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HD Radio

XPi 10
FM IBOC DIGITAL SIGNAL EXPORTER
Version 4.3.2
Instruction Manual

597-0542-008
Revision D
October 7, 2011

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FM IBOC DIGITAL SIGNAL EXPORTER
Instruction Manual
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BE hereby warrants all new products manufactured by BE against any defects in material or workmanship at the time of delivery thereof, or that develop under normal use within a period of two (2) years from the date of shipment.

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(b) All computers, computer peripherals, cables, hard disk drives, etc., shall only carry the manufacturers' or suppliers' standard warranty in effect on their original shipment date.

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BE is unable to process or resolve component defects or performance concerns on components that have been soldered, installed, wired or in any way altered from new their new condition.

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The terms of the foregoing warranty shall be null and void if the equipment has been altered or repaired without specific written authorization from BE, or if not installed according to BE's instruction manuals, including, but not limited to, the absence of proper grounding, surge (TVSS) protection on the AC circuit panel or proper lightning protection/grounding on all output circuits, or if equipment is operated under environmental conditions or circumstances other than those specifically described in BE's product literature or instruction manual which accompany the equipment. The warranty shall be voided if the product or subassembly is equipped with a tamper seal and that tamper seal is broken. BE shall not be liable for any expense of any nature whatsoever incurred by the original user without prior written consent of BE. The warranty provided herein shall terminate at the end of the period set forth above. This warranty extends only to the original Purchaser and is not transferable. There are no third party beneficiaries of any of the provisions

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EQUIPMENT LOST OR DAMAGED IN TRANSIT -

When delivering the equipment to you, the truck driver or carriers' agent will present a receipt for your signature. Do not sign it until you have:

1) Inspected the containers for visible signs of damage and 2) Counted the containers and compared with the amount shown on the shipping papers. If a shortage or evidence of damage is noted, insist that notation to that effect be made on the shipping papers before you sign them.

Further, after receiving the equipment, unpack it and inspect thoroughly for concealed damage. If concealed damage is discovered, immediately notify the carrier, confirming the notification in writing, and secure an inspection report. This item should be unpacked and inspected for damage WITHIN 15 DAYS after receipt. Claims for loss or damage will not be honored without proper notification of inspection by the carrier.

RF PRODUCT TECHNICAL ASSISTANCE, REPAIR SERVICE, PARTS -

Technical assistance is available from Broadcast Electronics by letter, prepaid telephone or E-mail. Equipment requiring repair or overhaul should be sent by common carrier, prepaid, insured, and well protected. If proper shipping materials are not available, contact the RF Technical Services Department for a shipping container. Do not mail the equipment. We can assume no liability for inbound damage, and necessary repairs become the obligation of the shipper. Prior arrangement is necessary. Contact the RF Technical Services Department for a Return Authorization.

Emergency and warranty replacement parts may be ordered from the following address. Be sure to include the equipment model number, serial number, part description, and part number. Non-emergency replacement parts may be ordered directly from the Broadcast Electronics stock room at the number shown below.

RF TECHNICAL SERVICES -

Telephone: +1 (217) 224-9617
E-Mail: rfservice@bdcast.com
Fax: +1 (217) 224-6258

FACILITY CONTACTS -

Broadcast Electronics, - Quincy Facility
4100 N. 24th St. P.O. BOX 3606
Quincy, Illinois 62305
Telephone: +1 (217) 224-9600
Fax: +1 (217) 224-6258
General E-Mail: bdcast@bdcast.com
Web Site: www.bdcast.com

PARTS -

Telephone: +1 (217) 224-9617
E-Mail: parts@bdcast.com

RETURN, REPAIR, AND EXCHANGES -

Do not return any merchandise without our written approval and Return Authorization. We will provide special shipping instructions and a code number that will assure proper handling and prompt issuance of credit. Please furnish complete details as to circumstances and reasons when requesting return of merchandise. All returned merchandise must be sent freight prepaid and properly insured by the customer.

MODIFICATIONS -

Broadcast Electronics, reserves the right to modify the design and specifications of the equipment in this manual without notice. Any modifications shall not adversely affect performance of the equipment so modified.

SAFETY PRECAUTIONS

PLEASE READ AND OBSERVE ALL SAFETY PRECAUTIONS//

ALL PERSONS WHO WORK WITH OR ARE EXPOSED TO POWER TUBES, POWER TRANSISTORS, OR EQUIPMENT WHICH UTILIZES SUCH DEVICES MUST TAKE PRECAUTIONS TO PROTECT THEMSELVES AGAINST POSSIBLE SERIOUS BODILY INJURY. EXERCISE EXTREME CARE AROUND SUCH PRODUCTS. UNINFORMED OR CARELESS OPERATION OF THESE DEVICES CAN RESULT IN POOR PERFORMANCE, DAMAGE TO THE DEVICE OR PROPERTY, SERIOUS BODILY INJURY, AND POSSIBLY DEATH.

DANGEROUS HAZARDS EXIST IN THE OPERATION OF POWER TUBES AND POWER TRANSISTORS -

The operation of power tubes and power transistors involves one or more of the following hazards, any one of which, in the absence of safe operating practices and precautions, could result in serious harm to personnel.

A. **HIGH VOLTAGE -** Normal operating voltages can be deadly. Additional information follows.

B. **RF RADIATION -** Exposure to RF radiation may cause serious bodily injury possibly resulting in Blindness or death. Cardiac pacemakers may be affected. Additional information follows.

C. **HOT SURFACES** Surfaces of air-cooled radiators and other parts of tubes can reach temperatures of several hundred degrees centigrade and cause serious burns if touched. Additional information follows.

D. **RF BURNS** Circuit boards with RF power transistors contain high RF potentials. Do not operate an RF power module with the cover removed.

HIGH VOLTAGE –

Many power circuits operate at voltages high enough to kill through electrocution. Personnel should always break the primary AC Power when accessing the inside of the transmitter.

RADIO FREQUENCY RADIATION

Exposure of personnel to RF radiation should be minimized, personnel should not be permitted in the vicinity of open energized RF generating circuits, or RF transmission systems (waveguides, cables, connectors, etc.), or energized antennas. It is generally accepted that exposure to "high levels" of radiation can result in severe bodily injury including blindness. Cardiac pacemakers may be affected.

The effect of prolonged exposure to "low level" RF radiation continues to be a subject of investigation and controversy. It is generally agreed that prolonged exposure of personnel to RF radiation should be limited to an absolute minimum. It is also generally agreed that exposure should be reduced in working areas where personnel heat load is above normal. A 10 mW/cm^2 per one tenth hour average level has been adopted by several U.S. Government agencies including the Occupational Safety and Health Administration (OSHA) as the standard protection guide for employee work environments. An even stricter standard is recommended by the American National Standards Institute which recommends a 1.0 mW/cm^2 per one tenth hour average level exposure between 30 Hz and 300 MHz as the standard employee protection guide (ANSI C95.1-1982).

RF energy must be contained properly by shielding and transmission lines. All input and output RF connections, such as cables, flanges and gaskets must be RF leak proof. Never operate a power tube without a properly matched RF energy absorbing load attached. Never look into or expose any part of the body to an antenna or open RF generating tube or circuit or RF transmission system while energized. Monitor the tube and RF system for RF radiation leakage at regular intervals and after servicing.

HOT SURFACES –

The power components in the transmitter are cooled by forced-air and natural convection. When handling any components of the transmitter after it has been in operation, caution must always be taken to ensure that the component is cool enough to handle without injury.

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1 2nd Generation HD Radio™ System Architecture Overview

Broadcast Electronics Inc.'s XPi 10 Exporter and FXi 60/250 Exciter (w/Exgine card) together enable 2nd Generation HD Radio™ System Architecture.

The main function of the XPi 10 Exporter is to receive audio and data from the IDi 40 Data Importer and/or other audio processing equipment, then compress this audio and data for delivery via Ethernet to the Exgine card in the FXi 60/250 Exciter.

The Exgine card receives the compressed Ethernet audio and data, and then creates OFDM data carriers for HD Radio™. FM signals are then added to the OFDM carriers by the Exciter for reception by HD Radio™ receivers.

The XPi 10 Exporter would normally be installed at the studio site along with all of the audio processing equipment and the FXi 60/250 Exciter (w/Exgine) would normally reside at the transmitter site as shown in the

Figure 1: 2nd Generation HD Radio™ System Architecture (Normal Installation). Under this configuration, the Studio to Transmitter Link may be UNI-DIRECTIONAL (for additional information on this configuration type, see Typical HD Radio™ System Connection Diagrams **Figures 2-5** of the **FXi 60/250 Exciter w/Exgine and XPi 10 Exporter Quick Installation Guide, 597-0542-XM3**).

The XPi 10 Exporter along with the audio processing equipment may be installed at the transmitter site **ONLY** if the Studio to Transmitter Link between the IDi 40 Data Importer and the XPi 10 Exporter is BI-DIRECTIONAL (for additional information on this configuration type, see Typical HD Radio™ System Connection Diagrams **Figures 6-9** of the **FXi 60/250 Exciter w/Exgine and XPi 10 Exporter Quick Installation Guide, 597-0542-XM3**).

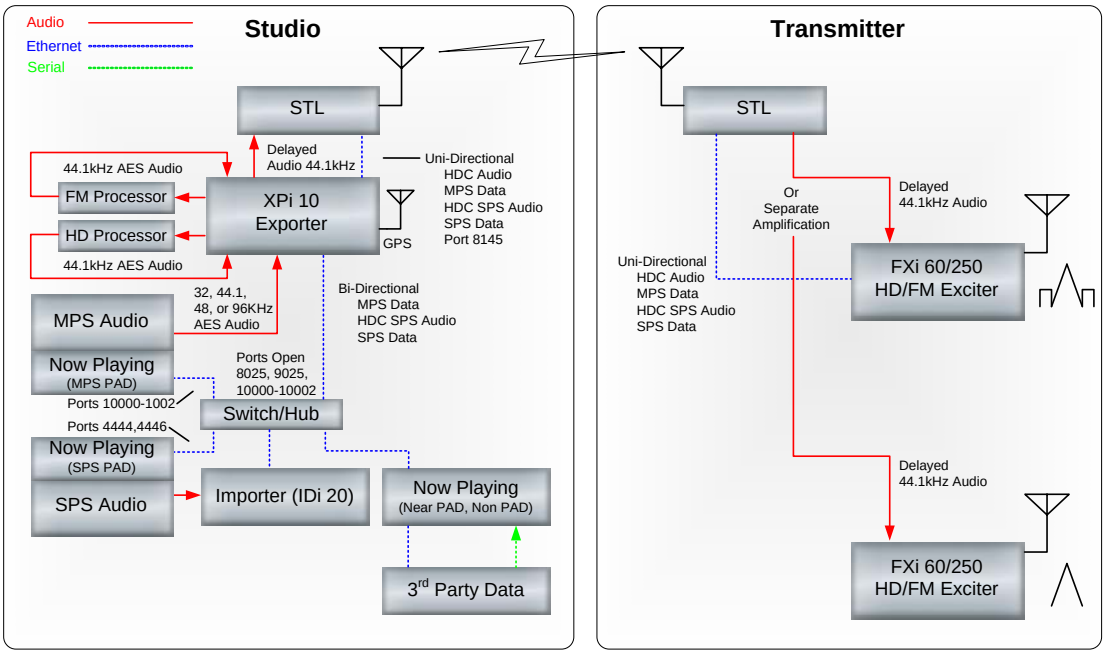


Figure 1-1: 2nd Generation HD Radio™ System Architecture (Normal Installation)

2 Installation

Reference the "**FXi 60/250 Exciter w/Exgine and XPi 10 Exporter Quick Installation Guide, 597-0542-XM3**" for detailed instructions for the Installation of the XPi 10 Exporter and FXi Exciter (w/Exgine). This document was included in the shipment from B.E. but may also be accessed on the B.E. website using the link below.

http://www.bdcast.com/support/rf-technical-services/fxi-w-exgine-and-xpi-quick-install-application-guide

3 XPi 10 Graphical User Interface (GUI) Menus

3.1 Main GUI System Menu

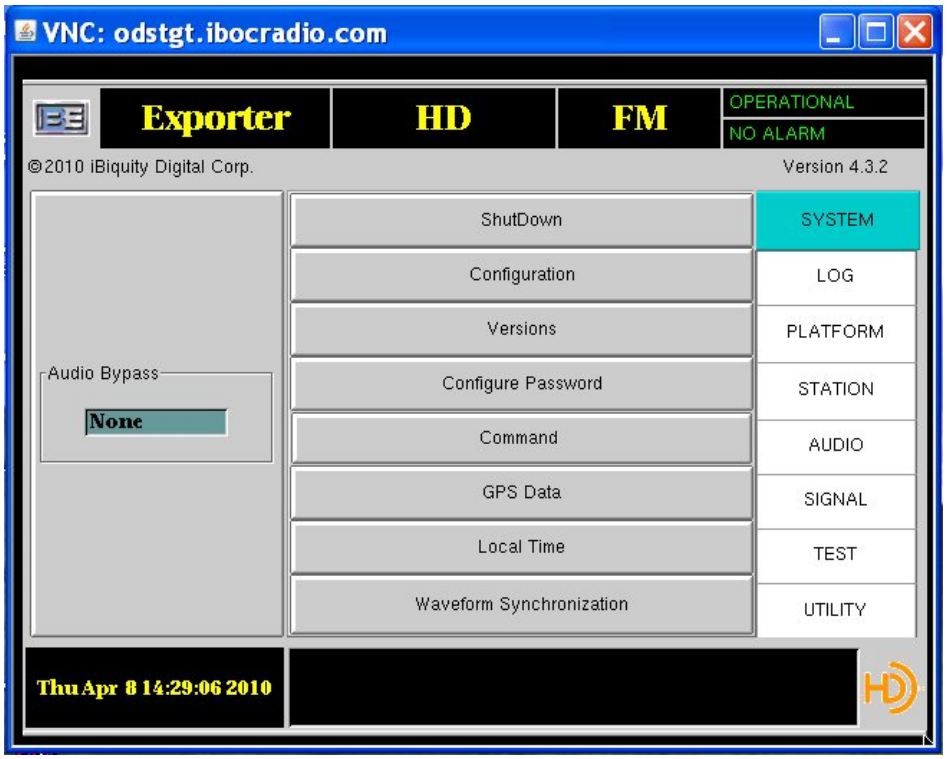


Figure 3-1: Main System Menu

3.1.1 Exciter Platform Indicator

Exporter

This identifies the present system platform as an Exporter. Upon pressing **Exporter** on the Main Menu, the Platform Menu will be displayed.

To change, select the desired platform, then press the Restart button. The system application will now be restarted as the new platform type. To exit the menu with no changes select Cancel.

This same platform select screen may be displayed by pressing Platform on the Main Screen and then Configure.

NOTE: The platform selected must be compatible with the hardware in use or errors will occur.

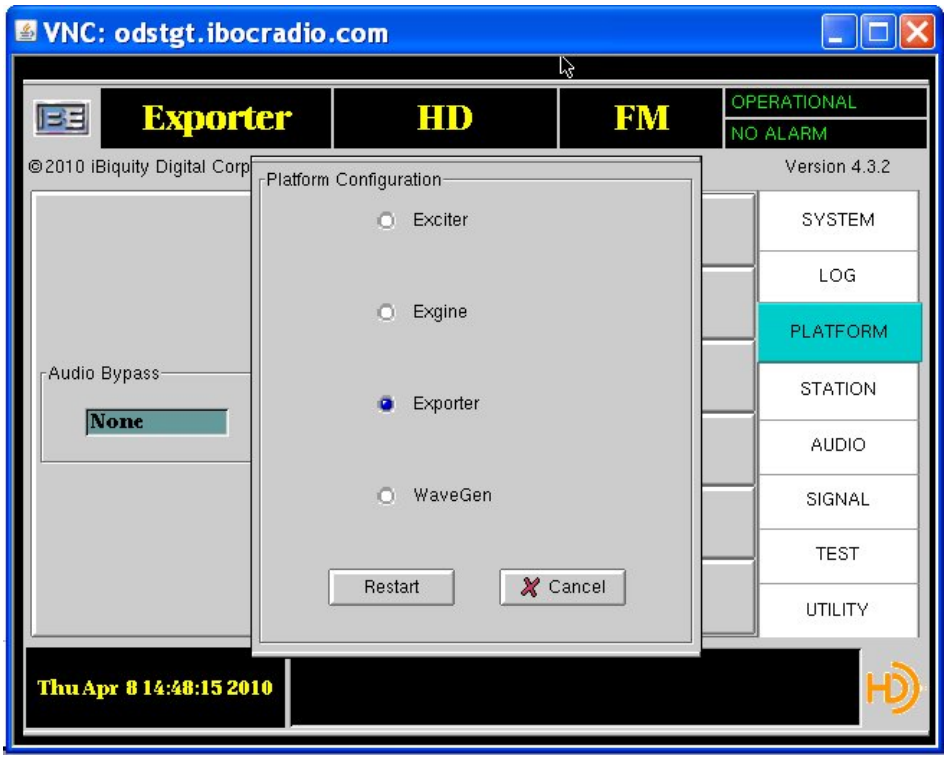


Figure 3-2: Exciter Platform

3.1.2 Station Call Sign and Information

The Station Call Sign indicator displays the call sign being transmitted with the digital data.

By pressing 

on the Main Menu, the Station Information menu will appear.

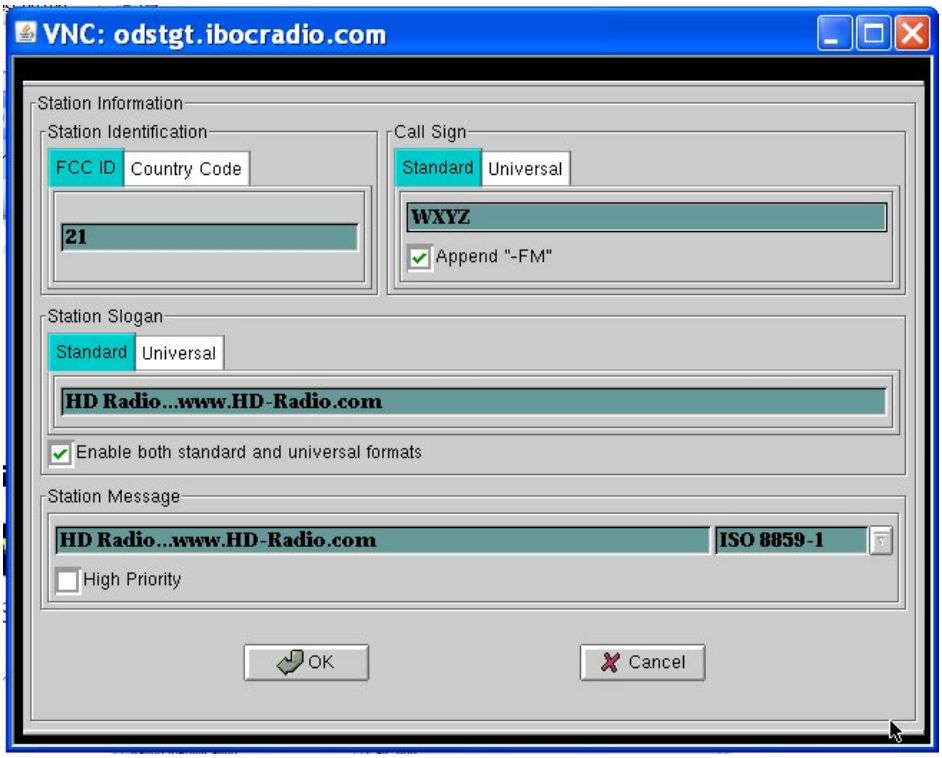


Figure 3-3: Station Information Menu

3.1.2.1 Station Identification – FCC I.D.

The (Federal Communications Commission) FCC Id field, when selected, displays the Numeric Keyboard screen. To change the FCC Id, enter the desired FCC Id using the number keys. Press Enter to establish the new FCC Id and return to the Station Information menu.

3.1.2.2 Station Identification – Country Code

The Country Code field, when selected, displays the Numeric Keyboard screen. To change the Country Code, enter the desired Country Code using the number keys. Press Enter to establish the new Country Code and return to the Station Information menu.

3.1.2.3 Station Slogan – Standard

The Station Slogan (Standard) field, when selected, displays the Numeric Keyboard screen. To change the Station Slogan, enter the desired Slogan and press Enter to establish the new Station Slogan and return to the Station Information menu.

3.1.2.4 Station Slogan – Universal

The Station Slogan (Universal) field, when selected, displays the Numeric Keyboard screen. To change the Station Slogan, enter the desired Slogan and press Enter to establish the new Station Slogan and return to the Station Information menu.

3.1.2.5 Station Message

The Station Message, when selected, displays the Numeric Keyboard screen. To change the Station Message, enter the desired Message and press Enter to establish the new Station Message and return to the Station Information menu.

3.1.2.6 Call Sign – Standard (Short Name)

NOTE: The Call Sign - Standard field is limited to four characters; all characters MUST be upper case.

The Call Sign – Standard field, when selected, displays a keyboard. To change, enter the desired Call Sign. Select Shift, type the desired four-character Call Sign using the character keys. Press Enter to establish the new Call Sign and return to the Station Information screen.

If **Append –"FM"** is selected (checked), –FM will be appended to the Call Sign that is transmitted.

3.1.2.7 Call Sign – Universal (Long Name)

NOTE: The Call Sign – Universal field is limited to 56 characters.

The Call Sign – Universal field, when selected, displays a keyboard. To change, enter the desired Call Sign – Universal name using the Alphanumeric Keyboard. Press Enter to establish the new Universal name and return to the Station Information screen.

3.2 Operating Band

The Main Menu displays the operating band of the XPi 10.

3.3 Status Upper Section (Main Screen Upper Right)

The upper section displays current state of the XPI 10 Exporter. Either Operational in Green or Non-Operational in Red.

3.4 Status Lower Section (Main Screen Upper Right)

The lower section displays current Alarm state of the XPi 10 Exporter. Either "No Alarm" in Green or "Alarm" in Red.

An "Alarm" can be cleared by pressing 

or by selecting the Station Interface section, under the Station tab. Once cause of alarm is resolved, press "Clear State - Alarm" and the flashing red Alarm will display "No Alarm".

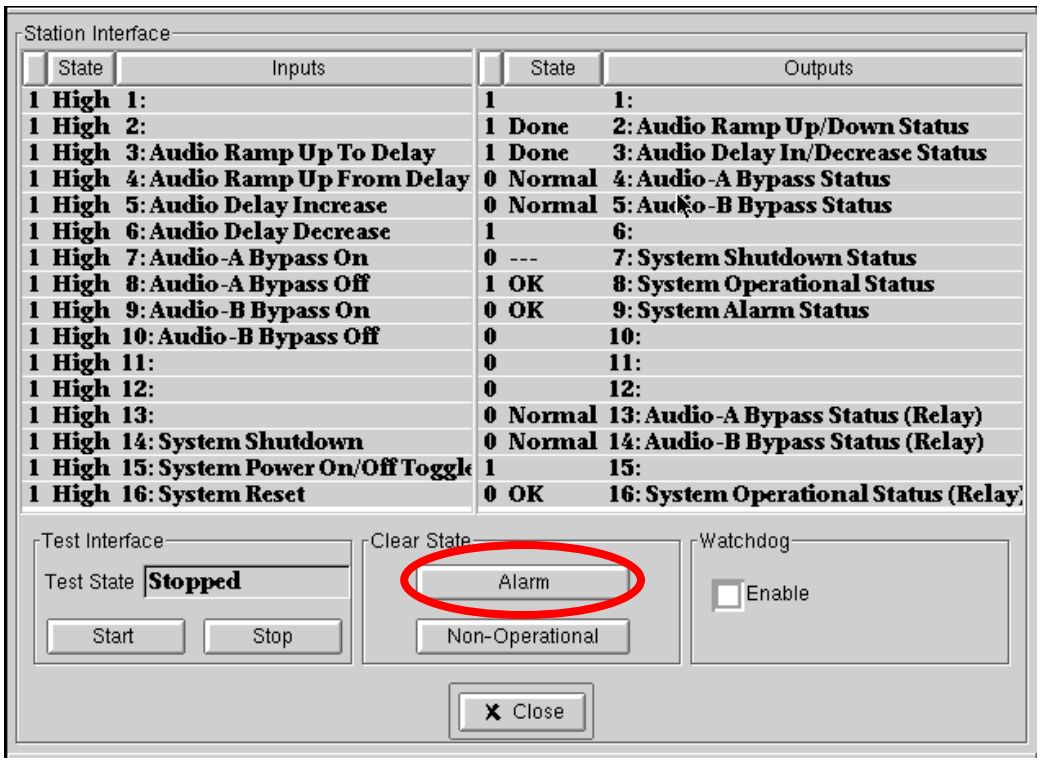
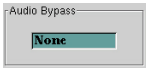


Figure 3-4: Station Interface

3.5 Audio Bypass

The Audio Bypass indicator displays None, Bypass A, Bypass B or Bypass A & B depending upon the current setting.

To change, select 

and the Audio Bypass Menu will appear.

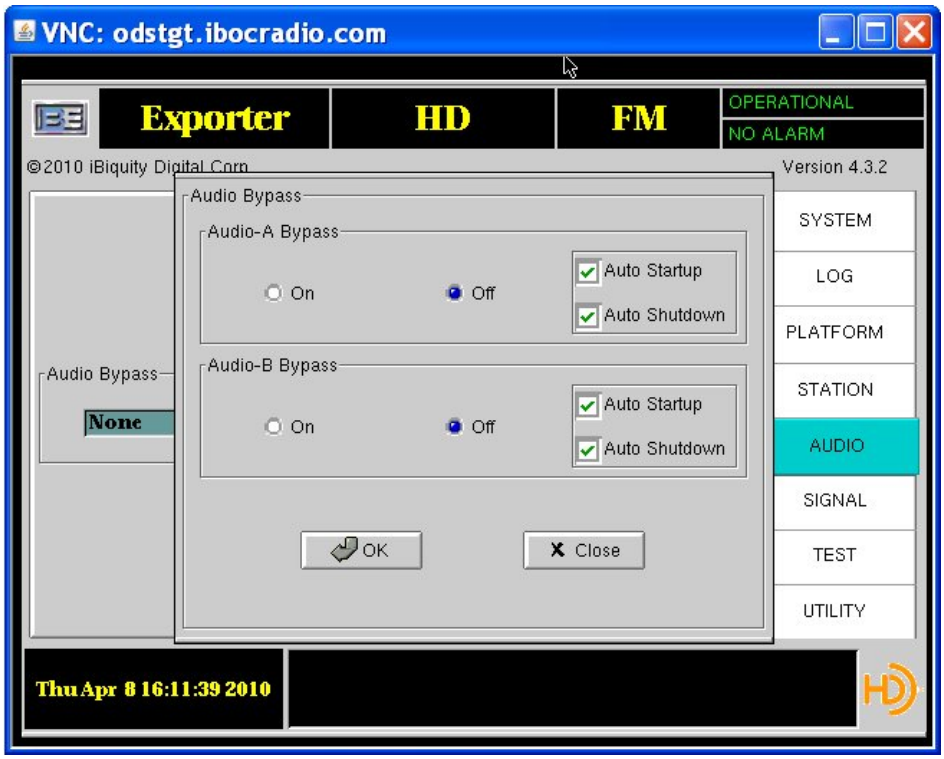


Figure 3-5: Audio Bypass

3.5.1 Audio-A Bypass

When Audio-A Bypass is ON, audio is routed around the XPi 10 using an internal bypass relay. When the Audio-A Bypass is OFF, audio is routed through the XPi. Audio-A Bypass is normally set to OFF.

Station Interface Output 13 is determined by the operating status of the XPi 10.

3.5.2 Audio-B Bypass

Not used in normal operation.

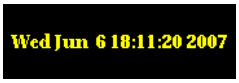
3.5.3 Auto Startup

When Auto Startup is selected, the audio bypass switches toggle to the delayed state to begin the audio ramp function. This overrides the Audio Bypass selection. If Auto Startup is not selected, the audio bypass switches toggle to the state defined by the Audio Bypass selection. Typically, Auto Startup is selected.

3.5.4 Auto Shutdown

When Auto Shutdown is selected, upon an error condition or receipt of a shutdown command, the audio bypass switches toggle to the Bypass state. This overrides the Audio Bypass selection. If Auto Shutdown is not selected, the audio bypass switches remain in the state defined by the Audio Bypass selection. Typically, Auto Shutdown is selected.

3.6 Date and Time



Date and time displayed are normally local time set by the BIOS of the Motherboard in the XPi 10. To obtain the Global Positioning System (GPS) and use it for display in the lower-left corner of the main menu, select Sync Local Time to GPS as shown below. If Sync Local Time to GPS is selected and if the GPS is not connected to an antenna with access to GPS data, this window will display a time/date of 00:00:00 Jan 6, 1980 and increment from that time until the system attains GPS time lock.

On the Main Menu, select 

and the Date & Time Settings Menu will appear. Make the desired changes and select OK.

NOTE: 1PPS output must be connected to 1PPS input on back of XPi 10 to sync to local time.

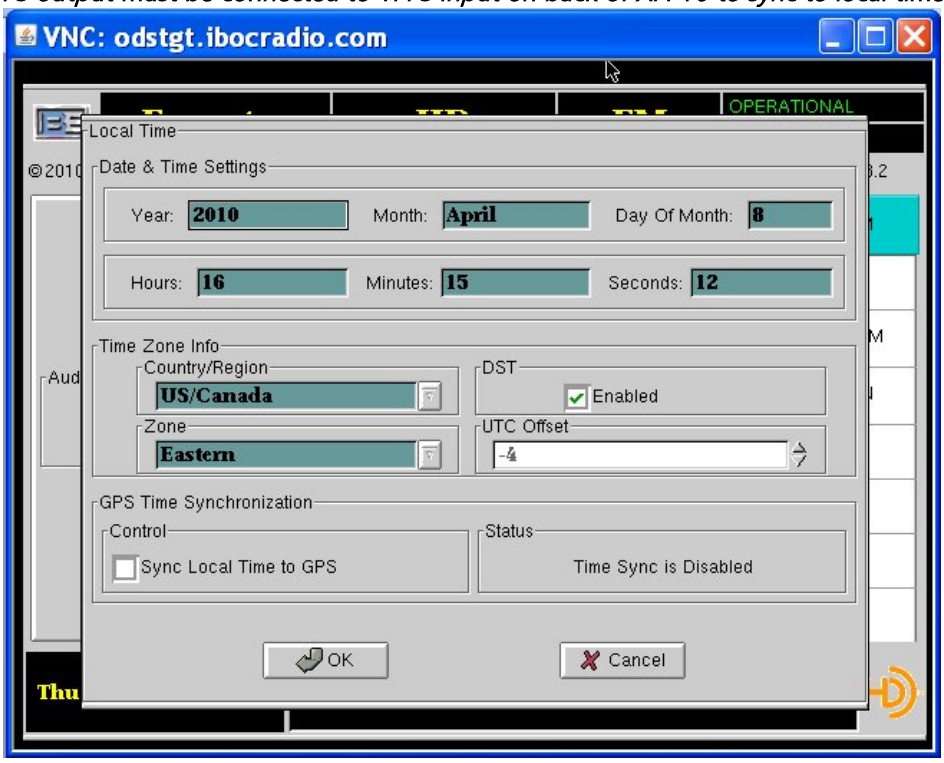


Figure 3-6: Date & Time Settings

3.7 System Status

The system status section displays current Exporter status. Error conditions are displayed in red and warning conditions are displayed in green. Select this area in the bottom right of the Main Menu, or by System Status under the Log Menu set, to view the system status history as shown in the System Status Screen.

