

# *XDS-PRO* Satellite Receivers



**XDS-PRO SERIES (PRO4Q, PRO1Q)**



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# XDS-PRO Satellite Receivers

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## 1 INTRODUCTION

Welcome to the future of digital audio for the radio industry. This is your user guide to our line of X-Digital PRO receivers. These receivers are equipped to deliver multiple audio services in high quality digital audio for your radio station. It has been designed to make use of all the digital communication features of today, and to be upgraded to take advantage of the technologies of tomorrow.

### 1.1 Important Information

Throughout this guide, you will find icons designed to help you quickly spot important information:

 <p><b>Note!</b></p>	<p>The note icon identifies information for the proper operation of your equipment, including helpful hints, shortcuts, or important reminders</p>
 <p><b>Caution!</b></p>	<p>The caution icon identifies information that requires careful attention in order to prevent equipment damage.</p>
 <p><b>Warning!</b></p>	<p>The warning icon identifies a procedure or practice that could result in personal injury if not performed correctly.</p>

### 1.2 Hardware Upgradeability

X-Digital Systems, Inc. can upgrade its main control software and audio decoder algorithms over-the-air. This ensures that your receiver will always have the most up to the minute features and functionality.

### 1.3 Hardware Versatility

The PRO1Q can deliver one channel of audio received via satellite on its single output port while the PRO4Q can deliver up to four channels of audio on any one of its four balanced output ports. Additionally, content can be received and stored locally for later use. This content can originate from a real time satellite broadcast, from a high speed satellite IP distribution channel, or can be retrieved via the Internet over the Ethernet port.

### 1.4 Network Management System

The XDS-PRO satellite receivers have been specifically designed so that its output can be controlled via one central web application. This application is called the Network Management System, or NMS. From the NMS, the receiver can be monitored and managed, and the user can set a schedule of live and delayed programs for each output port. The NMS will also coordinate file transfers to store sound, data, or hardware updates directly to the PRO receiver's internal storage device. The NMS will also come equipped with an advanced event logging system ensuring that any technical problems will be accompanied by a full history so that causes of problems may be easily identified and eliminated.

# 2 GETTING STARTED

Please take a few minutes to read through the User's Guide prior to setting up and using the unit. If you are in a hurry, there is a Quick Start guide that comes packaged with the receiver, but please be sure to consult this section at your earliest convenience.

## 2.1 Unpacking the Receiver

Upon receiving your XDS-PRO receiver, ensure that all of the necessary parts have been included.

### 2.1.1 List of Contents

Below is a table that lists the contents that are packaged with the PRO4Q and PRO1Q.

Item	Quantity
Receiver	1
Power Cord	1
Quick Start Guide	1
Installation Kit (Optional)	1
Network Data Sheet	1

## 2.2 Safety Precautions



**Caution!** The following sections provide a list of general hazards to be avoided for safe, reliable use of the PRO receivers.

For the complete French translation of this section, please refer to the Safety Precautions – French addendum.

### 2.2.1 Excessive Temperature

The XDS-PRO receivers have been designed to operate safely and reliably in an ambient temperature of 0° to 50° C. We expect the system to operate without a need for a fan in air conditioned locations. The fan will be electronically controlled via temperature sensor. This will allow the unit to operate under less than optimal conditions. However, once the receiver is located in a closed or rack environment, the ambient temperature may be greater than room temperature. Please take this into consideration when installing the receiver, making sure that the ambient temperature around the receiver does not exceed the temperature range 0° to 50° C.

### 2.2.2 Proper Ventilation

Air vents on the side and rear of the receiver are provided to ensure proper air flow through the receiver unit. In order to ensure proper operation, the XDS-PRO receivers should be located such that its ventilation is not impeded. In a rack environment, at least two inches on the sides and at least 5 inches in



## XDS-PRO Satellite Receivers

the rear should be provided. Proper ventilation will help ensure the receiver performs both safely and efficiently.

### 2.2.3 *Heat, Humidity, and Dust*

In order to avoid unnecessary internal damage, avoid placing the receiver next to external heat sources such as heaters, direct sunlight, heating ducts, etc. Also avoid locations of high humidity, dust, and vibration.

### 2.2.4 *Power Cord Cabling*

Avoid running the power cord across places of high traffic where it can be crimped or tripped over. Make sure the cords are securely fastened to both the wall outlet or power strip, and the back of the receiver. Do not place objects on or leaning against power cords.

### 2.2.5 *Reliable Earthing*


Proper mains earth grounding of the electronic rack system and rack mounted equipment should be maintained. To ensure proper and reliable grounding of the XDS-PRO Receiver, the electronic rack system shall employ either permanently wired mains connection or use pluggable equipment type B type wiring in a restricted access location with proper equipotential bonding applied. The XDS-PRO Receiver includes a rear panel grounding stud for connection to the electronic rack ground rails.

The XDS-PRO Receiver must be connected to an earthed mains socket-outlet.

Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan

Apparatet må tilkoples jordet stikkontakt


Apparaten skall anslutas till jordat uttag

 <p><b>Warning!</b></p>	<p>Make sure all rack mounted equipment and the electronic rack system is properly grounded.</p>
--	--

### 2.2.6 *Circuit Overloading*

The XDS-PRO receiver can draw up to 1.5 Amps at 120VAC as indicated on the back of the receiver. When adding the receiver to an already existing rack setup, take care to ensure the maximum current rating of the circuit is not exceeded.

### 2.2.7 *Foreign Objects*

 <p><b>Warning!</b></p>	<p>Inserting <i>any</i> type of foreign object into the ventilation holes of the receiver can result in shock or serious injury of the operator.</p>
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If a foreign object is inserted into the receiver, immediately power down the receiver and contact X-Digital Systems technical support. Do not open the receiver, as doing so will void the receiver's warranty.

## 2.3 Physical Installation of the Receiver

The following section will guide you through the physical installation of the XDS-PRO receiver.


### 2.3.1 Rack Mounting the Receiver

The XDS-PRO receiver has been specifically designed for installation and operation in an EIA standard 19-inch equipment rack. When mounting it in the rack, use pan or round head screws and flat washers in all four front panel mounting locations.

 <b>Caution!</b>	Do not paint mounting ears as it hinders the grounding path from the receiver to the rack.
--	--

### 2.3.2 Uneven Loading of Rack

When installing the XDS-PRO receiver in a free standing or unsecured rack, make sure to place heavier pieces of equipment on the bottom and lighter pieces on the top.

 <b>Caution!</b>	Uneven loading may cause the rack to be unstable and hazardous.
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## 2.4 Connecting the Receiver to a Satellite Dish

This section contains information required for connecting your XDS-PRO receiver to a satellite downlink.

### 2.4.1 Outdoor Antenna Grounding

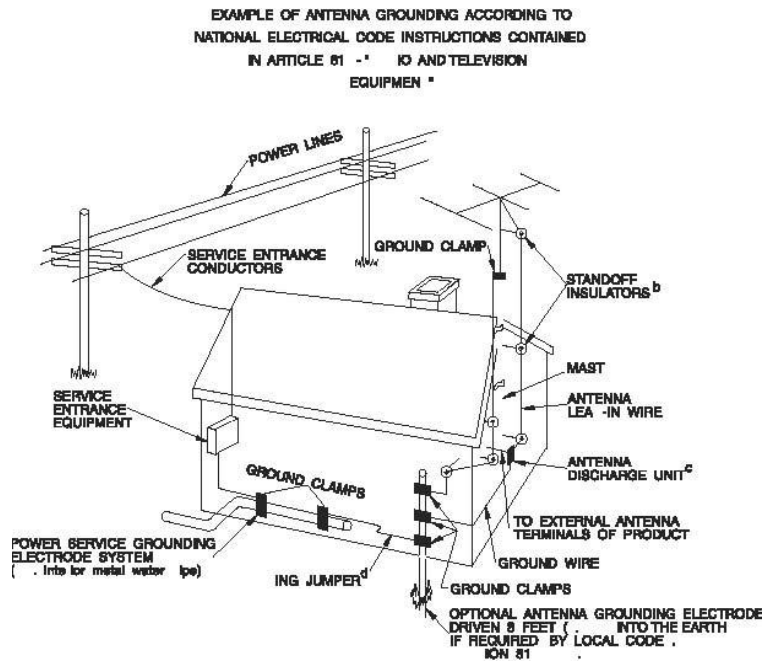
Before attempting to install the XDS-PRO receiver, make sure the antenna and cable system is properly grounded to provide some protection against voltage surges and built-up static charges.

- a. Use No.10 AWG (5.3mm) copper, No.8 AWG (8.4mm) aluminum, No.7 AWG (10mm) copper-clad steel or bronze wire or larger, as ground wire.
- b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22m) to 6 feet (1.83m) apart.
- c. Mount antenna discharge unit as close as possible to where lead-in enters house.
- d. A driven rod may be used as the grounding electrode where other types of electrode systems do not exist. Refer to the National Electrical Code, ANSI/NFPA 70-1984 for information.
- e. Use jumper wire not smaller than No.6 AWG (13.3mm) copper or equivalent, when a separate antenna grounding electrode is used.

#### NOTE TO THE CATV SYSTEM INSTALLER

**THIS REMINDER IS PROVIDED TO CALL THE CATV SYSTEM INSTALLER'S ATTENTION TO ARTICLE 820-22 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**

# XDS-PRO Satellite Receivers




## 2.4.2 DC Voltage Requirement

You may need to have the receiver supply DC voltage to either an LNB or a block down-converter (used after an LNA). For the model PRO4Q (or model PRO1Q equipped with an optional control front panel), the user must change the receiver's LNB ON/OFF settings using the front panel display. For directions on how to use the front panel display, see Section 3.2 of this manual. For the Model PRO1Q not equipped with optional control front panel, the user must change the receiver's LNB ON/OFF settings using the Receiver Web Interface, described in Section 4, or remote Monitor and Control Interface, described in Section 6.

In installations where another receiver receives the L-Band (950-2150MHz) signal directly from the satellite dish, then you may use a splitter with DC blocking circuitry to get the signal to the XDS-PRO receiver. In this case, set the LNB Voltage setting to OFF.

## 2.4.3 Warnings about Shorting DC

 <b>Caution!</b>	If the LNB Voltage mode is enabled, be careful not to short the signal. The voltage on this line is approximately +18V DC.
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## XDS-PRO Satellite Receivers

If the DC Voltage is shorted during installation, transient voltage may damage the Demodulator. In the case of a short, over-current protection circuitry will shut down the LNB supply. When this occurs, it is important to disconnect the receiver as soon as possible. If there is a “dead” short in the cable connecting the receiver to the satellite dish, the unit will not function properly. Remove the power cord from the rear of the unit and then check the cable connecting the receiver to the satellite dish to make sure it has not been damaged and is installed correctly. Finally, reinstall the power cord and proceed with unit setup.

## 2.5 Connecting to the Ethernet Network

The XDS-PRO receivers are specifically designed to receive audio broadcasts via satellite transmissions. It is also equipped with an “internet” only mode in which it can receive audio data and receiver updates via its Ethernet port. For this feature to be functional, the receiver must be connected to a network router or directly connected to an internet connection. This portion of the User’s Guide will provide instructions on setting up your receiver to connect to the internet. If you are unsure about any of the values required below, please contact your local network administrator for assistance.

### 2.5.1 *Connecting the Cables*

The Ethernet port on the back of the receiver accepts non-crossover RJ-45 cables. Depending on your stations internet connection, you will either connect a RJ-45 cable directly from a Cable to the XDS-PRO receiver, or you will connect the cable from a network router to the receiver. In either case, ensure that the cable is properly aligned and that it clicks in when you connect it, so that it cannot be removed without pressing the plastic release button on the end of the cable. Ensure that your internet connection is functioning before proceeding to the next steps.

### 2.5.2 *Using DHCP or Static IP Addresses*

Dynamic Host Configuration Protocol, or DHCP, allows the network administrator to control the assignment of device IP address assignment. If DHCP is on, the receiver will be assigned an IP address automatically by the network. The implications of this are that the IP of the receiver may change each time the receiver is rebooted. Turning DHCP off will ensure that a static, or non-changing, IP is assigned to the receiver as opposed to a dynamic one determined at each startup of the receiver. For direction on turning DHCP on or off, refer to section 3.2.2.1.

### 2.5.3 *Assigning a TCP/IP Address*

The TCP/IP address of the receiver serves as its identification number on the local network. Once the receiver is set up properly on a network, it will host a website which can be loaded by typing its IP address into any standard web browser. Therefore the ability to specify a static IP address for the receiver may be useful. To view and modify the IP address, refer to section 3.2.2.1.

### 2.5.4 *Assigning a Subnet Mask*

The subnet mask is used to determine where the network number in an IP address ends and the node number in an IP address begins. A node is any device on a network that needs a unique IP address to communicate (computer, server, router, XDS-PRO Receiver, etc.). To set this value for your purposes, refer to section 3.2.2.1.

### 2.5.5 *Assigning a Default Gateway*

A *gateway* refers to a router or host which grants access to the internet. If you have not enabled DHCP, you must specify the TCP/IP address of this default gateway. To set this value, refer to section 3.2.2.1.

## XDS-PRO Satellite Receivers

### **2.5.6 Proxy Server Configuration**

A proxy server can be configured through the front panel as detailed in section 3.2.2.1 or through the command line interface. To modify the proxy server through the command line, refer to the E0/E1 PROXY commands in section 6.2.

### **2.5.7 DNS Server Configuration**

The DNS Server settings must be configured using the front panel as shown in section 3.2.2.1 or through the command line interface. A receiver may specify up to four DNS addresses using the E0/E1 DNS commands described in section 6.2.

