



## DSE 2 PLUS

Dual HD Digital Encoder with Multiplexed QAM Output

---

### INSTRUCTION MANUAL

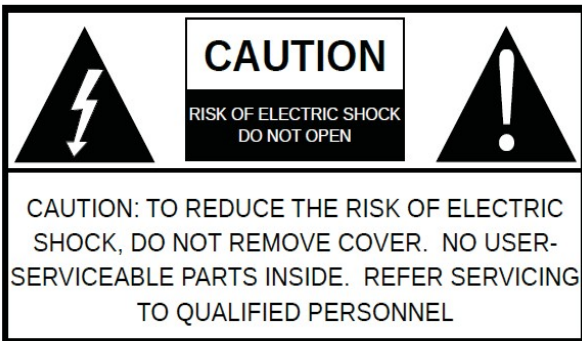


## Table of Contents

IMPORTANT SAFETY INSTRUCTIONS.....	2
SPECIFICATIONS.....	4
GENERAL DESCRIPTION.....	6
FEATURES.....	6
INSTALLATION AND MOUNTING.....	6
REAR PANEL CONNECTIONS .....	7
ETHERNET ACCESS.....	8
SETUP AND PROGRAMMING .....	10
FIRMWARE UPDATE.....	14
SERVICE / IF YOU NEED TO CALL FOR HELP .....	18
WARRANTY .....	19

### Caution Statements:

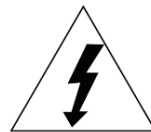
**WARNING:** TO PREVENT FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE TO RAIN OR MOISTURE.



A **product and cart combination** should be moved with care.

Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.

The **lightning flash with arrow head 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 product.



**WARNING:** THE SOCKET-OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

**CAUTION:** TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

**ATTENTION:** POUR PREVENIR LES CHOCS ELECTRIQUES, NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

### Important Safety Instructions:

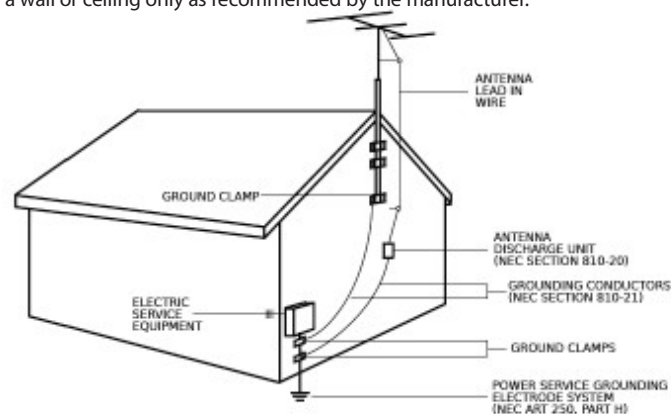
1. **Read Instructions:** All the safety and operating instructions should be read before the product is operated.
2. **Retain Instructions:** The safety and operating instructions should be retained for future reference.
3. **Heed Warnings:** All warnings on the product and in the operating instructions should be adhered to.
4. **Follow Instructions:** All operating and use instructions should be followed.
5. **Cleaning:** Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleansers. Use a damp cloth for cleaning.
6. **Attachments:** Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.
7. **Water and Moisture:** Do not use this product near water—for example, near a bathtub, wash bowl, kitchen sink or laundry tub; in a wet basement; or near a swimming pool; and the like.
8. **Accessories:** Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the

product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

9. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.
10. **Ventilation:** Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or similar surface. This product should not be placed in a built-in installation such as bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
11. **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 supplied to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the product's operating instructions.
12. **Grounding or Polarization:** This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. Alternate Warnings – If this product is equipped with a three-wire grounding- type plug, a plug having a third (grounding) pin, the plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
13. **Outdoor Antenna Grounding:** If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
14. **Power-Cord Protection:** Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.
15. **Lightning:** For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
16. **Power Lines:** An outside antenna system should not be located in the vicinity of overhead power lines, other electric light or power circuits, where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
17. **Overloading:** Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.
18. **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.
19. **Servicing:** Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
20. **Damage Requiring Service:** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - a) When 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 damaged in any way, and f. When the product exhibits a distinct change in performance—this indicates a need for service.
21. **Replacement Parts:** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutes may result in fire, electric shock or other hazards.
22. **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.
23. **Wall or Ceiling Mounting:** The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

**NOTE TO CABLE INSTALLER:**

THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820-40 OF THE NEC THAT PROVIDES GUIDELINES FOR PROPER GROUNDING AND, IN PARTICULAR, SPECIFIES THAT THE CABLE GROUND SHALL BE CONNECTED TO THE GROUNDING SYSTEM OF THE BUILDING, AS CLOSE TO THE POINT OF CABLE ENTRY AS PRACTICAL.