The information that is displayed here is useful for troubleshooting the XPi 10. This information is highly dependent upon the log levels set in the System Status Menu.

Error messages are displayed in red. The System Status Log is cleared by pressing the Clear Log button. Select Close to exit and return to the Main Menu.

As seen in the System Status Screen several green warnings appear. These indicate that the GPS is not time locked. The GPS antenna should be checked for proper view of the sky. At times it will take time for lock to be acquired so you may have to wait for GPS lock.

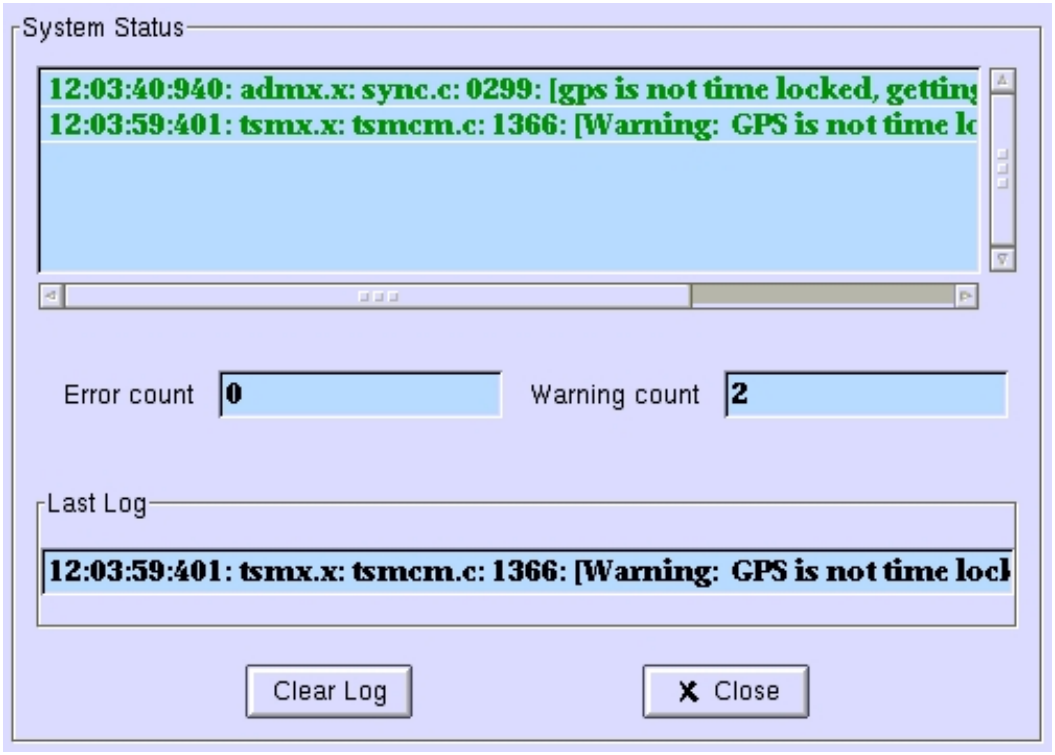


Figure 3-7: System Status

3.8 System Tab Control Buttons

Figure 3-8: System Menu Set

3.8.1 Shutdown

The Shutdown control screen is used to shutdown the Exporter. If power is to be removed, select Shutdown and press OK. This will halt the OS. Wait until the text "power down" is displayed in green before switching the rear panel main power switch to OFF. If the OS is to be restarted, select OS Restart and press OK. The system will reboot back to the default program. If the application is to be exited and restarted, select Restart and press OK to exit and rerun the program. If the application is to be exited and a console session started, select Console and press OK to exit and start the session.

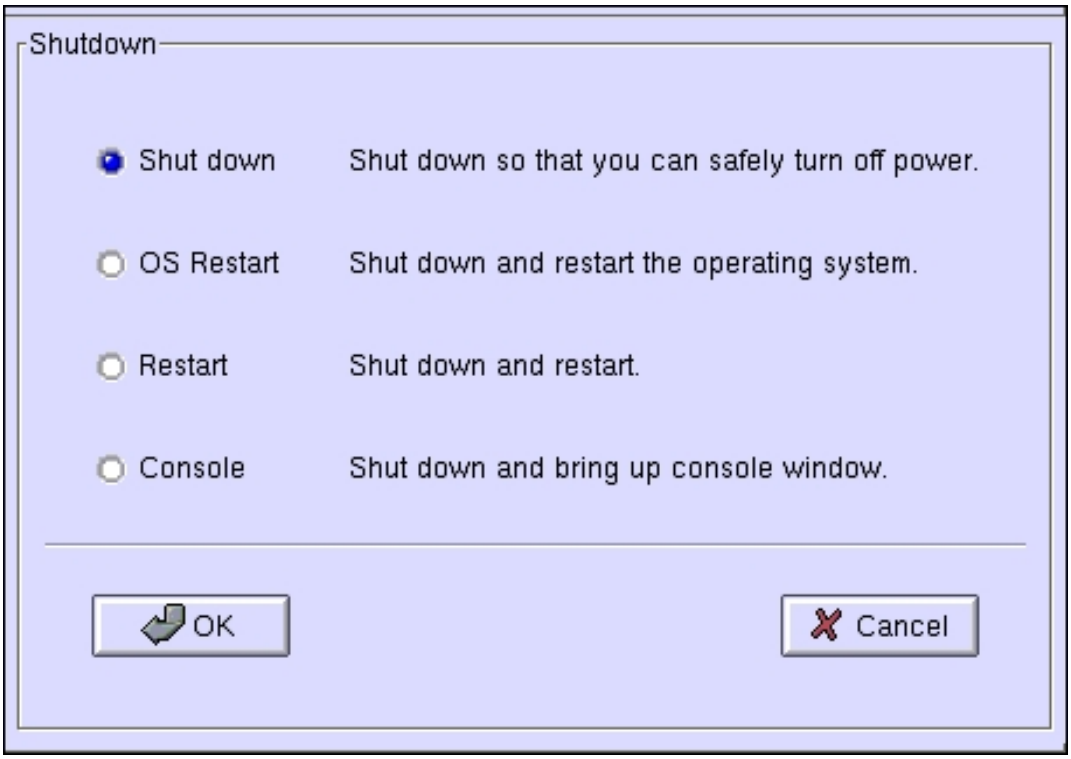


Figure 3-9: Shutdown Menu

3.8.2 Configuration

The System Configuration button on the System menu provides access to the System Configuration Menu shown below. These configurations allow the XPi 10 to operate in the various modes of operation, such as extended digital transmission which adds more carriers to the HD signal.

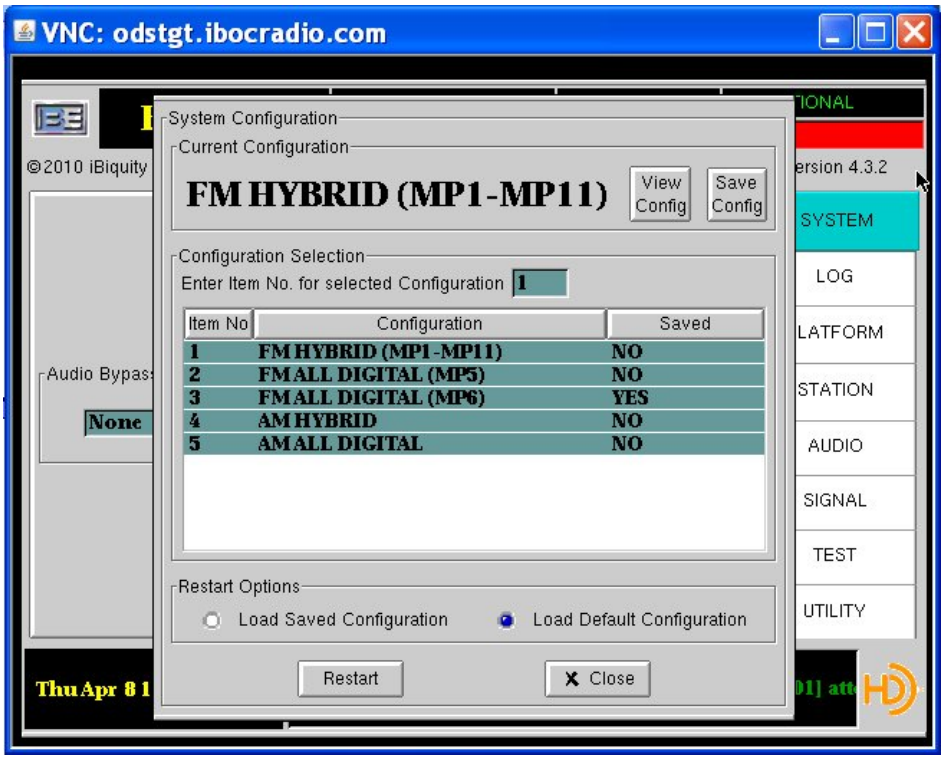


Figure 3-10: System Configuration

3.8.2.1 Channel Configuration

The Channel Configuration menu is used to set the amount of bandwidth given to each service available; Audio, Station information, or Data. These settings are repeated for all logical channels available:

Channel 1 – P1	Channel 2 – P2
Channel 3 – P3	Channel 4 – SIS

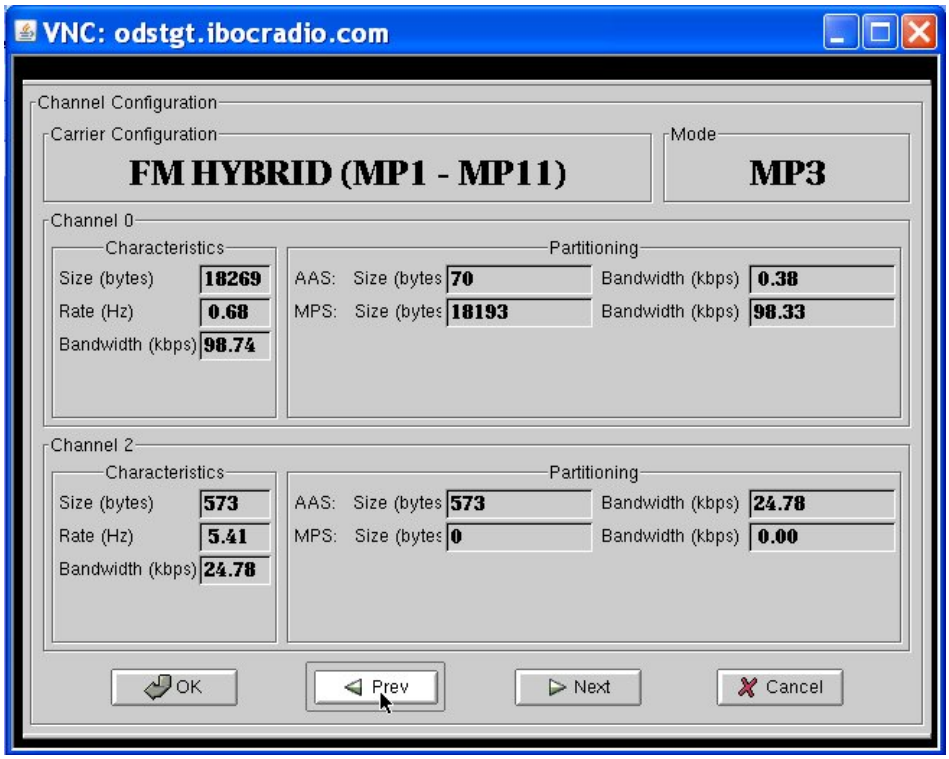


Figure 3-11: Channel Configuration

3.8.2.2 Current Mode

Current Mode displays the current configuration setting.

3.8.2.3 Characteristics

The Characteristics group box displays the size of the logical channel PDU, the rate at which the PDU is sent, and the bandwidth (or average rate) of the PDU for each logical channel.

3.8.2.4 Partitioning

The Partitioning group box displays information pertaining to how each logical channel is partitioned between Main Program Audio (MPA), fixed data and opportunistic data.

MPA Size allows the selection of the amount of bytes to be used for the Main Program Audio (MPA). The user can either enter the value or use the Up and Down buttons to change the default value.

NOTE: Lowering this number from its maximum value can have deleterious effects on Audio quality.

When MPA Size is lowered from the maximum (default), the remaining bytes (Size – MPA Size) can be allocated to Fixed or Opportunistic data. Initially, all extra bytes are assigned to Opportunistic data unless the "Enable Opp" check box is not selected.

The **Obtain Data Externally** button should be unselected. See an iBiquity Digital representative for use.

3.8.2.5 Previous

Select previous page to scroll through all logical channels.

3.8.2.6 Next

Select next page to scroll through all logical channels.

3.8.2.7 Save Config

When this box is selected the present system configuration is saved so that on restart all user settings will be retained. It will be indicated as such under the Saved column.

3.8.2.8 System "Configuration Selection" Value

Select the number adjacent to **Enter Item No. for selected Configuration**. To change the configuration value, enter the desired configuration value using the number keys. Press **Enter** to establish the new configuration. When a selection is made, the user is prompted to restart the system.

NOTE: Only shaded selections are available. All non-shaded configurations have not been fully verified and are for internal test only, use at your own risk. The non-shaded configurations will require the user to enter a password for access.

3.8.2.9 Restart Options (Load Saved Configuration)

When this box is selected on any restart the saved configuration file will be used.

3.8.2.10 Restart Options (Load Default Configuration)

When this box is selected on any restart the default configuration file will be used and all user settings will be reset to default values. You will lose the non-default settings that have been made to configure the XPi 10.

3.8.2.11 Restart

When this box is selected the present system application will be halted and restarted.

3.8.3 Versions

When **SYSTEM -> Versions** is selected on the Main Menu, the present software/firmware/Motherboard configuration will be displayed. This information will not be valid until after the system has indicated that it is Operational.

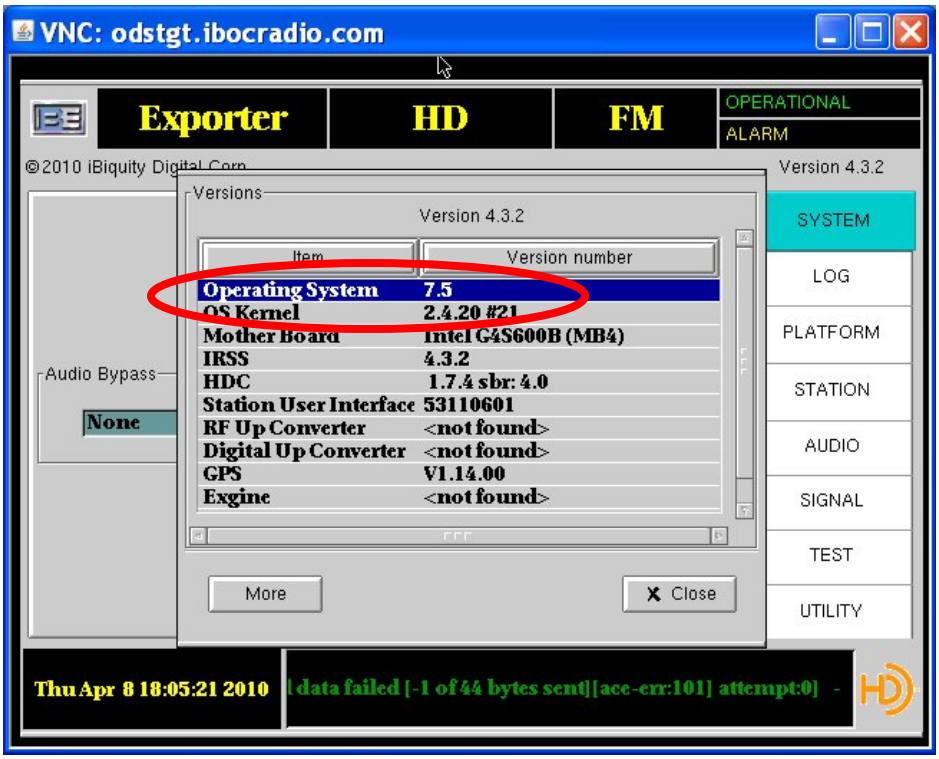


Figure 3-12: Versions

To view additional detailed information press the More button and the screen shown below will be displayed.

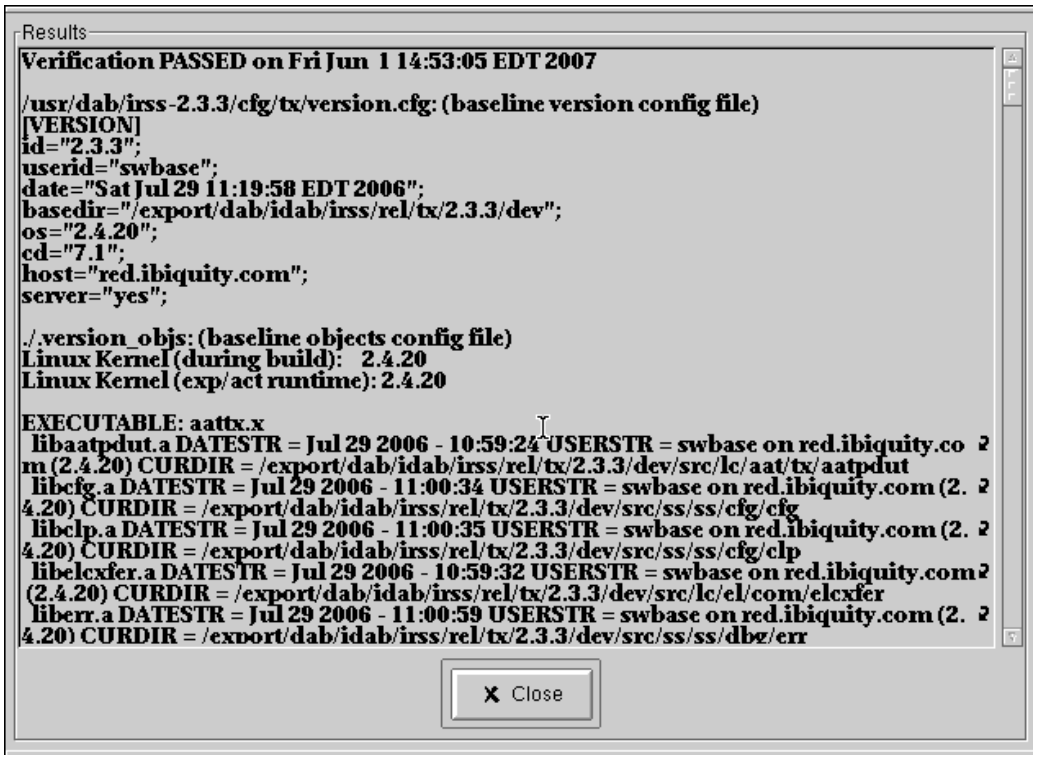


Figure 3-13: More Version Information

3.8.4 Configure Password

When selected the user will be prompted to enter the present password to gain access to the password configure screen (default is **password**).

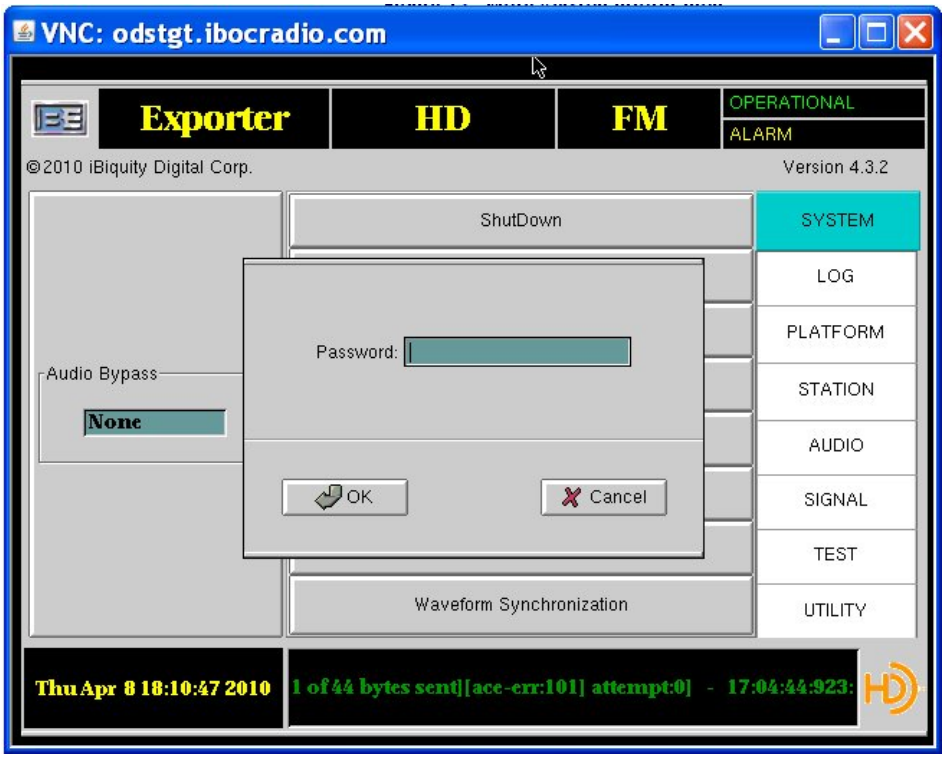


Figure 3-14: Password

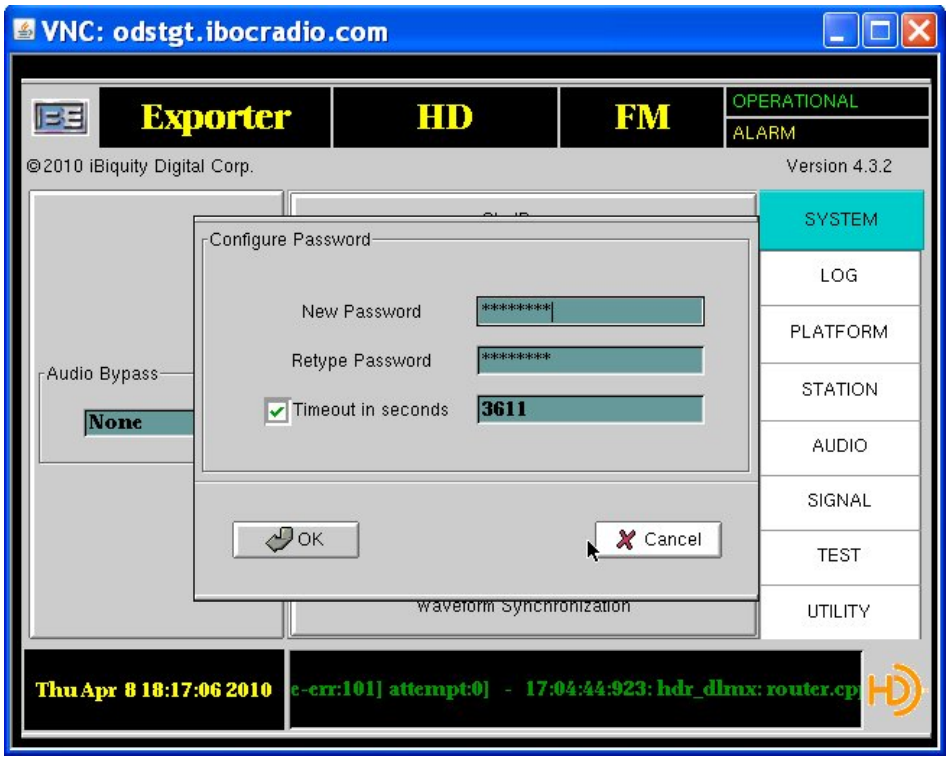


Figure 3-15: Password Setup

The New Password can now be entered. Confirm the new password by entering it again in the Retype Password area.

Timeout in seconds value denotes how long, after entering a valid password, you have unlimited access before you are again prompted to enter the password again. If the checkbox is unchecked the access time has no limit and is valid until changed or the exciter is rebooted.

3.8.5 Command

When **SYSTEM -> Command** is selected and password is entered, the System Command Menu will appear.

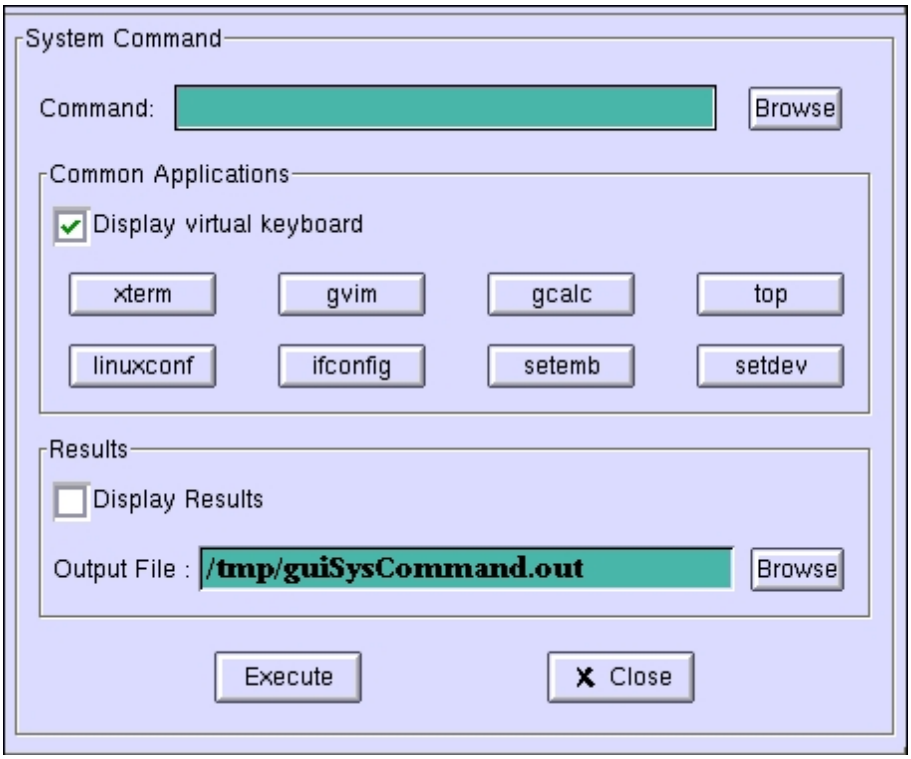


Figure 3-16: System Command Menu

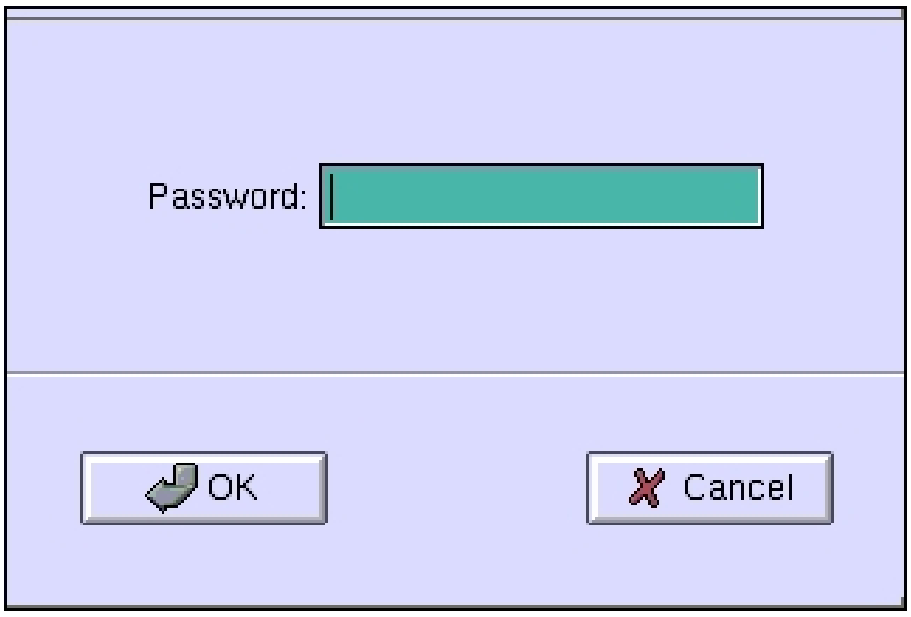


Figure 3-17: Password

3.8.5.1 Command / Results

Enter the command here to execute a linux system command (ls, pwd …). The results of the command can be displayed immediately by placing a check mark in the Display Results box. The results can also

go to a file as defined by the file name in the Results/Output File: line. To execute the command select Execute.

Note: A mouse and keyboard must be connected before boot-up to do any editing such as Ethernet IP Address setup, etc.

If the Display Results option is selected, command results will be displayed. Select Cancel to return to the Command Submenu screen.

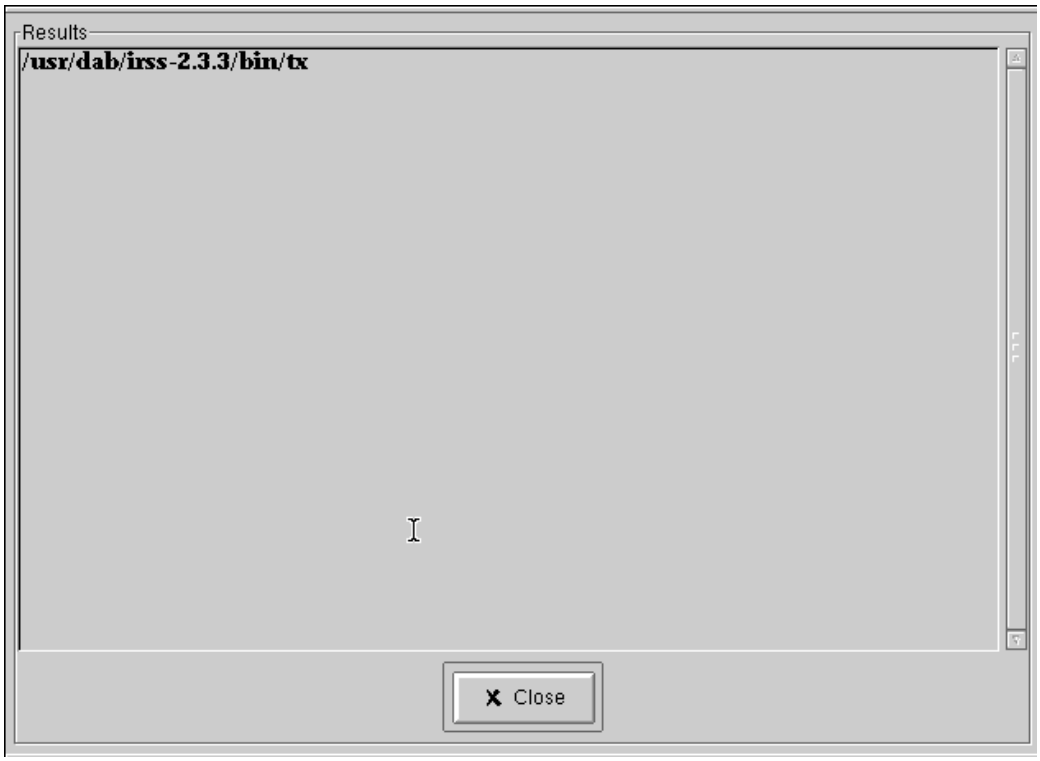


Figure 3-18: Command Results

3.8.5.2 File / Directory Browser

This button may be selected to choose a file/directory (for execution or results storage). Press OK to enter the selection and return to the System Command screen.

