

The
Weather
Channel



IntelliStar 2 Jr-Digital

Installation Guide

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1.0	3/9/15	Initial version.	Ed Springer
1.1	8/7/15	Added the DSR 4460 option	Daniel Muscat

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1 Introduction

Congratulations on your new **IntelliStar® 2 Jr!**

1.1 What's in This Document?

This document describes the installation and use of the **IntelliStar 2 Jr** unit. This information is intended for engineers who will install and operate the unit.

Sections in this document are as follows:

- **About IntelliStar 2 Jr** – Description of new features
- **Installation** – How to install the IntelliStar 2 Jr unit
- **Technical Specifications**

1.2 Support Contact Information

To contact us for support:

- Email: starsupport@weather.com
- Phone: 1-800-554-7354, Option #1
- Mailing Address:

Star Support
The Weather Channel, LLC.
300 Interstate North Parkway
Atlanta, Georgia 30339

2 About IntelliStar 2 Jr

2.1 What's New?

The IntelliStar 2 Jr is a new Star in the family. Designed with flexibility and reliability in mind, it delivers high quality Standard Definition (SD) video in MPEG-2 over UDP-IP (Digital Unit). The 3-RU size, light weight, and low power consumption makes it an easy fit into any headend. A back channel allows The Weather Channel to keep the unit upgraded and running at top performance with no headend assistance needed! The IntelliStar 2 Jr complies with FCC part 15 (class A) as well as UL safety regulation 60950.