NEC = NATIONAL ELECTRIC CODE

Example of antenna grounding as per National Electrical Code, ANSI/NFPA 70

## Specifications

DRAKE DSE 2 PLUS HD ENCODER W/QAM OUTPUT 1002583

### ENCODER - Video (Specifications are per Encoder)

Video Inputs:	VGA (with pass-through to monitor) HDMI (non-HDCP Copy Protected) Component (Y-Cr-Cb) Composite (via Y-Input for 480i)
Video Resolution Modes:	480i (640x480 / 720x480 @ 30 fps) 480p (640x480 / 720x480 @ 60 fps) 720p (1280x 720 @ 60 fps) 1080i (1920x1080 @ 30 fps)
Video Input Resolution Detection:	Yes, automatic
Video Compression Format:	MPEG2 or MPEG4 / H.264
Video Adjustments:	Brightness, Contrast, Hue, Saturation, Sharpness
MPEG4 / H.264 Profiles Supported:	Simple, Advanced Simple, High
Bitrate:	0.000 to 19 Mbps (depending on format)

### ENCODER - Audio (Specifications are per Encoder)

Audio Inputs:	HDMI-embedded audio, 32 - 192 kHz sample rate PCM
	RCA-type L + R 1 x 1 Vrms nominal 3.5 Vrms max supports +/- 15 dB gain adjustment
Audio Compression Formats:	Dolby Digital® or MPEG1, Layer 2

## Specifications (continued)

DRAKE DSE 2 PLUS HD ENCODER W/QAM OUTPUT 1002583

### **QAM (Quadrature Amplitude Modulation) Modulator / Multiplexer (per chassis)**

QAM Output Modes:	64 QAM or 256 QAM, ITU Annex B
Frequency Coverage:	54 - 1002 MHz
Channel Plans:	Standard CATV, HRC, IRC, Broadcast
Maximum Output Power Level:	+ 45 dBmV
Level Adjustment Range:	15 dB
Phase Noise:	- 95 dBc @ 10 kHz offset
Broadband Noise:	- 75 dBc @ > +/- 12 MHz
MER:	> 40 dB equalized
Channel Frequency Response:	< 1 dB
Carrier Suppression:	> 40 dB
I/Q Inbalance:	< 1 degree
Output Level Accuracy:	+/- 1 dB

### **Physical Specifications**

Form Factor:	1RU 19" rack mountable
Control:	On-board Ethernet Connection
Power Requirements:	+5 V @ 3.5A via supplied external
Dimensions:	power supply 10.5"D x 2.0"H x 19" W
Weight:	4.5 lbs.
Temperature Rating:	0 - 50 C ambient

Specifications, price, and availability are subject to change without notice or obligation.

## General Description

The DSE 2 PLUS encodes up to two uncompressed programs from devices with HDMI (non HDCP encrypted), High-Resolution Component Video, Composite or VGA outputs. The DSE 2 PLUS encodes the incoming programs to MPEG2 or MPEG4/H.264 compressed video. An internal multiplexing QAM modulator and low-noise upconverter allows programs to be combined with existing digital and or analog programming.

## Features

- Receives High-Resolution Component, VGA, or HDMI (non-HDCP content-protection) From Two Separate Video Sources
- Video Encodes to MPEG2 or MPEG4/H.264
- Supports 480i, 480p, 720p, or 1080i video resolution
- Audio Encoding to Dolby Digital® or MPEG1-Layer 2
- Supports Closed Captioning
- High Level (+45 dBmV) agile output programmable from 5 to 1,000 MHz using STD, HRC, IRC, and Broadcast channel plans
- GUI-based Remote Network Control and Monitoring