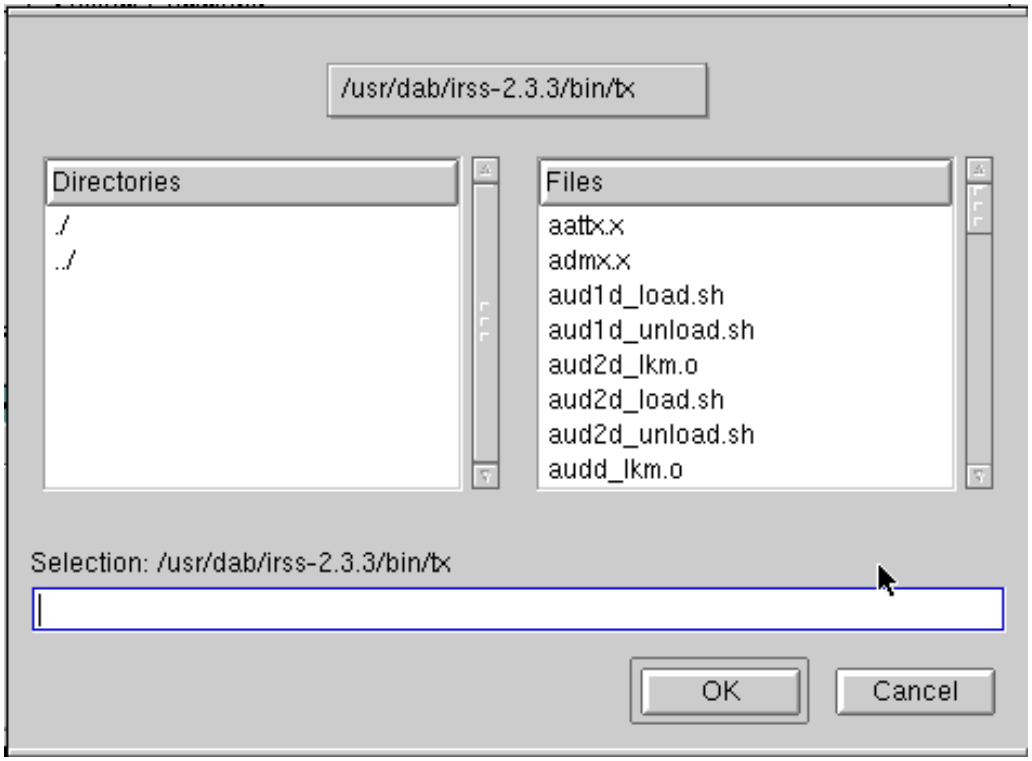


Figure 3-19: Browse Menu

3.8.5.3 Common Applications (Display Virtual Keyboard)

If Display Virtual Keyboard is checked, the keyboard shown below will appear on the display when the common application is run. This is useful only if a keyboard is not connected to the XPi 10.

Figure 3-20: Virtual Keyboard

3.8.5.4 Common Applications (xterm)

This button, if selected, will display an xterm window. The user can now type Linux commands. When done, the user types exit and presses return to close the window and return to the System Command window.

Figure 3-21: Xterm Window

3.8.5.5 Common Applications (gvim)

This button, if selected, will display a Graphical Text Editor. The user can now call up a file to edit. This editor uses commands from the linux editor VI. To edit requires pressing **"i"** to insert characters into a file, pressing **"Esc"** to get out of the insert mode, pressing **"Shift"** to get to the command prompt and then **"wq"** and **Enter** to save the changes made to the file. When done, select **File/Exit** to return to the System Command screen.

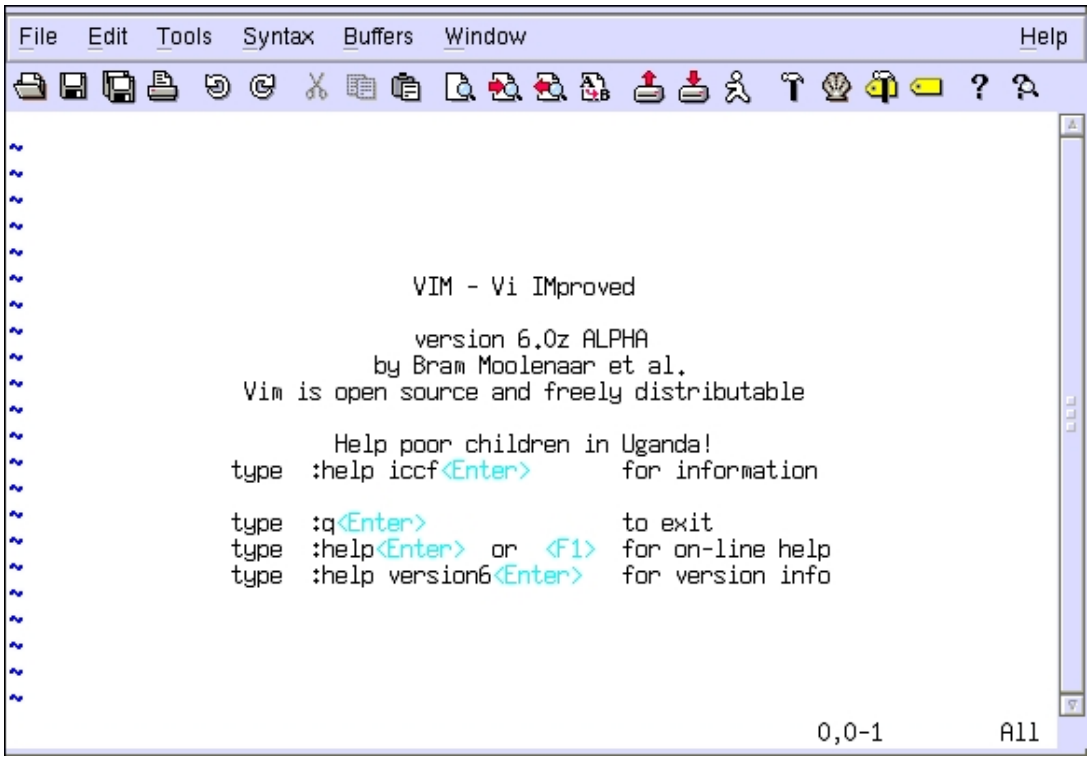


Figure 3-22: gvim Editor

3.8.5.6 Common Applications (gcalc)

gcalc

This button, if selected, will display a graphical calculator application. Select **File/Exit** to return to the System command screen.

Figure 3-23: Graphical Calculator Screen

3.8.5.7 Common Applications (top)

top

This button, if selected, will display a summary of the processor usage. This display is continually updated. When done, press **q** to quit.

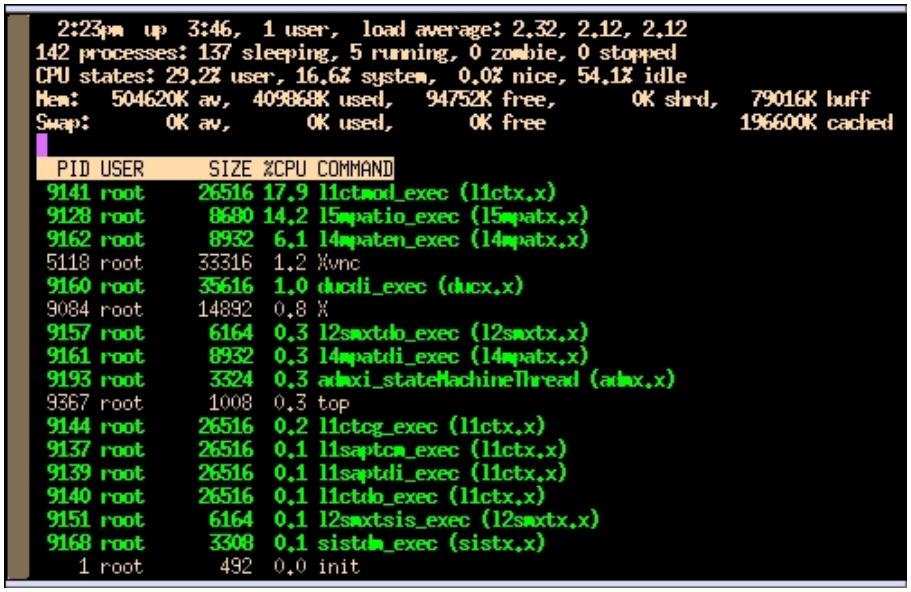


Figure 3-24: Top Display Screen

3.8.5.8 Common Applications (linuxconf)

linuxconf

This button, if selected, will display a graphical linux configuration application. The user can now configure the system as desired. Select **Quit** (by pressing Tab) to return to the System Command screen.

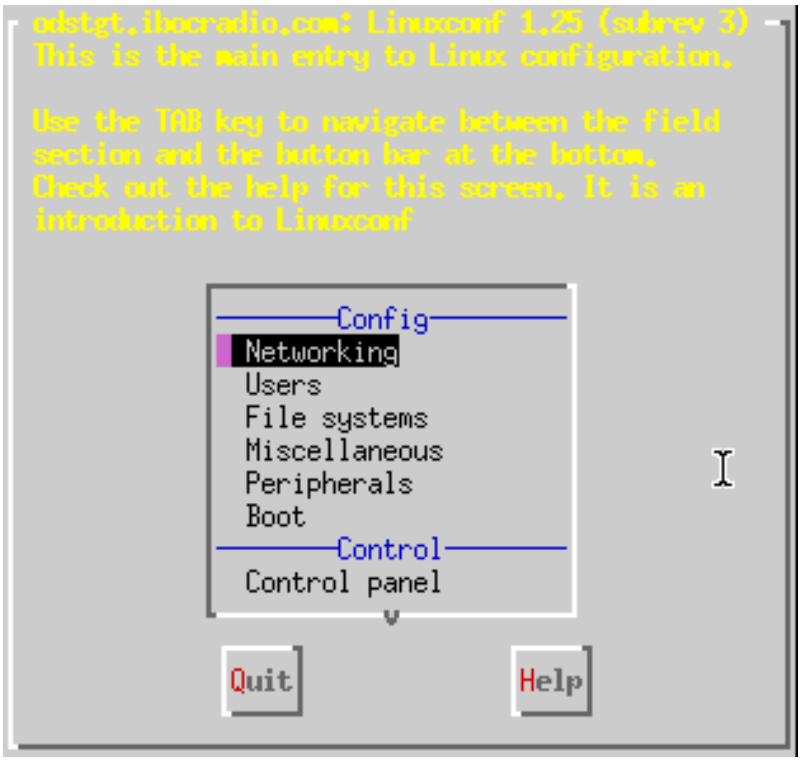


Figure 3-25: linuxconf Menu

3.8.5.9 Common Applications (ifconfig)

This button, if selected, will display a summary of the processor network configuration. Press **Close** to quit and return to the System Command window.

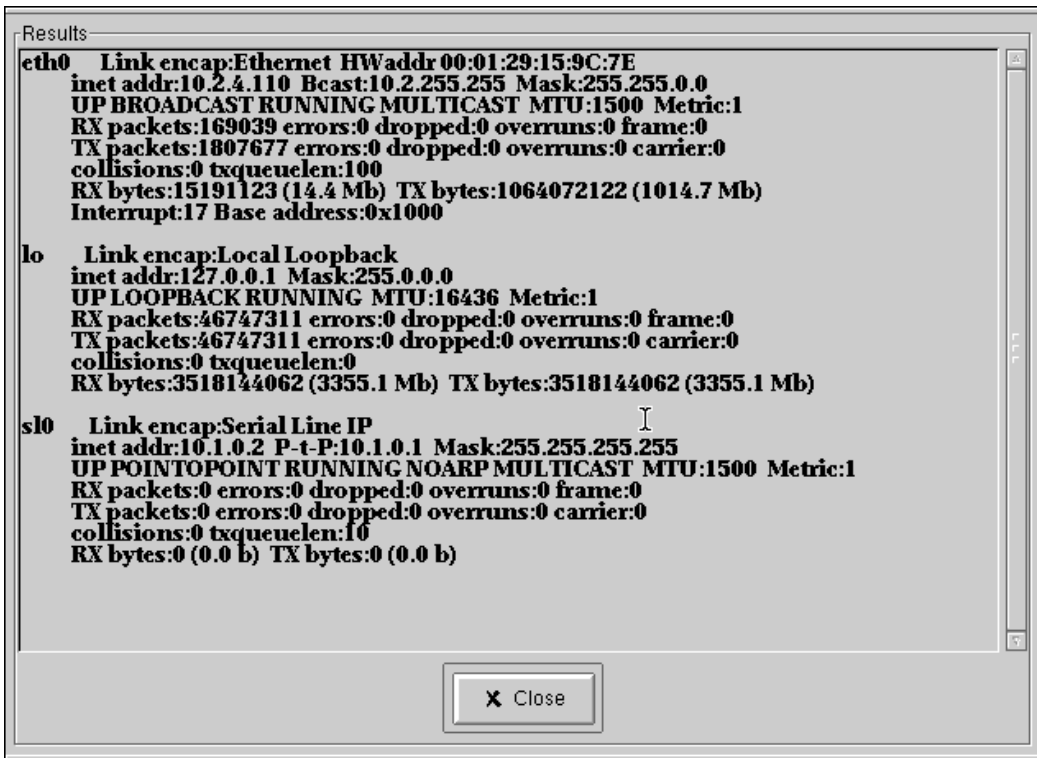
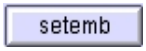


Figure 3-26: ifconfig Screen

3.8.5.10 Common Applications (setemb)



This button, if selected, will set the system to embedded mode. Press **Close** to quit and return to the System Command window. The system is now in Embedded mode.

3.8.5.11 Common Applications (setdev)

This button, if selected, will set the system to Development mode. Press **Close** to quit and return to the System Command window. The system is now in Development mode.

3.8.6 GPS Data

When **SYSTEM -> Menu** is selected from the Main Menu, the GPS Version and Status menu is displayed. This menu also allows for the setting of the GPS antenna delay variable.

If the Operational Mode is in the Not Locked mode (no antenna attached) all the position information can be edited. This information will not be used for transmission unless the system is reset. If the information is changed a warning will be displayed as a reminder.

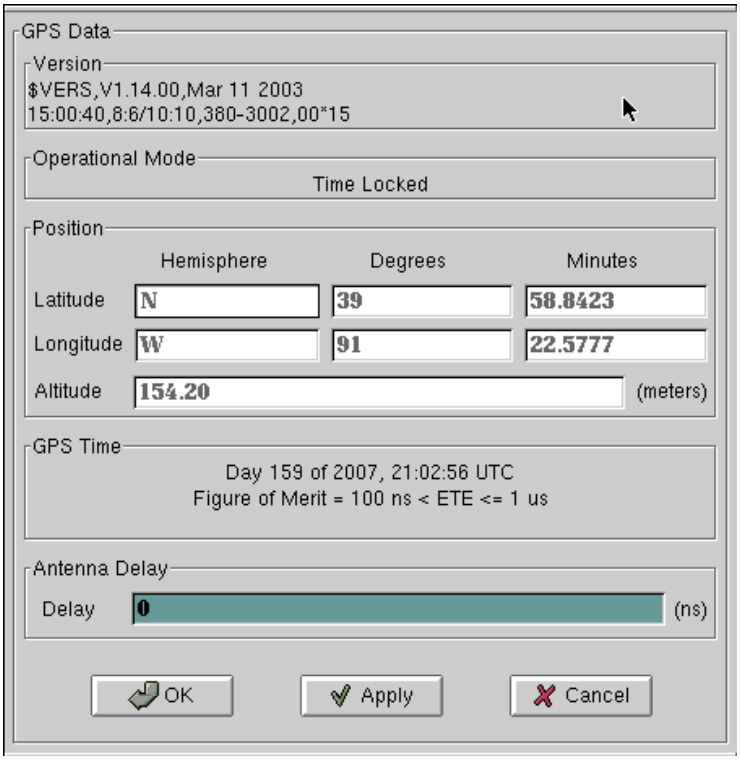


Figure 3-27: GPS Data Menu

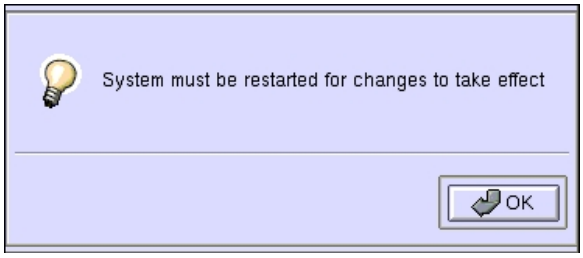


Figure 3-28: System Reset

3.8.6.1 GPS Antenna Delay

This variable is based on GPS cable type and length. Delay values for recommended cable types are listed below.

Cable Type	Delay Value
Belden 9311 (RG-58)	4.36 ns/m (1.33 ns/ft)
Belden 8267 (RG-213)	4.99 ns/m (1.52 ns/ft)
Belden 9104 (RG-59)	4.00 ns/m (1.22 ns/ft)
Belden 9913 (RG-8)	3.90 ns/m (1.19 ns/ft)

Figure 3-29: GPS Cabling Delay Values

To determine the proper delay value, multiply the delay value from the table by the length of cable used.

For example, if the antenna system includes 50 ft of RG-58 cable, the total cable delay is:

50 ft x 1.33 ns/ft = 66.5 ns

When entering the data round the value to the nearest nanosecond (ns).

When Antenna Delay screen is selected the following menu will appear. To change the delay value, enter the desired delay value using the number keys. Press **Enter** to establish the new delay value and return to the GPS Data screen.

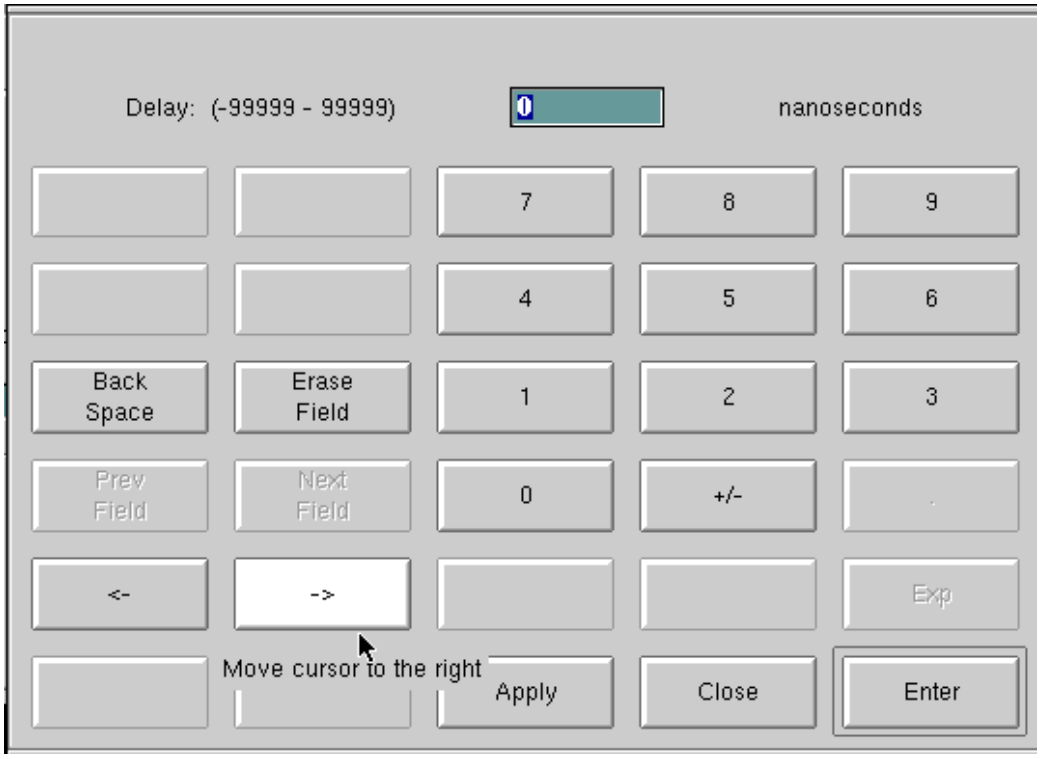


Figure 3-30: GPS Antenna Delay

3.8.7 Local Time

See Section 3.6 for Date and Time.

3.8.8 Waveform Synchronization

Not used.

3.9 LOG Menu Set

The Log Tab shows the GUI main screen Log Tab. Descriptions of control buttons displayed on the Log Tab of this screen are provided in the following subparagraphs.

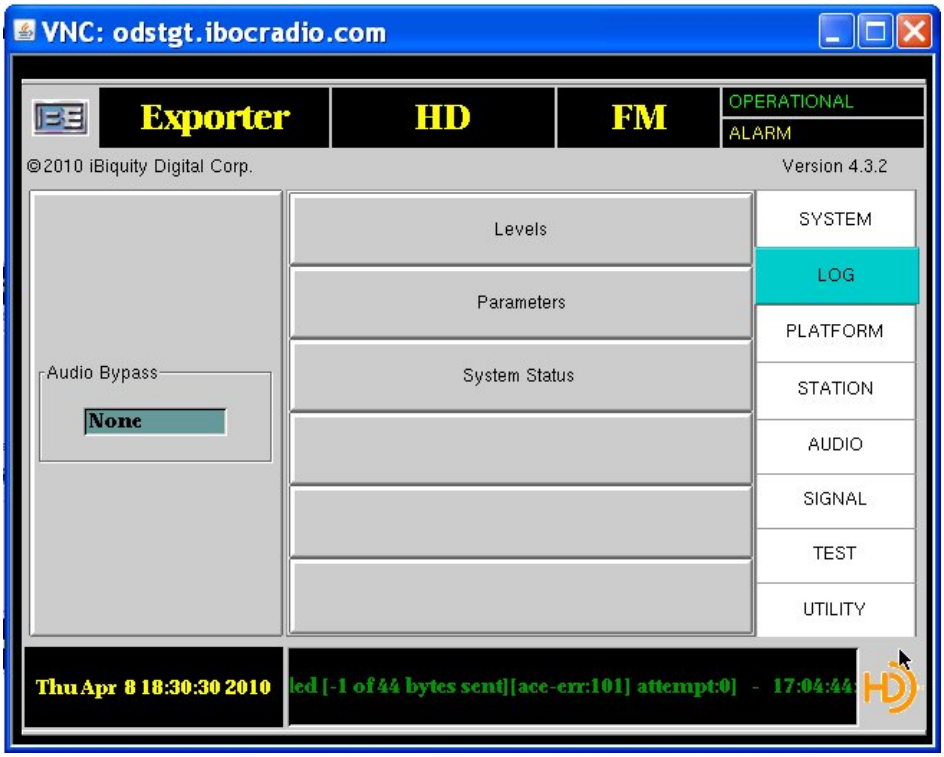


Figure 3-31: Log Menu Set

3.9.1 Levels

Select **Levels** from the Log Tab main menu, to view and update log level information. To set the logging level for an individual process, set the Log Level to a value 0 through 7 (0=Off, 7=Max). To set the description associated with the screen logging of each process (not to a file), increase the number under the Verbose Level column (0=Off, 7=Max) to the appropriate level. This sets the logging stored in file /mnt/data/irss.log. This file is archived to a date associated file. For example: /mnt/data/02-19-03/irss02:33:00.log.

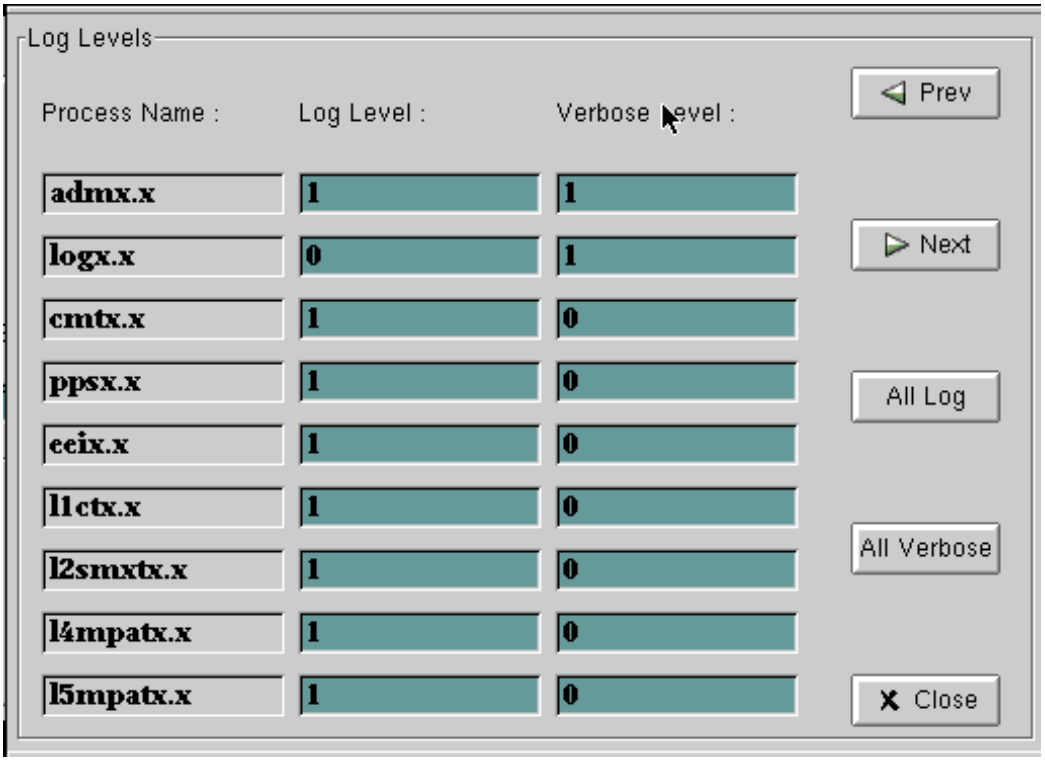


Figure 3-32: Log Level Menu

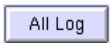
3.9.1.1 Previous

Select Previous Page to scroll backward through exciter processes.

3.9.1.2 Next

Select Next Page to scroll forward through exciter processes.

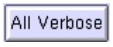
3.9.1.3 All Log



To set the log level to the same value for all processes, select **All Log Levels**. Select the level desired for all processes and press **Close** to enter the new values.

This will log all data with a log level of the selected value or lower.

3.9.1.4 All Verbose



To set the verbose level to the same value for all processes, select **All Verbose** Levels to display the screen shown below. Select the desired level and click **Close** to activate the new level.

This will print all data with a verbose level of the selected value or lower.

3.9.1.5 Exclusive Level

Exclusive Level, when selected, will only print data that is the same level as the level selected (not lower or higher).

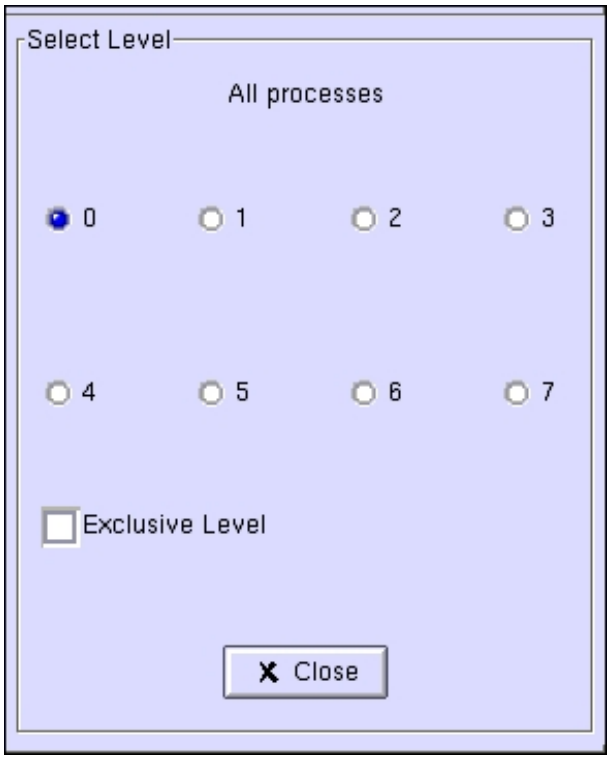


Figure 3-33: Select Level Menu

3.9.2 Parameters

Select Parameters from the Log main menu. This screen will display the present logging utilization and allow for the setting of warning parameters.

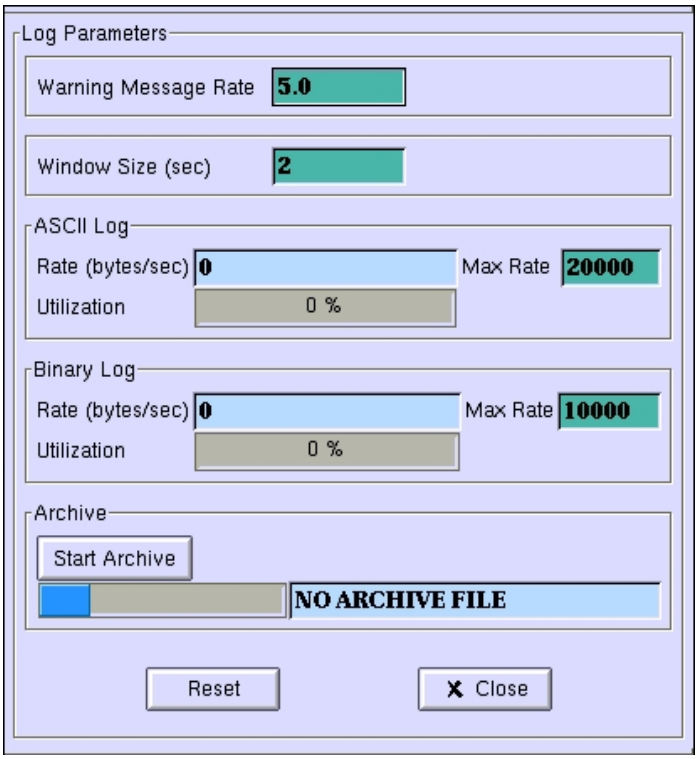


Figure 3-34: Log Parameters Menu

3.9.2.1 Warning Message Rate

When Warning Message Rate is selected, the Numeric Keyboard screen is displayed. To set how often the user is warned that the maximum log rates have been exceeded; enter the desired time in seconds. Press **Enter** to use the new value and return to the Log Parameters screen.

3.9.2.2 Window Size (sec)

When Window Size is selected, the Numeric Keyboard screen is displayed. To set the duration over which the logging rate is calculated, enter the desired time in seconds. Press **Enter** to use the new value and return to the Log Parameters screen.