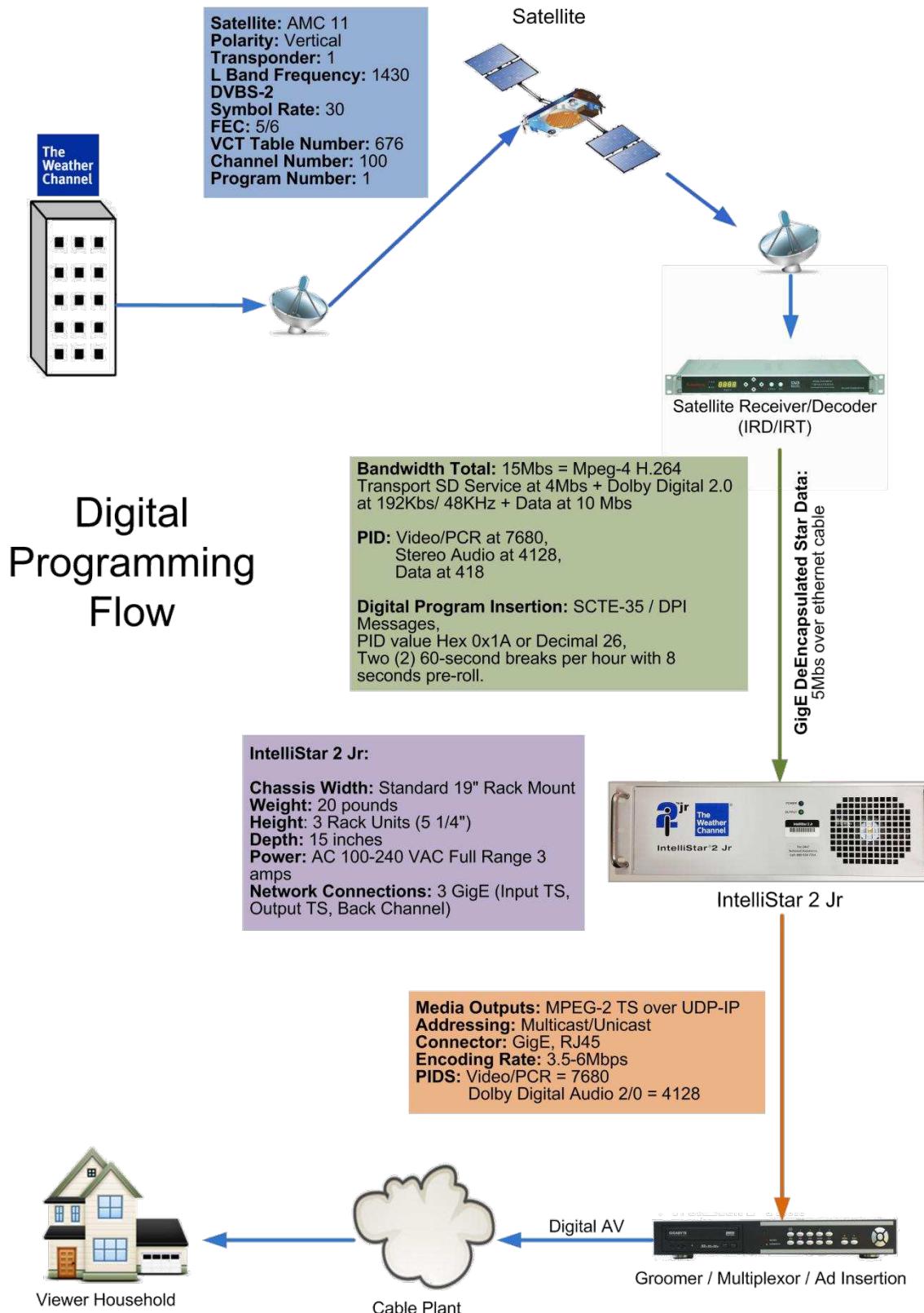
2.2 Programming Data Flow

This section describes how programming data is transmitted from The Weather Channel to the IntelliStar 2 Jr:

1. The Weather Channel, LLC. transmits standard definition (SD) programming through the satellite uplink in Atlanta, Georgia, to affiliates throughout the U.S. (see Figure 1). Transmitted with *The Weather Channel* programming are:
 - **network control commands** and
 - **weather data** supplied by *The Weather Channel* Global Forecast Center and the National Weather Service for thousands of weather zones.
2. The satellite-receive system at the headend receives the data from the SES Americom AMC-11 satellite and passes it to the headend's satellite receiver/demodulator (IRD/IRT).
3. The IRD/IRT passes the feed to the IntelliStar 2 Jr, which provides you with a digital output. The IntelliStar 2 Jr also receives additional regional data and audio/video (A/V) content from the SES Americom AMC-11 satellite.
4. The IntelliStar 2 Jr captures the data designated for its specified weather zone and displays it automatically at the appropriate time.

Figures 1 illustrates this flow:

Figure 1. Digital Programming Flow



2.3 Important Notes!

IntelliStar 2 Jr technology requires the correct counties and zip codes to ensure proper delivery of severe weather warnings and appropriate localized forecasts. If the counties served by an IntelliStar 2 Jr unit are not correct, viewers will not receive important life-saving severe weather information such as tornado warnings. Address information for your primary and secondary viewing county(ies) has been pre-installed in your new IntelliStar 2 Jr based on the data that your system previously provided to The Weather Channel, LLC. If for any reason the area served for this device has shifted or expanded to another county or zip code(s), please notify The Weather Channel Star Support immediately (1-800-554-7354 Option #1).

NOTE: 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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this device in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



- WARNING:** Do not open or remove the cover on the IntelliStar 2 Jr. Changes or modifications to this device not expressly approved by The Weather Channel could void the user's authority to operate the equipment.
- WARNING:** To prevent fire or shock hazard, do not expose this equipment to rain or moisture.
- WARNING:** To prevent electrical shock, do not use the equipment electrical power plug (polarized) with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure.
- WARNING:** Risk of explosion if the coin cell battery on the motherboard is replaced by an incorrect type. Dispose of used batteries according to the instructions.

3 Installation

To install the IntelliStar 2 Jr, you will complete these tasks:

- Unpack the box, inspect the contents, and identify all pieces
- Mount the IntelliStar 2 Jr in your rack
- Connect your satellite receiver/demodulator (IRD/IRT) and your system to the IntelliStar 2 Jr
- Power on the IntelliStar 2 Jr

Each task is described in detail in the following information.