## Installation and Mounting

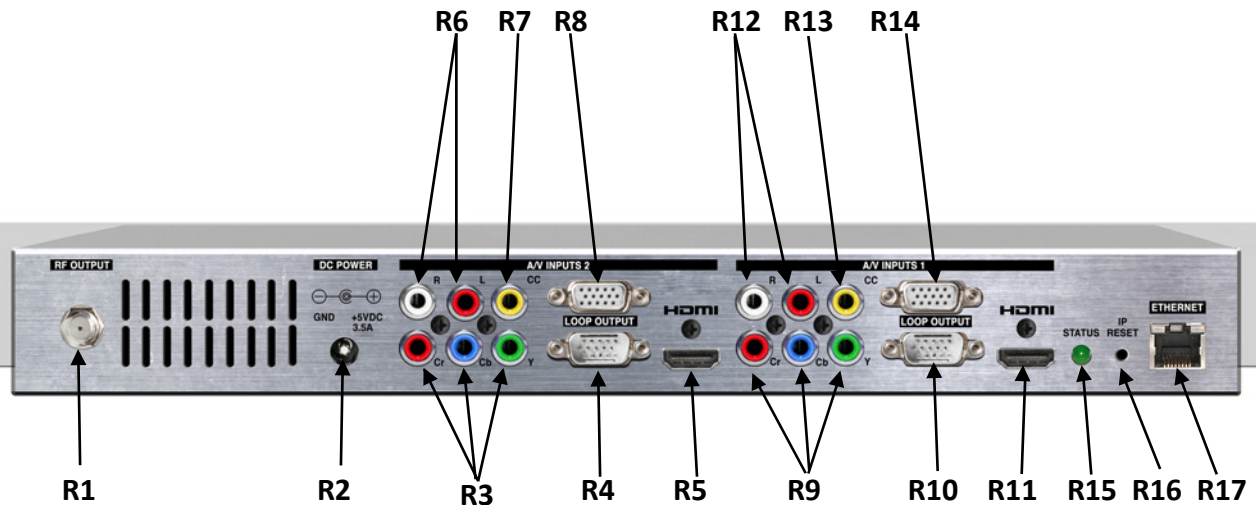
The DSE 2 Plus is designed to be installed in a standard 19" rack.



Adequate ventilation is very important in multichannel installations. Units should be spaced apart by at least one panel height wherever possible, and some air movement is advisable in enclosed rack cabinets. Excessive heat will shorten component life and modulator performance will be degraded without proper cooling.

## Rear Panel Connections

All connections are made on the rear panel.



**R1 - RF Output** – This type “F” connector is a high level (+29.5 dBmV to +45 dBmV), agile 5 to 1002 MHz, multiplexed output from the DSE2 Plus RF output section.

**R2 – DC Power Connector** – This connector provides the means for connection to the 5 VDC output of the supplied external power supply.

**R3 – Component Input 1** - These three color coded RCA connectors, Cr (red), Cb (blue), and Y (green), provide the means to input component video. To input composite video, use the green ‘Y’ connector.

**R4 – VGA Input 1** - This VGA type connector provides the means to input VGA video from a computer or other device with VGA output.

**R5 – HDMI Input 1** - This connector provides the means to input HDMI video (without HDCP) with optional embedded audio.

**R6 – Audio Input 1** - These two color coded RCA vtype connectors provide baseband audio Left (white) and Right (red) inputs to the DSE2 Plus.

**R7 – Closed Caption Input 1** - This connector provides the means to input closed captioning. It requires analog composite video that contains closed captioning.

**R8 – VGA Loop Output 1** - This connector provides VGA video output to a monitor or other equipment requiring VGA input. It is only active when VGA is input on R4.

**R9 – Component Input 2** - These three color coded RCA connectors, Cr (red), Cb (blue), and Y (green), provide the means to input component video. To input composite video, use the green ‘Y’ connector.

**R10 – VGA Input 2** - This VGA type connector provides the means to input VGA video from a computer or other device with VGA output.

**R11 – HDMI Input 2** - This connector provides the means to input HDMI video (without HDCP) with optional embedded audio.

## Rear Panel Connections (continued)

**R12 – Audio Input 2** - These two color coded RCA type connectors provide baseband audio Left (white) and Right (red) inputs to the DSE2 Plus.

**R13 – Closed Caption Input 2** - This connector provides the means to input closed captioning. It requires analog composite video that contains closed captioning.

**R14 – VGA Loop Output 2** - This connector provides VGA video output to a monitor or other equipment requiring VGA input. It is only active when VGA is input on R10.

**R15 – Status LED** – Ethernet Link indicator.

**R16 – IP Reset** - When pushed and held for about 10 seconds, resets the IP address, Usernames, and Passwords to Factory default values.