3.9.2.3 ASCII Log - Rate (bytes/sec)

ASCII Log Rate displays the instantaneous amount of ASCII logging.

3.9.2.4 ASCII Log - Utilization

ASCII Log Utilization displays the instantaneous amount of ASCII logging represented as a percentage of the maximum rate.

3.9.2.5 ASCII Log - Max Rate

When Max ASCII Log Rate is selected, the Numeric Keyboard screen is displayed. To set the log rate for which, if exceeded, a warning will be issued, enter the desired rate. Press Enter to use the new value and return to the Log Parameters screen.

3.9.2.6 Binary Log - Rate (bytes/sec)

Binary Log Rate displays the instantaneous amount of Binary logging.

3.9.2.7 Binary Log - Utilization

Binary Log Utilization displays the instantaneous amount of Binary logging represented as a percentage of the Maximum rate.

3.9.2.8 Binary Log - Max Rate

When Max Binary Log Rate is selected, the Numeric Keyboard screen is displayed. To set the log rate for which, if exceeded, a warning will be issued, enter the desired rate. Press Enter to use the new value and return to the Log Parameters screen.

3.9.2.9 Start Archive

When **Start Archive** is selected, all log files in the /mnt/data path along with any core files in the bin/tx path will be collected and placed in the specified archived file.

3.9.3 SYSTEM Status

See Section 3.7.

3.10 PLATFORM Menu Set

Descriptions of control buttons displayed on the **PLATFORM** menu set are provided in the following subparagraphs.

Figure 3-35: PLATFORM Menu Set

3.10.1 Configure

See Section 3.1.1.

3.10.2 Exciter Reset Delay

Exciter Reset Delay, when selected, displays the following menu.

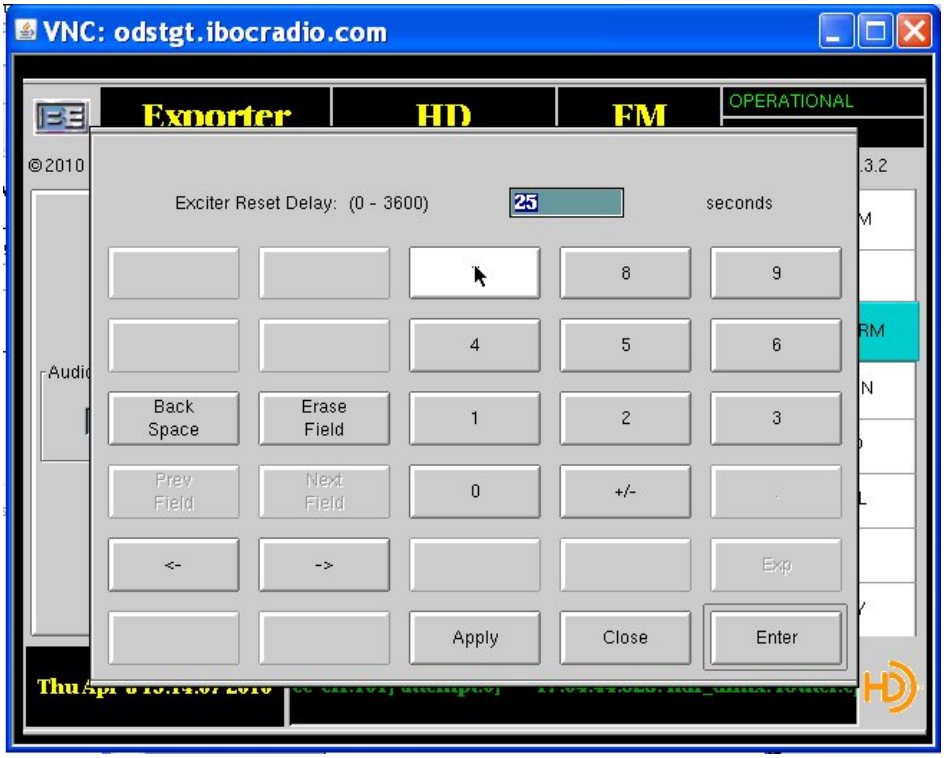


Figure 3-36: Exciter Reset Delay

3.10.3 Exciter Link Config

The IP address of the FXi Exciter and the MAC Address of the Exgine Card must BOTH be entered here.

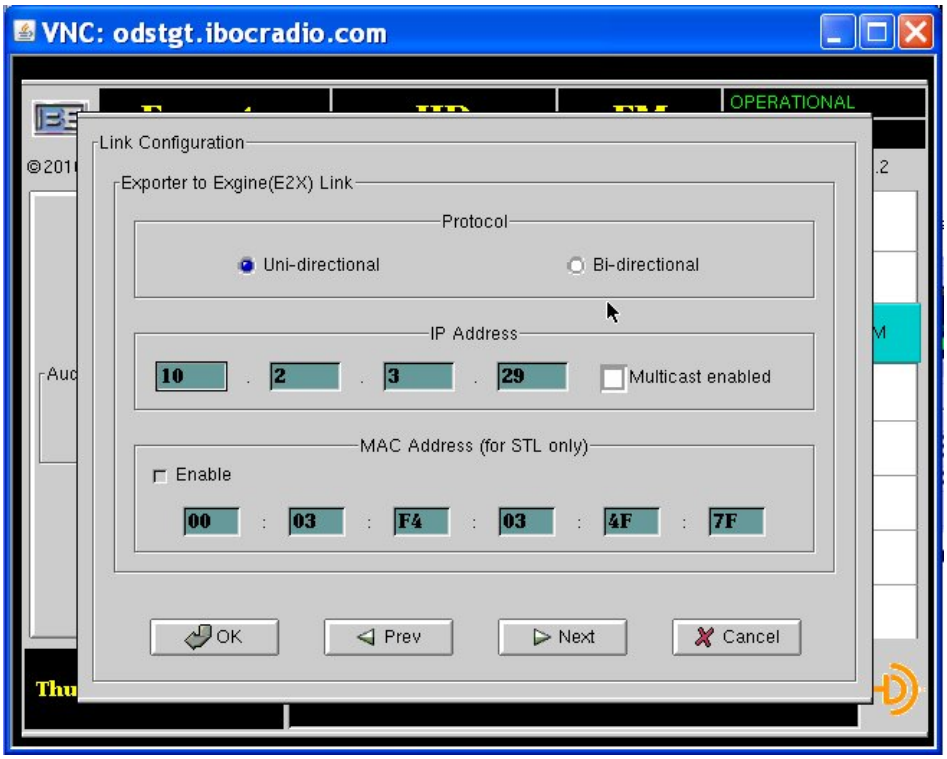


Figure 3-37: Exciter Link Config

3.10.4 Exporter Link Status

The Exporter Link Status window provides status for Exporter Link (EL) activities.

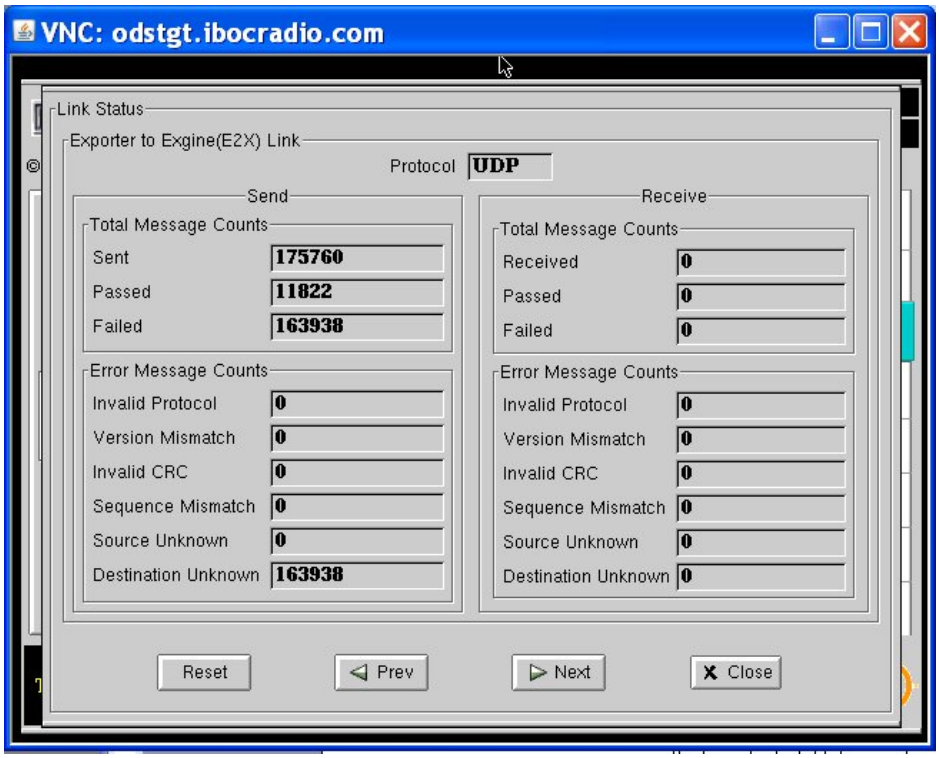


Figure 3-38: Exporter Link Status

3.10.4.1 Channel Statistics

The **Channel Statistic** Panel is a static list consisting of four columns with 12 rows. On every command response, this panel will be updated by replacement of the entire panel. The columns are Channel, Repeat, Synchronize, Number of Messages to send and Number of messages dropped. The rows show all channels from channel zero to channel eleven. Channel zero to nine represents logical channel one to ten of the layer one modem. Channel eleven is the ancillary channel and channel twelve is the opportunistic channel.

3.10.4.2 Indication History

The **Indication History** Panel is an additive scrolling list consisting of six columns. On every command response, new statistics are added by appending. These columns are Channel, ALFN, BC, Response, Drops and Time. The Channel column shows the channel ID and has a value of zero to eleven. The ALFN column shows the absolute frame number for the message to be sent and has a non-negative value. The BC column shows the block count for the message to be sent and has a value of zero to fifteen. The Response column shows the type of response from EL and has value of Data, Empty or Repeat. The value Data indicates a new data response from the channel message queue. The value of empty indicates an empty data response. The value Repeat indicates a repeat data response from the last data response. The Drops column shows number of messages that are being dropped from the channel message queue prior to the data response. Message drops could only happened if the channel is set to synchronize. The Time column shows when an indication is received.

3.10.4.3 Data Message History

The **Data Message** Receiving History Panel is an additive scrolling list containing six columns. On every command response, new history is added by appending. The columns are Channel, Control, Size, ALFN, BC and Time. The Channel column shows the channel ID. The Control column shows the control parameter. They are Empty, Repeat, No Repeat, Flush, Synchronize and Non-synchronize. The Size column shows the size of the message. The ALFN shows the absolute frame number of that message and the BC column shows the block count of that message. The Time column shows the time the message is received.

3.11 STATION Menu Set

Descriptions of control buttons displayed on the **STATION** menu set are provided in the following subparagraphs.

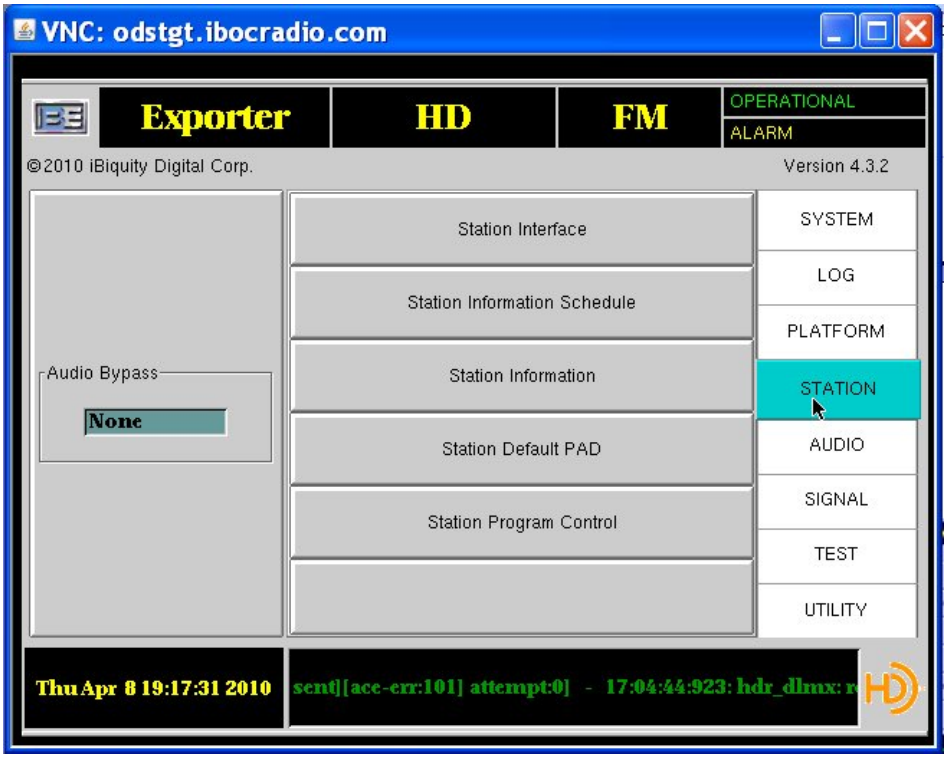


Figure 3-39: STATION Menu Set

3.11.1 Station Interface

Select the **Station Interface** button, from the **STATION** menu set.

The current state of all 16 inputs is shown in the left column. For inputs 1 through 14, a high-to-low transition will initiate the corresponding action.

For inputs 15 and 16, the input must be held low for at least 5 seconds, then, on the ensuing positive edge, the corresponding action is executed.

The current status is shown in the right-hand column.

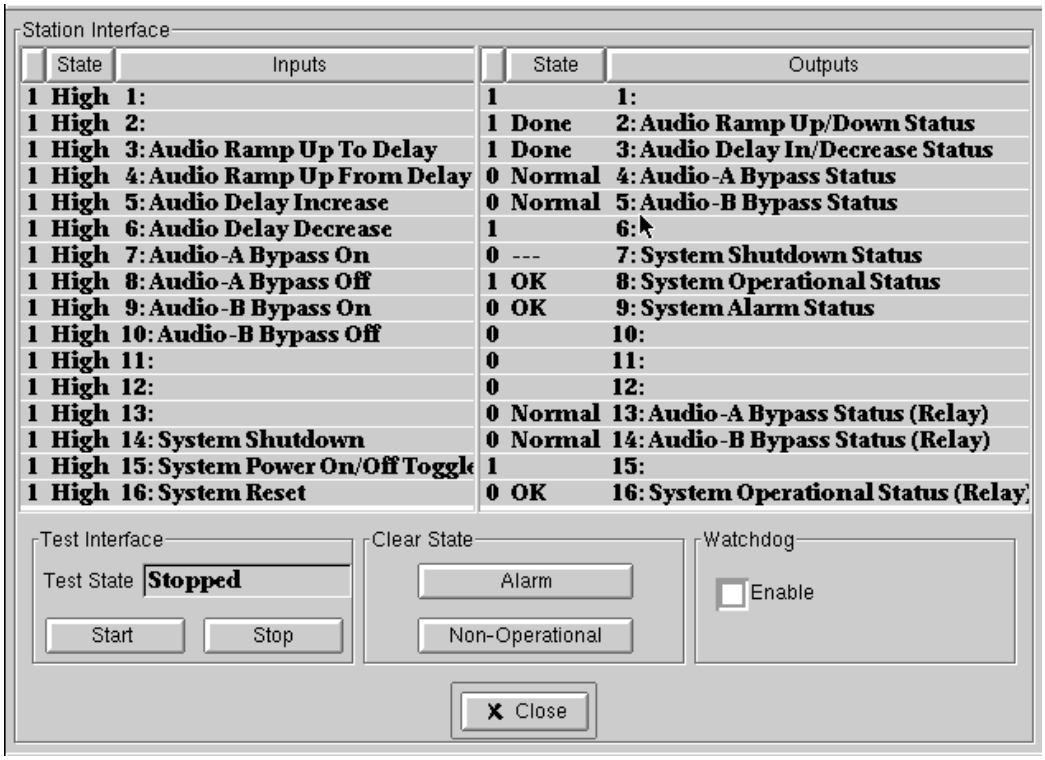


Figure 3-40: Station Interface Menu

When **Test Interface** Start is selected, the outputs will all be set to a low state, and a high state will be walked through spending a second in each state. The inputs will still be continuously monitored.

When **Test Interface** Stop is selected, the outputs will return to the values stored prior to entering test mode.

To clear any present alarms select **Clear State** Alarm.

To set the Non-operational state back to Operational select **Clear State** Non-Operational. This will place the system back into a operational state until the next error is encountered.

When **Watchdog - Enable** is selected, the Watchdog timer on the Station Interface Card (SIC) will be enabled. When enabled, the SIC will monitor the serial port, if there is no activity for 1 second the host processor is assumed to be locked up. The Audio bypass relays will be set to Bypass, the system

operational relay will be opened and the XPi 10 will be rebooted. Press Close to return to the Main Menu.

3.11.2 Station Information Schedule

The **Station Information Schedule** is displayed when selected from the Station Tab. Select the block and payload to be changed, select the payload option desired, and press OK to enter the new settings and return to the main menu.

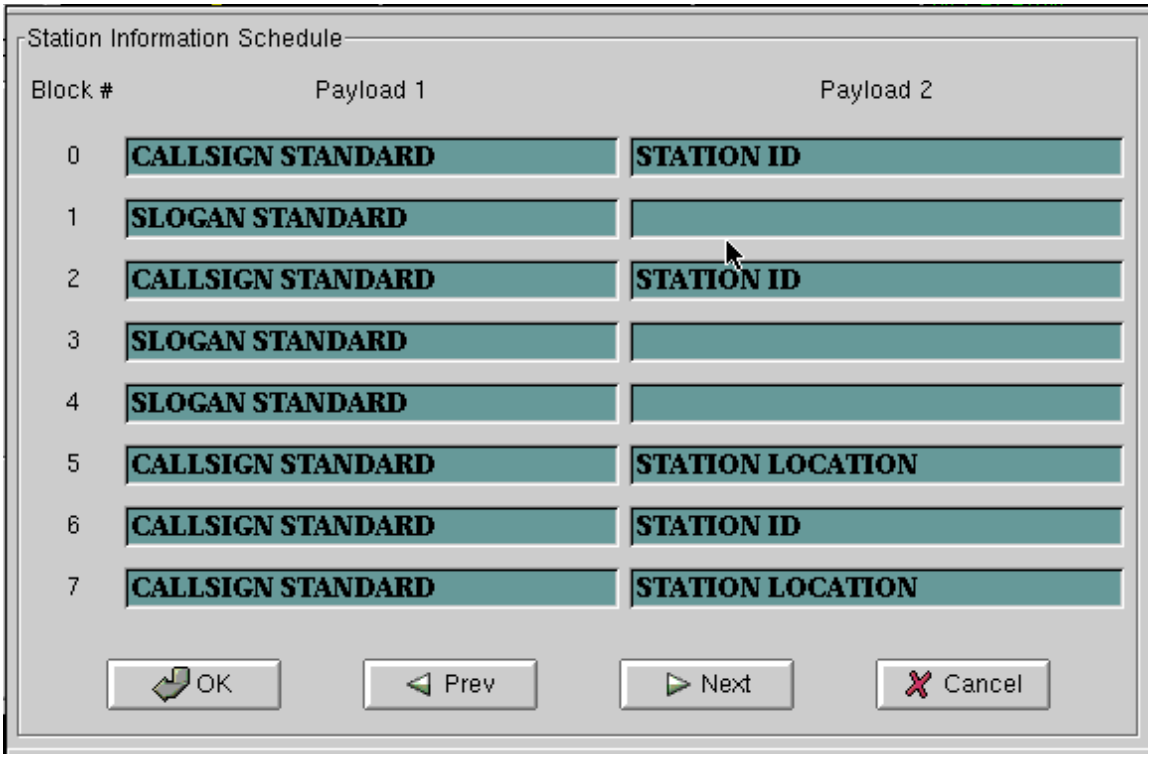


Figure 3-41: Station Information Schedule

3.11.3 Station Information

See Section 3.1.2.

3.11.4 Station Default PAD

The Station Default PAD information is displayed when selected from the **Station** Tab. This menu has four tabs: General, Comment, Commercial, and Last Message Sent. Each tab is described in turn

3.11.4.1 General Tab

Use this tab to enter the Title, Artist, Album, and Genre information by selecting the desired field and using the Alphanumeric Keyboard. To include this information as part of the PAD message make sure the "Enable" box is checked. Clearing the Enable box will exclude this information from being sent.

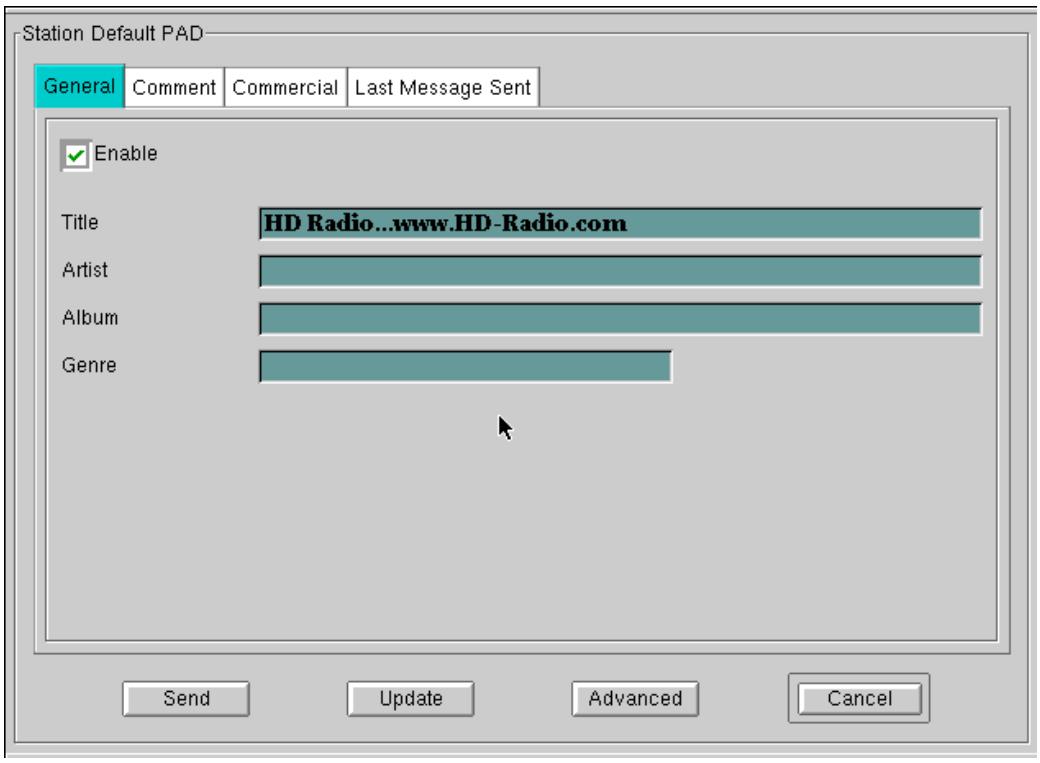


Figure 3-42: Station Default PAD

3.11.4.2 Comment Tab

Use this tab to enter the Comment **Title** and Comment **Description** information by selecting the desired field and using the Alphanumeric Keyboard. To include this information as part of the PAD message make sure the "**Enable**" box is checked. Clearing the **Enable** box will exclude this information from being sent.

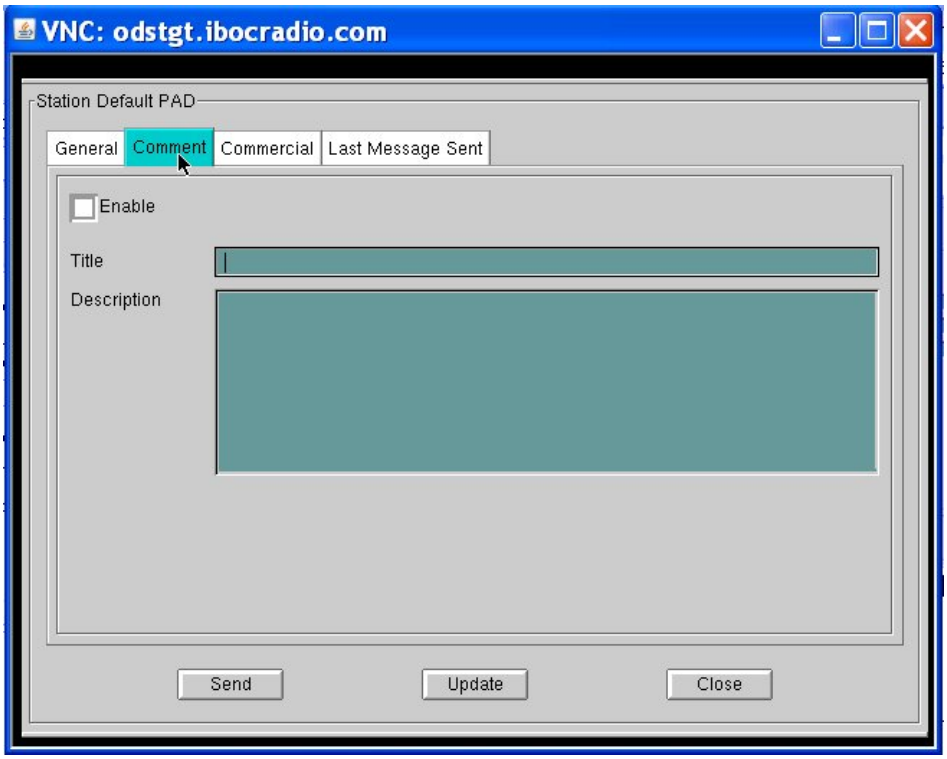


Figure 3-43: Comment Tab

3.11.4.3 Commercial Tab

Use this tab shown to enter the Commercial information by selecting the desired field and using the Alphanumeric Keyboard. To include this information as part of the PAD message make sure the "Enable" box is checked. Clearing the Enable box will exclude this information from being sent.

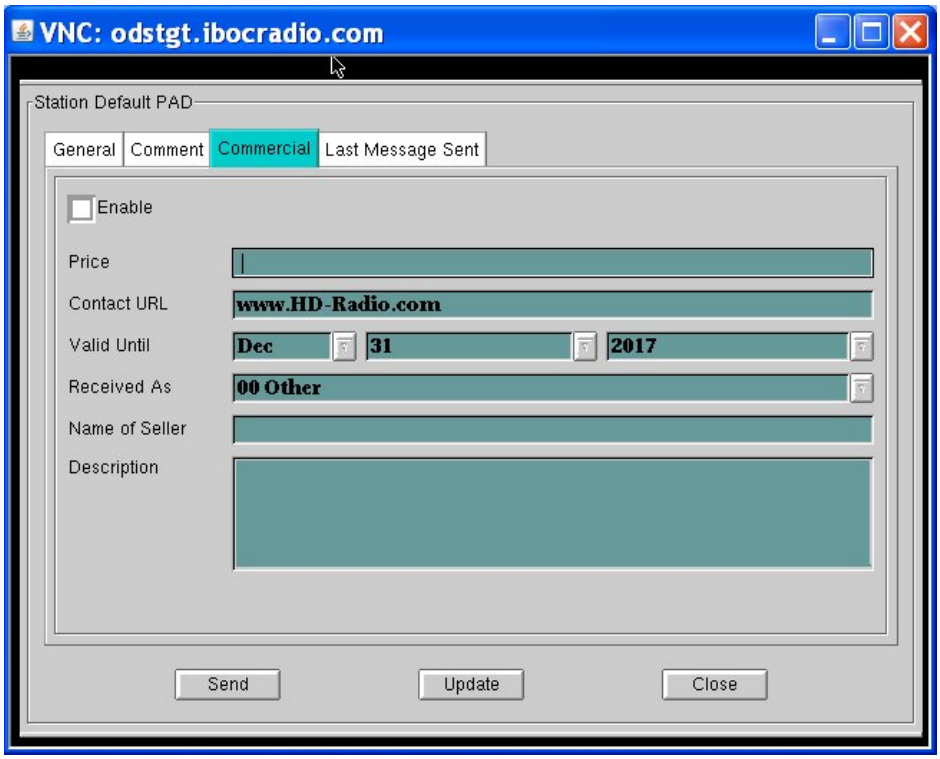


Figure 3-44: Commercial Tab

3.11.4.4 Last Message Sent Tab

Use this tab, to view the last message sent in ID3 format.

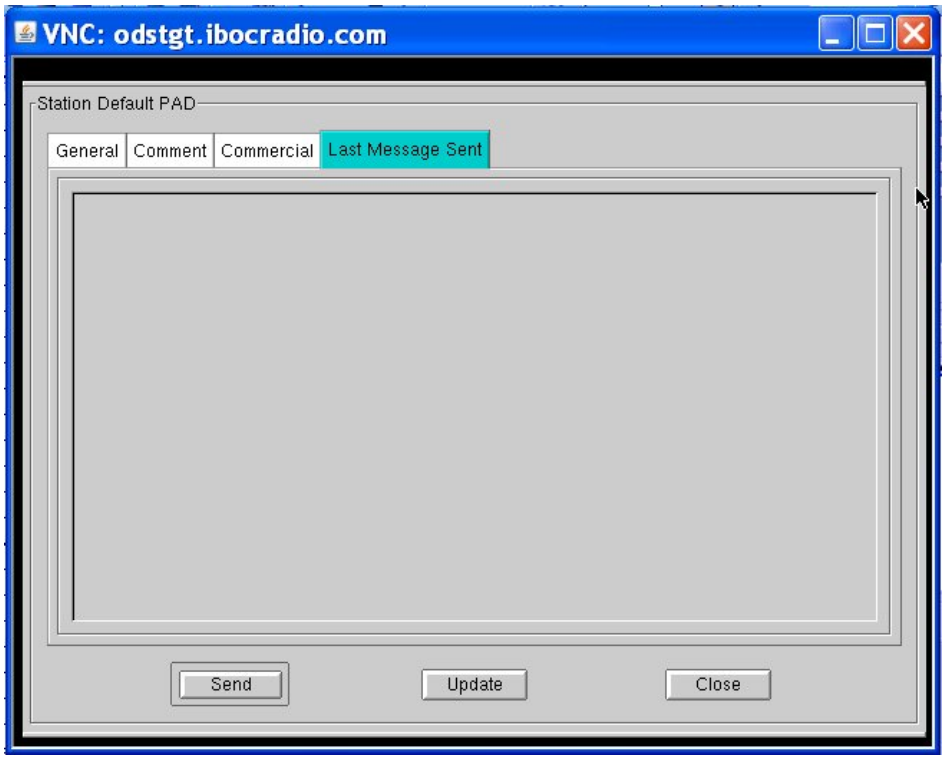


Figure 3-45: Last Message Sent Tab

3.11.4.5 Send

When pressed, the current information in the General, Comment and Commercial screens, if enabled, will be queued for transmission as indicated by the screen.

Figure 3-46: MPS PAD Transmission Message

3.11.4.6 Update

When pressed, the current information in the General, Comment, and Commercial screens is saved as part of the default configuration for that Service Mode as indicated by the acknowledgement message shown below.