3.1 Getting Started

Step 1. **Unpack the box**

Unpack the IntelliStar 2 Jr box. The box contains the following items:

- IntelliStar 2 Jr-Digital unit
- Power cord
- Two clamp-on ferrite filters
- IRD/IRT
- For updated copies of this or other IntelliStar documents, refer to: <http://stardocs.weather.com/> (Password RATS)
- Headend letter

NOTE: The Weather Channel has inspected and properly packaged the unit for shipment. It is the carrier's responsibility to deliver the unit safely. If any damage occurred during shipment, please note this on the delivery/packing slip, obtain the signature of the carrier at the time of delivery, and promptly notify The Weather Channel Star Support at: **1-800-554-7354 Option #1.**

Step 2. **Identify Headend Name and ID**

1. Locate the headend information label (see Figure 3) on the front panel, and verify that the **Headend Name** and the **Headend ID** match the information on the headend letter enclosed in the shipping box. If the information doesn't match, contact The Weather Channel Star Support at:
1-800-554-7354 Option #1.

Figure 2. Headend Label Location



Step 3. Mount IntelliStar 2 Jr in the Rack

Before mounting, please carefully read the following cautions:



Environment: For proper operation and safety, when installing the IntelliStar 2 Jr in a closed or multi-unit rack assembly, the ambient temperature within the rack must not exceed 104°F (40°C).

- Rack Info:**
- To ensure proper ventilation, leave one empty rack unit on the top and bottom of the IntelliStar 2 Jr.
 - Do not install the equipment at the top of an otherwise empty rack to avoid uneven mechanical loading.

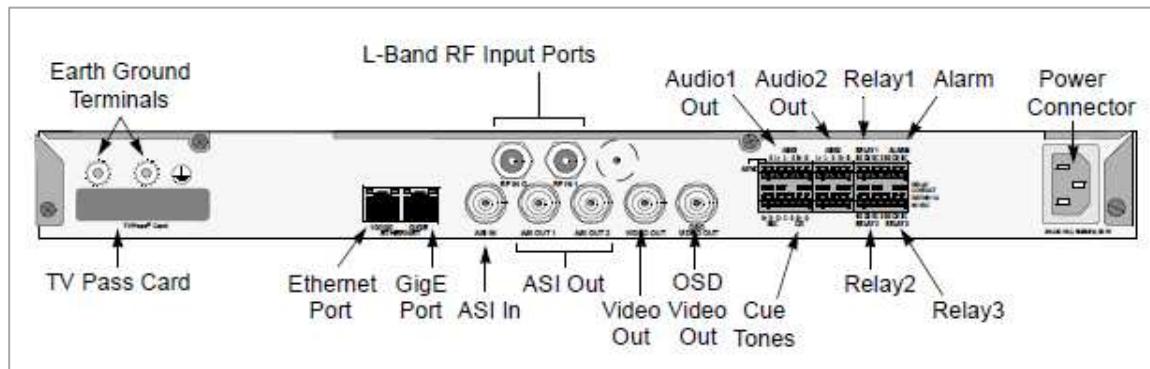
- Power Supply:**
- Before connecting the power, be aware that the IntelliStar 2 Jr equipment ratings are: 115V VAC full range, 3 amps. Power supply may be set to the 230V setting.
 - Ensure the equipment rack power strip is grounded to the main building ground.

**Rack Mount Instructions:**

- 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.
- 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.
- C) Mechanical Loading** - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- D) 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. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- E) Reliable Earthing** - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

1. Assign one person to hold the IntelliStar 2 Jr from the back of the unit in the rack.
2. Assign a second person to secure the IntelliStar 2 Jr to your rack by attaching four rack screws to the IntelliStar 2 Jr wings.