## **2.6 Connecting the Audio Ports**

Your XDS-PRO receiver can output both analog and digital audio depending on its configuration. Networks will generally assign stations statically to an individual port or port configurations can be modified through the Affiliate Website.

### **2.6.1 Analog Audio Ports**

The four ports on the back of the PRO4Q receivers labeled Audio A, Audio B, Audio C, and Audio D output analog audio. For information on the pin-out of these ports, please see section 7.6. For the PRO1Q, the audio port labeled Audio A also outputs analog. For information on the pin-out of these ports, see section 7.6.

### **2.6.2 Digital Audio Port**

The PRO4Q port on the back of the receiver labeled AES/EBU outputs digital versions of the audio output from ports Audio A-D. Refer to section 7.9 for connector pin-out information. The PRO1Q receiver *does not* provide digital audio output.

## **2.7 Connecting the Relay Ports**

The PRO4Q receivers are equipped with two RS-232 ports labeled Relay A and Relay B that are capable of receiving cue signals from the Network signal and firing relay closures while the PRO1Q is equipped with one labeled Relay A.

### **2.7.1 Physical Ports**

Each of the RS-232 ports on the back of the PRO4Q receiver has 32 relay closures that can be mapped. The relay mappings can be modified, viewed and toggled through the Affiliate Website (Section 5), toggled only through the front panel (Section 3.2.2.1) or viewed through the receiver website (Section 4). For pin-out information on the RS-232 ports please see Section 7.4.

The RS-232 port on the back of the PRO1Q has 16 relay closures that can be mapped. The relay mappings can be modified, viewed or toggled through the Affiliate Website (Section 5) or viewed through the receiver website (Section 4). For pin-out information on the RS-232 ports please see Section 7.4.

## XDS-PRO Satellite Receivers

### 2.7.2 Cues

The XDS-PRO receivers are capable of firing multiple types of relays:

- Associated cues will fire when the associated program is playing. In addition these cues will be recorded for delayed playback.
- Non-associated cues will fire if they are mapped to a relay regardless of what program is playing.
- All cues will be outputted through an RS-232 Tx pin on the receiver's relay port to be used by downstream systems.

## 2.8 Connecting the Program Associated Data (PAD) Port

The XDS-PRO receivers are capable of receiving and displaying PAD in two different ways. Your Network will provide baud rate settings for the PAD. PAD settings for the receiver can be configured through the front panel (Section 3.2.3.1) or the M&C (Section 6.2). PAD data is output through the port labeled PAD on the back of the receiver. Please see section 7.10 for information on the PAD port pin-out.

### 2.8.1 In-Band Ancillary Data

In-band ancillary data is raw asynchronous data embedded within the streaming audio on the same program PID as the audio. It is fed into the RS232 port of the encoder port and thereby associated with a single audio stream. MP2 natively supports ancillary data. AAC will be carrying ancillary data in a proprietary enhancement to the framing protocol (this enhancement will be compatible with all AAC decoders).

### 2.8.2 Out-of-Band Ancillary Data

Out-of-band ancillary data is raw asynchronous data associated with a single audio stream but carried outside of the MP2 or AAC data frame. It is fed into the RS232 port of the encoder port and thereby associated with a single audio stream. This data may be embedded within the MPEG2 transport framing structure (TSP) of a single audio stream.

## 3 FRONT PANEL OPERATIONS

All XDS-PRO receivers provide four status LEDs which indicate power, signal, update, and fault. These four status LEDs serve as a quick reference for the current state of the receiver.

The PRO4Q receiver (and PRO1Q equipped with optional control front panel) Front Panel is also equipped with a 128x64 pixel LCD display; eight buttons: **1**, **2**, **3**, left (◀), right (▶), up (▲), down (▼), and **SET**; a monitor speaker; a headphone port; and a USB connector. Using the buttons and LCD, a user may navigate through the hierarchical menu to view, modify, and save receiver settings.

### 3.1 Status LEDs

There are four status light emitting diodes, each indicating a specific property of the receiver. The following sections state their significance.

## XDS-PRO Satellite Receivers

### 3.1.1 Power LED

The POWER LED is on when the unit is plugged in and there is no problem with the internal circuitry.

### 3.1.2 Signal LED

The SIGNAL LED is used to indicate when the receiver has locked onto a signal or not. If the signal LED is a solid green, the receiver is locked. Otherwise, the light will be off.

### 3.1.3 Update LED

The UPDATE led indicates a software download/upgrade is in progress. When it is blinking slowly (once per second), the download is in process. When it blinks fast (3x per second), an upgrade has been successful and the receiver should be rebooted at a convenient time (when audio is off air). The update LED will also be blinking if you haven't activated your receiver unit with the NMS. See the Quick Start guide for activation instructions.

### 3.1.4 Fault LED

The FAULT LED has three possible states.

1. A red Fault LED indicates that there is an active fault condition affecting the receiver;
2. a green Fault LED indicates that there is no active fault, but that there is either an active warning or a past fault in the fault history;
3. a Fault LED that is off indicates that there are no current or past faults.

The STATUS menu (described below) will give you details as to which faults are active.

## 3.2 LCD Display and User Interface

The PRO4Q receiver and PRO1Q equipped with an optional control front panel are equipped standard with a 128x64 pixel LCD on its front panel which allows the user to view, modify, and save receiver settings. The PRO1Q receiver can be ordered with the control front panel as an optional configuration. The navigation of the XSD-PRO receiver menu hierarchy is simple:

- To cycle through the possible sub-menus, press the ◀ or ▶ buttons.
- To navigate into the currently selected sub-menu, press the ▼ button.
- To navigate back up into a higher level of the menu hierarchy, press the ▲ button.
- Once you have navigated to a menu which allows you to edit settings, use the ▲ and ▼ buttons to highlight options, and the set button, to pick an option.

## Main Menu Options

When the receiver's front panel is not being used, the idle screen featuring the X-Digital Systems <sup>1</sup> logo will be displayed. There are two important statistics displayed on this front logo screen: EB, *energy per bit relative to noise floor*, which is a quantitative measure of signal quality; and AG, *automatic gain*, which is an indicator of the signal level. Both of these quantities serve to describe the quality of the satellite signal and should be used as a guide when positioning the satellite dish. Better signals have better separation between the data and noise floor, and thus a higher EB. EB range is 0 - 15. Levels above 15 will be

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<sup>1</sup> The X-Digital logo may be replaced by your broadcaster's logo.



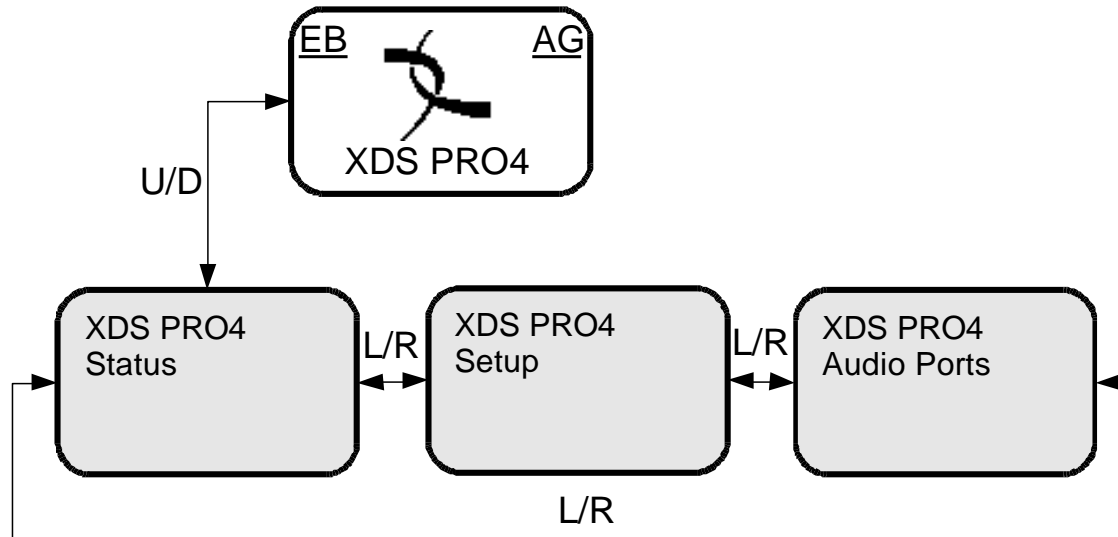
## XDS-PRO Satellite Receivers

displayed as “>15”. The receiver will fade in and out below 5 dB Eb/No, and lose lock completely at around 3.5 dB. A powerful signal will have a high AG (indicating little amplification is required) while a weak signal will have a low AG (indicating unit is amplifying signal).

Once the ▼ button is pressed, the receiver will navigate into its main menu options. These options are:

- STATUS,
- SETUP, and
- AUDIO PORTS.

Continually pressing ◀ (or ▶) will cycle through these three main menus. Pressing ▼ or **SET** will navigate into whichever one of these three options happen to be currently selected.



(Front Panel Main Menu Options)

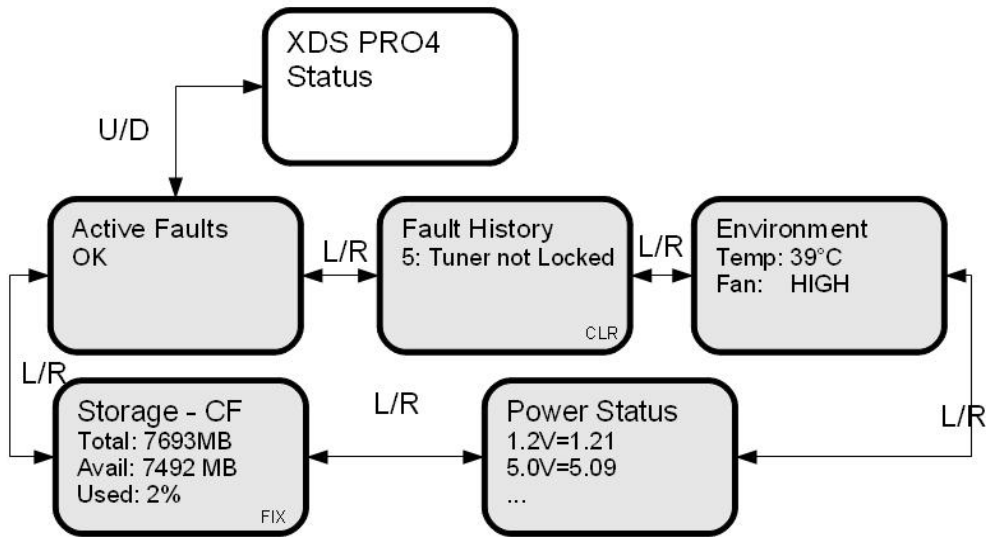
### 3.2.1 Status Sub-Menus

From the Status menu, the user can navigate through five sub-menus, each of them offers various status-related information. From any of these sub-menus pressing the ▲ button will bring you back to the main menu options. The different sub-menus available in Status are:

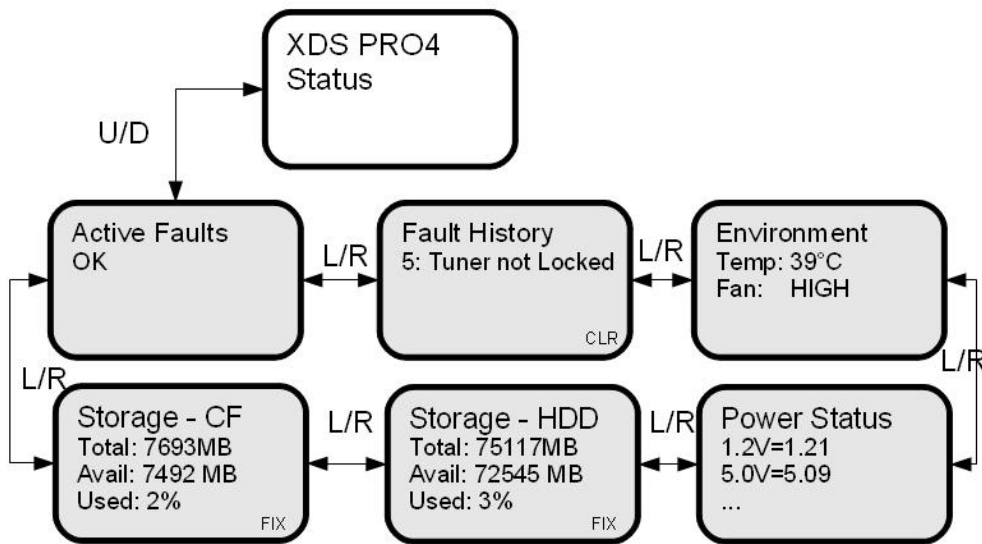
- **ACTIVE FAULTS:** describes any active faults that may be affecting the receiver.
- **FAULT HISTORY:** offers a list of past faults which may have occurred. Pushing **3** will clear the fault history.
- **ENVIRONMENT:** indicates whether the internal fans are functioning inside the unit, and the internal temperature of the receiver unit.
- **POWER STATUS:** readings on the various voltage levels inside the receiver.
- **STORAGE STATUS:** gives an indication of the internal storage drive usage in the receiver. Also gives the option to “Fix” storage.
- **HARD DRIVE STATUS (PRO4Q equipped with optional HDD only):** gives a status of the internal hard drive in the receiver. Also gives the option to “Fix” storage.