Figure 3-47: MPS PAD Configuration Changed

3.11.4.7 Cancel

Use Cancel to return to the main Station screen.

3.11.5 Station Program Control

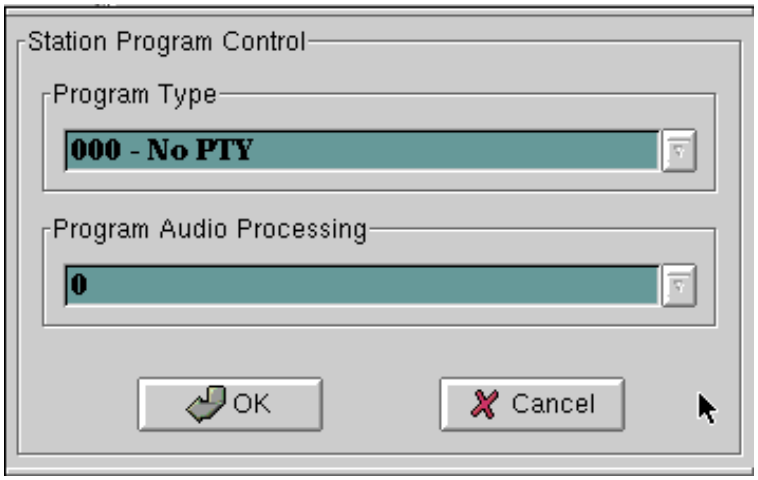


Figure 3-48: Station Program Control'

3.11.5.1 Program Type

The station's programming genre selection is displayed when Station Program Control is selected.

3.12 AUDIO Menu Set

Descriptions of control buttons displayed on the Audio Tab of this screen are provided in the following subparagraphs.

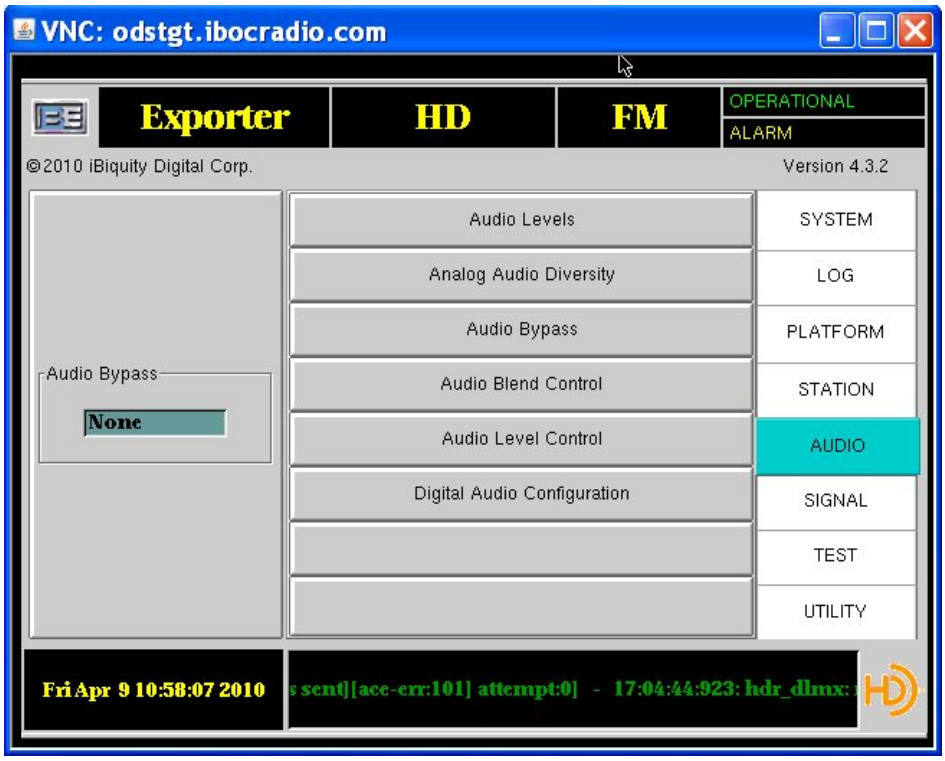


Figure 3-49: Audio Levels

3.12.1 Audio Levels

This button, if selected, will display a dynamic Audio Monitor.

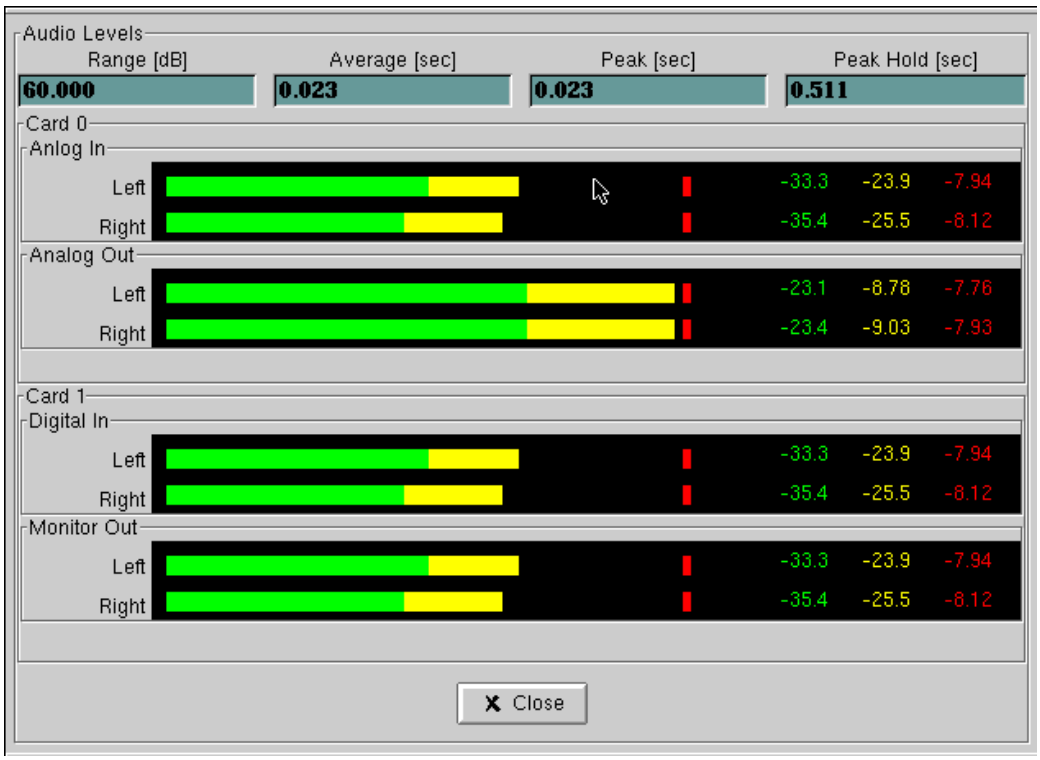


Figure 3-50: Audio Level Meter

3.12.1.1 Range (dB)

Select this option to change the Minimum value (left most value of audio bars) of the audio bargraph. To change the Range, in dB down from Full Scale, enter the new value using the number keys.

Average (sec)

Select this option to change the time over which the average of audio power is taken to be displayed as the green portion of the audio Bar graph. To change the average time, enter the new value using the number keys.

NOTE: If this number is larger than the peak and/or peak hold numbers they will be changed to equal the Average time.

3.12.1.2 Peak (sec)

Select this option to change the time over which the peak of audio power is taken to be displayed as the Yellow portion of the audio bargraph. To change the Peak time, enter the new value using the number keys.

NOTE: If this number is larger than the peak hold number it will be changed to equal the Peak time.

3.12.2 Analog Audio Diversity

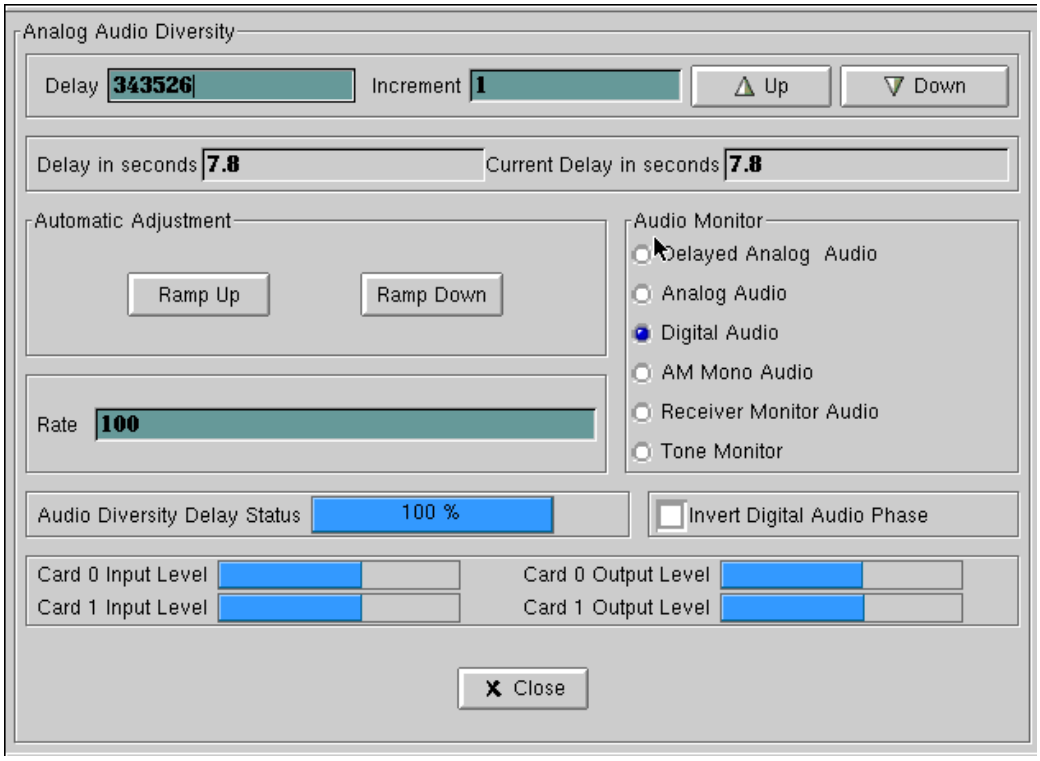


Figure 3-51: Analog Audio Diversity

3.12.2.1 Delay

The **Delay** indicator displays the number of 44.1-kHz audio samples (22.67 us/sample) analog audio is to be delayed if the Analog Audio Diversity Status is 100%.

To change the delay value, enter the desired Delay Value using the number keys. Press **Enter** to establish the new delay value and return to the Analog Audio Diversity screen.

3.12.2.2 Increment

The **Increment** indicator displays the number of 44.1-kHz audio samples the delay value is changed when the up or down arrow buttons are selected.

The **Increment** field, when selected, displays a keyboard. To change the increment value, enter the desired increment value using the number keys. Press **Enter** to establish the new increment value and return to the Analog Audio Diversity screen.

3.12.2.3 Delay in seconds

The **Delay in seconds** indicator displays the total analog audio delay when the Audio Diversity Delay Status is 100%. The factory default is 7.9 seconds.

3.12.2.4 Current Delay in seconds

The **Current Delay in seconds** indicator displays the current analog audio delay in seconds. Depending on the delay and the rate, the current value should either be equal to or converging to the delay value. The factory default is 7.9 seconds.

3.12.2.5 Automatic Adjustment - Ramp Up

Ramp Up, when selected, begins a delay increase using the rate value from 0 to the desired delay value.

3.12.2.6 Automatic Adjustment - Ramp Down

Ramp Down, when selected, begins a delay decrease using the Rate value from the present delay value to 0.

3.12.2.7 Rate

The **Rate** indicator displays the rate at which the total delay can be changed. If the rate is 0 when the delay is changed, it will be executed immediately. If the rate is 100 and the delay is changed, that change will slowly take effect: for every 100 audio samples, 1 extra sample is inserted or extracted. The higher the rate, the longer it will take to achieve the final value.

To change the Rate value, enter the desired rate using the number keys. Press **Enter** to establish the new Rate and return to the Analog Audio Diversity screen.

3.12.2.8 Audio Monitor

The Audio Monitor indicates/controls the audio stream present at the FSi 10 Monitor output. The options are:

1) Delayed Analog Audio is (same as the analog Audio out) the diversity delayed input analog audio.
2) Analog Audio is the input analog audio.
3) Digital Audio is the input digital audio.
4) AM Mono Audio (Used only on ASi 10, AM IBOC Digital Signal Generator.)
5) Receiver Monitor Audio is the digital audio encoded then decoded.
6) Tone Monitor places a 1-kHz full-scale sine wave on the monitor output.

3.12.2.9 Audio Diversity Delay Status

The Audio Diversity Delay Status indicator displays the percentage of current diversity delay.

3.12.2.10 Audio Card 0 Input Level

The Audio Card 0 Input Level indicator displays activity on the audio card 0 input path.

3.12.2.11 Audio Card 0 Output Level

The Audio Card 0 Output Level indicator displays activity on the audio card 0 output path.

3.12.2.12 Audio Card 1 Input Level

The Audio Card 1 Input Level indicator displays activity on the audio card 1 input path.

3.12.2.13 Audio Card 1 Output Level

The Audio Card 1 Output Level indicator displays activity on the audio card 1 output path.

3.12.3 Audio Bypass

See Section 3.5.

3.12.4 Audio Blend Control

The Exciter can transmit a control bit to the receiver that indicates not to blend between analog and digital. This could be used in cases of different audio content or non-time alignment. When this bit is set it is up to the receiver to determine which audio stream is used.

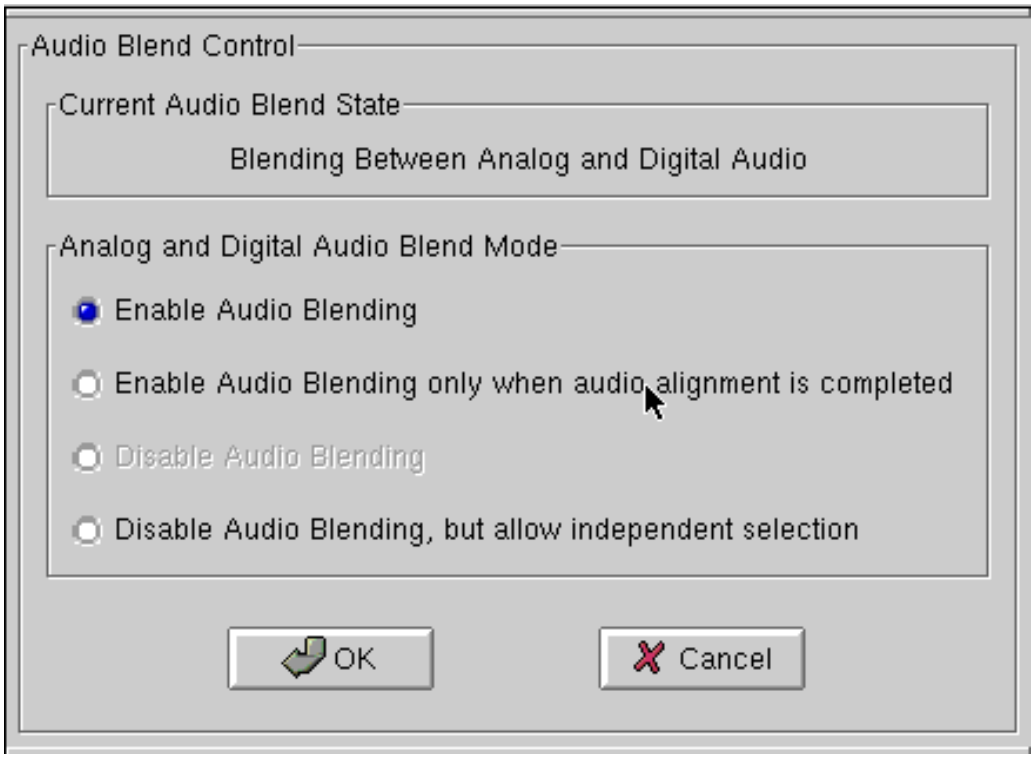


Figure 3-52: Audio Blend Control

If the **Enable Automatic Blending** Control is selected, blending will occur regardless of the mode or the state of the diversity delay.

If **Enable Audio Blending, Except During Audio Alignment** is selected, blending will automatically be disabled when diversity delay is either being applied or removed.

Disable Audio Blending allows the blending to be disabled for certain service modes.

Disable Audio Blending, But Allow Independent Selection is used when different program material is being transmitted on the digital or analog channels.

3.12.5 Audio Level Control

After the HD system is completely installed, it may be necessary to adjust the Audio Level Control in the XPi 10 to ensure that the Analog and HD signal levels are approximately the same. This is important so when a receiver goes from the Analog signal to the HD signal (or vice versa) the volume level to the listeners is the same.

Step 1 - On a HD Receiver tune to the broadcast signal of the transmitter. The HD receiver first will go to the analog signal and then to the HD signal. Listen for this change and adjust the Audio Level control until the volume level is approximately the same for both signals.

Step 2 - Select AUDIO, then Audio Level Control.

Step 3 - The default is **0**. The range for this setting is (-8 to +7dB).
If the HD signal level is lower than the Analog, increase this value select **Apply**, then **Enter**.
If the HD signal level is higher than the Analog, decrease this value select **Apply**, then **Enter**.
Make small adjustments in either direction and listen to the affect on the HD receiver.

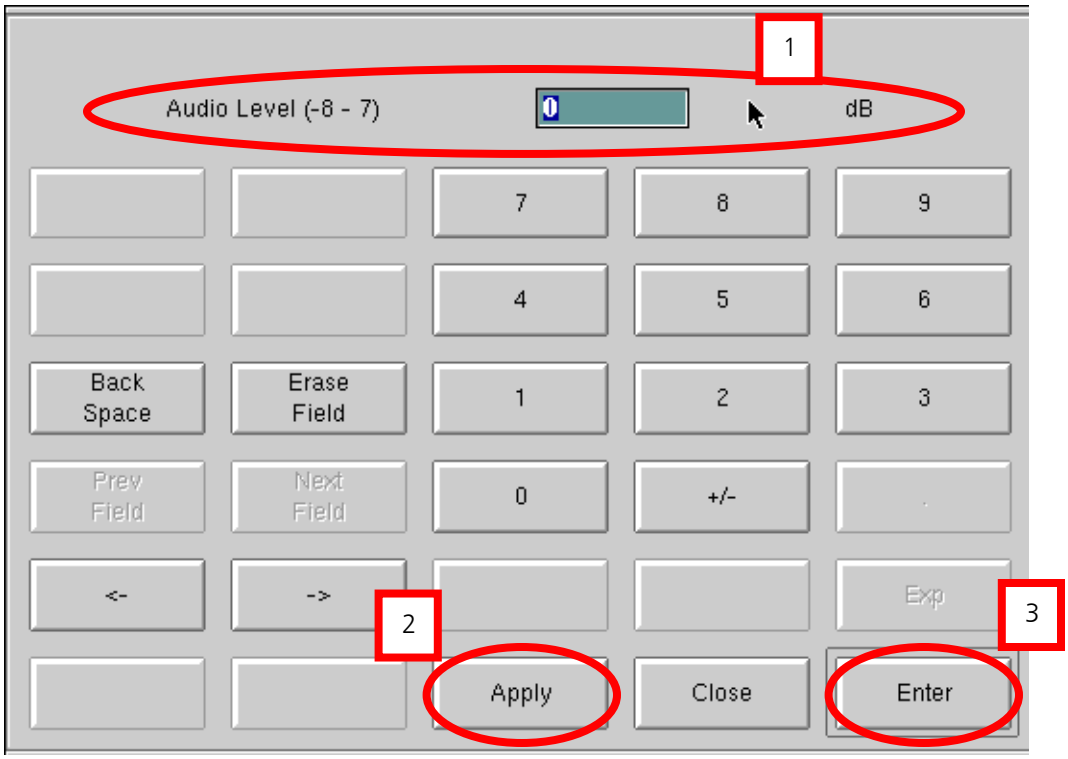


Figure 3-53: Audio Level Control

Step 4 – Repeat process until the HD and Analog signal levels are the same.

3.13 UTILITY Menu Set

Descriptions of control buttons displayed on the **UTILITY** menu set are provided in the following subparagraphs.

Figure 3-54: Utility Menu Set

3.13.1 Screen Resize

The Resize window allows the user to change the dimensions of the display.

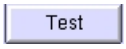
3.13.1.1 Width Value

This displays the present value of the screen width. This can be raised or lowered using the + or – buttons.

3.13.1.2 Height Value

This displays the present value of the screen height. This can be raised or lowered using the + or – buttons.

3.13.1.3 Test Menu



When selected, **Test** will display a test window. Verify that the entire border is visible and select **OK** when complete.

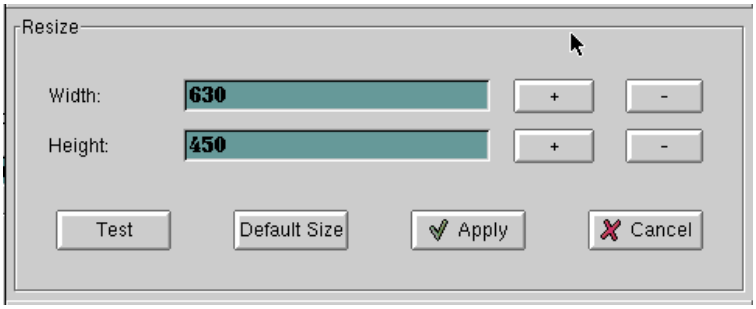


Figure 3-55: Screen Resize

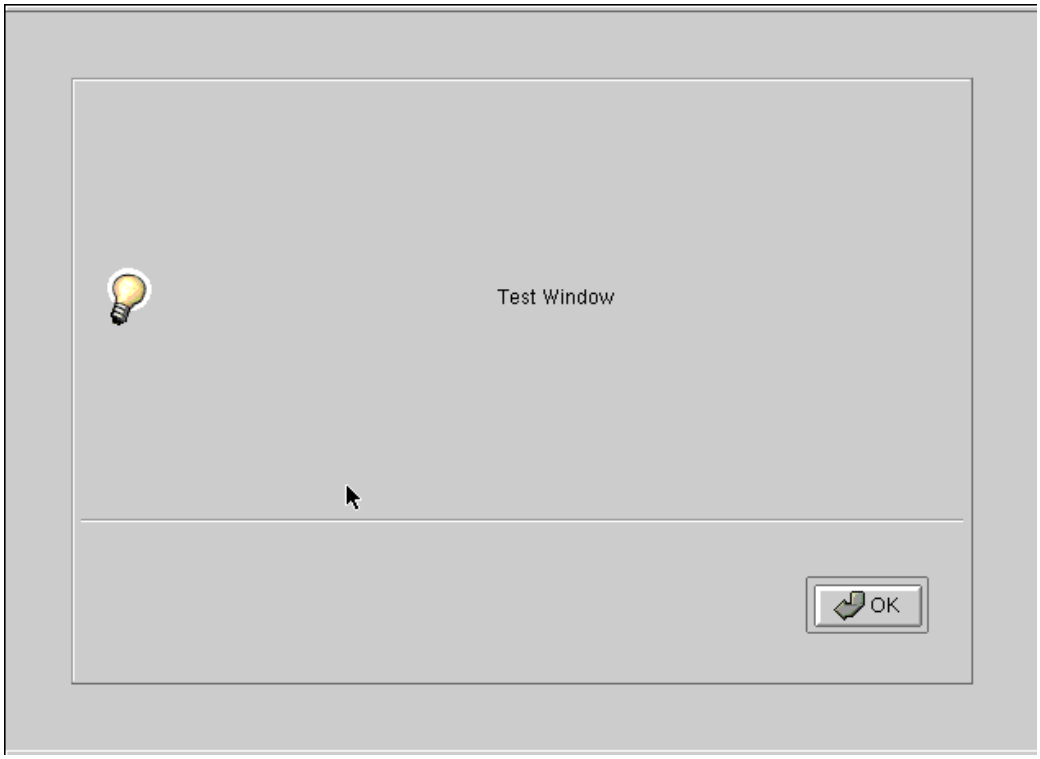


Figure 3-56: Test Window

3.13.1.4 Default Size

When selected, both the height and the width values will be reset to default settings.

3.13.1.5 Apply

When selected, the user will be prompted to reboot the system to make use of the new screen settings. Selecting Yes will proceed with the reboot and NO will cancel the action and return to the Exciter Main screen.

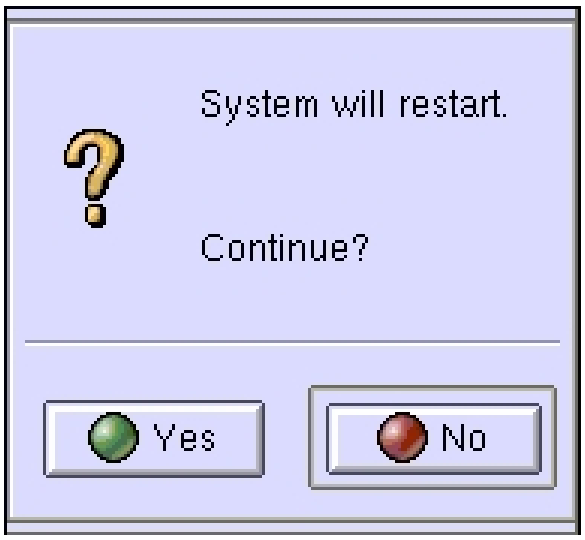


Figure 3-57: Reboot

3.13.1.6 Cancel

When selected, the user will be returned to the Exciter Main screen.

3.14 Fonts

Descriptions of control buttons displayed on the **FONTS** menu set are provided in the following subparagraphs.

Figure 3-58: System Fonts

The upper section if selected allows the user to select the font used on all small data presentation areas. The lower section if selected allows the user to select the font used on all large data presentation areas.

The Font Selection Menu is displayed when either of the upper or lower sections are selected and password entered.

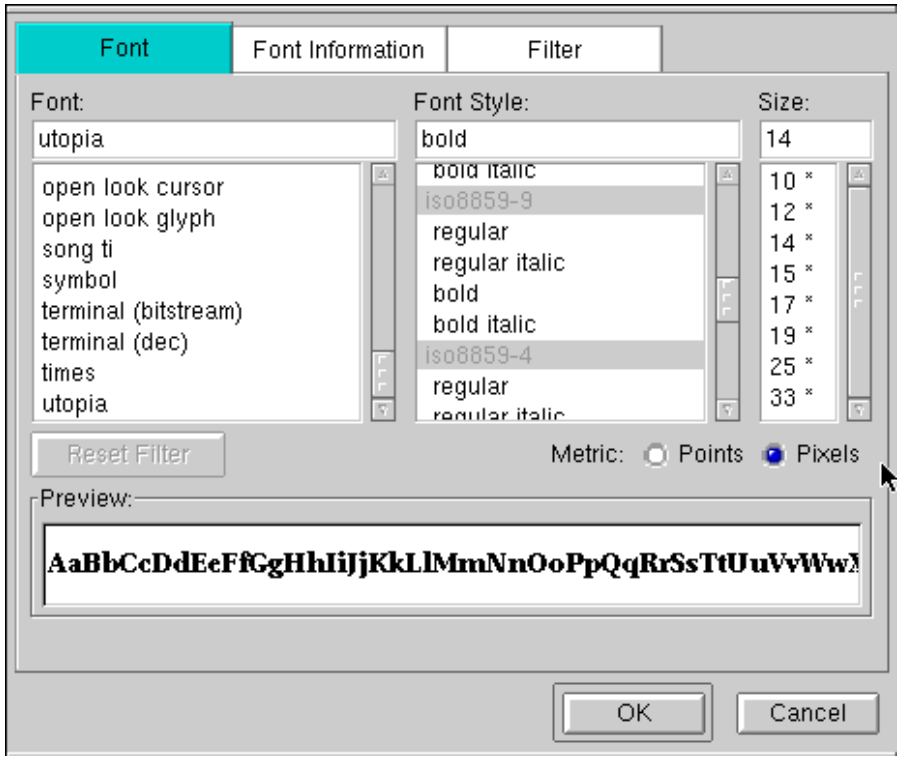


Figure 3-59: Font Selection Menu

3.14.1 Virtual Chat

The Virtual Chat menu allows direct communication between 2 users logged in to the same exciter. If a user is at the exciter and a second user has logged in remotely, they can communicate directly using Virtual Chat. By entering the information to be sent in the bottom window and pressing Send the message will be relayed to the other user. All communications will be displayed in the upper window.

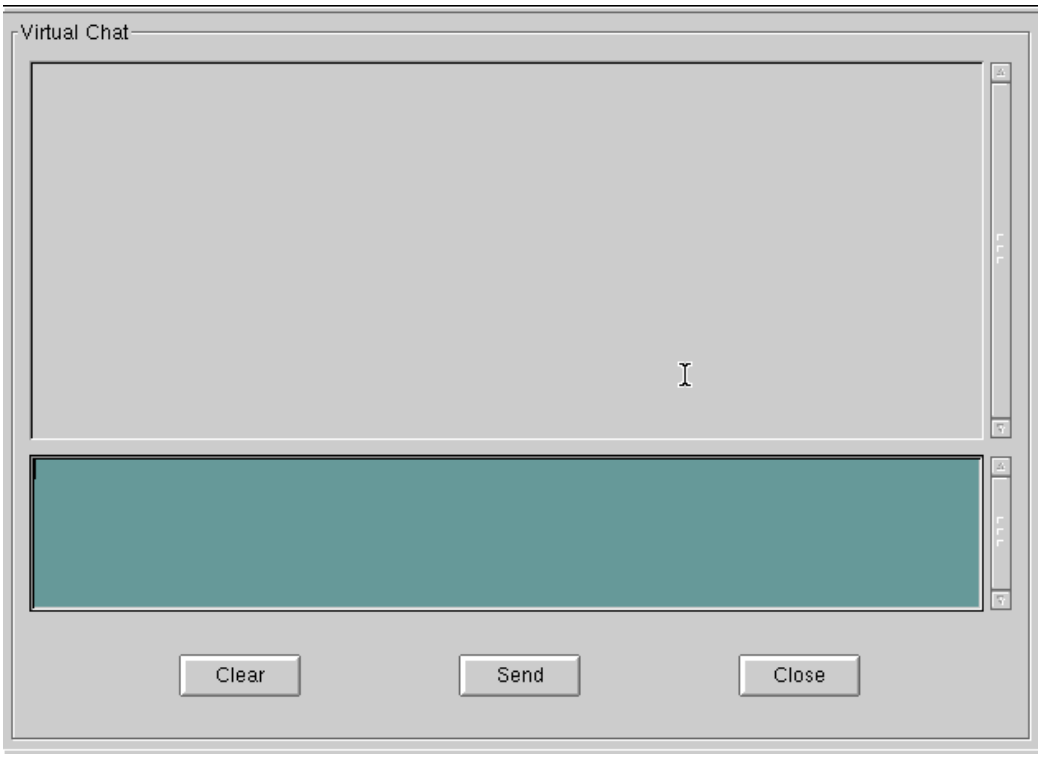


Figure 3-60: Virtual Chat Menu

3.14.2 Up Time

The Up Time menu displays information about the length of time the exciter has been operational. Two columns are displayed: **Calendar Time** and **Elapsed Time**. Calendar Time represents the date and time the last event occurred. The Elapsed Time displays the total time in years, days, minutes, and seconds from the last event.