**R17 – Ethernet Connection** - This connector provides the means to connect the DSE2 Plus to an Ethernet local area network or computer for remote control, monitoring, and/or firmware update. It is not recommended that this port be connected directly to a wide-area network without external access controls, like a VPN or firewall.

## Ethernet Access:

Local or remote communication with the unit is only possible through a GUI-based menu via any standard web browser. Before you can communicate with the unit you must configure your computers Local Area Network connection to conform with the DSE 2 Plus default IP of 172.16.80.2. To do so, follow these steps:

Connect an Ethernet cable from your computer to the Ethernet connection on the rear panel of the DSE 2 Plus.

1) The following steps explain how to do this for a computer with **windows XP** operating software:

(a) On your computer, open the "Control Panel"

(b) Double-click on "Network Connections"

(c) Right-click on the "Local Area Connection", and then click on the "properties".

(d) A dialog box entitled "Local Area Connection Properties" will appear. In this box, double-click on the "Internet *Protocol (TCP/IP)*".

(e) A dialog box entitled "Internet Protocol (TCP/IP) Properties" will appear. Select the "Use the following IP address" option and enter the following addresses:

IP address: 172.16.80.2

Subnet mask: 255.255.255.0

No need to enter a value for the Default Gateway.

Click OK to close the dialog box. Now your computer is ready to communicate with the unit.

## Ethernet Access (continued)

72) The following steps explain how to do this for a computer with **windows 7** operating software:

(a) On your computer, open the "Control Panel"

(b) Click on "Network and Internet"

(c) Click on the "View network status and tasks"

(d) Click on "Change Adapter Settings" on left hand side of the window

(e) Right-click on the "Local Area Connection", and then click on the "properties".

(f) A dialog box entitled "Local Area Connection Properties" will appear. In this box, double-click on the "Internet Protocol Version 4 (TCP/IPv4)".

(g) A dialog box entitled "Internet Protocol Version 4 (TCP/IPv4) Properties" will appear. Select the "Use the following IP address" option and enter the following addresses:

IP address: 172.16.80.2

Subnet mask: 255.255.255.0

No need to enter a value for the Default Gateway.

3) Open a web browser on your computer (Internet Explorer 7 or higher is recommended) and enter the following URL address (<http://172.16.80.1>). Once the DSE2 Plus web server has been loaded from your browser, you should see the login dialog (see Figure 1). Enter the username and password and click LOG IN. The default username is "admin" (in lower case letters) and the default password is "pass" (in lower case letters).