## XDS-PRO Satellite Receivers



(Front Panel Status Options)



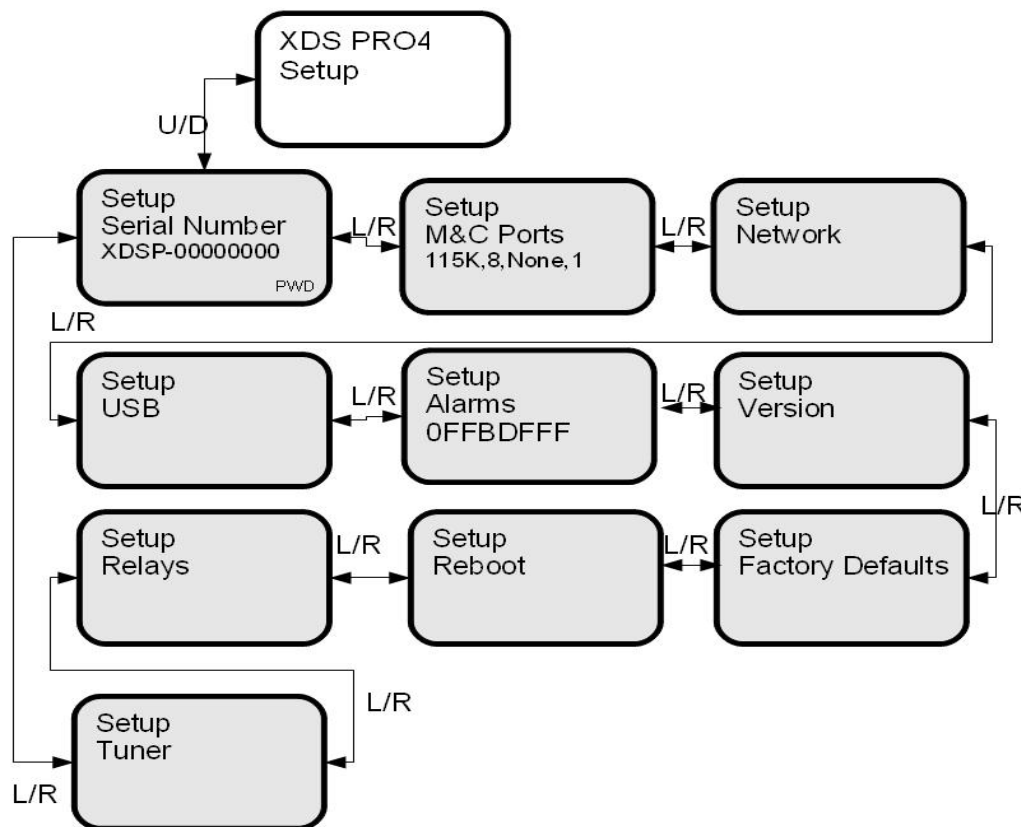
(Front Panel Status Options)

### 3.2.2 **SETUP Sub-Menus**

By navigating from the Main Menu to Setup, the user reaches the Setup sub-menus. The different sub-menus available under Setup are:

## XDS-PRO Satellite Receivers

- SERIAL NUMBER: displays the receiver's serial number. Pressing the **3** quick key underneath "PWD" will display your receiver's affiliate site password.
- M&C PORTS: displays M&C port settings.
- NETWORK: pressing the ▼ will navigate into the Network sub-menus.
- USB: pressing the ▼ will navigate into the USB sub-menus
- ALARMS: allows you to set the alarm mask as a hex value.
- VERSION: pressing **SET** in this menu will display the receiver's firmware version.
- FACTORY DEFAULTS: pressing **SET** will offer you the option of resetting the receiver's settings to factory defaults. Press **1** to confirm or **3** to cancel. Reboot is required.
- REBOOT: pressing **SET** will offer you the option of rebooting the receiver or gracefully shutting down the receiver. Press **1** to reboot, **2** to shut down gracefully, **3** to cancel. (*Hot tip: press 3 three times from the top idle screen to automatically go to this screen*).
- RELAYS: allows you to switch any of the individual relay signals on Relay A or B to on. Press ▼ to choose which Relay port to edit, then press **SET** to modify which pins on the relay are activated. A '0' is an un-activated relay and a '1' is an activated relay. The first position is the Relay 1, the second position is Relay 2, and so on.
- TUNER: pressing the ▼ will navigate into the Tuner sub-menus.



(Front Panel Setup Sub-Menus)

## XDS-PRO Satellite Receivers

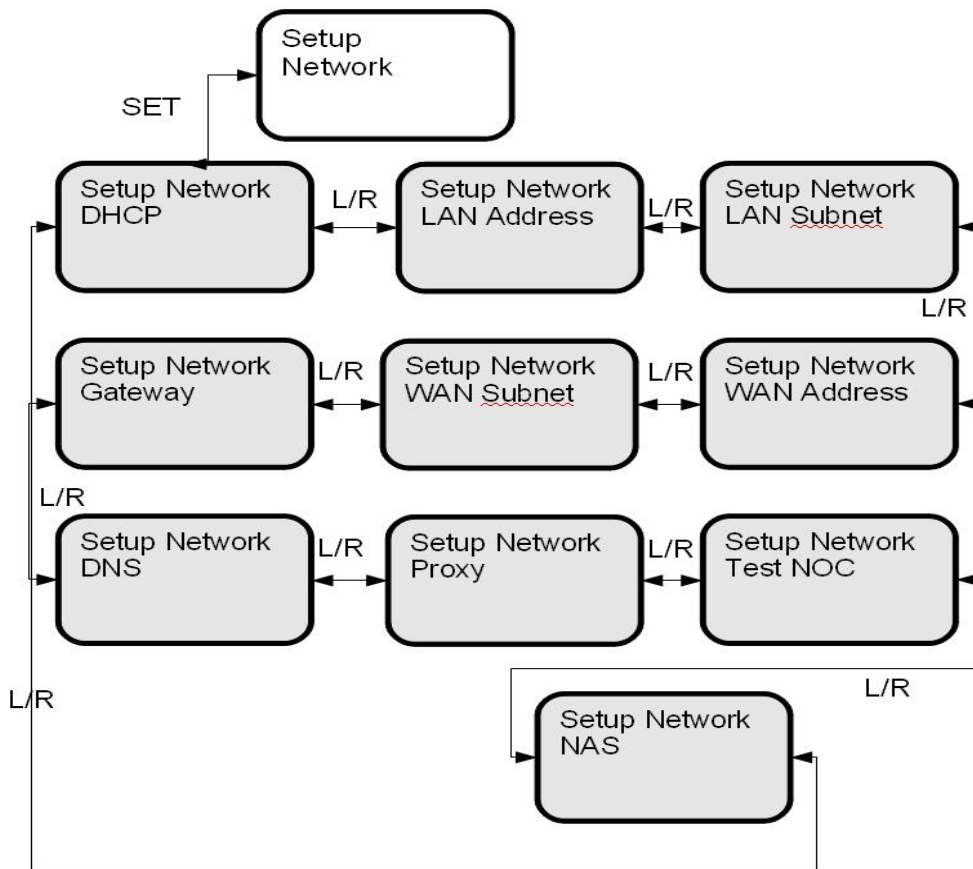
### 3.2.2.1 **SETUP: NETWORK Sub-Menus**

Starting from the Main Menu and navigating to Setup option and pressing ▼ , and then navigating to Network option and pressing **SET**, a user will have access to the Network sub-menus. In these sub-menus, the receiver's network settings can be made. The network menu options include:

- DHCP (on or off): allows the user to specify a dynamic or static IP (on or off respectively).
- LAN IP Address: in the case of a static IP, this allows the user to specify the LAN IP address of the receiver.
- LAN Subnet Mask: allows the user to specify the LAN Subnet mask.
- WAN Address: specify the WAN IP address.
- WAN Subnet Mask: specify the WAN subnet mask.
- GATEWAY: allows the user to specify the default gateway to direct traffic to.
- DNS: allows the user to specify DNS servers the receiver will use.
- PROXY: allows the user to specify a proxy server the receiver will go through.
- TEST NOC: when **SET** is pressed, this menu offers the user two test options. Pressing **1** allows you to ping the internet to ensure the network connection is functioning, and pressing **2** tests the receiver's website to ensure it is functioning. Pressing **3** exits from the Test menu.

To modify any of these numeric values: use ◀ or ▶ to select which part of the IP to change. Make a digit larger using ▲ ,and to make a digit smaller using ▼ . Press **SET** whenever you are done editing and want to commit a setting.

## XDS-PRO Satellite Receivers



(Front Panel Network Sub Menus)

### 3.2.3 AUDIO PORTS Sub-Menus

From the Audio Ports sub-menus, users can change the settings for each of the four ports as well as headphones port (for PRO4Q or PRO1Q-FP models). To choose which of these five ports to modify scroll between them using ◀ or ▶ until the desired port is selected. Once the desired port is selected, pressing 1 will take you to the Station sub-menu where call letters for a station may be selected. Pressing 2 will take you to Programs sub-menu where a specific program may be chosen from a list using ▲ and ▼. Pressing 3 will navigate to the Spots sub-menu where specific radio spots may be chosen from a list, again using ▲ and ▼.

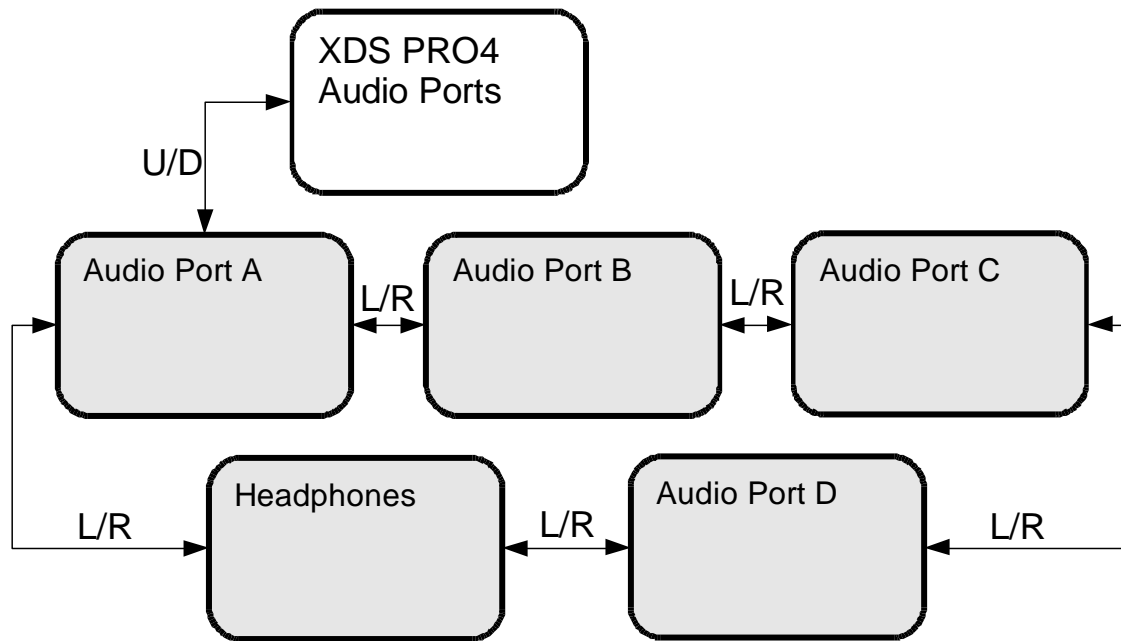
#### 3.2.3.1 AUDIO PORTS: SETUP Sub-Menus

Each of the five audio ports (Audio Port A-D, and Headphones) have their own identical setup sub menus. From these menus, users may modify the station call number, the current program played on the audio port, the current commercial spot played on the audio port, and a couple miscellaneous audio settings (stereo or mono). These settings may only be changed if a red-cross symbol is *not* visible on the port's menu screen. If this symbol does appear, it means that this audio port is controlled automatically by the broadcaster, and that the user is unable to change any of these settings.

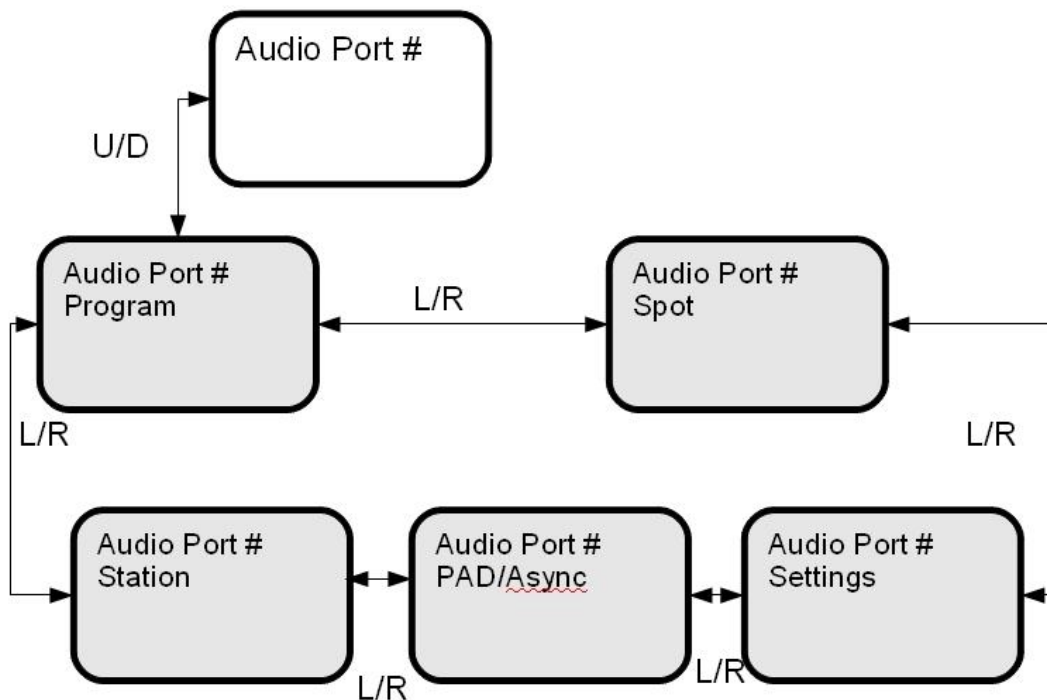
When the Station menu is selected by pressing SET, the receiver navigates to a screen where call letters can be selected in order by using ▲ and ▼ to choose a letter for the selected spot, ◀ and ▶ to choose which position in the name is selected for editing, and SET to commit the changes to the station's call letters. When Program or Spot menus are selected, the receiver will display a list of programs or

## XDS-PRO Satellite Receivers

spots respectively. Use ▲, and ▼ to scroll through these lists, and use **SET** to select something from one of these lists. When the Settings menu is selected, the user can change the audio ports output mode from mono to stereo or vice versa. Again use the arrow keys and **SET** to accomplish this.



