **Read these instructions.**
   Read all the safety and operating instructions before operating the product.

2. **Keep these instructions.**
   Retain the safety and operating instructions for future reference.

3. **Heed all warnings.**
   Adhere to all warnings on the product and in the operating instructions.

4. **Follow all instructions.**
   Follow all operating and use instructions.

5. **Do not use this apparatus near water.**
   Do not use this product near water or moisture or in an area, such as a basement, that might become flooded.

6. **Clean only with dry cloth.**
   Unplug this product before cleaning. Do not use liquid cleaners or aerosol cleaners.

7. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**

   This product is designed to fit in a rack. The ventilation slots and openings in the cabinet are provided to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered.

   This installation should be attempted only by a qualified service technician and should conform to all local codes. All cards used in the HCS6150R must be inserted and removed by qualified service personnel only.

8. **Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**

9. **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.**

10. **Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.**

11. **Only use attachments/accessories specified by the manufacturer.**

12. **Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination in order to avoid injury from tip-over.**

13. **Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.**

14. **Power Sources**
    This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your INSTALLATION, consult your product dealer or local power company.

IMPORTANT SAFETY INSTRUCTIONS

(Continued from previous page)

15. Overloading
Do not overload wall power outlets and extension cords as this can result in a risk of fire or electric shock.

16. Disconnect Device
The AC mains plug is used as the disconnect device. The disconnect device must remain readily operable.

17. Object and Liquid Entry
Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

18. Outdoor Use

Warning: To prevent fire or shock hazards, do not expose this product to rain or moisture.

19. Wet Location
The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

20. Test Equipment
In some cases, LG has supplied or recommended the use of test equipment and devices for the setup and testing of the equipment. The operation and maintenance of test equipment is described in their associated instruction manuals. Please refer to these manuals for explicit instructions regarding the safe use and handling of the equipment.

21. Damage Requiring Service
Unplug this product from the wall power outlet and refer servicing to qualified service personnel under the following conditions:

a. If the power-supply cord or plug is damaged.

b. If liquid has been spilled, or objects have fallen into the product.

c. If the product has been exposed to rain or water.

d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.

e. If the product has been dropped or the cabinet has been damaged.

f. If the product exhibits a distinct change in performance.

Caution: Refer all servicing to qualified service personnel.

22. Servicing

Caution: These servicing instructions are for use by qualified service personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that described in the operating instructions unless you are qualified to do so.

23. Replacement Parts
When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or that have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.

24. Safety Check
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

IMPORTANT SAFETY INSTRUCTIONS

(Continued from previous page)

HCS6150R Rack Installation (also see pages 12–13)

To install the HCS6150R in a rack:

- Carefully slide the HCS6150R into a standard 19-inch equipment rack.
- When mounting in the rack, make sure to use the appropriate hardware. ALL FOUR MOUNTING SCREWS MUST BE USED.
- This equipment is not designed to support other devices. Do NOT stack other equipment on the top of the HCS6150R.
- Rear cabling must be dressed and supported so that the weight of the cabling is not a strain on the HCS6150R connectors.
- MOUNTING OF THE EQUIPMENT IN THE RACK SHOULD BE SUCH THAT A HAZARDOUS CONDITION IS NOT ACHIEVED DUE TO UNEVEN MECHANICAL LOADING.

Rack-mount Considerations

A. Elevated Operating Ambient
If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).

B. Reduced Air Flow
Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side of the HCS6150R unit. Do NOT stack other equipment on the top of the HCS6150R unit.

C. Circuit Overloading
Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring.

D. Reliable Earthing
Maintain reliable earthing of rack-mounted equipment. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

E. Mains Outlet Earthing
The apparatus with Class I construction must be connected to a mains socket outlet with a protective earthing connection.

HCS6150R Installation on a Flat Surface

To install the HCS6150R on a level surface (table top, shelf, etc.):

- Install the equipment in an environment compatible with the maximum operating ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).
- Place spacers or rubber feet (not provided) on the bottom of the HCS6150R.
- Carefully place the HCS6150R on the level surface.
- Air flow is from bottom to top (when viewed from the front). To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side of the HCS6150R unit. Do NOT stack other equipment on the top of the HCS6150R.

Table of Contents / Setup Checklist

Table of Contents

Setup Checklist

Check the following items before you begin HCS6150R installation and setup procedures.