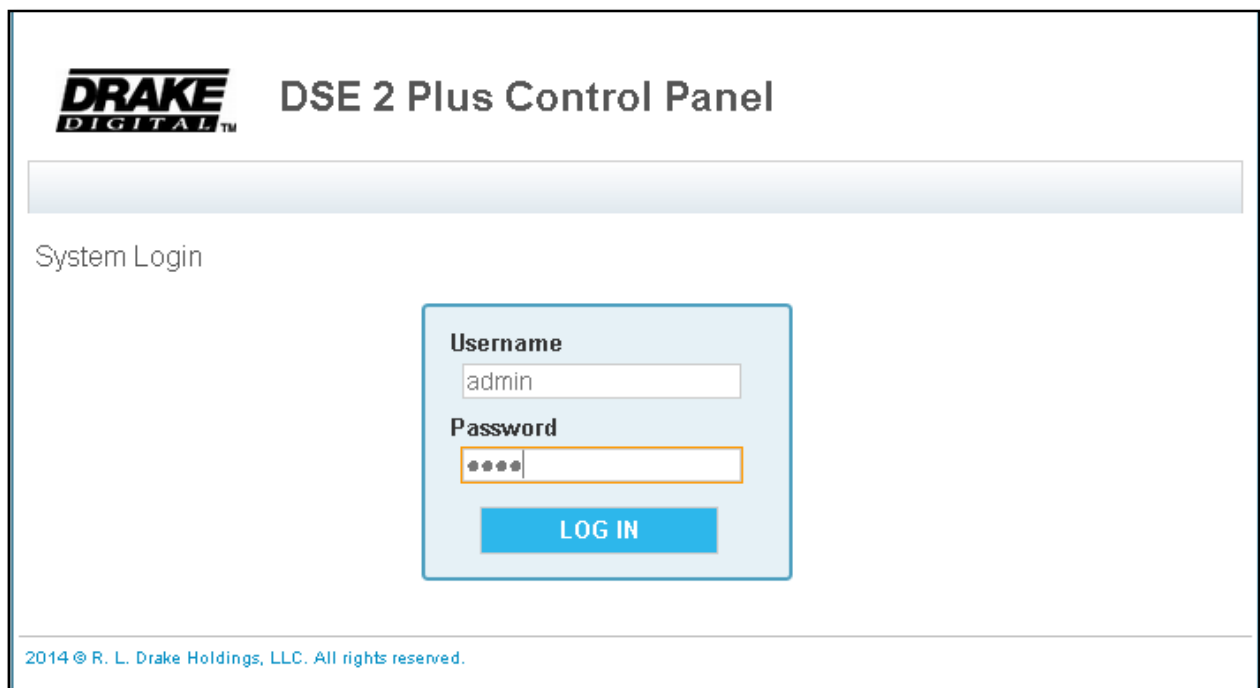


Figure 1: DSE 2 Plus Login Dialog

## Setup and Programming

Once you have successfully logged in to the DSE2 Plus, you will be presented with the status page (see Figure 2).

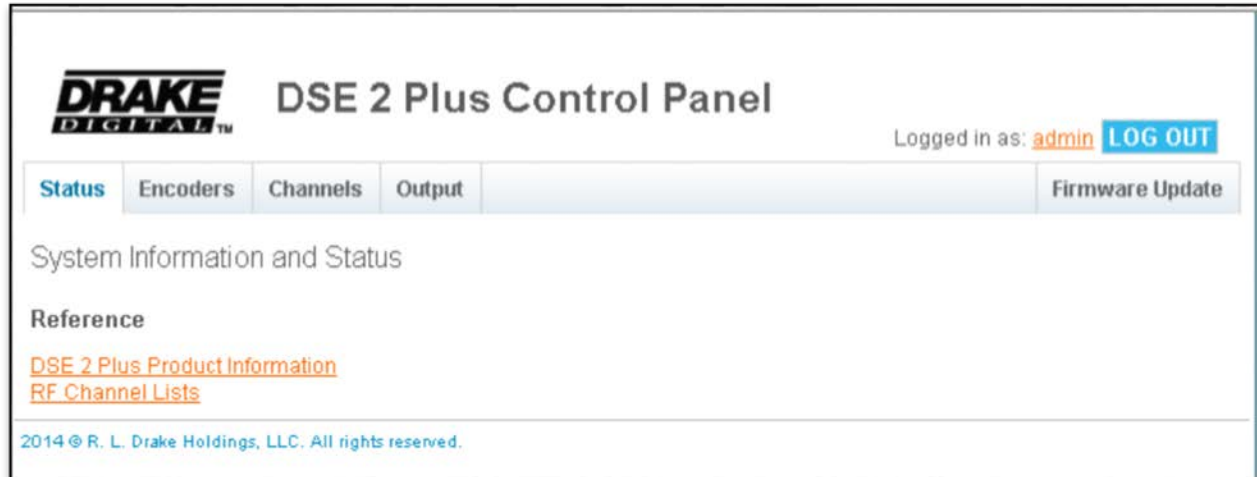


Figure 2: DSE 2 Plus Status Tab

Along the top edge of the Status tab page, there are four tabs listed; each tab allows you to view and configure different parts of the DSE 2 Plus. The Status tab gives the overall status of the whole unit, including firmware versions.

## Setup and Programming (continued)

**DRAKE DIGITAL** DSE 2 Plus Control Panel

Logged in as: **admin** [LOG OUT](#)

Status **Encoders** Channels Output Firmware Update

Encoder Configuration

Select Encoder Module **Encoder 1**

**Encoder Information**

Module Type	Encoder
Firmware Version	1

**Video Settings**

Resolution	1080i @ 60 Hz
Video Source	Component
Video Encoder Format	MPEG-2
Video Bitrate (Mbps)	15.0

**Picture Settings**

Brightness	2
Contrast	3
Saturation	5
Hue	4

**Audio Settings**

Audio Encoder Format	AC3
Audio Source	Analog
Audio Bitrate	320 kbps
Audio Input Limit	10
Audio Gain	0

Revert Apply

Figure 3: DSE 2 Plus Encoders Tab

The Encoders tab allows you to set each encoder's individual parameters. Select an encoder module from the drop-down menu and the appropriate setting selections will be displayed.