Figure 3. DSR4440/4460- *Do not factory reset!*



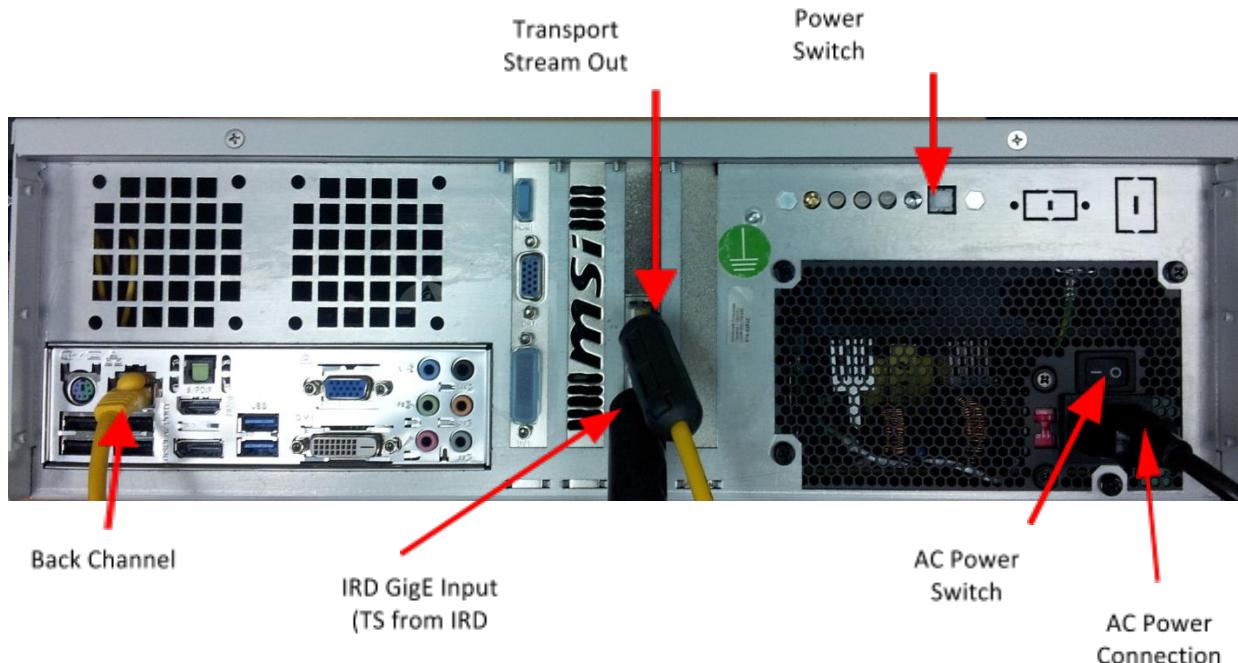
NOTE: This DSR-4440/4460 has been preset with The Weather Channel Configuration. **DO NOT** perform a Factory Reset on this DSR.

1. Unpack the DSR-4440/4460 from the DSR shipping box.
2. Check to ensure that the Serial Number and Unit Address number on the shipping box matches the white label on the DSR-4440/4460. (If not, call Star Support at 1-800-554-7354 to report the discrepancy.)
3. Mount the DSR-4440/4460 in your rack.
4. Connect the DSR-4440/4460 “RF IN 0” to AMC-10 Transponder #24.
5. Connect the DSR-4440/4460 “RF IN 1” to AMC-11 Transponder #1.
6. Plug in the DSR-4440/4460 AC power.
7. Call Star Support at 1- 800-554-7354 for authorization. Have your headend ID# (as shown on **Error! Reference source not found.**, page **Error! Bookmark not defined.**) and the DSR-4440/4460’s 16-digit Unit Address Number handy before making the call.
8. After you confirm with Star Support that you have authorization, continue to the next section, “Connecting the IntelliStar 2 Jr Output.”

3.2 Connect the IntelliStar 2 Jr - Digital Unit

This section includes instructions and diagrams (see Figure 7) to help you connect your satellite receiver/demodulator (IRD/IRT) to the IntelliStar 2 Jr Digital Unit:

Figure 4. Digital Unit IntelliStar 2 Jr Connections for UDP-Transport Stream Output



Step 1. Connecting your IRD/IRT to IntelliStar 2 Jr

Using a standard Ethernet cable, connect the IRD/IRT GigE output to the IntelliStar 2 Jr **IRD/GigE Input** port. Attach one of the clamp-on ferrite filters to the cable.