(Front Panel Audio Ports Setup Sub-Menu)



(Front Panel Individual Audio Port Sub-Menu)

### 4 RECEIVER WEB INTERFACE

The XDS-PRO receiver includes an on-board web interface that will publish itself on your local area network. From this web interface you can view most of the receiver's internal settings as well as the contents of the receiver's integrated hard drive. To access this site, simply open a web browser connected to your network and navigate to your receiver's assigned IP address. The receiver's IP address can also be found through the front panel (*for PRO4Q or PRO1Q models equipped with optional control front panel*). When the page loads, you will see a login page. You may login using "user" as user name and "guest" as the password.

Once you have logged in, you will see three buttons on the top labeled:

1. *General*,
2. *Programming*, and
3. *Content*.

After logging in, you are viewing the information underneath the *General* button by default. Each of these buttons offers a different set of options which are represented as tabs at the top of the screen.

## 4.1 General Menu

The General menu lists most of the basic receiver attributes and settings. After logging in, you start in the General menu by default. The tabs listed across the top for the General menu are:

- *Status,*
- *Tuner,*
- *Setup,*
- *Relays,*
- *Opto Inputs*
- *Logs.*

The Status tab is the tab displayed by default upon entering the General menu. To navigate to another tab within a menu, simply click the tab's name.

### 4.1.1 Status Tab

The Status Tab displays basic attributes about the receiver's current output, its surroundings, errors, and current power levels. On this tab you will see:

- A description of the Headphones output including Program, PID, and the volume.
- A list of current faults affecting the receiver, as well as a history of past faults complete with a clear button to wipe the slate clean.
- A run-down of environmental factors including the receiver's internal temperature and fan speed, which is a measure of how hard the receiver is working to cool itself.
- A diagnostic of the power supply's voltage levels. Ideally, the actual voltage matches each of the named levels in each row.

**XDS PRO4+ Setup**

General Programming Content

ner: Locked All audio is off Status Tuner Setup Relays Opto

**Audio Ports**

Port	Program	PID
Audio Port A & AES/EBU	Idle	1FFF
Audio Port B & AES/EBU	Idle	1FFF
Audio Port C	Idle	1FFF
Audio Port D	Idle	1FFF
Headphones	Unknown	1000

Select Programming

**Active Faults / Fault History**

Level	Bit	Description
No Past or Active Faults		

(Status Interface on Receiver Web Interface)

## XDS-PRO Satellite Receivers

### 4.1.2 Tuner Tab

The Tuner Tab presents the user with tuner related data. This data include:

- The receiver's network carrier.
- The frequency the tuner is tuned to.
- The tuner's symbol rate.
- The locked or unlocked status of the tuner.
- The acquisition state of the tuner: acquiring, tracking, or fade.
- Eb/No, or *energy per bit relative to noise floor* (see section 4.2).
- AGC, or *automatic gain control* (see section 4.2).
- Fade count of the tuner.
- The number of Reed-Solomon errors that the tuner has encountered.
- The LNB offset the tuner is currently using.
- The on or off status of the LNB.

The fade count and Reed-Solomon errors can be reset by pressing the Clear Statistics button.

ff	Status	Tuner	Setup	Relays
<b>Tuner Settings</b>				
Network	Unknown			
Frequency	1040000 kHz			
Symbol Rate	8138200 sps			
FEC	N/A			
Data Rate	N/A			
Framing Mode	DVB			
Carrier Lock	LOCKED			
Aquisition State	SEARCHING			
Eb/No	0.0			
ACG	0			
Fade Count	0			
Reed-Solomon Errors	0			
<input type="button" value="Clear Statistics"/>				

(Tuner Interface on Receiver Web Interface)



## XDS-PRO Satellite Receivers

### 4.1.3 Setup Tab

The Setup Tab shows even more detailed and specific receiver facts:

- The receiver's platform type.
- The receiver's serial number.
- The receiver's addressing value.
- The receiver's firmware version.
- The date that the current receiver's firmware was designed.
- Station assignments for each audio port (i.e. station call numbers). There are four ports for PRO4Q models and one port for PRO1Q models.
- Networking values used by the receiver including: LAN IP Address, LAN Subnet Mask, Gateway, WAN IP Address, WAN Subnet Mask, primary NMS website URL, and backup NMS website URL.
- Miscellaneous information including data about the serial ports and their settings, and the current hexadecimal alarm mask.

Tuner: <span style="color: green;">Locked</span> All audio is off		Status	Tuner	Setup	Relays	Opto Inputs	Logs
<b>Setup / Administration</b>							
<b>General</b>							
Platform	XDS PRO4 v1						
Serial Number	XDSP-0200793						
Addressing	200793						
Version	0.1.8-H3-MTI						
Built	Apr 15 2010 12:28:15						
		<b>Station Assignments</b>					
Port A	No Station Assigned						
Port B	No Station Assigned						
Port C	No Station Assigned						
Port D	No Station Assigned						
		<b>Miscellaneous</b>					
Serial Ports	115200 Baud, 8 Data, No Parity, 1 Stop, No Flow-control						
Alarm Mask	<a href="#">0385BFFF</a>						
		<b>TCP/IP Networking</b>					
DHCP	OFF						

(Setup Interface on Receiver Web Interface)

# XDS-PRO Satellite Receivers

## 4.1.4 Relays Tab

The Relay Tab presents the user with cue to relay mappings that the receiver is assigned. Your network provides specific relay cue message than can be used to trigger a relay closure if the cue is mapped to an specific relay pin. These relay mappings are configured through the Affiliate Website.

The screenshot shows the 'XDS PRO4+ Setup' web interface in Internet Explorer. The browser address bar shows 'http://192.168.1.215/xds.cgi?fcn=index'. The page title is 'XDS PRO4+ Setup' and it says 'Welcome, admin!'. The interface has a navigation menu with 'General', 'Programming', 'Content', and 'Logout'. Below this is a sub-menu with 'Tuner: Locked', 'Audio: A', 'Status', 'Tuner', 'Setup', 'Relays', 'Opto Inputs', and 'Logs'. The 'Relays' tab is selected, displaying 'Relay Mappings'. There are two tables: 'TOP CONNECTOR A (DB37)' and 'BOTTOM CONNECTOR B (DB37)'. Both tables have columns for Relay, Pins (A/B), Cue, and State. The state for all relays is 'OFF'.

TOP CONNECTOR A (DB37)			
Relay	Pins (A/B)	Cue	State
R1	1 / 20	CUE1	OFF
R2	2 / 21	CUE2	OFF
R3	3 / 22	CUE3	OFF
R4	4 / 23	CUE4	OFF
R5	6 / 25	CUE1	OFF
R6	7 / 26	CUE2	OFF
R7	8 / 27	CUE3	OFF
R8	9 / 28	CUE4	OFF
R9	11 / 29	CUE1	OFF
R10	12 / 30	CUE2	OFF
R11	13 / 31	CUE3	OFF
R12	14 / 32	CUE4	OFF
R13	16 / 34	CUE1	OFF
R14	17 / 35	CUE2	OFF
R15	18 / 36	CUE3	OFF
R16	19 / 37	CUE4	OFF

BOTTOM CONNECTOR B (DB37)			
Relay	Pins (A/B)	Cue	State
R1	1 / 20		OFF
R2	2 / 21		OFF
R3	3 / 22		OFF

# XDS-PRO Satellite Receivers

## 4.1.5 Opto Inputs Tab

The Opto Inputs Tab provides the user with the ability to setup the Opto input mode and to program the Opto Inputs to execute a command or a group of commands. The Opto input can be configured in two modes; Coded and Uncoded.

### 4.1.5.1 Coded Opto Input Mode

In this mode, the receiver is expecting that there will be a closure in multiple Opto pins at a time and the combination of triggered pins can be programmed to a different function. There are 16 possible combinations that the 4 Opto inputs can be triggered. Please see the picture below.

The screenshot shows the 'XDS PRO4+ Setup' web interface in Internet Explorer. The 'Opto Inputs' tab is active, displaying the following configuration options and table:

Mode:  Coded  
 Uncoded  
Save Mode

Opto In	Mask	Pins (GND 1,5)	Title	Armed?	
1 (OPTO 1)	0001	PIN 6		Disabled	Edit
2 (OPTO 2)	0010	PIN 7		Disabled	Edit
3	0011	PIN 6+7		Disabled	Edit
4 (OPTO 3)	0100	PIN 8		Disabled	Edit
5	0101	PIN 6+8		Disabled	Edit
6	0110	PIN 7+8		Disabled	Edit
7	0111	PIN 6+7+8		Disabled	Edit
8 (OPTO 4)	1000	PIN 9		Disabled	Edit
9	1001	PIN 6+9		Disabled	Edit
10	1010	PIN 7+9		Disabled	Edit
11	1011	PIN 6+7+9		Disabled	Edit
12	1100	PIN 8+9		Disabled	Edit
13	1101	PIN 6+8+9		Disabled	Edit
14	1110	PIN 7+8+9		Disabled	Edit

# XDS-PRO Satellite Receivers

## 4.1.5.2 *Uncoded Opto Input Mode*

In this mode, the receiver is expecting that there will be a closure in one of the Opto input pins at a time and each pin can be programmed to a different function



## XDS-PRO Satellite Receivers

### 4.1.5.3 Programming Opto Inputs

To program the Opto input triggers, press the EDIT button, enter a name that you would like to give the particular function you are trying to program, select the enable checkbox if you want this function to be enabled, enter one receiver command per line in the commands window, and press the SAVE button to save your opto function. You can use any receiver console command included in section 6.2



The screenshot shows the XDS PRO4+ Setup web interface in a Windows Internet Explorer browser. The page title is "XDS PRO4+ Setup" and it displays a navigation menu with tabs for General, Programming, Content, and Logout. The main content area is titled "Opto Inputs" and includes a "Mode" selection with radio buttons for "Coded" (selected) and "Uncoded". Below this is a table of 14 opto inputs, each with columns for Opto In, Mask, Pins (GND 1,5), Title, and Armed? (all set to Disabled). Each row has an "Edit" button. To the right of the table is a configuration panel for "Opto Input #1" with an "Enabled" checkbox, a "Title" text field, and a "Commands" text area. "Save" and "Close" buttons are at the bottom of the configuration panel.

Opto In	Mask	Pins (GND 1,5)	Title	Armed?	
1 (OPTO 1)	0001	PIN 6		Disabled	Edit
2 (OPTO 2)	0010	PIN 7		Disabled	Edit
3	0011	PIN 6+7		Disabled	Edit
4 (OPTO 3)	0100	PIN 8		Disabled	Edit
5	0101	PIN 6+8		Disabled	Edit
6	0110	PIN 7+8		Disabled	Edit
7	0111	PIN 6+7+8		Disabled	Edit
8 (OPTO 4)	1000	PIN 9		Disabled	Edit
9	1001	PIN 6+9		Disabled	Edit
10	1010	PIN 7+9		Disabled	Edit
11	1011	PIN 6+7+9		Disabled	Edit
12	1100	PIN 8+9		Disabled	Edit
13	1101	PIN 6+8+9		Disabled	Edit
14	1110	PIN 7+8+9		Disabled	Edit

# XDS-PRO Satellite Receivers

## 4.1.6 Logs Tab

The Logs Tab presents the receiver activity logs. It shows all core transactions the receiver is performing.

- The user can select to display the logs in UTC or local time.
- The user can press the download button and save the logs to its local computer in text format.
- The user can press the PURGE button to delete all the activity logs from the receiver
- The user can press to down or up arrow in the Time Stamp column to sort the logs by timestamp

**XDS PRO4+ Setup**

General Programming Content Logout

Tuner: Locked Audio: A

Status Tuner Setup Relays Opto Inputs Logs

Activity Logs

Time Zone: UTC [Download] [Purge]

TimeStamp	Message
2011-10-12 15:47:37	RESYNC: Port A resync (pause 5040 msec)
2011-10-12 15:47:37	RESYNC: Port B resync (pause 5039 msec)
2011-10-12 15:47:37	RESYNC: Port C resync (pause 5038 msec)
2011-10-12 15:49:12	RESYNC: Port B resync (pause 5042 msec)
2011-10-12 15:49:12	RESYNC: Port C resync (pause 5041 msec)
2011-10-12 15:49:12	RESYNC: Port D resync (pause 5040 msec)
2011-10-12 15:49:12	RESYNC: Port A resync (pause 4989 msec)
2011-10-12 15:49:32	RESYNC: Port A resync (pause 5103 msec)
2011-10-12 15:49:32	RESYNC: Port B resync (pause 5102 msec)
2011-10-12 15:49:32	RESYNC: Port C resync (pause 5101 msec)
2011-10-12 15:49:32	RESYNC: Port D resync (pause 5050 msec)
2011-10-12 15:49:48	RESYNC: Port A resync (pause 4996 msec)
2011-10-12 15:49:48	RESYNC: Port B resync (pause 4995 msec)
2011-10-12 15:49:48	RESYNC: Port C resync (pause 4994 msec)
2011-10-12 15:49:48	RESYNC: Port D resync (pause 4992 msec)
2011-10-12 15:50:19	STAT: ss=10h sf=4010h cf=29GB/22% hdd=0GB/0% eb=0.0 ag=50 fc=5 rs=0
2011-10-12 15:50:44	RESYNC: Port D resync (pause 4608 msec)
2011-10-12 15:50:44	RESYNC: Port A resync (pause 4556 msec)
2011-10-12 15:50:44	RESYNC: Port B resync (pause 4555 msec)
2011-10-12 15:50:44	RESYNC: Port C resync (pause 4554 msec)
2011-10-12 15:50:49	RESYNC: Port A resync (pause 2451 msec)

## 4.2 Programming Menu

From the Programming Menu, the user is able to view all of the programs and recordings the receiver is equipped to receive and re-broadcast.