## Setup and Programming (continued)

**DRAKE DIGITAL™** DSE 2 Plus Control Panel

Logged in as: [admin](#) [LOG OUT](#)

Status Encoders **Channels** Output Firmware Update

MPEG and Virtual Channel Number Configuration

**PSIP Mode**

PSIP Mode

Select the type of VCT or disable PSIP data completely. One-part program numbers can only be used with a CVCT.

**Enable User-Defined Numbers** ☒

PSIP Tables will either include the user defined MPEG and channel numbers as defined in the channel setup table below or system defaults. When user-defined numbers are disabled, the MPEG number and minor channel number will be set to the encoder ID. The major channel number will reflect the RF output channel.

**Channel Setup**

Encoder	MPEG Number	Use One-Part VCN	Major / One-Part Number	Minor Number	Name
1	<input type="text" value="1"/>	<input type="checkbox"/>	<input type="text" value="3"/>	<input type="text" value="1"/>	<input type="text" value="1"/>
2	<input type="text" value="2"/>	<input checked="" type="checkbox"/>	<input type="text" value="4"/>	<input type="text" value="2"/>	<input type="text" value="2"/>

[Show Help](#)

[Revert](#) [Apply](#)

2014 © R. L. Drake Holdings, LLC. All rights reserved.

Figure 4: DSE 2 Plus Channels Tab

The Channels tab provides an interface to configure the virtual channel mappings for this encoder host. If PSIP is enabled, this page will display a screen that looks like Figure 4; for each encoder output, the MPEG program number can be modified, along with the Major and Minor channel numbers. If one-part virtual channel numbers are desired, the PSIP Mode must be set to CVCT and the Minor number for each channel should be set to 0. The Output tab provides an interface to set all modulator output settings for the unit. A screenshot of this tab is shown in Figure 5.

## Setup and Programming (continued)

The screenshot shows the 'DSE 2 Plus Control Panel' interface. At the top, there is a navigation bar with tabs: 'Status', 'Encoders', 'Channels', 'Output' (which is highlighted), and 'Firmware Update'. The 'Output' tab is active, displaying the 'Output Configuration' section. This section is titled 'QAM Output' and contains several settings: 'Firmware Version' is set to 'None'; 'RF Output Level (dBmv)' is set to '54'; 'Output Mode' is set to 'Normal'; 'Modulation' is set to 'QAM-256B'; 'Interleave Mode' is set to 'I=128, J=1'; 'Symbol Rate (sym/s)' is set to '5360600'; 'Channel Plan' is set to 'CATV-STD'; and 'Channel Group' is set to '3'. Below these settings is a 'Show Channel Lists' button. At the bottom right of the configuration area are 'Revert' and 'Apply' buttons. The footer of the page reads '2014 © R. L. Drake Holdings, LLC. All rights reserved.'

**DRAKE DIGITAL™** DSE 2 Plus Control Panel

Logged in as: [admin](#) [LOG OUT](#)

Status Encoders Channels **Output** Firmware Update

Output Configuration

**QAM Output**

Firmware Version None

RF Output Level (dBmv) 54

Output Mode Normal

Modulation QAM-256B

Interleave Mode I=128, J=1

Symbol Rate (sym/s) 5360600

Channel Plan CATV-STD

Channel Group 3

Show Channel Lists

Revert Apply

2014 © R. L. Drake Holdings, LLC. All rights reserved.

Figure 5: DSE 2 Plus Output Tab

The Output tab provides an interface to set all modulator output settings for the unit. A screenshot of this tab is shown above