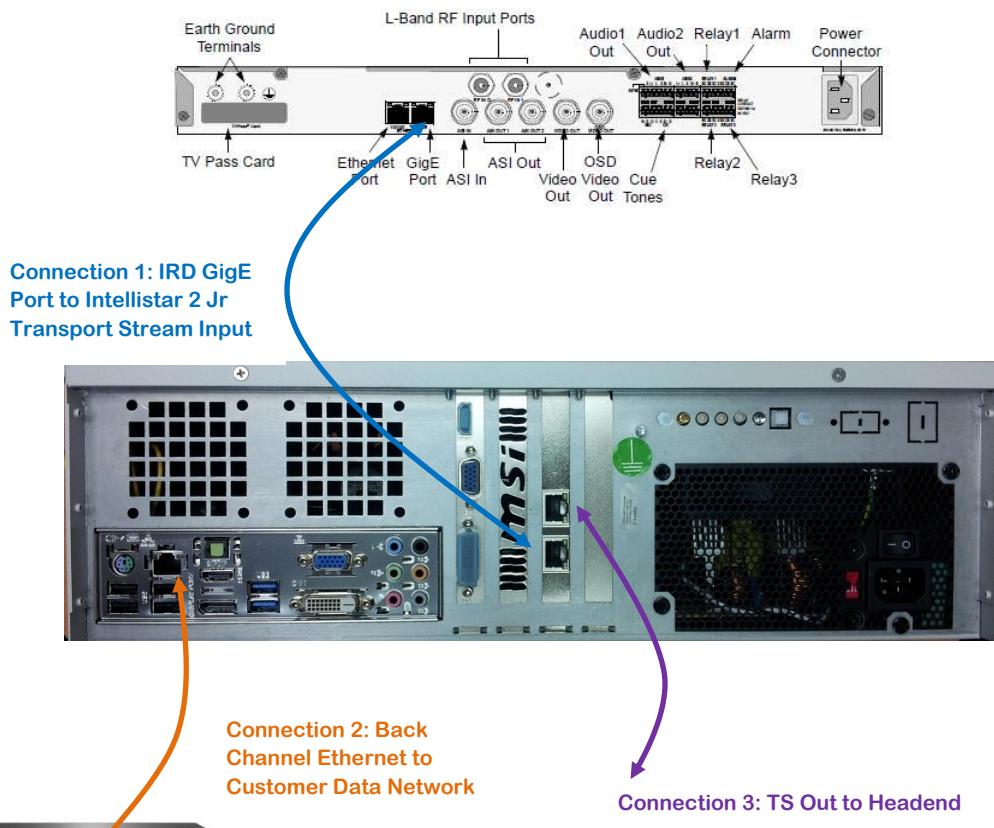
Step 2. Connecting your IntelliStar 2 Jr Digital Unit to the Headend

1. Connect **Transport Stream Out** from the IntelliStar 2 Jr to the Headend. Attach one of the clamp-on ferrite filters to the cable.
2. Connect standard Ethernet cable from the IntelliStar 2 Jr **Back Channel** to your data network.

Figure 5. Ethernet Cables with Ferrites Attached



Figure 6. IRD Connections for UDP-Transport Stream Output



3.3 Configure/Verify IRD Settings

Step 1. Check Receiver Information

Proper operation of the IntelliStar 2 Jr requires: Transport stream input containing all complete TWC SD services (video, audio, TWC data, and ancillary data PID streams).

Receiver Information	
Satellite	SES Americom AMC-11 Transponder 1
Transponder Polarization	Vertical
Band	C
Uplink Facility	TWC Uplink
Encryption Method	DigiCipher II
Symbol Rate	30.00
FEC	5/6 Combined (subject to change)
Downlink Frequency	3.72 GHz
L Band Frequency	1430
Digital Program Insertion	SCTE-35 / DPI messages PID value 4288 Two (2) 60-second breaks per hour with 8 seconds pre-roll
TWC Provided IRDs	Arris DSR 4440/4460
MPEG Channel	100
VCT ID	676

Step 2. Power on the IntelliStar 2 Jr

1. **Check the voltage supply.** The IntelliStar 2 Jr has a factory setting of 115V (see NOTE below).
2. Verify that the correct voltage range is selected on the red select switch next to the AC power connection (see Figure below). **Failure to select the proper voltage source will result in damage to the unit.**
3. Connect the power cord to the AC power outlet in your rack.
4. Switch on the **AC Power rocker switch** located on the back of the IntelliStar 2 xD next to the AC power connection (see *Figure below*) and push the **Power switch** button.

The unit will power up within 3 minutes.

NOTE:

- If only 220V supply is available, then the power supply unit has to be switched accordingly.