### 4.2.1 Programs Tab

Each receiver is identified by the Network Management System as authorized to receive and broadcast particular radio programs. From this tab, you can see which programs the receiver is set-up to receive and use. In the Programs grid, you are given the Program Name, Code, Mono/Stereo Setting, Program ID (PID), Authorization status, and Status for each Program on the receiver.

(Programs Interface on Receiver Web Interface)

### 4.2.2 Recordings Tab

In the Recording Tab, every program which has been stored on the receiver’s internal storage drive is listed. For each recording, you are given a link to download the recording to your computer’s local hard drive, the date that it was recorded, and the length of the recording.

(Recordings Interface on Receiver Web Interface)

## 4.3 Content Menu

The Content Menu lists all of the files which the receiver’s internal storage currently holds.

## XDS-PRO Satellite Receivers

### 4.3.1 Audio Tab

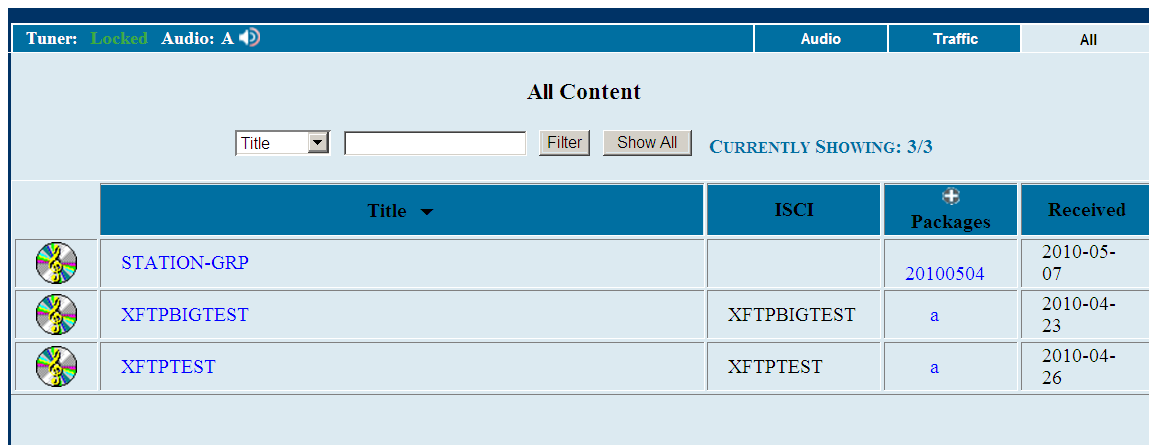
The Audio Tab displays all audio type files which have been stored for later use by the receiver. The file name (along with download link), ISCI code, and received date are displayed. The audio, traffic and all tabs will all have the same layout. To see an example of what these tabs will look like, view section 4.3.3, *The All Tab*.




### 4.3.2 Traffic Tab

The Traffic Tab shows all traffic related text or document files. These files will most likely include instruction from network managers, spot related information, or other read-me files.

### 4.3.3 All Tab

The All Tab simply displays all files which the receiver is currently storing.



Tuner: Locked Audio: A		Audio	Traffic	All
All Content				
Title		Filter	Show All	CURRENTLY SHOWING: 3/3
	Title	ISCI	Packages	Received
	STATION-GRP		20100504	2010-05-07
	XFTPBIGTEST	XFTPBIGTEST	a	2010-04-23
	XFTPTEST	XFTPTEST	a	2010-04-26

(All Interface on Receiver Web Interface)



# 5 AFFILIATE WEB INTERFACE

Your XDS-PRO receivers must always be connected to the internet to allow configuration, activation, setup, monitoring of signal quality, program schedules, audio content and accountability.

The XDS-PRO receivers are capable of communicating with and being configured by an internet-accessible Network Management System. The NMS has an Affiliate Web Interface to allow radio station users to modify receiver settings such as time zone, relay mappings, receiver port program schedules and other features that help simplify the management of network programs. The following sections will instruct you on how to accomplish these tasks.

## 5.1 Accessing and Logging In

The website hosting your affiliate web page is provided by your broadcaster. Please refer to the packaged Quick Start Guide and Network Data Sheet for instructions on navigating to this site.

After the page has loaded, type the username, which is your receiver's serial number (available on the back panel of your receiver and via the front panel display for receivers equipped with control front panels) and password. Once your correct username and password are typed in, press login.

*Obtaining a login password for receivers that are equipped with control front panels*

Navigate to the 'Serial' submenu in the receiver's front panel display (see section 3.2.2 for more details).

*Obtaining a login password for receivers that are NOT equipped with control front panels*

First time visitors must connect to the M&C port of the receiver and execute the PASS command to receive the Daily Password to login. It is highly recommended to set a Friendly Password as soon as possible to avoid having to log in using the temporary Daily Password. Return visitors can use the Friendly Password to log in once it is configured.

Welcome to the Affiliate Website.

First-time visitors: Sign in using your receiver serial number and the daily password issued by your receiver.  
Return visitors: Sign in using your receiver serial number and friendly password. If you lost or did not set a friendly password, sign in as a first-time visitor.

**Sign In**

Receiver S/N: XDSP-

Password:  [Login](#)

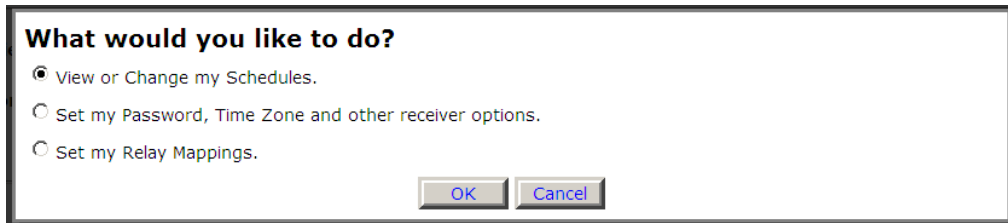
Passwords are case sensitive.

(Affiliate Website Login Page)

## 5.2 Play Scheduling

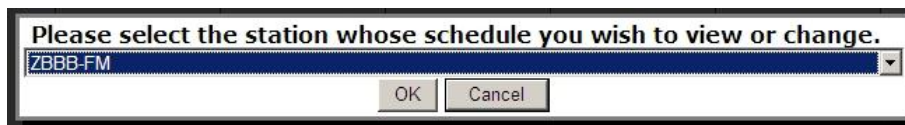
The Affiliate NMS is a powerful tool for managing your radio programming. From this, it is possible to create a play schedule for your receiver. To create a station schedule follow these steps:

- Log into the Affiliate Website (see section 5.1).
- When the 'What would you like to do?' window appears, select



(Initial Pop-Up Screen after logging into the Affiliate Website)

- Once the page loads, you will be presented with a window asking which station schedule you would like to view or modify. If the receiver is set up with more than one station, the drop down menu can be used to navigate between them. Once the desired station is shown in the window, click 'OK.'



(Station Drop Down Pop-Up)

## XDS-PRO Satellite Receivers

- Once a station has been selected, a grid of the current week's schedule will be shown. The week is listed in the upper right above the schedule grid and can be changed by using the arrow links to navigate forward or backward in time. Clicking 'This Week' will bring the scheduler back to the current week. The Scheduler shows a 24 hour grid broken into one hour sections.

The screenshot displays the XDS-NMS (Network Management System) interface. At the top, there is a navigation menu with options: Programming and Scheduling, Relay Mappings, Port Schedules, Configuration, and Help. Below the menu, the current view is 'Programming and Scheduling', with sub-options for 'Calendar View' and 'Program List'. The main heading is 'Programming Schedule for ZBBB-FM on Port D of Receiver XDSP-0300346'. There is a 'Change Station' button. Below this, there are radio buttons for 'Show Playback Schedules Only' (selected) and 'Show Recording Schedules Only'. The week is identified as 'Week of 4/21/2008 to 4/27/2008' with navigation arrows. The main area is a grid with columns for each day (Monday 4/21/2008 to Sunday 4/27/2008) and rows for time slots (12:00 AM, 1:00 AM, 2:00 AM, 3:00 AM). The grid is currently empty.

(Programming Schedule Calendar View on Affiliate Website)

- In order to add a program to the scheduler, click on the 'Program List' tab at the top of the screen. A window will appear asking which program to view. The drop down menu will contain all of the programs for which the current station is authorized. Once a program is selected, press 'OK' to view its network feeds.



(Program selection drop down pop-up)

- The next image will show the available network feeds for the selected program. From here you can edit or delete a feed that is already scheduled by clicking on the corresponding buttons or create a new schedule by clicking 'Create a new station schedule using this feed...' link.

# XDS-PRO Satellite Receivers

**X-Digital Systems**  
**XDS-NMS**  
Network Management System

Home > Programming and Scheduling  
Calendar View Program List

Programming and Scheduling Relay Mappings Port Schedules Configuration Help

**Network Feeds of Sports Update on ZAAA-FM** Select New Program

Network Feed Time 1:00 AM to 2:00 AM (PT) every Mo-Fr starting 4/11/2008.  
Live Broadcast: Local Air Time 1:00 AM to 2:00 AM (PT) every Mo-Fr starting 5/29/2008. edit delete  
Create a new station schedule using this feed...

Network Feed Time 3:00 AM to 4:00 AM (PT) every Mo-Fr starting 4/11/2008.  
Create a new station schedule using this feed...

Network Feed Time 5:00 AM to 6:00 AM (PT) every Mo-Fr starting 4/11/2008.  
Create a new station schedule using this feed...

Network Feed Time 7:00 AM to 8:00 AM (PT) every Mo-Fr starting 4/11/2008.  
Create a new station schedule using this feed...

Network Feed Time 9:00 AM to 10:00 AM (PT) every Mo-Fr starting 4/11/2008.  
Live Broadcast: Local Air Time 9:00 AM to 10:00 AM (PT) every Mo-Fr starting 4/15/2008. edit delete  
Create a new station schedule using this feed...

## (Network Feeds Interface on Affiliate Website)

- The XDS-PRO receivers have the ability to play a live broadcast, delay a live broadcast, play only a partial feed, record a program its storage device for later playback or any combination of the above. To reach these options click on the 'Edit' button or 'Create a new...' link.

**Edit Schedule**

**Schedule 'Sports Update' on ZAAA-FM**  
*Network Feed Time 3:00 AM to 4:00 AM (PT) every Mo-Fr starting 4/11/2008.*

**What would you like to do with this program?**

Broadcast the program (or part of it) **live** at the time of the Network Feed.  
 Broadcast the program (or part of it) **delayed** by automatically capturing the program and then broadcasting it at a Local Air Time of my choice.  
 Capture the program (**record**) to a file and allow it to be Downloaded from the receiver's web page to another computer.

**Set which Local Air Times to broadcast from the live network feed.**

Local Air Start   
Local Air End   Use Complete Feed

*Network Feed starts at 3:00 AM and ends at 4:00 AM (PT).*

This schedule will play the entire network feed live (concurrently with the network feed).

**Check the network feed days to use for this schedule.**

Monday  Tuesday  Wednesday  Thursday  Friday  Saturday  Sunday

**Set the Date Range of the network feeds to use for this schedule.**

Start Date   
End Date   
*Network Feed starts on 5/29/2008*

## (Scheduling Options on Affiliate Website)

## XDS-PRO Satellite Receivers

- If you are creating a new schedule and would like to play the network feed in its entirety, leave the “**live**” option selected, use the check boxes to select which days to play the feed, specify a start and end date if desired and click the ‘Add’ button at the bottom of the window.
- To play only part of a live feed, leave the top section on the “**live**” option and then uncheck the box labeled ‘Use Complete Feed.’ Once the box is unchecked, the Local Air Start and End time will become editable. Keep in mind that the Start and End times must fall within the original feed times.

**Set which Local Air Times to broadcast from the live network feed.**

Local Air Start

Local Air End   Use Complete Feed

*Network Feed starts at 6:00 AM and ends at 10:00 AM (PT).*

*This schedule will play 2:30:00 (HH:MM:SS) of the network feed live (concurrently with the network feed) and will start at the beginning of the network feed.*

### (Interface for setting live feed times on Affiliate Website)

- To delay a feed, select the “**delayed**” option from the top section. A drop down box will become available in the second section allowing you to choose how many days (up to seven) after the original feed to schedule the playback. In addition to how many days to delay the feed, you may also specify a custom start time and play only a partial feed as in the previous step except that you must start at the beginning of the delayed feed.

**What would you like to do with this program?**

Broadcast the program (or part of it) **live** at the time of the Network Feed.

Broadcast the program (or part of it) **delayed** by automatically capturing the program and then broadcasting it at a Local Air Time of my choice.

Capture the program (**record**) to a file and allow it to be Downloaded from the receiver’s web page to another computer.