The events displayed are:

OS Start – The last time the OS was restarted.

System Start – The last time the application was started.

Last System Shut-down – The last time the system was shutdown.

Last System Error – The last time a warning or system error occurred.

Last System Warning – The last time of a system warning.

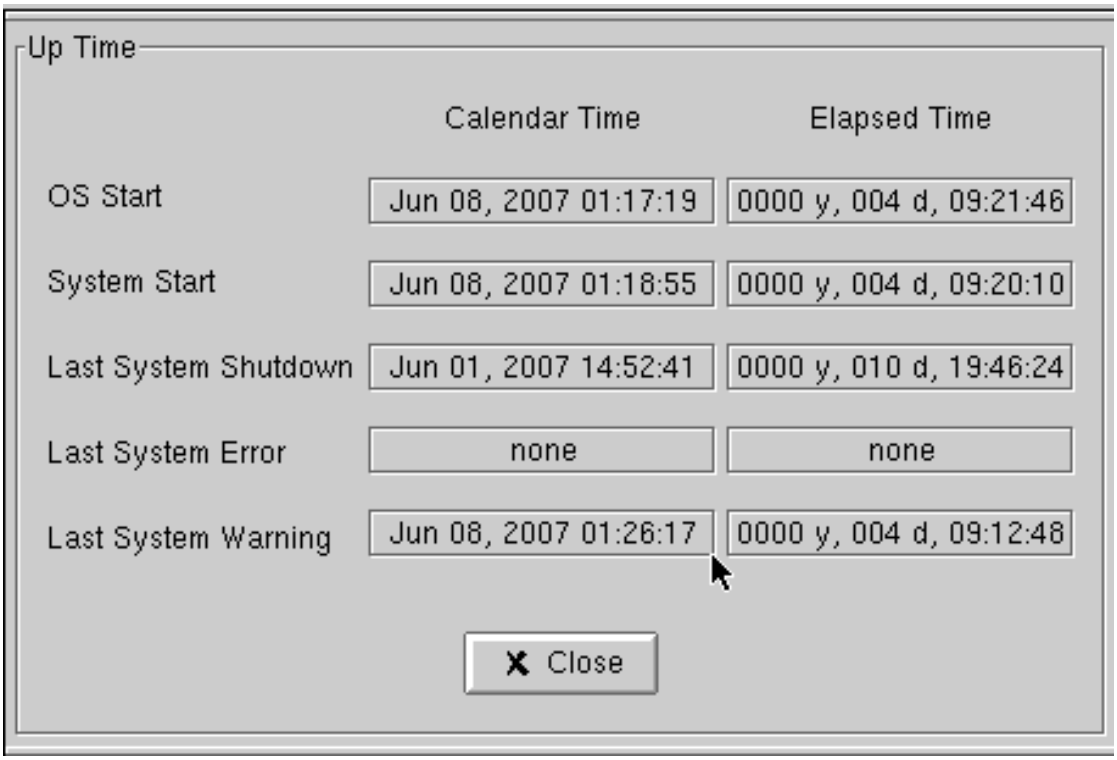


Figure 3-61: Up Time

4 Operating Procedures

4.1 Startup

Note: A mouse and keyboard must be connected before boot-up to do any editing such as Ethernet IP Address setup, etc.

The FSi 10 will start up on its own after power is applied and the power switch is on. After a boot-up period the main screen GUI will appear.

Once the unit has indicated that it is OPERATIONAL, clear any alarms that may be present.

4.2 Shutdown

Select **Shutdown** from the System menu set.

If power is to be removed, select **Shutdown** and press **OK**. This will halt the OS. Wait until the display indicates "power down" before turning Off the XPi 10 with the switch on the back of the unit.

If the OS is to be restarted, select **OS Restart** and press **OK**. The system will reboot back to the default program.

If the application is to be exited and restarted, select **Restart** and press **OK** to exit and rerun the program.

4.3 Audio Diversity Blend Delay Adjustment

On a calibrated iBiquity, Test Receiver, set the **Audio Mode** to **Split Analog/Digital**. If a calibrated test receiver is not available, use a standard HD radio receiver and switch between **Analog** and **Digital** to monitor the transmission time difference between the two.

On the XPi 10:

1. Select **Analog Audio Diversity**, from the Main Screen Audio Menu set.

2. Set Delay to 347281. This is the delay that synchronizes audio in a BE system with no processors using the iBiquity, Test Receiver and no processing delay. Your system may require a different delay when measured using a commercial receiver, which should be your standard.

3. Set **Increment** to 1000

4. Set **Rate** to 0.

5. Monitor the audio from the receiver while using the up/down arrow keys until proper alignment of the digital and analog audio streams is achieved. They are aligned when you can no longer notice a time delay difference between analog and digital receive modes. Close all adjustment windows and the values will be saved for subsequent startup. Be sure to put the **Rate** back to 100.

4.4 Remote GUI Control

When the XPi 10 operating system is running, control can be remotely established using a standard web browser such as Internet Explorer. A network connection to the XPi must be established either by Ethernet or modem.

4.5 Network Setup for the XPi 10

Using an external keyboard is recommended. A mouse and keyboard must be connected before boot-up to do any editing such as Ethernet IP Address setup, etc.

Step 1 – The System Command menu is displayed when Command selected and password entered.

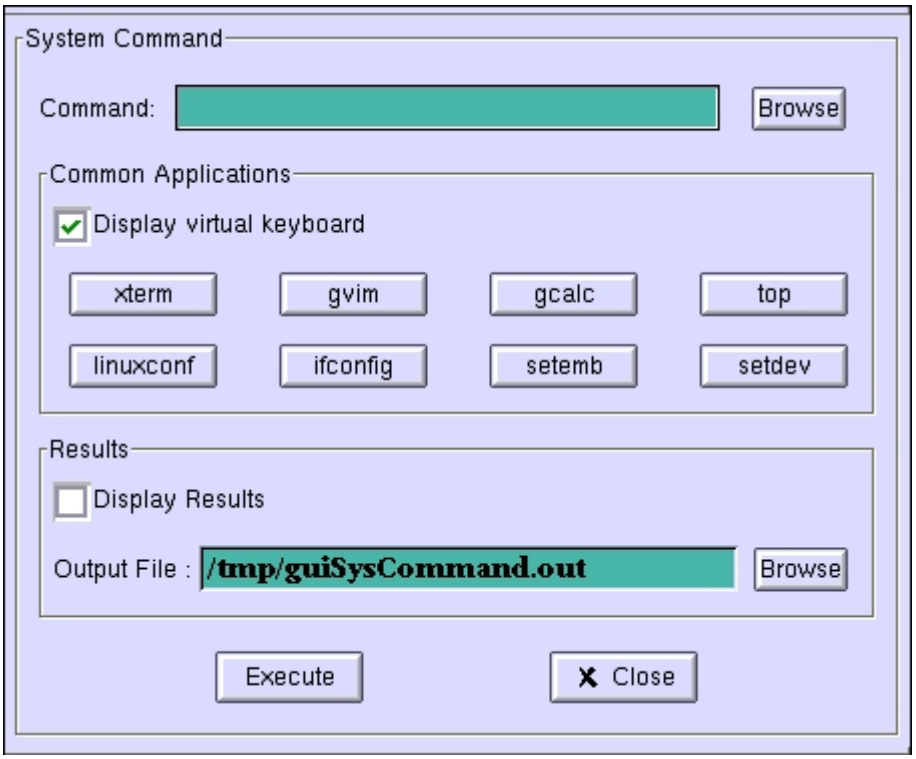


Figure 4-1: System Command

Step 2 – Press linuxconf. The following screen will open.

Figure 4-2: Networking

Step 3 – Press **Enter** on the keyboard. The following screen will open.

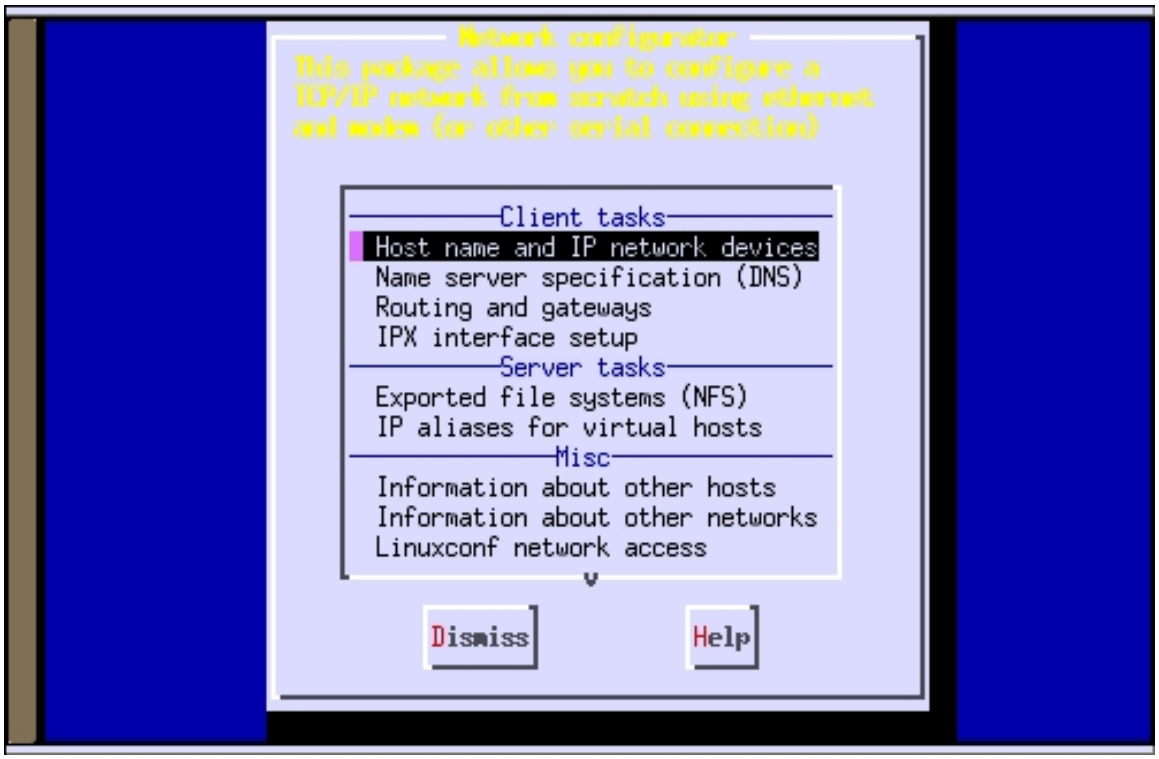


Figure 4-3: Host Name and IP Network Devices

Step 4 – Press **Enter** on the keyboard. The following screen will open.

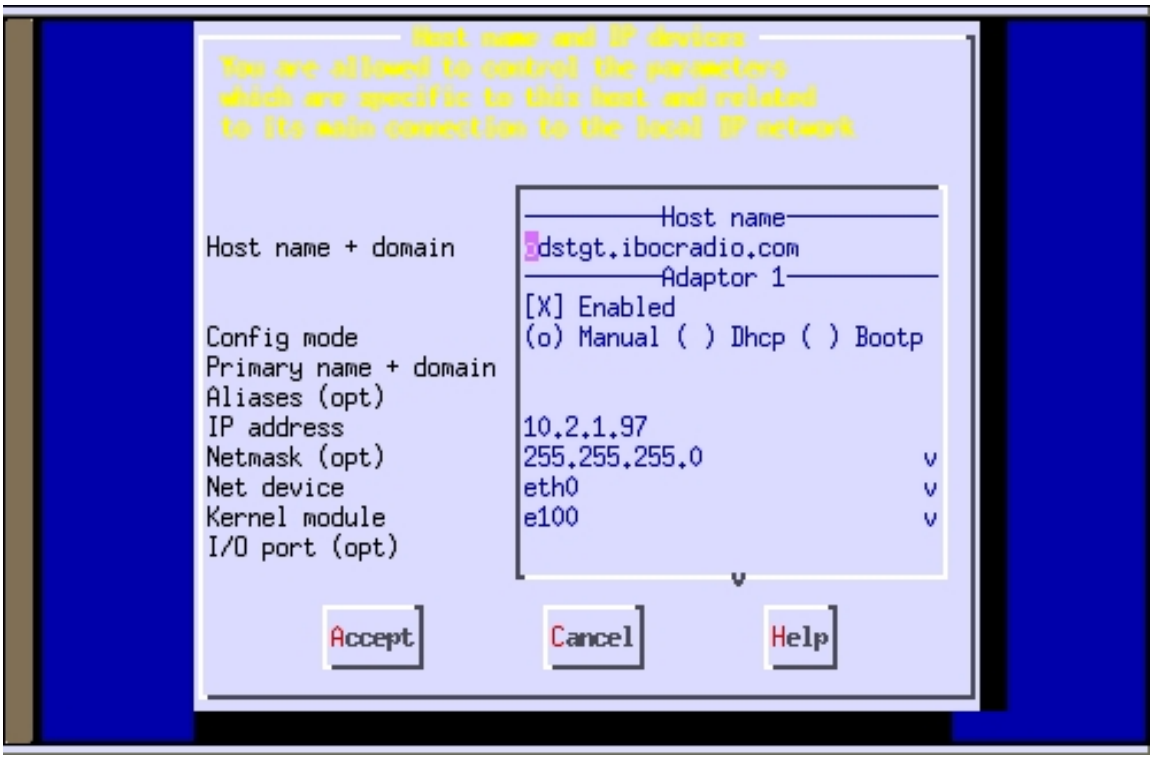


Figure 4-4: IP Setup

Step 5 – Arrow down on the keyboard to the IP Address and type in the IP Address to be assigned to this unit.

Step 6 – Press **TAB** to **Accept** and then **Enter** on the keyboard. The following screen will open.

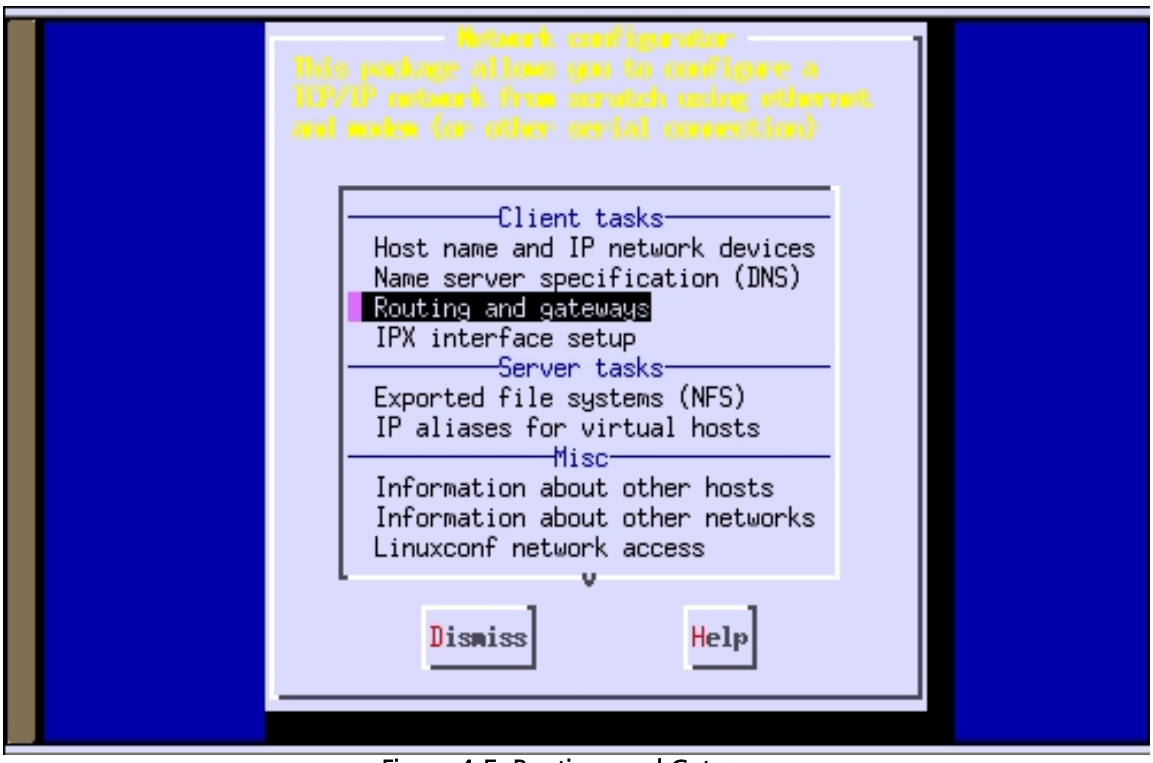


Figure 4-5: Routings and Gateway

Step 7 – If "Routing and Gateways" setup is not necessary for your particular system setup…

Press **TAB** to **Accept**, then **Enter** on the keyboard.

Press **TAB** to **Dismiss**, then **Enter** on the keyboard.

Press **TAB** to **Quit**, then **Enter** on the keyboard.

Press **TAB** twice to highlight **Do It**, then **Enter** on the keyboard.

The Command window should now be displayed.

This completes the Network setup for the XPi 10.

Note: Continue with **Step 8, "Routing and Gateways" selection only if applicable to your particular system setup.**

Step 8 – Arrow down to Routing and Gateways.

.

Step 9 – Press **Enter**. The following screen will open.

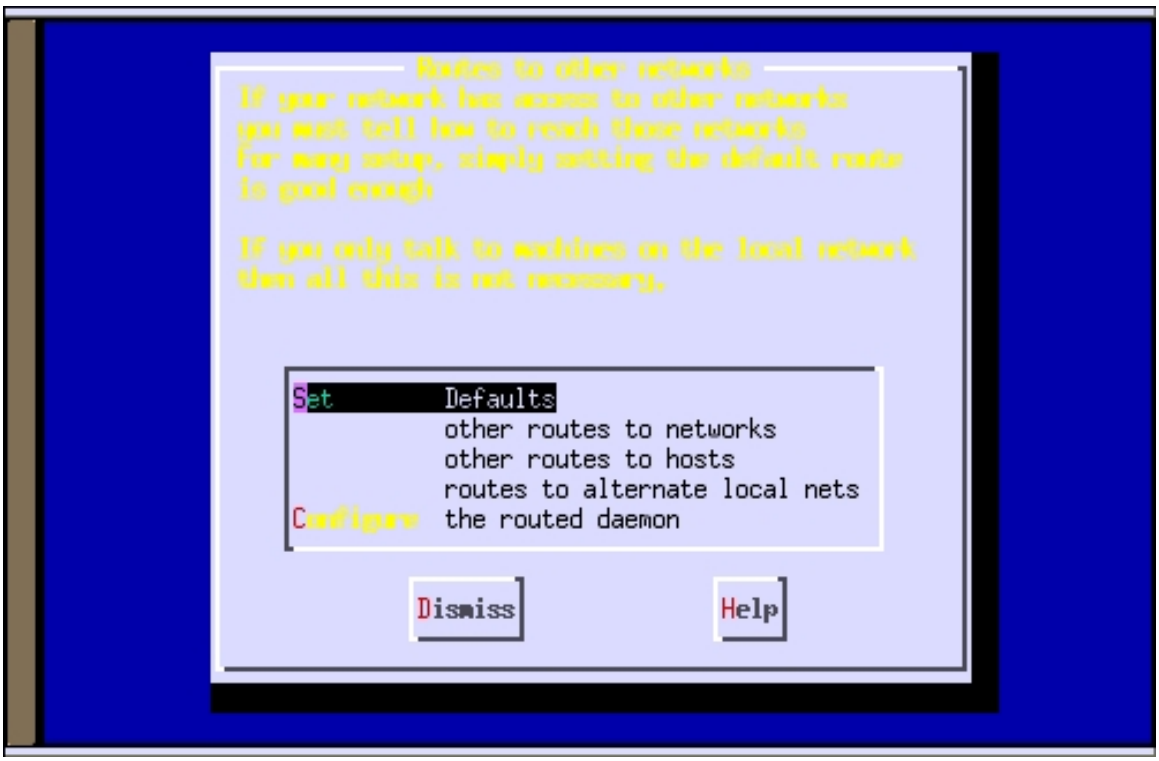


Figure 4-6: Routings and Gateways

Step 10 – Press **Enter** on the keyboard. The following screen will open.

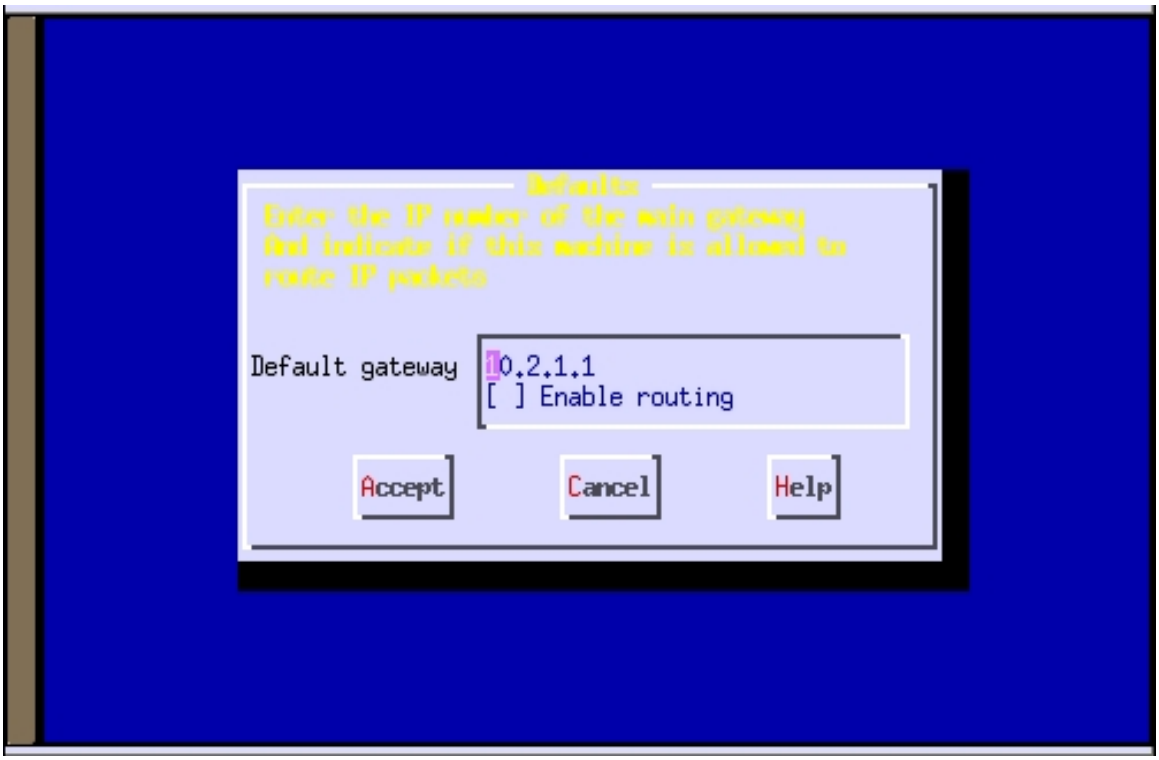


Figure 4-7: Default Gateway

Step 11 – Type in the Default Gateway.

Step 12 – Press Tab to Accept.

Figure 4-8: Execute

Step 13 – Press **Tab** twice to highlight **Do It**. Press **Enter**.

Step 14 – The Command window should now be displayed. This completes the Network setup for the XPi 10.

4.6 Remote Communication with the XPi 10 via IP

Step 1 – After a network connection is established, type the IP address or machine name in the Address field of a web browser.

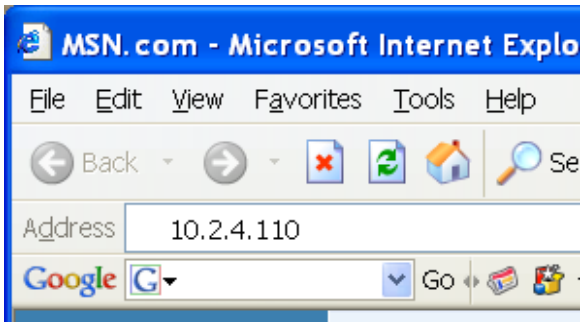


Figure 4-9: Enter IP Address

Step 2 – The VNC Authentication screen will then be displayed. Select **OK**.

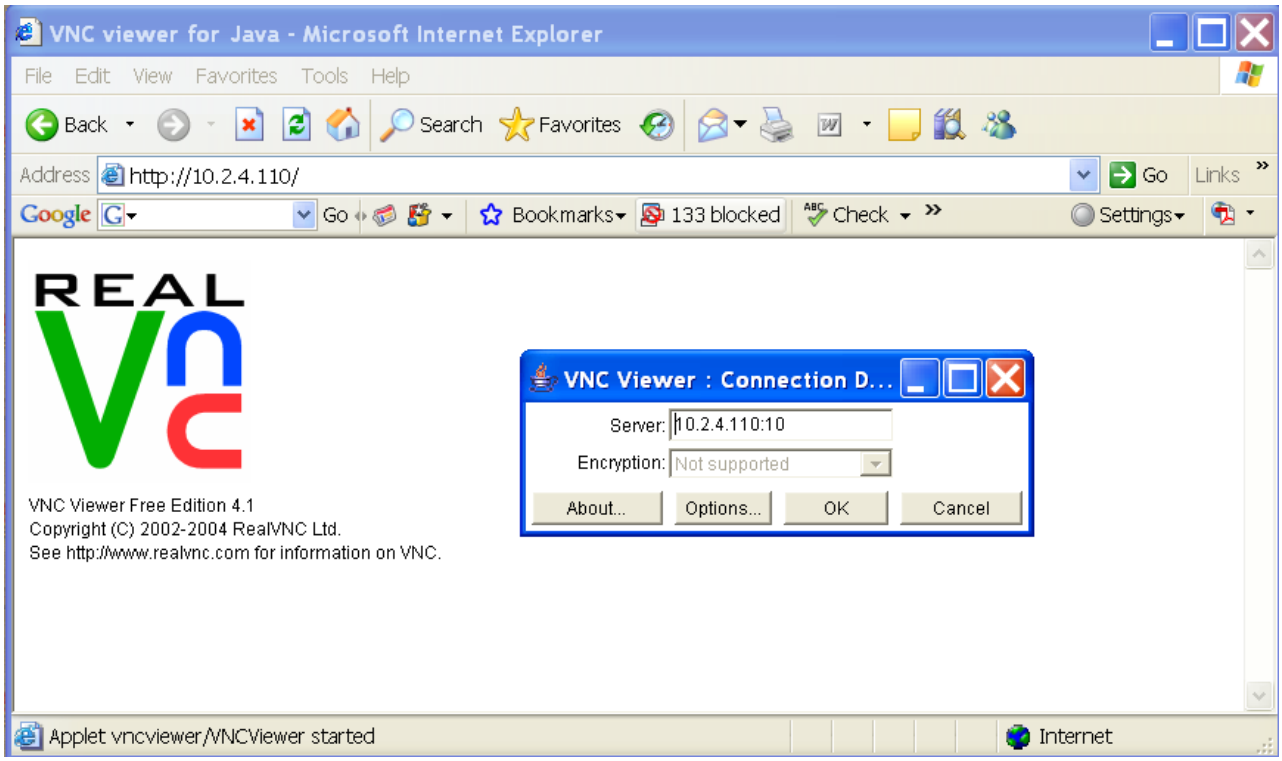


Figure 4-10: VNC Viewer Login

Step 3 – Enter the password (factory default is "**password**").

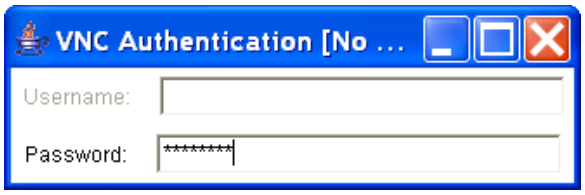


Figure 4-11: VNC Password

Step 4 – The remote GUI should now be displayed. The XPi 10 may now be controlled from a remote location without limitation just as if you were at the unit.

Note: Any number of connections to the same XPi 10 is permitted (i.e. there is no lock-out for Multiple users).

Figure 4-12: Remote XPi 10 GUI

4.7 Remote Communication via Telco Dialup

The same remote Ethernet VNC capabilities are available via modem connection. Perform the following procedures to access the XPi 10 via dialup connection.

Step 1 – On standard PC with Windows 95, 98, 2000, NT, or XP OS, set up a Dial-up Networking (DUN) account using the Windows OS Dial-up Networking Wizard.

Step 2 – Connect the XPi 10, Telco modem input jack to an analog phone line.

Step 3 – Connect the Windows PC modem to another analog, phone line.

Step 4 – From the Windows PC, use the newly created DUN account to dial into the XPi 10.

Step 5 – Once the connection is established, use a web browser and type http://10.0.0.1 in the address field. The VNC Authentication screen should now be displayed.

Note: A mouse and keyboard must be connected before boot-up to do any editing such as Ethernet IP Address setup, Telco Dialup, etc.

Note: Once the DUN connection is made, any TCP/IP-based client application can be run on the Windows PC to interact with the XPi 10 (e.g. telnet, ftp, Exceed, ssh, etc.).

Note: The DUN connection assigns IP addresses to both the XPi 10 and Windows PC. The IP address assigned to the XPi is 10.0.0.1 and the IP address assigned to the Windows host is 10.0.0.2.

5 Software Upgrades

The latest versions of software for the **XPi 10 Exporter**, **FXi 60/250 Exciter Controller**, and **Exgine Card** are available from the Broadcast Electronics Customer Service website under the Registered User Login section here: http://www.bdcast.com/support/rf-technical-services/

5.1 Software Upgrade Documentation

The latest **XPi 10 Exporter**, **FXi 60/250 Exciter Controller**, and **Exgine Card** software upgrade instructions are also available on the Broadcast Electronics Customer Service website at www.bdcast.com under the **"Support"** tab, then **"Application Guides."**

5.2 Upgrading XPi 10 Exporter Software

Application Guide **597-0542-005** provides detailed instructions for upgrading software in the **XPi 10 Exporter**.

http://www.bdcast.com/support/rf-technical-services/xpi-10-sw-upgrade-application-guide

5.3 Upgrading FXi 60/250 Exciter Controller Software

Application Guide **597-0541-005** provides detailed instructions for upgrading **Controller Board** software in the **FXi 60/250 Exciter**.

http://www.bdcast.com/support/rf-technical-services/fxi-60-250-software-upgrade-application-guide

5.4 Upgrading FXi 60/250 Exgine Card Software

Application Guide **597-0541-006** provides detailed instructions for upgrading **Exgine Card** software in the **FXi 60/250 Exciter**.

http://www.bdcast.com/support/rf-technical-services/exgine-card-for-fxi-60-250-fw-upgrade-application-guide

6 Maintenance

6.1 Air Filter Cleaning / Replacement

To ensure adequate airflow in the XPi 10, it is necessary to clean or replace the external air filter at least once a year.