__ Unpack the HCS6150R unit and all accessories.

> **HCS6150R Accessory:**   AC Power Cord and Adapter

__ Unpack the CodePlus transcoder card(s) and all accessories and also the feature card, if applicable. Refer to the appropriate Installation & Setup Guide for the transcoder card(s) and the feature card for further information.

Note: All transcoder cards to be installed in the card frame must be the same type, i.e., all HCS7700 or all HCS7710 or all HCS7720 cards.

__ Select the location for mounting the HCS6150R. Ensure that adequate ventilation is available. Make sure the fan cooling vents are unobstructed.

__ Obtain the necessary attachment hardware to mount the HCS6150R chassis in its targeted location.

__ Plan and install the necessary cabling and AC power access for the HCS6150R, the CodePlus™ series transcoder cards, and, if applicable, the CodePlus feature card to be installed. (Refer to the setup procedures for the individual transcoder cards and the feature card for further information on cabling.)

__ Carefully follow the installation procedures for the CodePlus series cards (see page 10) and the HCS6150R (see pages 12 to 13).

__ Refer to the Installation & Setup Guide for the transcoder card(s) and, if applicable, the feature card being installed for instruction on completing the system setup for each card.

HCS6150R CodePlus Series Card Frame with Power Supply

The HCS6150R is a 19-inch rack-mountable card frame that provides the operating environment for the LG HCS7700, HCS7710, or HCS7720 CodePlus series transcoder cards. Using one or more HCS6150R units containing appropriate transcoder cards, a variety of transcoding systems can be realized.
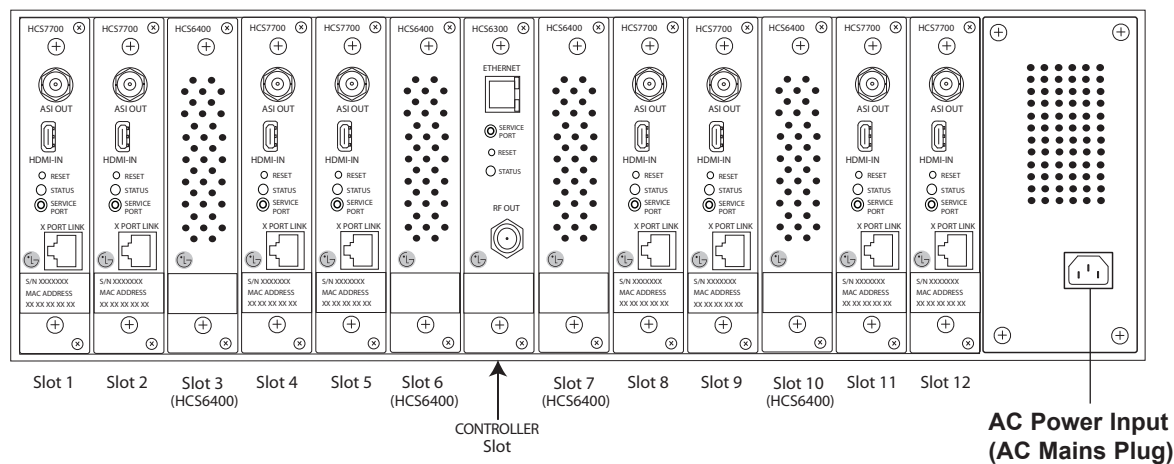
Features

- Self-contained 180W power supply
- Slots for nine CodePlus cards (eight transcoders plus one feature card)
- Built-in fan for active ventilation
- 19-inch rack-mountable
- Short 3U height profile to minimize rack space usage

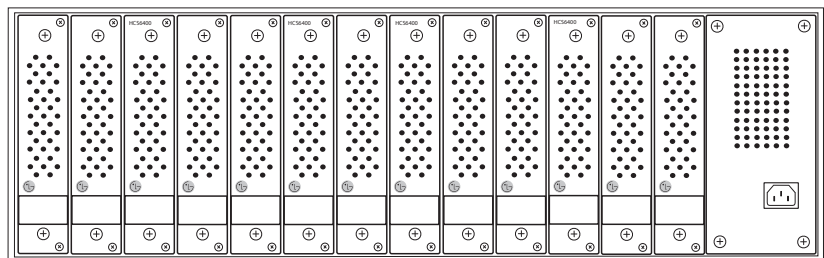Note: Design and specifications subject to change without prior notice.