## Firmware Update

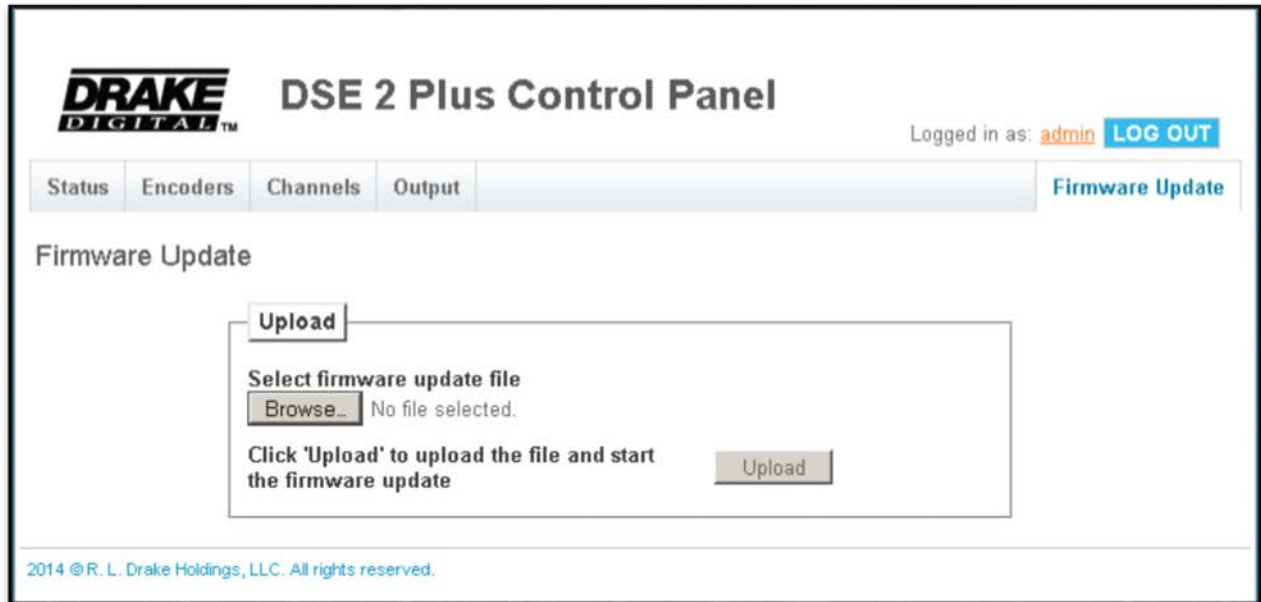


Figure 6: DSE 2 Plus Firmware Update

The Firmware Update tab allows you to update all of the firmware on the unit with a single upload (see Figure 6). Once you have received a new firmware image for the unit, click on the Choose File button and select the provided firmware; click Upload to initiate the update. After a few minutes, The unit will restart with the new firmware. If a power loss occurs during update, the unit will recover automatically – if the firmware upload was not completed, it may be necessary to re-initiate the update process once power is restored.

## NOTES:

## NOTES:

## NOTES:

## Service/If you Need to Call For Help

A Return Material Authorization (RMA) Number is required on ALL PRODUCT RETURNS (regardless of whether the product is being returned for repair or for credit). Product that is received at the factory without an RMA Number will be returned to the Sender, unopened.

RMA Numbers must be used when returning product for credit or repair. Use of RMA Numbers will ensure efficient processing. When needing to return your product to R.L. Drake Holdings, LLC, please follow these simple steps listed below (in the order that they appear).

### SERVICE REPAIRS ONLY

1. Contact R.L. Drake Holdings, LLC's Service Department in one of three ways:
  - A. Phone: 937-746-6990
  - B. Email: [servicehelp@rldrake.com](mailto:servicehelp@rldrake.com)
  - C. Fax: 937-806-1510
2. Request from Drake Service a copy of the Product Return Authorization Form.
3. Complete the Product Return Authorization Form fully.
4. Return the completed Product Return Authorization Form to the Drake Service Department using one of the contact methods listed in Step 1.
5. After completing Steps 1 through 4, an RMA Number will be assigned to you.
6. Securely pack the product and mark the box with your RMA **box** Number. If shipping multiple boxes, all boxes must be marked good, with the RMA Number. Place the RMA Number near the fees). return address in **large, bold print** (approx. 2" in height).
7. Ship your "SERVICE REPAIR ONLY" return to:  
  
R.L. Drake Holdings, LLC.  
Attn: Product Service Returns  
9900 Springboro Pike  
Miamisburg, OH 45342

### CREDIT RETURNS ONLY

1. Contact R.L. Drake Holdings, LLC's Service in one of three ways:
  - A. Phone: 937-746-6990
  - B. Email: [servicehelp@rldrake.com](mailto:servicehelp@rldrake.com)
  - C. Fax: 937-746-6990
2. Request from Drake Service a copy of the Product Authorization Form.
3. Complete the Product Return Authorization Form fully.
4. Return the completed Product Return Authorization to the Drake Service Department using one of the methods listed in Step 1.
5. After completing Steps 1 through 4, an RMA Number will be assigned to you.
6. Securely pack the product in its **original undamaged** (returning the product without its original packaging in new condition may cause the incursion of additional Pack this box within another shipping container or box. Mark the shipping box or container with your RMA Number. Place the RMA Number near the return address in **large, bold print** (approx. 2" in height).
7. Ship your "CREDIT RETURNS ONLY" return to:  
  