7 Abbreviations and Acronyms

AES/EBU	Audio Engineers Society / European Broadcast Union
ALFN	Absolute L1 Frame Number
AM	Amplitude Modulation
BER	Bit Error Rate
CD	Compact Disk
CD/ROM	CD/Read Only Memory
DUN	Dial-Up Networking
FCC	Federal Communications Commission
FM	Frequency Modulation
GEL	Gateway to Exciter Link – Exciter = FSi 10
GPS	Global Positioning System
GUI	Graphical User Interface
IBOC	In-Band On-Channel
L1	Layer 1
MF	Medium Frequency
MPA	Main Program Audio
MP1–MP7	Primary Service Modes 1 through 7
MS1–MS4	Secondary Service Modes 1 through 4
PAC	Perceptual Audio Coder
PAR	Peak-to-Average Ratio
RF	Radio Frequency
RLS	Radio Link Service
SIS	Station Identification Service
VHF	Very High Frequency

8 RF TECHNICAL SERVICES CONTACT INFORMATION

RF Technical Service -

Telephone: **(217) 224-9617**
E-Mail: **rfservice@bdcast.com**
Fax: **(217) 224-6528**
web**:** **www.bdcast.com**

9 PARTS LIST

This section provides parts lists for the XPi 10 HD Radio Signal Exporter. The parts lists provide descriptions and part numbers of electrical components, assemblies, and selected mechanical parts required for maintenance. Each parts list entry in this section is indexed by reference designators appearing on the applicable schematic diagrams.

This bill of material uses an indented structure to show relationships of parts into sub assemblies. Example; all BOM LEVEL 2 parts are contained in the BOM LEVEL 1 part immediately above it.

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
0	909-6027-MB3	XPi-10,HD,EXPORTER,DSG,MB3		
..1	229-8085-003	IC,CPU,P4,3.0GHz FSB,FSi/ASi/XPi	1	
..1	380-0310	FAN,12v,150 CFM	1	
..1	380-4831	FAN,CPU COOLER & HEATSINK,INTEL P4	1	
..1	400-1725	STRIP,QUIET SHIELD,17.25x.394	2	
..1	401-0015	MTG,ADH BACK,SMS-A-15-PANDUIT	1	
..1	402-0000	TY-RAP	18	
..1	402-0006	MT,ADH BACKED,FOR CBL TIES	5	
..1	402-0008	MTG DEVICE,FOR #6SCR,TIE CBL	7	
..1	402-0047	TY-WRAP, 14.6 LOOP, 40LBS, BLACK	1	
..1	402-0051	TY-RAP, W/FLAG	8	
..1	403-0008	BUMPER, RUBBER, RECESS STYLE, 11/32 TALL"	3	
..1	407-0176	FILTER, AIR, ELECTROMAZE ESF 5.500 X 8.500 X .25	1	
..1	409-5500	CARD GUIDE,BIVAR VERT-O-GUIDE VG3-6	1	
..1	410-0101-001	DISPLAY, COLOR LCD, FLAT PANEL, TOUCH SCREEN,XPi/ASi/FSi DSG	1	
..1	417-0017	RECP,BNC,BULKHEAD,UG-492A/U	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	420-0817	ASSY,FEMALE SCREWLOCK 205817-1	3	
..1	420-2104	SCREW,2-56X.250,S.S. PH SC	8	
..1	420-2704	SCREW,M2 X 4,PHILLIPS PAN HEAD,SS	4	
..1	420-3710	SCREW,M3 X 10,PHILLIPS PAN HEAD,SS	18	
..1	420-4103	SCREW,4-40X.187,S.S. PH	6	
..1	420-4105	SCREW,4-40X.312,S.S. PH	4	
..1	420-6002	SCREW,6-32X.437,S.S. PH FH UC	1	
..1	420-6112	SCREW,6-32X.750,S.S. PH	1	
..1	420-6514	SCREW,6-32X.875,S.S. PH FH	4	
..1	420-6605	SCREW,6-32X.312,S.S. PH FH UC	13	
..1	421-0102	10-32 KEP NUT	1	
..1	421-4008	4-40 KEP NUT	17	
..1	421-6005	6-32 ELASTIC STOP HEX NUT	5	
..1	421-6011	6-32 S.S. HEX THICK NUT	1	
..1	421-8028	NUT,JAM,1/2-28 UNEF-2B	6	
..1	422-6106	SCREW,SEMS 6-32 X 3/8 PAN PH. ST."	75	
..1	422-6107	SCREW,SEMS 6-32 X 7/16 PAN PH.ST."	12	
..1	423-2002	#2 LOCK SPLIT	20	
..1	423-4002	#4 LOCK S.S. SPLIT	24	
..1	423-6006	#6 FLAT, 0.75 O.D, 0.140 I.D., 0.062 THK, SST	4	
..1	423-6011	#6 FLAT .310 X .160 X .030	4	
..1	423-9002	WASH,INT TOOTH,1/2	6	
..1	441-0000	STOFF, #2-56 X .25 L, 5/32 HEX, MF, SST"	4	
..1	441-5402	STOFF,#4-40 ALUM 3/16HEX X 3/4"LONG"	6	
..1	453-0027	BRKT, SERIAL CARD, FSI-10	1	
..1	471-5333	ANGLE,FRONT PANEL MOUNT,DTC EXCITER	2	
..1	471-5336-100	PANEL,FRONT,NEW PCB,DIGITAL SIGNAL GENERATOR	1	
..1	471-5337-200	CHASSIS,NEW,DIGITAL SIGNAL GENERATOR	1	
..1	471-5338-001	PANEL,REAR,DIGITAL SIGNAL GENERATOR,FSi10/XPi10	1	
....2	471-5338-009	PANEL,REAR,DIGITAL SIGNAL GENERATOR,UNSCREENED	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	471-5339-200	COVER,NEW,TOP,DIGITAL SIGNAL GENERATOR	1	
..1	471-5340	ANGLE,PCB MOUNT,DIGITAL SIGNAL GENERATOR	4	
..1	471-5341-200	BRACE,NEW,PCB SUPPORT,DIGITAL SIGNAL GENERATOR	1	
..1	471-5343	BRACKET, CD-ROM, DIGITAL SIGNAL GENERATOR	1	
..1	471-5453	ANGLE,DAUGHTER CARD BRACE SUPPORT,FSi10/ASi10/XPi10	1	
..1	500-210	Screw,SEMS 4-40x1/4 Phil Pan Head MS Blk Zinc(external lock)	22	
..1	586-149	9 inch Phone Jumper (SBCM)	1	
....2	550-279	Connector,Line Plug 6 Pos 4 Conn Adamtech #ADTMTP6-4-U	2	
....2	580-154	Cable,26 AWG/4C Silver Satin #M264SS	0.75	
..1	591-0036	LABEL,POWER,DTC EXCITER	1	
..1	591-0038	LABEL,GPS LOCK,DIGITAL SIGNAL GENERATOR	1	
..1	591-0040	NAMEPLATE,XPi10,EXPORTER	1	
..1	594-0073	LABEL,WARNING ROTATING FANS	2	
..1	594-0503	LABEL, DANGER-HAZARDOUS VOLTAGE	1	
..1	594-0505	LABEL, WARNING-ONLY AUTHORIZED PERSONNEL	1	
..1	611-1501	TUB,HT SHK,1-1/2ID,BLACK"	1	
..1	700-0148	TAPE,JOINING 3/4	0.001	
..1	849-0680	CBL, ASSY, COAX 18, OSX RT-OSX STRAIT"	1	
..1	849-0681	CBL, ASSY, COAX 18, OSX RT-BNC"	1	
..1	849-0682	CABLE, USB, 20 INCH	2	
..1	849-0683	CABLE, VGA, HDDB15M TO HDDB15M, 2 FOOT	1	
..1	849-6027	POWER SUPPLY CABLE MOLEX 4 PIN MALE TO FLOPPY DRIVE FEMALE	1	
..1	919-0549	PCB, ASSY, STATION INTERFACE, FM-IBOC & AM-IBOC, DSG(SBCM)	1	
....2	007-0020-006	CAP,20pF,5%,50v,SMD,0603	2	C26, C27

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	007-1044-025	CAP,CER,100 NFD,10%,25V,1206,SMD	13	C7, C8, C11, C13, C17, C18, C22, C23, C25, C30, C31, C33, C34
....2	007-4744-050	CAP, CER, .47UF, 50V, -20% TO +80%	3	C28, C29, C32
....2	070-0010	Cap,Lytic 10uF 16V SMD	2	C2, C35
....2	104-0039	RESISTOR,39ohm,5%,.1W,SMD,0603	1	R6
....2	104-0330	resistor,332ohm,1/8W,1%,SMD,1206	4	R20, R21, R22, R23
....2	104-1802	RESISTOR,1.82Kohm1/16W,1%,SMD,0603	4	R24, R25, R27, R28
....2	104-4701	RES,CHIP,4.75KOHM,1%,1/16W,0603,SMD	1	R18
....2	104-4701-001	RES,CHIP,4.75KOHM,1%,1/8W,1206,SMD	1	R32
....2	229-0705	IC, MAX705CSA Microprocessor Supervisor SMD	1	U5
....2	229-3221	IC,RS 232 TRANSCEIVER +3V TO +5V 1uA SUPPLY-CURRENT	1	U24
....2	320-1371	LED,LNJ306G5TRW GREEN SMD	2	D1, D2
....2	340-0004	SW,JUMPER PROGRAMMABLE	5	P3, P89, P90, P94, P95
....2	390-2000	XTAL,20MHz, CYL XTAL CA-301 Type	1	Y1
....2	417-0003	CONN,HEADER 3 PIN	1	J3
....2	417-0173	CONN,PCB,40-PIN,609-4037	1	J135
....2	417-1050	.100,10 pin double row terminal strip"	3	J113, J115, J116
....2	417-2524	SHROUDED HEADER 24 POS STRAIGHT	1	JP1
....2	417-4004	CONN,HEADER,2 PIN	5	J89, J90, J94, J95, J130
....2	417-5163	Mod Jack 6-6 low profile w/stops	1	J8
....2	418-1001-001	CONN, MALE, 10 PIN, LONG LATCH, PCB MT	1	J133
....2	418-1003	CONN,PCB 10PIN(DUAL 5)	1	J2
....2	453-0000	BRACKET,PC PCB,KEYSTONE 9203	1	
....2	500-210	Screw,SEMS 4-40x1/4 Phil Pan Head MS Blk Zinc(external lock)	2	
....2	519-0549	PCB, MACH, STATION INTERFACE, FM-IBOC & AM-IBOC, DSG	1	
....2	979-0549-U11	KIT,SOFTWARE,CPLD,U11,SIC	1	U11
.....3	229-4192	HIGH PERFORMANCE E*CMOS	1	U11
....2	979-0549-U4	KIT,SOFTWARE,EEPROM,U4,SIC	1	U4

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
......3	229-0877	IC,EEPROM MCU LDS 20MHz 8K Flash TQFP SMD	1	U4
..1	919-0550	PCB,ASSY,SAMPLE RATE CONVERTER,ASi/XPi (SBCM)	1	
....2	007-0183	CAP CERAMIC,0.018uF,25V,10%,SMD 0805,X7R	1	C3
....2	007-0823	Cap, 0.082uF,50V ceramic SMD	1	C4
....2	007-1024	CAP,CER,.001uF,50V,10%,SMD	2	C9, C11
....2	007-1034	CAP,CER,0.01uF,50V,10%,SMD	3	C1, C23, C34
....2	007-1044	CAP,CER,0.1uF,50V,10%,SMD note	14	C13, C22, C27, C28, C30, C43, C45, C46, C47, C48, C49, C50, C51, C31
....2	007-2224-500	CAP,CER,.0022uF,50V,10%,SMD	1	C26
....2	007-3313	CAP,CER,330pF,50V,5%,SMD	5	C5, C6, C7, C8, C10
....2	007-4724	CAP,CER,0.047uF,50V,10%,SMD	1	C52
....2	070-1054	CAP,TANT,1uF,35V,10%,SMD	6	C2, C12, C24, C29, C44, C32
....2	070-1064	CAP,TANT,10uF,35V,20%,SMD	3	C14, C15, C16
....2	101-2432	RES,CHIP,24.3K OHM,1%,1/8W,1206,SMD	1	R11
....2	102-0000	RES,CHIP,0 OHM,0805,SMD	13	R68, FL1, FL2, FL3, FL4, FL5, FL6, FL7, FL8, FL9, FL10, FL11, FL12
....2	102-0100	RES,CHIP,10.0 OHMS,1/10W,1%,SMD	1	R15
....2	102-1000	RES,CHIP,100 OHMS,1/10W,1%,SMD	2	R16, R21
....2	102-1001	RES,CHIP,1.00K OHMS,1/10W,1%,SMD	16	R5, R22, R23, R24, R27, R33, R35, R36, R37, R38, R39, R49, R50, R57, R62, R66
....2	102-1002	RES,CHIP,10.0K OHMS,1/10W,1%,SMD	5	R4, R7, R8, R13, R34
....2	102-1003	RES,CHIP,100K OHMS,1/10W,1%,SMD	1	R60
....2	102-1004	RES,CHIP,1.00M OHMS,1/10W,1%,SMD	2	R2, R3
....2	102-1133	RES,CHIP,110 OHMS,1/10W,1%,SMD	3	R25, R40, R41
....2	102-1825	RES,CHIP,18.2 K OHM,1/10W,1%	1	R17
....2	102-2212	RES,CHIP,22.1K OHMS,1/10W,1%,SMD	2	R48, R64
....2	102-2410	RES,CHIP,243 OHMS,1/10W,1%,0805,SMD	5	R20, R32, R58, R61, R69

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	102-2940	RES,CHIP,294 OHMS,1/10W,1%,SMD	2	R70, R71
....2	102-3011	RES,CHIP,3.01K OHMS,1/10W,1%,SMD	1	R26
....2	102-3012	RES,CHIP,30.1K,1/10W,1%,SMD	1	R9
....2	102-3321	RES,CHIP,3.32K OHMS,1/10W,1%,SMD	1	R6
....2	102-4711	RES,CHIP,475 OHMS,1/10W,1%,SMD	1	R14
....2	102-4755	RES,CHIP,47.5K OHM,1/10W,1%	9	R18, R28, R29, R30, R42, R43, R45, R46, R47
....2	102-4872	RES,CHIP,48.7K,1/10W,1%,SMD	1	R10
....2	102-5112	RES,CHIP,51.1 OHM,1/10W,1%	2	R1, R44
....2	102-7150	RES,CHIP,715 OHMS,1/10W,1%,SMD	1	R19
....2	179-2043	RES,TRMR,2K,15 TURN 3006	1	R72
....2	204-0914	DIODE,SWITCHING,MMBD914LT1,SMD	3	D1, D3, D4
....2	205-0833	VARIABLE CAPACITANCE DIODE, SOT-23 SMD	1	D2
....2	210-3906-001	TSTR,3906,SMD	1	Q2
....2	216-0634	IC, BUFFER, BUF634U, SO-8, SMD	1	U13
....2	216-3904	TSTR,MMBT3904LT1,NPN,SMD	2	Q1, Q3
....2	216-4013	IC,MC14013BD DUAL D FLIP FLOP,SMD	1	U12
....2	216-4111	IC,OPAMP,RAIL TO RAIL,300mA,SOIC-8	1	U7
....2	216-7002	IC,MOSFET,2N7002LT1,SMD	2	Q4, Q5
....2	216-7414	IC,74AC14,HEX INVERTER,SCHMITT TRIG,SO-14,SMD	1	U4
....2	220-1451	IC, CMOS PLL FREQUENCY SYNTHESIZER	1	U3
....2	220-8922	IC, Dual Differential Line Driver SMT	1	U2
....2	224-0708	IC, MICRO SUPERVISOR, 3V, SMD	1	U14
....2	224-8420	IC, SAMPLE RATE CONVERER 96 KHZ	1	U1
....2	228-0161	IC,74ACT161,SYNCH. BINARY COUNTER,16-PIN SMD,SOIC	2	U10, U11
....2	231-3170	VR,LM317,SMD	1	U5
....2	270-0066	REL,DPDT,12VDC,DIP	1	K1
....2	270-470	Cap,monolithic chip,47 pf 50v 5% Kemet C1206C470J5GACTR	2	C53, C54
....2	325-0250	LED,DUAL RED/GREEN,LOW PROFILE,SMD	2	DS1, DS2
....2	340-0004	SW,JUMPER PROGRAMMABLE	4	P12, P13, P14, P15

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	350-030	INDUCTOR, 3.0 - 7 UH W/SHIELD CAN #47271-023	1	L1
....2	366-0010-001	IND,10UH,1.5A	2	L3, L4
....2	366-0011	IND,10UH,SHIELDED,SMD	1	L2
....2	367-9370	XFMR,SMT,AES/EBU,SC937-02	3	T1, T2, T3
....2	408-0300	HEADER,3-PIN,.100 CENTERS,SIP,note	4	J12, J13, J14, J15
....2	413-1206	CHIP,TEST POINT,1206,SMD	3	TP9, TP10, TP11
....2	417-0265	CONN,BNC,JACK,THREADED,PC EDGE MOUNT,LOW PROFILE	1	J11
....2	417-0804	SOCKET,8-PIN DIP,BURNDY	1	XU6
....2	417-1550-002	CONN,HEADER,RT.ANGLE,2-PIN,3.81MM SPACING,PCB MOUNT	1	J3
....2	417-2284	CONN MCX RIGHT ANGLE JACK 50 OHM PCB MOUNT	2	J1, J16
....2	417-2838	HEADER 4-PIN .100 R.ANGLE LOCKING"	1	J2
....2	417-7188	CONN,RJ-45 JACK SINGLE PORT 8-PIN SHIELDED PCB MOUNT	1	J9
....2	418-0060	RECEPTACLE,XLR,3-PIN,FEMALE,RIGHT ANGLE,PCB MOUNT	2	J4, J10
....2	418-0061	RECEPTACLE,XLR,3-PIN,MALE,RIGHT ANGLE,PCB MOUNT	3	J6, J7, J8
....2	431-1600	SOCKET,16-PIN,DIP,SMD note	1	XK1
....2	479-0175	SHIELD,1.5x1.75"x1.0",PC MOUNT"	1	
....2	519-0550	PCB, MACH, AM, SAMPLE RATE CONVERTER	1	
....2	979-0550-U6	KIT,SOFTWARE,MICRO,U6,AM/SRC	1	U6
......3	229-0519	Microprocessor 8pin DIP PIC12CE519-04/P	1	U6
..1	919-0551	PCB, ASSY, XLR-BNC I/O INTERFACE, FM & AM-IBOC, DSG(SBCM)	1	
....2	007-0047	CAP,4.7uF,16v,20%,SMD,3216/Y	1	C10
....2	007-1044	CAP,CER,0.1uF,50V,10%,SMD note	9	C1, C2, C3, C4, C5, C6, C7, C8, C9
....2	104-0020	RES,20ohm,.25W,1%, SMD, 1210	1	R11
....2	104-0036	RES,35.7ohm,. 25W, 1%, SMD, 1210	3	R9, R16, R17
....2	104-0051-063	RES,51.1ohm,.25W,1%,SMD,1210	1	R6
....2	104-0103	RES,10Kohm,.1W,1%, SMD, 0603	1	R12
....2	104-0122	res,1.2Kohm,.1W,5%, SMD, 0603	1	R2

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	104-0165	RES,16.5ohm,. 25W, 1%, SMD, 1210	1	R18
....2	104-0200	RES,200ohm,.1W,5%, SMD, 0603	1	R1
....2	104-0242	RES,2.4Kohm,.1W,5%,SMD,0603	1	R13
....2	104-0303	RES,30.1Kohm,.1W,1%,SMD,0603	4	R4, R5, R7, R8
....2	104-0390	RES,390ohm,.25W,5%,SMD,1206	1	R14
....2	104-0620	RES,620ohm,.1W,5%,SMD,0603	1	R3
....2	216-0111	IC,Closed loop buffer, Ultra high slew rate, 8 pin SMD	3	U1, U2, U3
....2	227-1128	IC,VR,8V,LOW DROPOUT,SOT23-5L,SMD	1	U4
....2	320-0603	LED GREEN SMD	1	D1
....2	340-0004	SW,JUMPER PROGRAMMABLE	16	P5A, P5B, P6A, P6B, P7A, P7B, P8A, P8B, P9A, P9B, P10A, P10B, P11A, P11B, P12A, P12B
....2	367-1128	XFMR, 5MHz-120MHz SMD	1	T1
....2	411-0103	Chip,EMI Filter,10,000pF 50V 20% SMD	1	L1
....2	411-0222	Chip EMI Filter, 2200pF 50V 20% SMD	8	L2, L3, L4, L5, L6, L7, L8, L9
....2	417-0037	BNC,R ANGLE PC MT 227161-1 AMP (NOTE)	5	J1, J2, J3, J4, J5
....2	417-1701	STRAIGHT JACK RECEPTACLE,SMB PCB MOUNT 50 OHM	1	J11
....2	417-2284	CONN MCX RIGHT ANGLE JACK 50 OHM PCB MOUNT	6	J6, J7, J8, J9, J10, J12
....2	417-2600	CONN,HEADER,26PIN	2	JP5, JP6, JP7, JP8, JP9, JP10, JP11, JP12
....2	417-2838	HEADER 4-PIN .100 R.ANGLE LOCKING"	1	JP3
....2	417-4209	CONN,DUAL-PORT D-SUB,9-PIN,MALE,PCB MOUNT	1	P1
....2	418-0058	RECEPTACLE XLR FEMALE RT. ANGLE PCB MOUNT	4	JR1, JR2, JR7, JR8
....2	418-0059	RECEPTACLE XLR MALE RT. ANGLE PCB MOUNT	4	JR3, JR4, JR5, JR6
....2	418-1003	CONN,PCB 10PIN(DUAL 5)	2	JP1, JP2
....2	519-0551	PCB, MACH, XLR-BNC I/O INTERFACE, FM-IBOC & AM-IBOC, DSG	1	
..1	919-0552	PCB, ASSY, RJ-45/USB/DB-9 I/O INTERFACE, FM&AM-IBOC,DSG	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	417-0318	CONN,USB TYPE A DOUBLE PCB MOUNT	1	JP13
....2	417-0319	Conn,USB Type B Single Right Angle PCB Mount	2	JP14, JP15
....2	417-6466	CONN,RJ-11 JACK SINGLE PORT 6-PIN SHIELD PCB MOUNT	2	JP11, JP12
....2	417-7187	CONN,RJ-45 JACK 4-PORT 8-PIN SHIELDED PCB MOUNT	1	P1
....2	417-7188	CONN,RJ-45 JACK SINGLE PORT 8-PIN SHIELDED PCB MOUNT	6	P2, P3, P4, P5, P6, P7
....2	418-1003	CONN,PCB 10PIN(DUAL 5)	1	JP1
....2	519-0552	PCB,MACH,RJ-45/USB/DB-9 I/O INTERFACE,FM-IBOC & AM-IBOC,DSG	1	
..1	919-0553	PCB,ASSY,TERMINAL STRIP I/O INTERFACE,FM & AM-IBOC,DSG(SBCM)	1	
....2	007-1044	CAP,CER,0.1uF,50V,10%,SMD note	3	C13, C14, C15
....2	063-1074	CAP,TANT,10UF,25V,20%	6	C7, C8, C9, C10, C11, C12
....2	101-0390	RES, 390ohm, 1W, 5%, SMD, 2512	2	R10, R11
....2	104-3301	RES,CHIP,3.32Kohm,1%,1/16W,0603,SMD	2	R12, R13
....2	204-0052	Silicon Rectifier 2A 50V SMD	12	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12
....2	204-0718	Diode Network Schottky Barrier Diodes	5	DN1, DN2, DN3, DN4, DN5
....2	216-0621	Multi-Channel Phototransistor Optocoupler	4	U1, U2, U3, U4
....2	216-7414	IC,74AC14,HEX INVERTER,SCHMITT TRIG,SO-14,SMD	3	U13, U14, U15
....2	226-3301	res net, 3.3Kohm, smd, 2512	2	R4, R5
....2	226-3900	res net, 390ohm, 10pin, SMD	6	R1, R2, R3, R6, R7, R14
....2	270-4111	IC,DUAL,SOLID STATE RELAY,8-PIN,DIP	8	U5, U6, U7, U8, U9, U10, U11, U12
....2	411-0223	EMI FILTER, 1000pF, SMD	6	C1, C2, C3, C4, C5, C6
....2	417-0173	CONN,PCB,40-PIN,609-4037	1	JP5
....2	417-1550-008	CONN,HEADER,RT.ANGLE,8-PIN,3.81MM SPACING,PCB MOUNT	8	JP1, JP2, JP3, PJ4, JP6, JP7, JP8, JP9
....2	519-0553	PCB,MACH,TERMINAL STRIP I/O INTERFACE,FM-IBOC & AM-IBOC DSG	1	
....2	540-0505	1.5W Modular DC/DC Converter	2	U17, U18