Back Panel Overview

The following figure shows a typical installation with all the available card slots filled.

Disconnect Device
The AC mains plug is used as the disconnect device. The disconnect device must remain readily operable.

Blank Cover Plates
As shipped, the HCS6150R has blank cover plate port covers. Simply remove the blank cover plates on ports that will be used. For ports that will not be used, leave the blank cover plates in place for proper ventilation and FCC and safety agency compliance.

Output/Terminal Marking

The following ratings must be observed when cards are added to the HCS6150R.

Marking Location	Voltage (VDC)	Amperage (A)
For Card Slot numbers: 1, 2, 4, 5, 8, 9, 11, and 12	12	1.2
For Card Slot numbers: 3, 6, 7, and 10	12	0.7
For Card Slot: CONTROLLER	12	1.35

Important Card Slot Information

Note: The CodePlus series products are NOT designed to be hot-swappable!!! Power must be removed to the HCS6150R before any CodePlus cards are inserted or removed.

Note: The slot bus is proprietary and should only use CodePlus-compliant products.

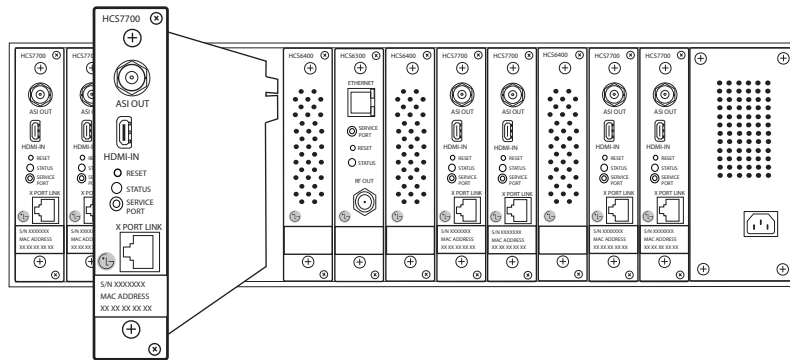**Note: All cards used in the HCS6150R must be inserted and removed by qualified service personnel only.**

Note: The card slots in the HCS6150R are NOT all identical!!! Refer to the Installation & Setup Guide for the CodePlus card(s) being installed for more information, and select the appropriate card slot(s).

- Slots 1, 2, 4, 5, 8, 9, 11, and 12 are designated only for HCS7700, HCS7710, or HCS7720 transcoder cards, and Slots 3, 6, 7, and 10 are designated for (pre-installed) HCS6400 fan cards.

- The CONTROLLER slot between Slots 6 and 7 has different edge connector locations and pinouts and is incompatible with transcoder cards. This slot is intended for optional feature cards (Example: HCS6300).

Note: Do not try to force a CodePlus card into any slot that does not allow it to be easily and fully seated using the installation procedure on the following page.

Installing CodePlus Transcoder Cards

Note: The CodePlus series products are NOT designed to be hot-swappable!!! Power must be removed to the HCS6150R before any CodePlus cards are inserted or removed.

Note: All cards used in the HCS6150R must be inserted and removed by qualified service personnel only.

Note: Use extreme care when handling a transcoder card. Always observe proper precautions with respect to static electricity and mechanical shock. When not installed in a card frame, return the transcoder card to the anti-static bag in which it was shipped.