---

**Set which Local Air Times to broadcast for the delayed program.**

Local Air Start

Local Air End   Use Complete Feed

*Network Feed starts at 6:00 AM and ends at 10:00 AM (PT).*

*This schedule will play 3:00:00 (HH:MM:SS) of the network feed; it will be delayed 25:00:00 (HH:MM:SS) from the network feed; and it will start at the beginning of the network feed.*

### (Interface for setting delayed playback on Affiliate Website)

- To capture a network feed for later playback, select the “**record**” option from the top section. As in the partial feed option, you can specify whether to capture the entire program or specify custom start and end times to record only part of the feed.



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**What would you like to do with this program?**

Broadcast the program (or part of it) **live** at the time of the Network Feed.

Broadcast the program (or part of it) **delayed** by automatically capturing the program and then broadcasting it at a Local Air Time of my choice.

Capture the program (**record**) to a file and allow it to be Downloaded from the receiver's web page to another computer.

---

**Set the Capture Times for the recording.**

Capture Start

Capture End   Use Complete Feed

*Network Feed starts at 6:00 AM and ends at 10:00 AM (PT).*

*This schedule will record 2:00:00 (HH:MM:SS) of the network feed and will start recording 1:00:00 (HH:MM:SS) into the program's network feed.*

### (Interface for setting recording options on Affiliate Website)

- With all of the above options, users have the option to specify what days of the week the schedule is for, as well as specify a date range for the schedule. If the 'End Date' field is left blank, the schedule will be indefinite.

**Check the days of the week for this schedule.**

Monday  Tuesday  Wednesday  Thursday  Friday  Saturday  Sunday

---

**Set the Date Range for this schedule.**

Start Date

End Date

*Network Feed starts on 4/21/2008*

### (Date range settings for feeds on Affiliate Website)

- Once all of the options have been configured, click 'OK' at the bottom of the window to finish editing the schedule. Click the 'Commit Schedule to Receiver' button once you are back in the Network Feeds window to commit the changes to the Scheduler. A pop up window will appear informing you 'the station schedule will be updated as soon as possible'. You can then click on "Calendar View" to confirm the addition / changes you've made to the schedule.

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6:00 AM			MRNDRV Live 6:00 AM-7:00 AM	MRNDRV Live 6:00 AM-7:00 AM	MRNDRV Live 6:00 AM-7:00 AM	MRNDRV Live 6:00 AM-7:00 AM
7:00 AM			MRNDRV Live 7:00 AM-8:00 AM	MRNDRV Live 7:00 AM-8:00 AM	MRNDRV Live 7:00 AM-8:00 AM	MRNDRV Live 7:00 AM-8:00 AM
8:00 AM			MRNDRV Live 8:00 AM-9:00 AM	MRNDRV Live 8:00 AM-9:00 AM	MRNDRV Live 8:00 AM-9:00 AM	MRNDRV Live 8:00 AM-9:00 AM
9:00 AM			MRNDRV Live 9:00 AM-10:00 AM	MRNDRV Live 9:00 AM-10:00 AM	MRNDRV Live 9:00 AM-10:00 AM	MRNDRV Live 9:00 AM-10:00 AM
10:00 AM						

(Calendar View of Schedules set to the receiver)

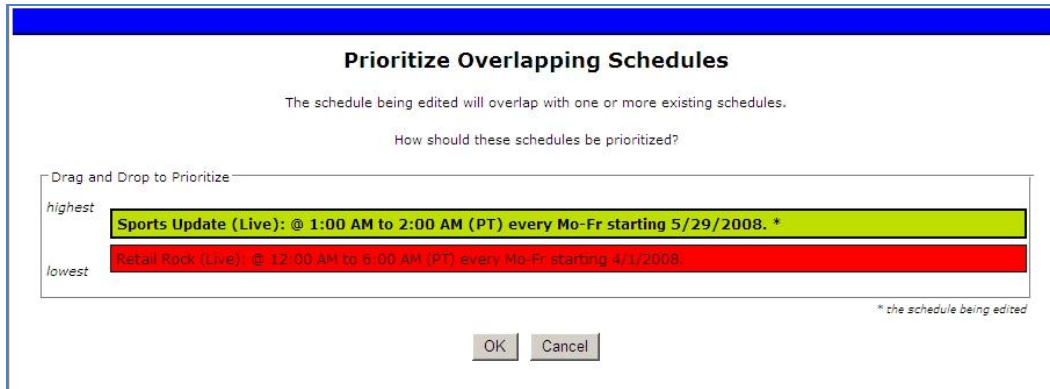
- To delete or modify an existing program in the schedule, click on the text within the Calendar View tab to quickly link to the Network Feed page. Modifications can be made by clicking the 'Edit' button; the changes will not be committed until 'Modified' is clicked. The program can be deleted by clicking on "Delete". A pop up window will appear to confirm your request. The Network Feed screen will update and you must then commit the schedule to the receiver. To view and confirm the changes you must then click on 'View Schedule'.

Wednesday 5/19/2010	Thursday 5/20/2010	Friday 5/21/2010	Saturday 5/22/2010	Sunday 5/23/2010
CRT4 Live 12:00 AM-1:00 AM	CRT4 Live 12:00 AM-1:00 AM	CRT4 Live 12:00 AM-1:00 AM	CRT4 Live 12:00 AM-1:00 AM	CRT4 Live 12:00 AM-1:00 AM
<p><b>Program:</b> CERT TEST 4  <b>Network Feed Time:</b>            12:00 AM to 12:00 AM (PT) every Mo-Su starting 2/1/2010.  <b>Local Air Time:</b>            12:00 AM to 12:00 AM (PT) every Mo-Su starting 4/1/2010.</p>				
CRT4 Live 1:00 AM-2:00 AM	CRT4 Live 1:00 AM-2:00 AM	CRT4 Live 1:00 AM-2:00 AM	CRT4 Live 1:00 AM-2:00 AM	CRT4 Live 1:00 AM-2:00 AM

(Hovering over a feed in calendar view will show Program, Network Feed Time and Local Air time; clicking on this will bring the feed into the Program List view)

- When a new schedule is created or modified, the scheduler will check to see if there are any conflicting schedules with the new schedule. If a conflict is found, a new window will appear where prioritization can be set for playback conflicts.

## XDS-PRO Satellite Receivers



(Prioritization Pop-Up in Affiliate Website)

### 5.3 Changing the Relay Mappings

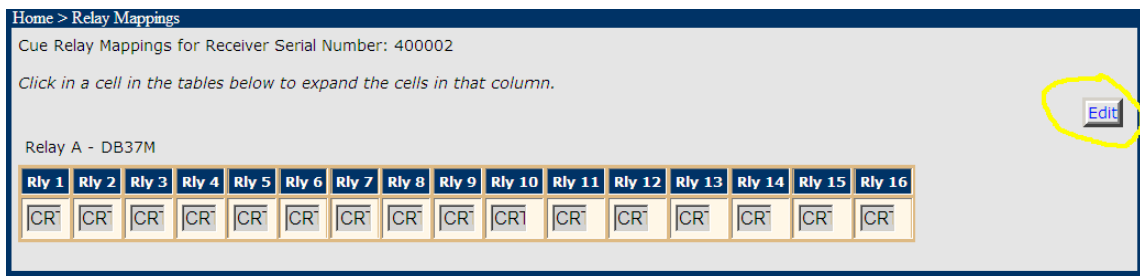
There are 32 different relays on the PRO4Q receiver and 16 on the PRO1Q receiver; each of these relays can correspond to a different net relay for a radio broadcast. You can use the NMS to specify the relay mapping for the receiver. To do this

- Click Relay Mappings at the top of the page beneath the X-Digital Systems logo.



(Relay Mappings Tab on Affiliate Website)

- Click the "Edit" button in the top right.




(Relay Mappings Page on Affiliate Website)

- Edit the text for the corresponding relay you wish to change. To edit a cell, simply click in it and it will expand automatically.
- When done changing relays, press "Save".
- To cancel the changes you have made and to go back to the previous relay mapping, click "Cancel".

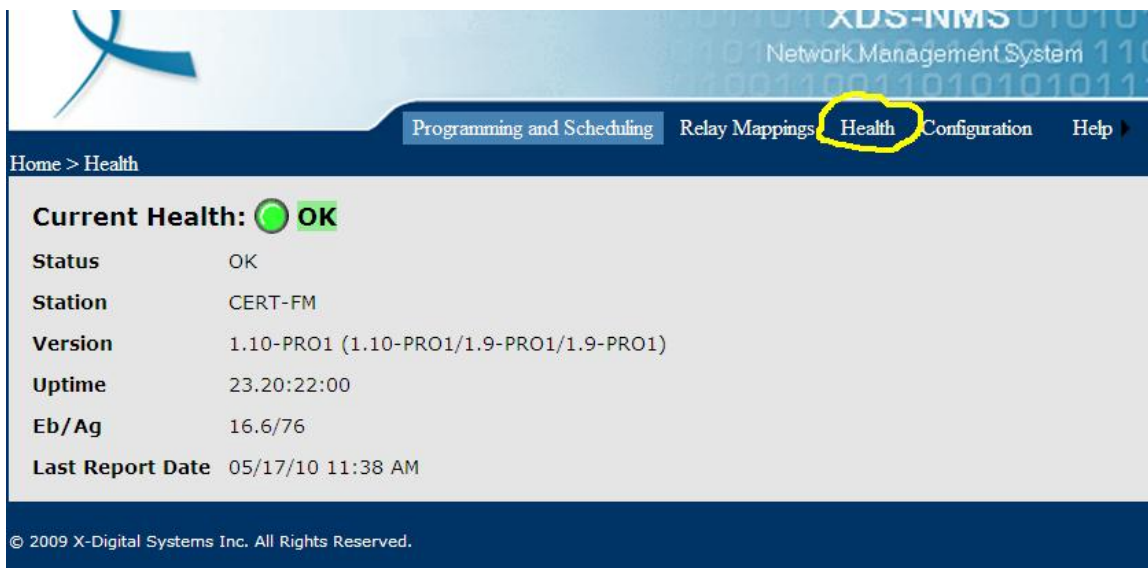


## XDS-PRO Satellite Receivers

	<p>Net relays entered into the NMS's relay-mappings text box must be upper-case alphanumeric, i.e. only upper-case letters, or numbers.</p>
<p><b>Note!</b></p>	

### 5.4 Checking Receiver Health

The Affiliate website is capable of displaying the receiver's health status. To view this, navigate to the Health tab located on the top of the webpage. Clicking on this tab will display the health status, station mappings, receiver code version, uptime, Eb/Ag, and Last Report Date.



XDS-NMS Network Management System

Programming and Scheduling Relay Mappings **Health** Configuration Help

Home > Health

**Current Health:** ● **OK**

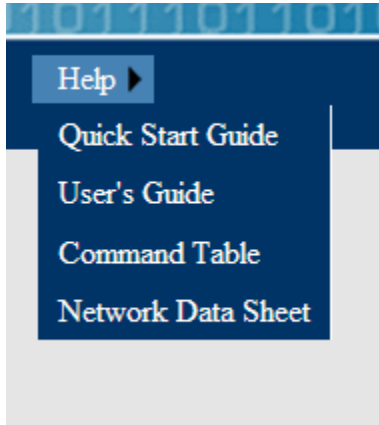
Status	OK
Station	CERT-FM
Version	1.10-PRO1 (1.10-PRO1/1.9-PRO1/1.9-PRO1)
Uptime	23.20:22:00
Eb/Ag	16.6/76
Last Report Date	05/17/10 11:38 AM

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(Receiver Health Page on Affiliate Website)

## 5.5 Documentation Repository

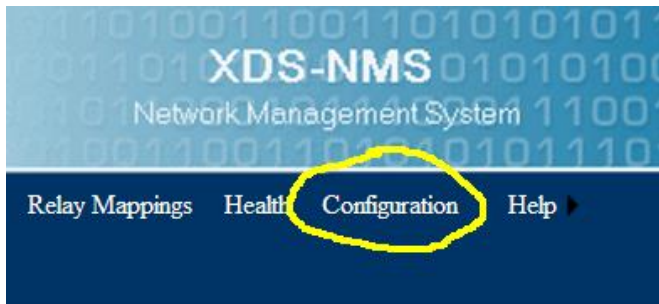
Navigating to the Help tab located on top of the website will give access to the Quick Start Guide, User's Guide, Command Table and Network Data Sheet.



(Documentation Access on Affiliate Website)

## 5.6 Changing the Receiver's Time Zone

Using the Affiliate website it is also possible to change the receiver's time zone settings. To do this, navigate to the Configuration tab located on the top of the webpage. There is a pulldown box that will configure the time zone of the receiver. If you would like to observe daylight savings time, indicate this using the check box provided. To commit changes, click the update button.



(Configuration Tab on Affiliate Website)

# 6 MONITOR AND CONTROL INTERFACE

The XDS-PRO receivers are equipped with multiple methods for viewing and changing receiver settings. The M&C Console Port on the back of the receiver can be used for this purpose.

## 6.1 Setting up a Console Connection

To set up a console interface from your computer to the receiver:

- Connect a standard serial cable from the serial port on your computer to the port labeled “Console” on the back of the receiver.
- Open HyperTerminal from the Start Menu: Start > All Programs > Accessories > Communication > HyperTerminal.
- In the Connection Description dialog, enter “XDS-PRO4Q Console” or “XDS-PRO1Q” depending on your receiver model, as the connection Name, and select a connection Logo. Press “OK”.
- In the Connect to dialog, select “COM1” in the “Connect using” drop down list.



### Note!

If you have connected the serial cable to a different port rather than COM1, select that port instead.