R.L. Drake Holdings, LLC.  
Attn: Product Credit Returns  
One Jake Brown Road  
Old Bridge, NJ 08857

**\*NOTE: All Credit Returns are subject to a 15% Restock Fee**

**\*NOTE: All shipments are to be PRE-PAID by the sender. NO COD's will be accepted.**

### **IF YOU NEED TECHNICAL HELP**

Call our Customer Service/Technical Support line at +1 (937) 746-6990 between 8:00 A.M. and 4:00 P.M. Eastern Standard Time, weekdays. Please have the unit's serial number available. We will also need to know the specifics of any other equipment connected to the unit. When calling, please have the unit up and running, near the phone if possible. Our technician(s) will likely ask certain questions to aid in diagnosis of the problem. Also, have a voltmeter handy, if at all possible.

DRAKE also provides technical assistance by Email: [servicehelp@rldrake.com](mailto:servicehelp@rldrake.com)  
Fax: (937) 806-1510.

Many of the products that are sent to us for repair are in perfect working order when we receive them. For these units, there is a standard checkout fee that will be charged. Please perform whatever steps are applicable from the product's Instruction Manual before calling or writing - this could save unnecessary phone charges. Please do not return the product without calling Drake Service and following the steps above first; it is preferred to help troubleshoot the problem over the phone (or by Email) first, saving you both time and money.

## Warranty

### Three Year Limited Warranty

R.L. DRAKE HOLDINGS LLC warrants to the original purchaser this product shall be free from defects in material or workmanship for three (3) years from the date of original purchase.

During the warranty period R.L. DRAKE HOLDINGS LLC or an authorized Drake service facility will provide, free of charge, both parts and labor necessary to correct defects in material and workmanship. At its option, R.L. DRAKE HOLDINGS LLC may replace a defective unit.

To obtain such a warranty service, the original purchaser must:

1. Retain invoice or original proof of purchase to establish the start of the warranty period.
2. Notify R.L. DRAKE HOLDINGS LLC or the nearest authorized service facility, as soon as possible after discovery of a possible defect, of:
  - a) the model and serial number,
  - b) the identity of the seller and the approximate date of purchase; and
  - c) A detailed description of the problem, including details on the electrical connection to associated equipment and the list of such equipment.
3. Deliver the product to R.L. DRAKE HOLDINGS LLC or the nearest authorized service facility, or ship the same in its original container or equivalent, fully insured and shipping charges prepaid.

Correct maintenance, repair, and use are important to obtain proper performance from this product. Therefore carefully read the Instruction Manual. This warranty does not apply to any defect that R.L. DRAKE HOLDINGS LLC determines is due to:

1. Improper maintenance or repair, including the installation of parts or accessories that do not conform to the quality and specifications of the original parts.
2. Misuse, abuse, neglect or improper installation.
3. Accidental or intentional damage.

All implied warranties, if any, including warranties of merchantability and fitness for a particular purpose, terminate three (3) years from the date of the original purchase.

The foregoing constitutes R.L. DRAKE HOLDINGS LLC'S entire obligation with respect to this product, and the original purchaser shall have no other remedy and no claim for incidental or consequential damages, losses or expenses. Some states do not allow limitations on how long an implied warranty lasts or do not allow the exclusions or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty shall be construed under the laws of Ohio.

For Service, contact:

**R.L. DRAKE HOLDINGS LLC**  
9900 Springboro Pike  
Miamisburg, Ohio 45342. USA  
**Customer Service and Parts Telephone:** +1 (937) 746-6990  
**Telefax:** +1 (937) 806-1510  
**Web Site:** <http://www.rldrake.com>



**R.L. DRAKE HOLDINGS, LLC**

9900 SPRINGBORO PIKE  
MIAMISBURG, OH 45342 USA

SALES: 937.746.4556

800.777.8876

FAX: 937.806.1510

IN CANADA: 705 742-3122

844.372.5322

FAX: 705.742-2838

[sales@rldrake.com](mailto:sales@rldrake.com)

[sales@drakecanada.com](mailto:sales@drakecanada.com)

SERVICE: 937.746.6990

FAX: 937.806.1510

[servicehelp@rldrake.com](mailto:servicehelp@rldrake.com)

[www.rldrake.com](http://www.rldrake.com)

[www.drakecanada.com](http://www.drakecanada.com)