Note: No more than eight HCS7700, HCS7710, or HCS7720 cards may be installed in the HCS6150R card frame. Cards should be inserted in the following slots: 1, 2, 4, 5, 8, 9, 11, and 12. HCS6400 fan cards are pre-installed in the following slots: 3, 6, 7, and 10.
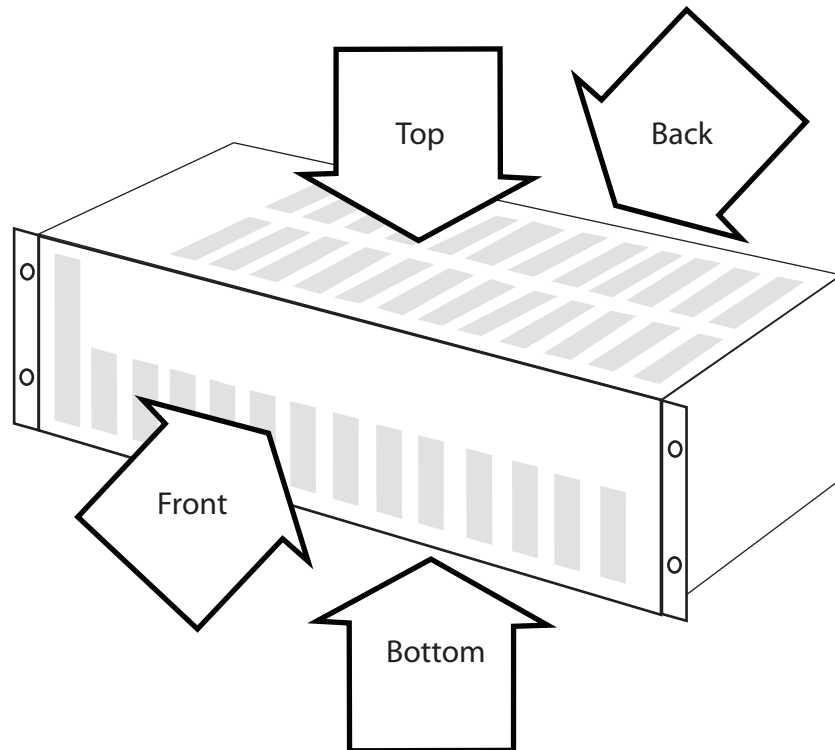
Note: The card slots in the HCS6150R are NOT all identical!!! See also "Back Panel Overview" on pages 8 to 9. The CONTROLLER slot between Slots 6 and 7 is dedicated for optional feature cards and is not compatible with HCS7700/HCS7710/HCS7720 cards.

1. Unpack the CodePlus transcoder card(s) and all accessories.

2. Select the slot(s) in the card frame in which to install the transcoder card(s). **Note: All cards must be used in an LG-approved card frame for this product.**

3. If applicable, remove the HCS6150R AC power cord from the power outlet.

4. Remove the blank cover plate from each slot into which a card is to be inserted.

5. *Without using force*, slide each new card into its designated slot, and ensure it is fully inserted.

6. Engage and tighten the top and bottom thumbscrews securely. Note that the thumb-screws should only be finger tight; overtightening may damage the assembly.

7. Refer to the Installation & Setup Guide for the individual transcoder card(s) for cabling and setup information.

   Note: If applicable, repeat steps 1 to 7 for the feature card to be installed. The feature card will be installed in the CONTROLLER SLOT.

Front Panel Overview / Ventilation

The following figure shows the HCS6150R front panel. Back panel features are described on pages 8 to 9.
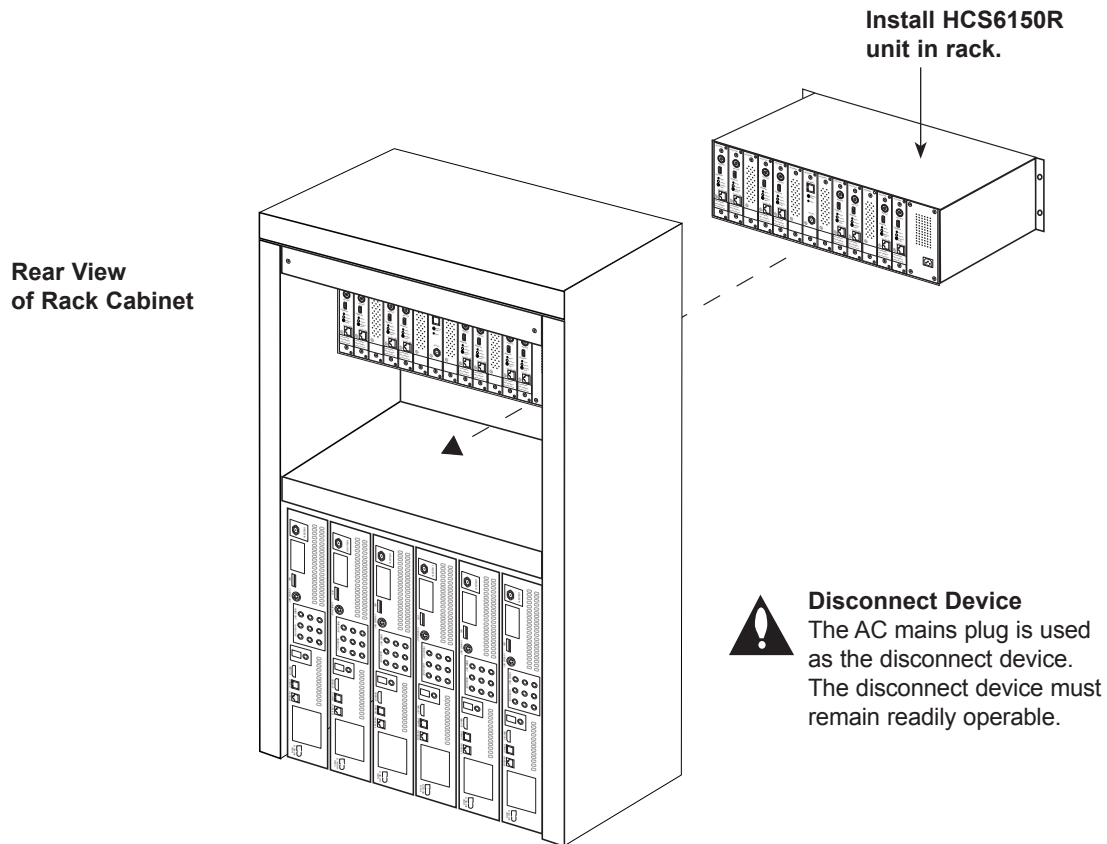