- In the COM1 Properties dialog, select 115200 in the “Bits per second” drop-down list, 8 in the “Data bits” drop-down list, “None” in the “Parity” drop down list, 1 in the “Stop bits” drop-down list, and Hardware in the “Flow control” drop down list. (Some terminal emulators require the “no” setting for flow control.) Press “Apply” and then press “OK”.

You are now ready to communicate with the XDS-PRO receiver via the console you have created. There are a variety of typed commands that the receiver responds to. By default the console is not logged into the receiver, and as such the console will have a very limited set of commands to use. Without logging in, the user can only use status commands and may not change any receiver settings. To log in, use one of these two accounts:

- user/guest: the user account has a permission to change standard receiver settings like program ID, monitoring settings, and volume settings.
- tech/ radio: the tech account has full access to every command the receiver has to offer. Only use the account when trouble-shooting the receiver or performing technical diagnostics.

To log into either of these use the LOGIN command, detailed below in section 8.2.

## 6.2 Console Commands

Tasks are performed through the console via commands. The syntax for any command is the name of the command, followed by a comma separated list of one or more option command arguments. Below is a list of all commands available along what command arguments are required and what the command does. Some commands are only available under the “tech” and “user” profiles. Please refer to your quick start guide for directions on how to login with these accounts.

**ALARM Command** (tech login required): The ALARM command tells you, and allows you to change, the current ALARM mask the receiver is using. To see the current ALARM mask without modifying it, simply type ALARM without an argument following it. To change the alarm mask, type: ALARM <MASK>, where

## XDS-PRO Satellite Receivers

<MASK> is a hexadecimal digit in the range [0-FFFFFFFF]. Anything larger than FFFFFFFF will be interpreted as the largest mask, FFFFFFFF. This command is only available to the tech profile.

**E0 and E1 Commands** (tech login required): The E0 and E1 commands change various settings for the first and second Ethernet ports respectively. The command followed by any of the below options will display that parameter if there is no argument given, or change that parameter to the argument if an argument is given.

Option	Argument	Action
<b>SHOW</b>		Shows various technical data regarding the specified port.
<b>MAC</b>		Same as the SHOW option.
<b>DHCP</b>	[ON/OFF]	Sets DHCP to ON or OFF depending on the argument.
<b>ADDR</b>	[xxx.xxx.xxx.xxx]	Sets the Ethernet port's address to argument.
<b>MASK</b>	[xxx.xxx.xxx.xxx]	Sets the Ethernet port's subnet mask to the argument.
<b>PROXY</b>	[xxx.xxx.xxx.xxx]:PORT	Sets the Ethernet port's proxy address and port.
<b>DNS</b>	[xxx.xxx.xxx.xxx],...	Sets the Ethernet port's DNS servers. One to three DNS addresses can be specified in a coma delimited list.
<b>GATEWAY</b>	[xxx.xxx.xxx.xxx]	Sets the Ethernet port's gateway to the argument.
<b>WWW</b>	[xxx.xxx.xxx.xxx], [xxx.xxx.xxx.xxx]	Sets the Ethernet's primary URL to the first argument, and sets the secondary URL to the second argument.

Table 1. E0 or E1 Command Parameters

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**FACTORY Command** (tech login required): This command will reset all of the receiver's settings to factory defaults. The syntax is `FACTORY DEFAULTS, [USER/FULL]` where `USER` will reset basic settings to factory defaults and `FULL` will additionally reset Ethernet and Tuner parameters. Using this command will require a receiver restart.


**HELP Command:** This command prints all of the commands available to the current profile. There are no options for this command. This command is available to all profiles.

**LOGS Command** (tech login required): This command deals with the receiver's internal logs. There are three possible options to be used with this command:

- **SHOW:** This option will display the receivers log file to the console screen.
- **PURGE:** This option will purge the receivers log and start over with a clean slate.
- **MSG, "message":** This option will place a message in the log file with whatever text is enclosed in the quotes of the argument of this command. The argument is required.

**LOGIN Command:** This command will log the console into a user profile specified by the parameters. The syntax is: `LOGIN [username],[password]`. The username and password must match for the login to be successful. The two default argument combinations for the user and tech profiles are "user,guest" and "tech,radio" respectively. This command is available to all profiles.

**LOGOUT Command:** This command will log the console out of whichever user profile is currently logged in. Remember to LOGOUT each time you are done using the console to change receiver settings.

 <p><b>Note!</b></p>	<p>Logins from previous console sessions stay active until another LOGIN command over-rides the past one or the LOGOUT command is used. For security, LOGOUT when you are done with the console.</p>
---	--

**PING Command** (tech login required): This command will attempt to ping the IP address specified by the argument. The syntax is: `PING [a.b.c.d]` where [a.b.c.d] is the IP to ping. The IP is a required argument. This command is a good way to test if your network connection is set up correctly.

**QUIT Command:** This command does the exact same thing as LOGOUT. There are no options for this command and it is available to all profiles.

**SF SHOW Command:** This command displays the fault history in verbal description. This command is available to all profiles.

**SF Command:** This command displays the fault history. See the SS command for a table of what the fault codes mean. This command is available to all profiles.

**SN Command:** This command displays the receiver's serial number. It takes no options. This command is available to all profiles.

**SS SHOW Command:** This command displays the current status of the receiver in the form of a list of current faults *in a verbal description* which are affecting the receiver. This command is available to all profiles.

## XDS-PRO Satellite Receivers

**SS Command:** This command displays the current status of the receiver in the form of a list of current faults which are affecting the receiver. Below is a table which will help to interpret the binary code given by the receiver:

Error Value	Error Name
0x00000001	FPGA Load Error
0x00000002	DSP Load Error
0x00000004	DSP Ethernet Down
0x00000008	Storage Device Error
0x00000010	Tuner Not Locked
0x00000020	<i>reserved</i>
0x00000040	<i>reserved</i>
0x00000080	<i>reserved</i>
0x00000100	I2C Failure
0x00000200	<i>reserved</i>
0x00000400	<i>reserved</i>
0x00000800	<i>reserved</i>
0x00001000	NV Config. Bad
0x00002000	<i>reserved</i>
0x00004000	DSP Timeout
0x00008000	Fan Stopped

Error Value	Error Name
0x00010000	Recorder Overflow
0x00020000	Temperature Warning
0x00040000	Temperature Critical
0x00080000	<i>reserved</i>
0x00100000	CF Needs Repair
0x00200000	<i>reserved</i>
0x00400000	File Delivery Fault
0x00800000	LNB Over-current
0x01000000	CF Offline
0x02000000	<i>reserved</i>
0x04000000	SDL Ignored
0x08000000	URL Event Overflow
0x10000000	Internet Down
0x20000000	Storage Full
0x40000000	SW Download Ready
0x80000000	SW Download Error

This command is available to all profiles.

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**TIME Command** (tech login required): This command deals with displaying and setting the internal clock of the receiver. Simply typing TIME without any option will display the time according to the receiver. Time is synchronized automatically with the satellite. Your timezone may be set from the Affiliate webpage.

**TRACE Command** (tech login required): This command is used for diagnostic checks of the serial ports. TRACE takes in various inputs. Issuing a TRACE SHOW will display all trace options with an \* indicating live traces. TRACE ALL will turn on all traces and TRACE NONE will turn off all traces.

**TUNER Command:** This command is used to view and modify all of the receiver's tuner settings. Typing this command without any options will display a useful usage message. Type this command followed by one of these options/argument combinations to view or modify tuner settings:

Option	Argument	Action
<b>SHOW</b>		Shows various technical data regarding the specified port.
<b>SET</b>	[kHz],[sps]	Sets the tuners radio frequency to [kHz] and the tuner's symbol rate to [sps].
<b>LNB</b>	[kHz]	Sets the tuner's LNB offset to [kHz].
<b>SR</b>	[sps]	Sets the tuner's symbol rate to [sps].
<b>LNBV</b>	[ON/OFF]	Sets LNBV to ON or OFF depending on argument.
<b>CLEAR</b>		Clears all tuner statistics.
<b>ENABLE/DISABLE</b>		Set receiver terrestrial mode.

**VER Command:** This command, which takes no options, simply displays the receiver's firmware version to the console. This command is available to all profiles.

**VOL Command** (tech login required): This command sets the volume of the receiver's headphone output. The syntax is: VOL [v] where [v] is a value greater than or equal to 0 (mute) and less than or equal to 63 (full volume). (*This feature is not available on the PRO1Q unless fitted with optional control front panel*).

**ALIB Command** (tech login required): The ALIB command is useful for file management and repairing receiver storage devices.

Option	Argument	Action
<b>LIST</b>	[FILES/ISCI/PROGRAMS]	<i>FILES:</i> List files in the audio library directory <i>ISCI:</i> List ISCI insertion files <i>PROGRAMS:</i> List assigned programs
<b>DEL</b>	[ISCI/FILE], [PATTERN]	Deletes specific files or files that matches a certain pattern combination.

## XDS-PRO Satellite Receivers

Option	Argument	Action
<b>INBOX</b>	[OFF/ON/GET]	Controls the combination of terrestrial & satellite delivery of files from the NMS (headend).
<b>[TEST/SCAN]</b>		Check compact flash and hard drive health
<b>FIX</b>	[AUTO/FORCE],[CF/HDD/ALL]	Scan/repair compact flash drive
<b>FORMAT</b>	[CF/HDD]	Reformat compact flash or hard drive

**BAUD Command** (tech login required): Issue this command to view baud rate, parity setting, data bit setting, and stop bit setting.

**FAN Command** (tech login required): This command is useful for checking the status of the receiver fans and

Option	Argument	Action
<b>SHOW</b>		Basic fan status check
<b>X</b>	AUTO	Set fan x to AUTO (x=0)
<b>X</b>	VAL	Set fan x to val percent (x=0)
<b>X</b>	TACH	Get fan x tach value (x=0)

**FIND Command** (tech login required): \*See GREP Command below after FPGA Command\*

**FPGA Command** (tech login required): Load .rbf files.

**GREP Command** (tech login required): Prints output containing specific pattern.

**MON Command** (tech login required): Below is a table showing all of MON arguments

Option	Argument	Action
<b>[A-D/HP]</b>	[A-D/MAIN/AIN]	Route the audio from second parameter(source) to first parameter(destination).

**I2C Command** (tech login required): Below is a table showing all of I2C's arguments

Option	Argument	Action
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## XDS-PRO Satellite Receivers

Option	Argument	Action
DEV ADDR	[val]	
VLAN	[FLASH/ERASE]	

**LCD Command** (tech login required): The LCD command is useful for displaying custom content on the front panel of the receiver. The format for the LCD command is this ‘LCD “Line1” “Line2” “Line3” ’

**LOAD Command** (tech login required): The LOAD command is useful for upgrading the receiver with new code or displaying the current version code on the receiver.

Option	Argument	Action
SHOW		Display code version
FILE	[filename]	Start Ethernet download
HTTP	[filename]	Start internet download
SCRIPT	[filename]	Run shell script

**LOGS Command** (tech login required): This is an information acquiring command. Type this command followed by one of these options/argument combinations to view log information.

Option	Argument	Action
SHOW		Shows an output of port statuses over time.
PURGE		Purges log activity
AUTO	[n]	Auto log status/stats every n minutes
LOGS	[STATS/REG/SCRIPT]	Log statistics
LOGS	[MSG, “message”]	Log private message

**MAIL Command** (tech login required): The MAIL command is useful to display mail settings and perform mail diagnosis.

Option	Argument	Action
SHOW		Displays SMTP Host, SMTP Port, Mail Recipient, and Alerts
TEST		Send a test message to configured recipient
CLEAR		Clear mail recipient
HOST	Host[:port]	Configure mail host, default port assumed if

## XDS-PRO Satellite Receivers

Option	Argument	Action
		unspecified.
TO	[recipient]	Specify mail recipient
FROM	[originator]	Specify mail originator
ALERT	[hex]	Display mail alerts

**MAINT Command** (tech login required): The MAINT command can be used to display the current maintenance window and setting a maintenance window time.

Option	Argument	Action
SHOW		Display maintenance window and occurrence
CLEAR		Clears maintenance window
SET		Set maintenance window and occurrence

**NAS Command** (tech login required):

Option	Argument	Action
SHOW		Display NAS configuration
REMOUNT		
EXPORT		
SET	[0-1],[NONE/NFS/SMB],[urn],[path],[user],[pwd]]	

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**PAD Command** (tech login required):

Option	Argument	Action
PORT	"message"	
BAUD	[port],[baud]	Set baud for specified port
PGM	[port],[ANC/pgm]	
ROUTE	[port],[NONE/CUE/ECUE/ALL]	Route netrly cues to pad port
TEST	[port],[START/STOP]	Start or stop a pad test on a specified port

**PASS Command** (tech login required): Issue this command to display the daily password for logging into the affiliate website.

**PID Command** (tech login required):

**PORT Command** (tech login required): This command is useful for displaying port information and specifying port settings. Below is a table that outlines PORT command's arguments and their actions.

Option	Argument	Action
SHOW		Displays station mappings for all ports.
STATUS	[port]	Displays Station, Mode, PGM, PID mappings for all ports
STOP	[port]	Stop specified port from playing
LIVE	[port],[pgmid]	Change port to play live program based on program ID.
PID	[port],[pid]	Change port to play PID. PID specified in hex.
PLAY	[port],[recording],[[ofs]]	
AMODE	[port],[MONO/STEREO]	Set audio mode on specified port.
AUTOPLAY	[port],[pgmid],RECENT,[n]	
AUTOPLAY	[port],[pgmid],TIME,[HH:MM:SS],[[YYY Y-MM-DD]]	
INSERT	[port],[isci]	

## XDS-PRO Satellite Receivers

Option	Argument	Action
<b>[UN]LOCK</b>	[port] where [port] equals A,B,C,D or ALL	Lock or unlock specified port or all ports
<b>SYNC</b>		Sync audio ports to regular schedules
<b>[PAUSE/RESUME/PREVIEW]</b>	[port]	
<b>TONE</b>	[100/1000/10000/STOP]	Stops programming and puts tone on all ports

**PSI Command** (tech login required): The PSI command is useful for displaying program specific information and PSI/PID monitoring.