- When powering off the IntelliStar 2 Jr, press the **Power switch** next to the LEDs.
- Wait for the unit to power down (may take up to 3 minutes) and then switch off the main AC Power rocker switch.



CAUTION:

NEVER unplug the IntelliStar 2 Jr without first powering off both the **Power Switch** and the **AC Power rocker switch**. Failure to correctly power off the IntelliStar 2 Jr could cause irreparable and permanent damage to the unit.

Step 3. **Check Back Channel IP and Activate Localization and IRD**

To complete installation of the IntelliStar 2 Jr, you must contact Star Support to check your back channel IP, authorize your IRD, and turn on localization.

- Call Star Support at **1-800-554-7354** with IRD Unit Address and Headend ID.
- Star Support will authorize the IRD and activate **localization** (which enables the IntelliStar 2 Jr unit to display local weather information).

NOTE:

- To power off the IntelliStar 2 Jr, press the **Power switch** next to the LEDs.
- Wait for the unit to power down (may take up to 3 minutes) and then switch off the main AC Power rocker switch.

3.4 Status Lights

This section describes the status lights on the front and rear panels of the IntelliStar 2 Jr.

Front Panel Lights

Figure 6. Front Panel Status Lights



Front Panel Lights Description			
Light Position	Label	Indicates	Light Color
Top	Power	Mother Board Power	Blue
Bottom	Output	This LED will turn on if the system is producing video/audio. If this LED is off, the system is in bypass mode.	Green

Rear Panel Lights

Figure 7. Rear Panel Status Lights



Rear Panel Lights Description			
Label	Function	Indicates	Light Color
1	Output	Same as Front Panel	Green
2	Data	When solid green, it indicates that the IRD is correctly configured and wired to the I2 Jr.	Red/Green
3	Transport	Solid green when valid transport stream input	Red/Green
4	Reserved 1	Reserved for future use	Red/Green
5	Power	Flashes during power up. Solid when unit is powered on.	Blue

4 Technical Specifications

Receiver Information	
Satellite	SES Americom AMC-11 Transponder 1
Transponder Polarization	Vertical
Band	C
Uplink Facility	TWC Uplink
Encryption Method	DigiCipher II
Symbol Rate	30.00
FEC	5/6 Combined (subject to change)
Downlink Frequency	3.72 GHz
L Band Frequency	1430
Digital Program Insertion	SCTE-Two (2) 60-second breaks per hour with 8 seconds pre-roll
TWC Provided IRDs	Arris DSR 4440/4460
MPEG Channel	100
VCT ID	676
Proper operation of the IntelliStar 2 Jr requires: Transport stream input containing all complete TWC SD services (video, audio, TWC data, and ancillary data PID streams).	
Network Information	
Network Connections	<p>Three GigE Connections :</p> <p>Media Input: Transport stream over IP (Video PID 7680; Audio PID 4128, Data PID 418)</p> <p>Media Output (digital-only units): MPEG-2 Transport stream over IP (Video - PID32; Audio PID 33)</p> <p>Back Channel: Upgrades/Diagnostics</p>
Environmental Information	
Chassis Width	Standard 19-inch rackmount
Chassis Height	Three rack units (5.5 inches)
Chassis Depth	15 inches
Chassis Weight	22 pounds
Power	AC 100 to 130 VAC(3 Amps) or 208 to 240 VAC (1.5 Amps)
Ambient Temperature	0° – 40°C / 32° – 104°F

Audio and Video Information	
SD Audio Configuration	2 Channel Stereo 1 SAP Mono
Video Parameters	720 x 480 29.97 fps (default) 704 x 480 29.97 fps (optional)
Media Inputs	H.264 over IP
Media Outputs	Transport Stream Output (Digital units only): Transport Stream Output H.264 over MPEG-2 UDP-IP, Multicast/Unicast, 100/1000 Base-T, RJ45,3.5 - 6 Mbps Main Profile
Encoded Outputs (Digital units only)	Transport Stream Output MPEG-2 over UDP-IP at 3.5-6 Mbps; 100/1000 Base-T; SCTE-35 DPI messages: PID 4288 ; CEA/EIA-708 Closed Caption PID value Video = 7680 Dolby 2.0 = 4128