⚠️ **Ventilation Holes**
Air flow must not be obstructed. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side of the HCS6150R unit. Do NOT stack other equipment on the top of the HCS6150R unit.

Rack Installation

Typical Rack Installation

1. Carefully slide the card frame with cards into a standard 19-inch equipment rack.

2. Use all four mounting screws to secure the chassis to the rack.

Install HCS6150R unit in rack.

Rear View of Rack Cabinet

Disconnect Device
The AC mains plug is used as the disconnect device. The disconnect device must remain readily operable.

Rack-mount Considerations

A. Elevated Operating Ambient

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer (see Specifications information in this document).

B. Reduced Air Flow

Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. To ventilate the system normally and avoid overheating, leave at least 1 inch (2.5 cm) on each side of the HCS6150R unit. Do NOT stack other equipment on the top of the HCS6150R unit.

C. Circuit Overloading

Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring.
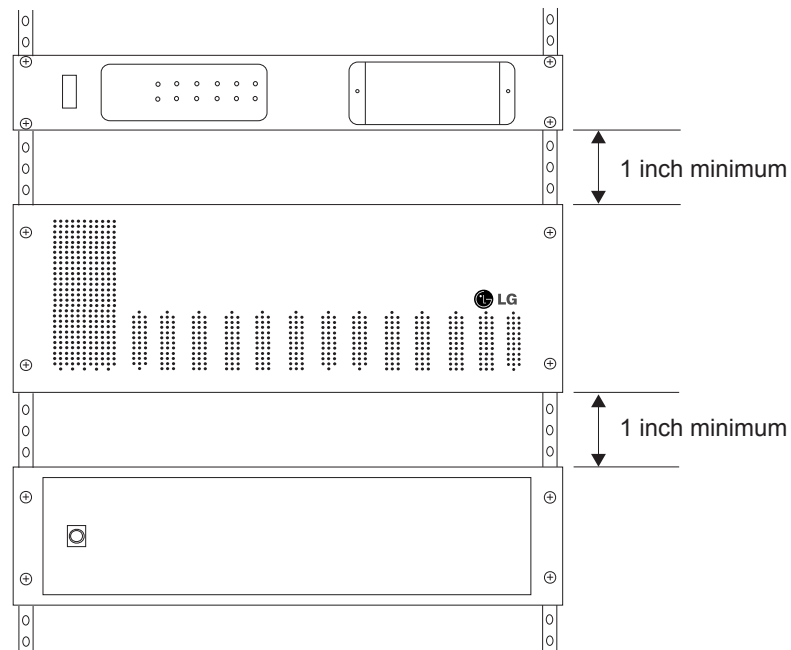
D. Reliable Earthing

Maintain reliable earthing of rack-mounted equipment. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

E. Mains Outlet Earthing

The apparatus with Class I construction must be connected to a mains socket outlet with a protective earthing connection.