Option	Argument	Action
<b>SHOW</b>		
<b>[AUTHS/BOUQUETS/ GROUPS/CUES/ NETWORK/WINDOWS]</b>		
<b>SCHED</b>	[pgmid]	
<b>MONITOR</b>	[ON/OFF/USBLOAD]	
<b>CLEAR</b>		
<b>WIN</b>		

**PLAY Command** (tech login required): Issue this command to play a file. The format for this command is PLAY [filename].

**PWR Command** (tech login required): Issue this command to display power settings.

**REBOOT Command** (tech login required): The reboot command can take many different options.

Option	Argument	Action
<b>1</b>		Restarts operating system
<b>SDL</b>		Reboot SDL when it is ready
<b>SS</b>	[mask]	Reboot if ss mask is set (mask in hex)
<b>MAINT</b>	[0/1/2]	Reboot during maintenance window (0=clear, 1=set, 2=now)

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**RLY Command** (tech login required):

(Argument 0-31 for PRO4Q, 0-15 for PRO1Q)

Option	Argument	Action
<b>SHOW</b>		Show all relay mappings on the receiver.
<b>[0-31]</b>	[ON/OFF/PULSE]	Fire, disable or pulse a relay on specified relay.
<b>ALL</b>	[xxxx]	Activate all relays.
<b>IN</b>	[1-15]	Activate individual relay.
<b>TEST</b>	[START/STOP]	Start or stop a relay test that will send a pulse to all relays.
<b>MODE</b>	[NONE/RLY/CUES/ALL]	Enable sources of relays: RLY=PrimaCue only, CUE=NetCues only, ALL=Both

**SHUTDOWN Command** (tech login required): \*see reboot command\*

**SLEEP Command** (tech login required): Sets n millisecond delay used for scripting.

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**STATIONS Command** (tech login required): This command is useful for station management on the receiver.

Option	Argument	Action
SHOW		Display stations that are currently mapped on the ports.
SCHED		Display station schedule
ROTATIONS		Display all scheduled spots (insertions)

**TEMP Command** (tech login required): Issue this command to display the receiver's internal temperature.

**TTY Command** (tech login required):

Option	Argument	Action
PORT		Open serial port type.
PORT	[2400/9600/19200]	Set baud rate for specified port

**ISTREAM Command** (tech login required):

Option	Argument	Action
SHOW/STATS		
DELAY	[seconds]	
HOST	[primary],[[backup CLEAR]]	
SAT	[0/1]	
START	[slot],[pid]	
STOP	[slot]	

## 7 XDS DISCOVERY TOOL

### 7.1 About The XDS Discovery Tool

The XDS Discovery Tool allows the user to view details about XDS-PRO receivers connected to the local network, including:

- The receiver's IP address
- The receiver's station name

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- The type of receiver
- The code version the receiver is currently running
- The receiver's board revision
- The receiver's serial number
- The receiver's status
- The receiver's past faults

## 7.2 Using the XDS Discovery Tool

The Start button begins locating receivers connected to the network. Unless the Stop button is pressed, the search will run for 10 seconds. The amount of time to search can be changed by clicking on the Advanced Options link and changing the Time To Run parameter. The list of receivers found can be cleared using the Clear List button.

*Features to note:*

- Clicking on a receiver's IP will open up a web browser with that receiver's Web Interface.
- Hovering over the Status and Past Faults columns displays the warning messages associated with the status code.

## 7.3 Troubleshooting the XDS Discovery Tool

Here are a few important things to consider if you are having trouble running the XDS Discovery Tool:

- The Microsoft .NET framework must be installed for this application to function. The .NET framework can be downloaded from [here](#).
- For the application to run off of a local intranet the .NET framework must be version 3.5 or above.

## 8 SPECIFICATIONS

The following specifications are divided into sections corresponding to the various functional blocks within the receiver.

### 8.1 Receiver Monitor & Control and Interface Specification

#### 8.1.1 M&C Interface Features

The Monitor and Control Features are provided in Section 6.2. The LCD, Keypad, and Headphone Jack are options on the PRO1Q and standard on the PRO4Q.

LCD	image display capability, backlighting
Keypad	full 8 key-pad, menu buttons, arrow keys, enter key
USB Interface	USB 2.0 port for attaching mass storage devices
Headphone Jack	monitor audio output for any of the four ports
Status LEDs	power, signal, update, and fault indications
Monitor and Control Interface	RS-232C compatible, DB-9 female
Web Interface	automatically broadcast via LAN and WAN

**Table 2. Interface Features**

#### 8.1.2 M&C Interface Connector Pin-Outs

The Monitor and Control (M&C) port allows basic configuration of the XDS-PRO receiver via an asynchronous RS232C electrical interface. It uses the following protocol settings: 115.2K bits per second, 8 data bits, No Parity, 1 stop bits, and no hardware flow control. In addition to the asynchronous interface, the M&C connector provides a status relay output and four optical inputs. The four optical inputs are activated grounding the input signal. The following table provides the pin-out for the M&C port.

Connector	DB-9 Female
Asynchronous Port	115.2K bits per second, 8 data bits, no parity, no hardware flow control
Relay Format	1 Form A
Optical Inputs	4 Input Signals, Connect to ground to activate

**Table 3. M&C Port**

PIN	FUNCTION
-----	----------



## XDS-PRO Satellite Receivers

1	ALARM -
2	TX
3	RX
4	ALARM +
5	Ground
6	OPTO1
7	OPTO2
8	OPTO3
9	OPTO4

**Table 4. M&C Port Pin-Out**

### 8.1.3 Relay Outputs

The receiver includes a connector port providing 16 normally open relay contact connections. There is a single connector provided on the PRO1Q model and two connectors on the PRO4Q. The port specification is provided in Table 6.

Connector	DB-37 Male
Contacts	16 SPST Normally Open
Format	Form A
Switching Voltage	200 Volts
Switching Current	0.5 Amps
Carry Current	1.0 Amps
Contact Rating	10 Watts

**Table 5. Relay Outputs**

Table 6 provides the pin-outs for each connector. Note that in MX3 framing mode, only Relay 1 to 4 is usable.

PIN	FUNCTION	PIN	FUNCTION
1	RLY1A	20	RLY1B
2	RLY2A	21	RLY2B

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3	RLY3A	22	RLY3B
4	RLY4A	23	RLY4B
5	Ground	24	Ground
6	RLY5A	25	RLY5B
7	RLY6A	26	RLY6B
8	RLY7A	27	RLY7B
9	RLY8A	28	RLY8B
10	Ground	29	RLY9B
11	RLY9A	30	RLY10B
12	RLY10A	31	RLY11B
13	RLY11A	32	RLY12B
14	RLY12A	33	Ground
15	TxData	34	RLY13B
16	RLY13A	35	RLY14B
17	RLY14A	36	RLY15B
18	RLY15A	37	RLY16B
19	RLY16A		

**Table 6. Relay Port A Pin-Out**

### 8.1.4 Analog Audio Output

The PRO4Q has 4 analog output channels and the PRO1Q has one analog output channel. The audio output port specifications are outlined in Table 7. Table 8 lists the pin-outs of the analog output connectors.

Connector	DB-9 Male
Format	Balanced Pair L, R
Range	-10 to +4dBu nominal (+22 max)
Performance	0.1% THD 85dB dynamic range

**Table 7. Analog Audio Output**

## XDS-PRO Satellite Receivers

PIN	FUNCTION
1	L OUT+
2	Ground
3	L OUT+
4	Ground
5	R OUT+
6	L OUT-
7	Ground
8	L OUT-
9	R OUT-

**Table 8. Analog Audio Output Pin-out**

## XDS-PRO Satellite Receivers

### 8.1.5 Analog Audio Input

The XDS-PRO receivers have one analog audio input port. The audio input port specifications are outlined in Table 9. Table 10 lists the pin-outs of the analog input port.

Connector	DB-9 Male
Format	Balanced Pair L, R
Range	+4dBu nominal (+22max)

**Table 9. Analog Audio Input**

PIN	FUNCTION
1	L IN+
2	Ground
3	Not Connected
4	Ground
5	R IN+
6	L IN-
7	Ground
8	Not Connected
9	R IN-

**Table 10. Analog Audio Input Pin-out**

## XDS-PRO Satellite Receivers

### 8.1.6 Digital Audio Input

In addition to the analog audio input, the PRO4Q receiver also has one digital audio input port that shares the same connector. Table 11 provides the specification for digital audio interface and Table 12 provides the complete connector pinout that is shared by analog and digital audio inputs to the PRO4Q receiver.

Connector	DB-9 Male
Format	Balanced AES/EBU

**Table 11. Digital Audio Input**

PIN	FUNCTION
1	L IN+
2	Ground
3	AES_RX+
4	Ground
5	R IN+
6	L IN-
7	Ground
8	AES_RX-
9	R IN-

**Table 12. Analog and Digital Audio Input Pin-out**

## XDS-PRO Satellite Receivers

### 8.1.7 Digital Audio Output

The PRO4Q receiver has four digital audio output channels that provide AES/EBU versions of the four analog audio output ports A through D. The channels are mapped from analog Port A to the digital pair of CH0 signals, Port B to CH1, Port C to CH2, and Port D to CH3. The following tables contain the interface specifications and connector pin-out of the digital audio port. Note that the PRO1Q does not provide digital audio outputs.

Connector	DB-9 Male
Format	Balanced AES/EBU

**Table 13. PRO4Q Digital Audio Output**

PIN	FUNCTION
1	CH0_TX+
2	CH1_TX+
3	Ground
4	CH2_TX+
5	CH3_TX+
6	CH0_TX-
7	CH1_TX-
8	CH2_TX-
9	CH3_TX-

**Table 14. PRO4Q Digital Audio Output Pin-out**

## XDS-PRO Satellite Receivers

### 8.1.8 PAD/ASYNC Output Port

The PAD port (Program Associated Data) relays information which is carried along with the audio data received. i.e. song and artist information, or relay cues to trigger events. Below is a pin-out table for the PAD port.

Connector	DB-9 Female
Asynchronous Port	variable up to 115.2K bits per second, 8 data bits, no parity, no hardware flow control

Table 15. PAD/ASYNC Port

PIN	FUNCTION	
	PRO1Q	PRO4Q
1	P0_TX	P0_TX
2	Not Connected	P1_TX
3	Not Connected	P2_TX
4	Not Connected	P3_TX
5	Not Connected	Not Connected
6	Ground	Ground
7	Ground	Ground
8	Ground	Ground
9	Ground	Ground

Table 16. PAD/ASYNC Output Port Pin-out

## 8.2 Ethernet Port

Connector	RJ-45 Modular Jack
Connection Rate	10/100Base-TX (Auto)
Number of Ports	3 external, 1 internal
Max Output IP Rate	Up to 20 Mbps (combined for all ports)
VLAN	Each port is managed for VLAN use

**Table 17. Ethernet Port**

## 8.3 RF Input Parameters

A DVS-S modulated satellite signal will be received and demodulated by the XDS-PRO receiver. Input signal and connector specifications are provided in the table below.

Connector	75 ohm F-type Female
Frequency Input Range	950 to 2150 MHz
Input Level	-60 to -20 dBm
Symbol rate	1 to 40 MSPS and 256,384,512,640,768,896 KSPS
Modulation Scheme	QPSK (DVB-S or DVB-S2), 8PSK (DVB-S2)
Forward Error Correction modes	Reed-Solomon and Viterbi (DVB-S / S2 / MX3)
LNB Power	20 VDC 500 mA MAX

**Table 18. RF Input Parameters**



### 8.4 Mechanical and Electrical

The XDS-PRO receiver chassis specifications are provided in the table below.

Dimensions	3.5" High x 18" Wide x 12" Deep
Mounting	19", 2RU
Weight	8 lbs.
Input Voltage	100 – 240 VAC (50-60 Hz)
Power Consumption	65 W max. (PRO1Q), 125 W max. (PRO4Q)

**Table 19. Mechanical and Electrical Specifications**

### 8.5 Environmental

The XDS-PRO receiver environmental specifications are provided in the table below.

Operating Temperature	0° to 50° C
Storage Temperature	-40° to 85° C
Maximum Operating Altitude	10,000 feet
Operating Relative Humidity	20% to 80% non-condensing

**Table 20. Environmental**

## 8.6 Regulatory Compliance

### North America

#### Emissions - FCC

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION OF THIS DEVICE IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE; AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

#### Safety – UL and CSA

UL 60950-1:2007

CAN/CSA-C22.2 No. 60950-1:2007

### EUROPE

THE XDS-PRO RECEIVER WAS TESTED ACCORDING TO THE REQUIREMENTS OF THE EMC DIRECTIVE 89/336/EEC AND LOW VOLTAGE DIRECTIVE 73/23/EEC AND COMPLIES WITH ALL THE REQUIREMENTS FOR THE CE MARK. THE XDS-PRO RECEIVER IS PRODUCTION MONITORED BY TUV SÜD AMERICA AND MAY BEAR THE TUV CUE MARK.

#### EMC

EN55022 (2006) +A1 Class B

EN55024 (1998) +A1 +A2

EN61000-3-2 (2006) +A1 +A2

EN61000-3-3 (2008)

#### Safety - TUV

EN 60950-1:2006+A11:2009+A1:2010