**Front View
of Rack Cabinet**

1 inch minimum

1 inch minimum

Equipment Setup Review / Specifications

Equipment Setup Review

- Make sure all connectors and connections are tight and secure on all entertainment system components.

- Check to make sure each device supplying the signal to a transcoder card is functioning properly.

- Check the CodePlus transcoder card(s) plugged into the HCS6150R. With AC power applied, you should see LED activity on each card.

- Make sure the HCS6150R fan is working and fan cooling vents are unobstructed. Check the exit vent area adjacent to the AC power connector on the back panel of the card frame. With AC power applied, there should be a strong airstream from the vent area.

For troubleshooting information, refer to the Installation & Setup Guide for the individual transcoder(s).

Specifications

Dimensions
Height: 5.25 inches (133 mm)
Width: 19.0 inches (482.6 mm) (for EIA standard 19-inch rack mount)
Depth: 10.3 inches (262 mm)
Weight: 7.70 pounds (3.5 kgrms) rack-only weight

Environmental Storage Conditions
Temperature: -20° to 70° Celsius
                    -4° to 158° Fahrenheit
Humidity: 95% non-condensing

Environmental Operating Conditions
Temperature (Tma): 0° to 40° Celsius
                    32° to 104° Fahrenheit
Humidity: 95% non-condensing

Electrical
AC Input to Power Supply: 120V 3A 60Hz
Power Factor Corrected. Maximum Watts = 180

Power Supply: +12V DC @ 15 Amps

DC Input to each HCS6400 card: +12V DC @ 0.17 Amps

Note: Design and specifications subject to change without prior notice.

Document Revision History / Notes

Document Revision History

Date	Description
February 2010	Revision A: New document
March 2010	Revision B: Safety Instructions update
July 2012	Revision C: Transcoder updates

Product documentation is available online at: **www.LGsolutions.com/products**. From the Products page, select **TVs, Systems & Solutions**, then **Head End Systems**, then **CodePlus Transcoder Series** (click **Show [+]** to view the list of products), then the applicable Modular System option. Click the **Literature & Downloads** tab at the bottom of the Modular System page, and select the required document(s) from the Downloads list.

Notes

LG HCS6150R Card Frame with Power Supply Warranty

Broadcast Products   Welcome to the LG family! We believe that you will be pleased with your new HCS6150R Card Frame with Power Supply. Please read this warranty carefully, it is a "LIMITED WARRANTY" as defined under Federal Law. This warranty gives you specific legal rights, and you may also have other rights that vary from state-to-state within the U.S.A.

LG's RESPONSIBILITY

Warranty Term   One year parts and labor from date of purchase or delivery date.

Parts   New or remanufactured replacements for factory-defective parts may be used. Such replacement parts are warranted for the remaining portion of the original warranty period.

Warranty Service   Warranty service is provided at LG. Customer pays for shipping charges to LG; LG pays for return shipping charges to return HCS6150R Card Frame with Power Supply to customer. Call **1-888-865-3026** for further information.

Not Covered   This warranty covers manufacturing defects and does not cover installation, adjustment of customer controls, installation or repair of antenna systems, cable converters or cable company-supplied equipment; it also does not cover damage due to misuse, abuse, negligence, acts of God or other causes beyond the control of LG. Any alteration of the product after manufacture voids this warranty in its entirety.

This warranty does not cover any missing or stolen access cards.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND LG SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES OF ANY KIND, INCLUDING LOST REVENUES OR PROFITS IN CONNECTION WITH THIS PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

OWNER'S RESPONSIBILITY

Effective Warranty Date   Warranty begins on the date of delivery of the HCS6150R.
For your convenience, keep the dealer's dated bill of sale or delivery ticket as evidence of the purchase date.

Installation Guide   Read the Installation & Setup Guide carefully so that you will understand the operation of the HCS6150R Card Frame with Power Supply and how to adjust the controls.

Antenna   Reception problems caused by inadequate antenna or faulty antenna connections are the owner's responsibility.

Warranty Service   **For warranty service information,** call **1-888-865-3026.** Parts and service labor that are LG's responsibility (see above) will be provided without charge. Other service is at the owner's expense. If you have any problem in obtaining satisfactory warranty service, call **1-888-865-3026.**
You must provide the model number, serial number and date of purchase or date of original installation.

For Customer Support/Service, please call:

1-888-865-3026

www.LGsolutions.com

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