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	540-1055	DC/DC Converter SMD	1	U16
..1	919-0557-001	ASSY, PCB, FRONT PANEL LED, FM-IBOC & AM-IBOC, DSG	1	
....2	103-4993	RES,499 OHM,1/4W,1%,METAL	2	R1, R2
....2	323-9224	IND,LED,GRN,521-9270	2	LED1, LED2
....2	340-0004	SW,JUMPER PROGRAMMABLE	1	P2
....2	417-4004	CONN,HEADER,2 PIN	2	J2, J3
....2	418-0255	CONN,MALE,4PIN	1	J1
....2	441-0009	SPR,PHENOLIC 1/4RND X 1/2 #6	2	
....2	519-0557	PCB, MACH, FRONT PANEL LED, DTG DIGITAL EXCITER	1	
..1	919-0558	PCB, ASSY, LCD POWER, FM-IBOC & AM-IBOC, DSG	1	
....2	020-4773	CAP,LYTIC,47UF,35V,STDUP	1	C1
....2	103-4741	RES,4.75K OHM,1/4W,1%,METAL	1	R1
....2	224-0200	IC, TWO TUBE DC TO AC CONVERTER, +12 VDC INPUT	1	U1
....2	417-0070	CONN,HEADER 4 PIN	1	J1
....2	431-0280	CONN,2PIN,HV,8MM,RT ANGLE,SMD	2	J2, J3
....2	519-0558	PCB, MACH, LCD POWER, FM-IBOC & AM-IBOC, DSG	1	
..1	949-0541-100	ASSY,WIRE HARNESS,XPi,MB3 (SBCM)	1	
....2	402-0051	TY-RAP, W/FLAG	20	
....2	417-0053	SKT,CONN 641294-1 AMP	3	
....2	417-0138	HSNG,MOD IV 4 POS 87499-7 AMP	2	
....2	417-0142	PIN,.050 DIA 26-22 745254-3	5	
....2	417-0143	SKT,PIN .050 26-22 745253-3	7	
....2	417-0165	HSNG,5POS MOD IV S.ROW 87499-9	1	
....2	417-0224	KEYING PLUG MOD IV 87077 AMP	2	
....2	417-0286	PLUG,2.5 MM FEMALE	1	
....2	417-0323	CONNECTOR,TNC BULKHEAD,FOR RG316/U COAXIAL CABLE	1	
....2	417-0402	CONN,20 PIN,DUAL ROW,MINI-FIT,FEMALE	1	
....2	417-0405	CONTACT, CRIMP, 18-24 AWG, FEM	20	
....2	417-0407	CONTACT, MALE, 18-24 AWG, CRIMP	20	
....2	417-0408	CONN, 20 PIN, MALE,	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	417-0413	Contact FEM 22-28 AWG XHP Series	3	
....2	417-0414	Conn, FEM, 4 Pin	1	
....2	417-0415	Conn, FEM, 5 Pin	1	
....2	417-0900	PLUG,9 PIN STD 205204-3 AMP	1	
....2	417-0901	RCPT,9 PIN STD 205203-3 AMP	2	
....2	417-1003	SKT,CONN 10PIN ANSLEY 622-1030	4	
....2	417-1702	RIGHT ANGLE CRIMP TYPE PLUG,SMB,50 OHM	2	
....2	417-2011	CONN,SOCKET,10 POS, .100 POLARIZED WIREMOUNT"	1	
....2	417-2020	CONN,SOCKET,20 POS, .100 POLARIZED WIREMOUNT"	1	
....2	417-2021	CONN,SOCKET,24 POS, .100 POLARIZED WIREMOUNT"	1	
....2	417-2560	CONN,MINI-DIN,6-POS,SOCKET,PANEL MOUNT	2	
....2	417-2814	PLUG, 8 POS ETHERNET 10BaseT	2	
....2	417-2815	CONN, 9-PIN, FEMALE, IDC, Dsub	2	
....2	417-8030	CONN,PLUG,RT ANG,SMA,HEX CRIMP	2	
....2	417-8766	CONTACT,CRIMP,MOD-IV 87809-1	8	
....2	417-8980	Male Crimp Terminal	4	
....2	417-8981	Male Crimp Housing	1	
....2	418-0034	PLUG,BNC DUAL CRIMP 1-227079-6	1	
....2	418-0240	PLUG,FEM,4PIN	1	
....2	418-4001	CONN,RIBBON CBL,40COND	5	
....2	600-0002	RIBBON CBL,3580-10 ALPHA	4	
....2	600-0040	CBL,40COND,28GA,100 ANSLEY	3.622	
....2	601-2209	WIRE,AWG22,19/34 WHT	44.48	
....2	602-2202	WIRE,TW,AWG22,PVC INS,BLK/RED	4.562	
....2	603-2200	WIRE,TW,AWG22,INS,RED-YEL-BLU	1.666	
....2	610-8723	CBL,SH 4 COND #22 ST 8723 BELD	5.166	
....2	621-1359	CBL,COAX,RG316/U,50 OHM	7.166	
....2	622-1245	CBL,ETHERNET,10BASET,CAT5	1	
....2	849-0678	CBL, ASSY, MINI-DIN, 6-PIN, M/M, 28 AWG, 6.5 FT	1	
..1	949-0541-300	ASSY,CABLE,ADAPT PWR TO 959-4167-100	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	417-4303	CONN, CRIMP TERMINAL, FEMALE, 20-24 AWG	2	
....2	417-4364	CONN, RECEPTACLE 2 POS, HEADERS & WIRE HOUSINGS	1	
....2	418-0712	CONN, DC POWER 2.5MM ROUND W/NUT	1	
....2	601-2209	WIRE,AWG22,19/34 WHT	1.167	
....2	611-0938	TUBE, HEAT SHINK, 3/32, BLACK"	0.083	
....2	611-5000	TUB,HT SHK 1/2	0.062	
..1	949-0546	ASSY,CABLE,FAN,FSi/ASi (SBCM)	1	
....2	417-8500	PLUG AND CORD ET,AM500 FAN	1	
....2	417-8980	Male Crimp Terminal	2	
....2	417-8981	Male Crimp Housing	1	
..1	949-0548	ASSY, HARN, KIT, AM-IBOC ADD ON (SBCM)	1	
....2	417-0138	HSNG,MOD IV 4 POS 87499-7 AMP	1	
....2	417-8766	CONTACT,CRIMP,MOD-IV 87809-1	2	
....2	417-8980	Male Crimp Terminal	2	
....2	417-8981	Male Crimp Housing	1	
....2	602-2202	WIRE,TW,AWG22,PVC INS,BLK/RED	1	
..1	949-0607	ASSY,CABLE,1 PPS TO MOTHERBOARD (SBCM)	1	
....2	417-0142	PIN,.050 DIA 26-22 745254-3	2	
....2	417-0251	PLUG,25 PIN 207464-1 AMP	1	
....2	417-2510	KIT,BACKSHELL FOR 25PIN D CONN	1	
....2	611-1250	TUB,HT SHK,1/8	0.25	
....2	693-0180	TUB,TEFLON,THINWALL,AWG18,NTL	0.042	
....2	849-0680	CBL, ASSY, COAX 18, OSX RT-OSX STRAIT"	1	
..1	949-4263-100	VGA CABLE FOR 959-4167-100	1	
..1	959-0252-001	3M SC4 TOUCH SCREEN CONTROLLER BD	1	
..1	959-0376-001	GPS,TIME & FREQUENCY MODULE,FSi/ASi	1	
..1	959-0377-001	MEMORY MODULE,512MB,184-PIN DDR SDRAM DIMM,FSi/ASi	1	
..1	959-0378	MODEM CARD,INTERNAL,56K,PCI,FM-IBOC & AM-IBOC DSG	1	
..1	959-0379-001	AUDIO CARD,2xAES/EBU I/O,ASi/FSi/XPi	1	
..1	959-0382-003	PS,SWITCHING PFC 485W UNIV. IN, FSi/ASi/XPi (NOTE)	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
..1	959-0383-003	MOTHERBOARD,ATX,800MHz FSB SUPPORT,FSi/ASi/XPi	1	
..1	959-0384-001	HARD DRIVE,80GB,7200 RPM,ULTRA ATA/100,FSi/ASi,MB2	1	
..1	959-0385	SERIAL PORT CARD,PCI,FM-IBOC & AM-IBOC DSG	1	
..1	959-0386	CD-ROM DRIVE,SLIM 24X,INTERNAL MOUNT,BLACK,FM/AM-IBOC DSG	1	
..1	959-0386-001	ADAPTER,SLIMLINE CD TO 40-PIN IDE CONVERTER BOARD	1	
..1	959-0387	KIT,OSD ROTARY	1	
..1	959-4167-100	ALR-1400 FLAT PANEL INTERFACE CONTROLLER	1	
..1	979-0542-002	KIT,BINDER AND MANUAL,XPi	1	
....2	597-0542-008	INSTRUCTION MANUAL, XPI 10 GENERATOR, FM-IBOC	1	
....2	597-0542-XM3	QUICK INSTALL GUIDE,XPi,MB3,	1	
....2	598-0010-001	BINDER,1 IN, BLUE,W CD POCKET	1	
....2	979-6027-433	KIT,SOFTWARE CDROM,XPI10,V4.3.2P1	1	
......3	579-0007	CD-CASE CLEAR PLASTIC	1	
......3	597-0542-005	APPLICATION GUIDE, XPI 10 SOFTWARE UPGRADE	1	
......3	701-0018	ANTISTATIC BAG ZIPLOC 9X12 4M	1	
......3	979-6027-XM9	CDROM,XPI10,V4.3.2P1	1	
..1	979-0544-100	KIT,INSTALLATION,XPi,EXPORTER	1	
....2	417-0910	KIT,BACKSHELL FOR 9-PIN D CONN	1	
....2	418-1550-008	CONN,PLUG,8-PIN,CAGE CLAMP,3.81MM SPACING	7	
....2	420-0007	SCREW,12-24 X 3/4,NATURAL SST,TRUSS HD, PHILLIPS DRIVE"	4	
....2	420-0710	SCR,10-32 X 5/8,NATURAL SST,TRUSS HD,PHILLIPS DRIVE"	4	
....2	421-0002	12-24 SPEED NUT (NOTE)	4	
....2	550-111	CONNECTOR, D-SUB 9 PIN FEMALE	1	
....2	682-0001	CORD LINE,3 COND,DETACH 7.5FT	1	
....2	682-0003	CORD,PWR EUROPEAN RIGHT ANGLE, 6'	1	
....2	700-0146	BAG,STATIC SHIELDING 3X5, ZIP LOCK	1	
....2	701-0007	ANTISTATIC ZIPLOC BAG 12X12	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
....2	809-0830	AES/EBU SPLITTER,F-XLR TO (2)M-XLR	1	
....2	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
....2	846-0020	CABLE,CAT5e,CROSSOVER,FTP,2 METER	1	
....2	949-0542	ASSY,CABLE,GPS DATA IN/OUT,FSi/ASi (SBCM)	1	
......3	402-0051	TY-RAP, W/FLAG	1	
......3	417-0142	PIN,.050 DIA 26-22 745254-3	4	
......3	417-0143	SKT,PIN .050 26-22 745253-3	4	
......3	417-0900	PLUG,9 PIN STD 205204-3 AMP	1	
......3	417-0901	RCPT,9 PIN STD 205203-3 AMP	1	
......3	417-0910	KIT,BACKSHELL FOR 9-PIN D CONN	2	
......3	610-8723	CBL,SH 4 COND #22 ST 8723 BELD	0.666	
....2	949-0543	ASSY,CABLE,1PPS IN/OUT,FSi/ASi (SBCM)	1	
......3	402-0051	TY-RAP, W/FLAG	1	
......3	418-0034	PLUG,BNC DUAL CRIMP 1-227079-6	2	
......3	621-1359	CBL,COAX,RG316/U,50 OHM	0.333	
....2	949-0544-101	ASSY,CABLE,SPLITTER TO OUT 1,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-102	ASSY,CABLE,IBOC AES IN TO OUT 2,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-103	ASSY,CABLE,IBOC AES OUT TO SYNC,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-104	ASSY,CABLE,SPLITTER TO STUDIO AES,XPi (SBCM)	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	3	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-105	ASSY,CABLE,SPLITTER TO BYPASS AES,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	3	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-106	ASSY,CABLE,FM AES OUT TO STL/TX,XPi(SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-107	ASSY,CABLE,IBOC AES OUT TO HD PRO,XPi(SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-108	ASSY,CABLE,IBOC AES IN TO HD PRO,XPi(SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-109	ASSY,CABLE,FM PRO OUT TO STL,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0544-110	ASSY,CABLE,FM AES OUT/STL TO FM PRO,XPi (SBCM)	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	949-0608	ASSY,CABLE,DELAYED AES BYPASS JUMPER (SBCM)	1	
......3	417-2814	PLUG, 8 POS ETHERNET 10BaseT	1	
......3	611-1250	TUB,HT SHK,1/8	1	
......3	611-2500	TUB,HT SHK,1/4	1	
......3	622-1245	CBL,ETHERNET,10BASET,CAT5	0.7	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
....2	949-0609	ASSY,CABLE,STATUS OUTPUT (SBCM)	1	
......3	418-1550-002	CONN,PLUG,2-PIN,CAGE CLAMP,3.81MM SPACING	1	
......3	418-1550-008	CONN,PLUG,8-PIN,CAGE CLAMP,3.81MM SPACING	1	
......3	602-2202	WIRE,TW,AWG22,PVC INS,BLK/RED	0.5	
....2	949-0614	ASSY,CABLE,FM AES IN/OUT,XPi (SBCM)	1	
......3	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	1	
......3	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
....2	979-0600-001	KIT,EXGINE,FOR FACTORY BUILD FM FXi 60/250	1	
......3	417-0910	KIT,BACKSHELL FOR 9-PIN D CONN	1	
......3	418-1550-010	CONN, PLUG 10-PIN CAGE CLAMP 3.81MM SPACING	2	
......3	471-5363	FILLER,DAUGHTER CARD,PLAIN.FXi60/250	-1	
......3	471-5365	FILLER,DAUGHTER CARD,EXGINE,FXi60/250	1	
......3	471-5367	FILLER,OPTIONS,BLANK,FXi60/250	-1	
......3	500-211	Screw,SEMS 4-40x3/8 Ph Pan Head MS Black Zinc (External)	4	
......3	550-111	CONNECTOR, D-SUB 9 PIN FEMALE	1	
......3	597-0545	INSTRUCTIONS,FXi TO EXGINE UPGRADE	1	
......3	701-0004	ANTISTATIC ZIPLOC BAG 6X8 4MIL	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
......3	701-0007	ANTISTATIC ZIPLOC BAG 12X12	1	
......3	701-1008-012	BAG,STATIC SHIELDING, 8X12	1	
......3	710-2618	SCREWDRIVER,SLOTTED,1.8mm X 40mm	1	
......3	804-5002	NULL MODEM ADAPTOR DB9F TO DB9F	1	
......3	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
......3	919-0600	PCB, ASSY, EXGINE CARD (SBCM)	1	
........4	006-4775-350	CAP,ELECTRO,47UF,20%,35V,SMD	1	C222
........4	007-0010	CHIP CERAMIC 10pF 50V 5% 0603 SMD	1	C256
........4	007-0018-006	CAP,0603,18pF,50V,5%	1	C204
........4	007-0207-006	CAP,0.27uF,6.3v,10%,0603	1	C202
........4	007-0270-006	CAP,270pF,50v,5%,0603	1	C53
........4	007-1013-050	CAP,CER,100 PFD,5%,50V,0603,SMD	2	C36, C261
........4	007-1022	CAP,CER,100pF,50V,2%,SMD	1	C48
........4	007-1023-025	CAP,CER,1 NFD,5%,25V,0603,SMD	6	C40, C69, C199, C205, C247, C264
........4	007-1024	CAP,CER,.001uF,50V,10%,SMD	1	C64
........4	007-1034-001	CAP,CER,.01UF,10%,50V,0603,SMD	144	C17, C18, C19, C71, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125,
........4	007-1040-025	CAP,CER,.1UF,+80,-20%,25V,0603,SMD	16	C181, C186, C187, C189, C190, C191, C192, C195, C196, C201, C207, C227, C257, C263, C266, C302

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	007-1044	CAP,CER,0.1uF,50V,10%,SMD note	39	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C20, C26, C27, C28, C29, C30, C31, C32, C42, C43, C45, C46, C47, C57, C66, C194, C226, C241, C242, C246, C248, C249, C250
.....4	007-1044-016	CAP,CER,100 NFD,10%,16V,0603,SMD	1	C35
.....4	007-1054	CAP,CER,1uF,50V,10%,SMD	9	C21, C22, C23, C24, C25, C59, C61, C254, C258
.....4	007-1075-100	CAP, CER CHIP, 10 UF, 10V, 1206	1	C50
.....4	007-1512-050	Cap,Cer,15 pF 5%,0603,50V,SMD	1	C255
.....4	007-1524-500	CAP,CER,.0015uF,50V,10%,SMD	1	C52
.....4	007-2723-025	CAP,CER,2.7 NFD,10%,25V,1206,SMD	1	C34
.....4	007-2724-500	CAP,CER,.0027uF,50V,10%,SMD	1	C260
.....4	007-3344-016	CAP,CER,330 NFD,10%,16V,1206,SMD	1	C38
.....4	007-3923	CAP,CER,390pF,100V,5%,SMD	2	C62, C63
.....4	007-6800-500	CAP,CER,6.8pF,50V,.25pF,SMD	1	C56
.....4	007-6800-501	CAP,CER,6.8nF,10%,50V,0603,SMD	1	C55
.....4	009-0202	CAP,TANALUM CHIP,100UF,POLAR,10%,6V,SMD	3	C54, C252, C253
.....4	009-0407-001	CAP,4.7uF,12.5v,20%,ELECTROLYTIC,D	1	C203
.....4	064-2262	CAP,TANT,2.2uF,10V,SMD	1	C51
.....4	070-1054	CAP,TANT,1uF,35V,10%,SMD	7	C41, C44, C183, C229, C243, C244, C269
.....4	070-1064	CAP,TANT,10uF,35V,20%,SMD	15	C67, C68, C72, C176, C179, C193, C197, C200, C206, C223, C228, C245, C259, C265, C305
.....4	070-1084-L16	CAP,TANT,100 MFD,20%,16V,E CASE,LOW ESR,SMD	4	C37, C39, C58, C65
.....4	070-2204	CAP,TANT,22uF,25V,10%,SMD	3	C33, C60, C262
.....4	070-2265-L25	CAP,TANT,22 MFD,20%,25V, E CASE,LOW ESR,SMD	3	C49, C70, C251
.....4	102-1133	RES,CHIP,110 OHMS,1/10W,1%,SMD	1	R45

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	102-1432	RES, CHIP, 14.3K, 1/10W, 1%, SMD	1	R22
.....4	102-1531	RES,150 OHM,1/10W,1%	4	R2, R3, R4, R5
.....4	102-1582	RES,CHIP,15.8 K, 1/10 W, 1%	1	R28
.....4	102-1623	Res,Chip 162K 1/10W 1% SMD	1	R24
.....4	102-1741	RES,CHIP,1.74K OHMS,1/10W,1%,SMD	1	R10
.....4	102-2002	RES,CHIP,20.0K OHMS,1/10W,1%,SMD	1	R43
.....4	102-2430	RES,CHIP,243 OHMS,1/10W,1%,SMD, 0805	1	R192
.....4	102-3001	RES,CHIP,30.1 OHMS,1/10W,1%,SMD	1	R58
.....4	102-3011	RES,CHIP,3.01K OHMS,1/10W,1%,SMD	1	R348
.....4	102-3320	RES,CHIP,332 OHMS,1/10W,1%,SMD	1	R12
.....4	102-4751	RES,CHIP,4.75K OHMS,1/10W,1%,SMD	1	R11
.....4	102-503	POT, 50K OHM 3/8 SQUARE, 1/2W, 10%"	1	R516
.....4	102-5622	RES, 5.62K OHM, 1%, 1/10W, SMD	5	R253, R254, R311, R312, R313
.....4	102-6815	RES,CHIP,68.1K OHM,1/10W,1%	1	R190
.....4	102-9095	RES,90.9K OHM,1/10W,1%,SMD	1	R21
.....4	104-0000	RES,CHIP,0 OHM JUMPER,0603,SMD	8	R54, R59, R61, R65, R72, R193, R316, R458
.....4	104-0010	RES,CHIP,10.0 OHM,1%,1/16W,0603,SMD	2	R20, R379
.....4	104-0022	RES,CHIP,22.1 OHM,1%,1/16W,0603,SMD	223	R13, R14, R15, R16, R17, R18, R19, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100, R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117, R118, R119, R120, R121, R122, R123, R124, R125, R126, R127, R128, R129, R130
.....4	104-0049	RES,CHIP,49.9 OHM,1%,1/16W,0603,SMD	2	R63, R194
.....4	104-0051	RESISTOR,51.1ohm1%,1/16W,SMD,0603	4	R66, R76, R186, R324
.....4	104-0820	RESISTOR,825ohm,1%,1/16W,SMD,0603	1	R74

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	104-1001	RES,CHIP,1.0 K OHM,1%,1/16W,0603,SMD	50	R26, R27, R34, R35, R36, R39, R40, R41, R42, R187, R191, R195, R250, R314, R339, R340, R341, R342, R343, R344, R345, R359, R360, R363, R365, R366, R367, R368, R369, R370, R371, R372, R373, R374, R445, R446, R447, R448, R449, R450, R451, R452, R453, R454, R455, R456, R457, R513, R514, R515
.....4	104-1002	RES,CHIP,10.0 K OHM,1%,1/16W,0603,SMD	33	R23, R25, R29, R33, R38, R44, R46, R47, R48, R49, R50, R51, R52, R53, R55, R79, R184, R185, R327, R328, R329, R330, R331, R332, R333, R334, R335, R336, R337, R338, R346, R347, R443
.....4	104-1201	resistor,1.21Kohm1/16W,1%,SMD,0603	5	R30, R68, R69, R70, R71
.....4	104-1503	RES,CHIP,150K,1%,1/16W,0603,SMD	1	R356
.....4	104-2000	RESISTOR,2Kohm,1/16W,1%,SMD,0603	1	R56
.....4	104-2001	RES, CHIP, 200 OHM, 1%, 1/16W, 0603, SMD	14	R37, R75, R80, R81, R188, R251, R252, R317, R318, R319, R320, R321, R322, R357
.....4	104-4222	RES CHIP, 42.2K, 1%, 1/16W, 0603, SMD	1	R326
.....4	104-4701	RES,CHIP,4.75KOHM,1%,1/16W,0603,SMD	1	R67
.....4	104-4991	RES, CHIP, 4.99K, 1%, 1/16W, 0603, SMD	3	R31, R32, R325
.....4	104-6811	RES,CHIP,6.81 K OHM,1%,1/16W,0603,SMD	1	R9
.....4	104-8200	Chip Res, 8.25K 1% 1/16W 0603 SMD	1	R8
.....4	104-8202	RESISTOR,82.5K,1%,1/16W,SMD,0603	1	R73
.....4	176-2011	RES,TRMR,20K OHM,25T,TOP,3299W	1	R57
.....4	204-0130	SCHOTTKY BARRIER RECTIFIER 1 AMP 30V CASE 403A SMD	1	D4

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	204-0340	DIODE,RECTIFIER,SCHOTTKY,MBRS340T3, 403-03 CASE,SMD	2	D1, D9
.....4	204-0914	DIODE,SWITCHING,MMBD914LT1,SMD	1	D3
.....4	204-2800	DIODE,SCHOTTKY,HSMS-2800,SOT-23	2	D5, D6
.....4	204-4150	DIODE,SWITCHING,LL4150,MINIMELF CASE,SMD	1	D2
.....4	210-0093	TRANSISTOR,BFR93A,SOT-23,SMD	2	Q5, Q7
.....4	216-0420	CLC420, High Speed Voltage Feedback Op Amp SMD	2	U25, U26
.....4	216-0634	IC, BUFFER, BUF634U, SO-8, SMD	2	U33, U34
.....4	216-3904	TSTR,MMBT3904LT1,NPN,SMD	3	Q1, Q2, Q3
.....4	216-6245	IC PI74LPT16245AA 16 Bit BIDIR Transcvr 48TSSOP SMD	2	U1, U2
.....4	216-6531	IC, SN65LVDS31D HIGH SPEED DIFFENENTIAL LINE DRIVER SMD	1	U40
.....4	216-7002	IC,MOSFET,2N7002LT1,SMD	2	Q4, Q6
.....4	216-8074	IC,FCT38074,3.3V,CLOCK DRIVER,SOIC	2	U22, U27
.....4	216-8541	IC, DAC 16-BIT SINGLE CH. PQFP-32	1	U20
.....4	221-0358-001	DUAL OP AMP, SMD, SOIC8	1	U23
.....4	224-0160	IC, PAGE FLASH, 16 MEG, SMD (NOTE D.N.S.)	2	U5, U6
.....4	224-0708	IC, MICRO SUPERVISOR, 3V, SMD	1	U4
.....4	224-1204	IC,FPGA,CYCLONE,256-PIN,BGA	1	U18
.....4	224-2045	IC,DUAL,BUS TRANSCEIVER,SSOP-DCT8	1	U37
.....4	224-2410	IC,RS-232 MULTI-TRANSCEIVER,+5V,SMD	1	U7
.....4	224-4001	200MHZ CLOCK GENERATOR PLL	1	U28
.....4	224-4192	IC, 192KHZ DIGITAL AUDIO TRANSMITTER	1	U31
.....4	224-4832	IC,128MB,SDRAM,166MHz,86-PIN,TSOP	5	U14, U15, U16, U17, U30
.....4	224-6373	IC, 16 BIT LATCH, LV, SMD	2	U3, U32
.....4	224-6415	IC,FIXED-POINT DSP,600MHz,532-PIN,BGA	1	U13
.....4	226-4740	RES NET,4.7K,10-PIN,.1 SPACE	3	R1, R6, R7
.....4	227-1576	VR, LT1576IS8, SWITCHER, 1.5A, SMD	1	U12
.....4	227-7650	IC,SWITCHING REGULATOR,3A,300kHz,DFN	1	U11
.....4	231-1374	VR,LT1374HVCS8,SWITCHING,4.5A,SO-8,SMD	1	U9
.....4	231-2700	STEP-UP PWM DC/DC CONVERTOR, 2.5A	1	U21

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	298-157	Capacitor,Tantalum,SMT,size X,150uF,16V Kemet T491X157K016AS	4	C180, C306, C307, C308
.....4	325-0251	LED, GRN, SMD, 0805	12	DS5, DS6, DS7, DS8, DS13, DS14, DS15, DS16, DS20, DS21, DS23, DS24
.....4	325-0252	LED,RED/ORN,1206,SMD	5	DS1, DS2, DS3, DS4, DS11
.....4	325-0253	LED,YELLOW,1206,SMD	1	DS12
.....4	325-0255	LED,BLUE, 0603, SMD	3	DS17, DS18, DS19
.....4	340-0004	SW,JUMPER PROGRAMMABLE	3	P14, P15, P18
.....4	342-3304	SW,TACT,SPST,N.O.,SMD,RECESSED	2	S1, S4
.....4	350-197	INDUCTOR, SMT, POWER, 1uH	2	L10, L12
.....4	360-0103	FILTER EMI CHIP, 10000pF 50V 20% SMD	1	FL1
.....4	360-0125-001	Inductor 68uH SMD	1	L11
.....4	360-0167	IND, .56 UH, 6A	1	L22
.....4	366-0010-001	IND,10UH,1.5A	3	L8, L30, L31
.....4	366-0011	IND,10UH,SHIELDED,SMD	2	L9, L17
.....4	366-0180-001	INDUCTOR, 180nH, 10%, SMD, 1008	2	L5, L6
.....4	366-0334	IND,3.3uH,2A,10%,SMD	1	L7
.....4	366-2204	IND,22 uH,10%,LQH3C220K04,1210,SMD	3	L4, L18, L29
.....4	366-3100	FERRITE, 600 OHMS, 1.5 AMP, 100MHz,1206 SMD	6	L15, L16, L20, L21, L23, L24
.....4	366-6825	IND,POWER,SHIELDED,6.8 uH,20%,DT3316 CASE,SMD	4	L1, L2, L3, L28
.....4	367-9370	XFMR,SMT,AES/EBU,SC937-02	1	T1
.....4	390-3900	CRYSTAL,OSC,10MHz,VCTXO,SMD	1	Y1
.....4	390-4762	VDUGLA at 47.628 MHz,VCXO SMD	1	U29
.....4	390-5000	XTAL, OSC, 50MHZ, +3.3VDC, 50PPM	1	U39
.....4	408-0901	CONN, SOCKET, 9 POS, 1 ROW, 2MM	4	J4, J5, J6, J7
.....4	408-1000	HEADER,10-PIN,.100 CENTERS,DIP,note	2	J13, J16
.....4	413-1206	CHIP,TEST POINT,1206,SMD	21	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP21, TP22, TP23
.....4	417-0262	MALE XLR, PANEL MOUNT	1	J26

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	417-0265	CONN,BNC,JACK,THREADED,PC EDGE MOUNT,LOW PROFILE	3	J20, J23, J30
.....4	417-0308	CONN,JACK,3-PIN,SMD	3	J14, J15, J18
.....4	417-0331	CONN, 6 PIN, SMD	1	J28
.....4	417-0700	CONN,PCB MT,2PIN	1	J27
.....4	417-0903	RCPT, 9 PIN D, FEMALE	1	J21
.....4	417-1403	CONN,HEADER 14PIN DOUBLE ROW	1	J9
.....4	417-1517	CONN,HDR, 10-PIN SHROUDED PCB MT.	1	J3
.....4	417-1701	STRAIGHT JACK RECEPTACLE,SMB PCB MOUNT 50 OHM	4	J19, J24, J25, J31
.....4	417-5023	RCPT, 50 POS, 2 ROW, PCB, SAMTEC	2	J1, J2
.....4	418-0000	CONN, HEADER, 80 POSITION, DOUBLE ROW, .8MM, EDGEMOUNT	1	J10
.....4	418-1601	CONN,MALE,16-PIN,LATCH,PCB MT	1	J8
.....4	418-2602-001	CONN,HEADER,26 PIN,LATCH/EJECT,PCB	1	J29
.....4	519-0600	PCB MACH, EXGINE CARD	1	PCB1
.....4	979-0600-400	KIT,SW,NETBURNER,V4.00,EXGINE	1	
.....5	959-0620	NETBURNER, MOD-5272	1	
.....4	979-0600-S08	SOFTWARE,EXGINE,CPLD,U8	1	U8
.....5	224-9572	IC, CPDL, ZILINX XC9572	1	U8
.....4	979-0600-U19	KIT,SW,FLASH MEMORY,U19,V1.0,EXGINE	1	U19
.....5	216-4008	IC, 4MB FLASH MEMORY SERIAL SOIC-8	1	U19
.....3	949-0545	ASSY,CABLE,IBOC CARD,FXi60/250 (SBCM)	1	
.....4	402-0051	TY-RAP, W/FLAG	2	
.....4	417-1702	RIGHT ANGLE CRIMP TYPE PLUG,SMB,50 OHM	1	
.....4	417-1703	Straight Crimp Type Plug,SMB,50 ohm	1	
.....4	621-1359	CBL,COAX,RG316/U,50 OHM	1.5	
.....3	949-0600-101	ASSY,CABLE,FM AES/EBU TO STL,FXi (SBCM)	1	
.....4	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
.....4	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
.....4	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
.....4	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
.....3	949-0600-102	ASSY,CABLE,FM AES/EBU TO FM PRO,FXi (SBCM)	1	

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....4	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	10	
.....4	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
.....4	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
.....4	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
.....3	949-0600-103	ASSY,CABLE,FM AES/EBU,FXi TO XPi (SBCM)	1	
.....4	608-1800	CBL,SHLD,AES/EBU,BELDEN 1800B (N)	3	
.....4	611-0061	TUB,HT SHK CLEAR 3/64	0.166	
.....4	829-4216	PLUG,FEM XLR, A3F (XLR-3-11C)	1	
.....4	829-4217	PLUG,MALE XLR, A3M (XLR-3-12C)	1	
.....3	949-0610	ASSY,CABLE,SERIAL TO EXGINE (SBCM)	1	
.....4	417-0131	CONN,16 PIN 609-1630 ANSLEY	2	
.....4	600-0016	CBL,FLAT,16-COND,28GA	0.5	
.....3	949-0611	ASSY,CABLE,ETHERNET TO EXGINE (SBCM)	1	
.....4	417-2814	PLUG, 8 POS ETHERNET 10BaseT	2	
.....4	622-1245	CBL,ETHERNET,10BASET,CAT5	1	
.....3	949-0612	ASSY,CABLE,I/O TO EXGINE (SBCM)	1	
.....4	418-2600	CONN,26-PIN,RIBBON	2	
.....4	600-0026	CBL,FLAT,26-COND,28GA	0.583	
.....3	949-0613	ASSY,CABLE,10MHz IN/OUT,FXi/EXGINE (SBCM)	1	
.....4	417-0094	CONN,BNC RG/U58 31-320 AMPH	2	
.....4	622-0050	CBL,SH,50 OHM,RG-58/CU	2	
.....3	959-0600	ASSY,SUB,EXGINE,ETHERNET & I/O	1	
.....4	400-0600	STRIP,QUIET SHIELD,6.00x.197	2	
.....4	418-1550-010	CONN, PLUG 10-PIN CAGE CLAMP 3.81MM SPACING	2	P4, P5
.....4	420-0817	ASSY,FEMALE SCREWLOCK 205817-1	1	
.....4	422-6107	SCREW,SEMS 6-32 X 7/16 PAN PH.ST."	6	
.....4	441-2114	STOFF,ALUM 1/4HEX X 1 6-32	2	
.....4	471-5369	FILLER,OPTIONS,ETHERNET,FXi60/250	1	
.....4	919-0601	PCB, ASSY, EXGINE INPUT/OUTPUT	1	
.....5	417-1550-010	CONN, HEADER RT.ANGLE 10-PIN 3.81MM SPACING PCB MT	2	J4, J5
.....5	417-2609	CONN, HDR, 26 PIN, R. ANGLE SHROUDED	1	J29

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....5	421-6908	SHEET EDGE CONNECTOR 6-32	1	
.....5	519-0601	PCB, MACH, EXGINE INPUT/OUTPUT	1	
.....4	919-0602	PCB, ASSY, FXI ETHERNET	1	
.....5	417-0189	CONN,9PIN MALE,RTANG,PCB MT	1	J2
.....5	417-0267	CONN,RJ-45,8 PIN,R.ANGLE MODULAR JACK,SHIELDED,LOW PROFILE	1	J1
.....5	417-1100	CONN, RJ11, FILTERED, PCB MOUNT	1	J4
.....5	417-1609	CONN, HDR, 16 PIN, R. ANGLE SHROUDED	1	J8
.....5	417-7188	CONN,RJ-45 JACK SINGLE PORT 8-PIN SHIELDED PCB MOUNT	1	J3
.....5	420-4106	SCREW,4-40X.375,S.S. PH	2	
.....5	421-4001	4-40 S.S. HEX NUT	2	
.....5	421-6908	SHEET EDGE CONNECTOR 6-32	1	
.....5	423-4002	#4 LOCK S.S. SPLIT	2	
.....5	519-0602	PCB, MACH, FXI ETHERNET	1	
.....3	979-0541-013	KIT,SOFTWARE,FXi,CONTROLLER,V2.0.41	1	
.....4	579-0007	CD-CASE CLEAR PLASTIC	1	
.....4	597-0541-005	APPLICATION GUIDE, FXI 60/250 SOFTWARE UPDATE, V02.xx.41	1	
.....4	701-0018	ANTISTATIC BAG ZIPLOC 9X12 4M	1	
.....4	979-0541-C13	SOFTWARE,CD,FXi,CONTROLLER,V2.0.41	1	
.....3	979-0545-006	KIT,SOFTWARE,CDROM,EXGINE,HDP-V4.00	1	
.....4	579-0007	CD-CASE CLEAR PLASTIC	1	
.....4	597-0542-006	APPLICATION GUIDE, FSI 10 SOFTWARE UPGRADE	1	
.....4	701-0018	ANTISTATIC BAG ZIPLOC 9X12 4M	1	
.....4	979-0545-C06	CDROM,EXGINE,HDP-V4.00	1	

10 Schematics / Drawings

Overall Wiring Diagram, XPi 10 (909-6027-MB3)

Assy, PCB, Station Interface (919-0549)

Assy, PCB, Sample Rate Converter (919-0550)

Assy, PCB, XLR-BNC I/O Interface (919-0551)

Assy, PCB, RJ-45/USB/DB-9 I/O Interface (919-0552)

Assy, PCB, Terminal Strip I/O (919-0553)

Assy, PCB, Front Panel LED (919-0557-001)

Assy, PCB, LCD Power (919-0558)

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN

IPPS

GPS DATA

XLR/BNC BOARD 919-0551: IBOC MONITOR (JR8), AM/FM AES OUT (JR7), IBOC AES IN (JR6), AM/FM AES IN (JR5), 10 MHz REF OUT (J6), 10 MHz REF OUT (J7), 10 MHz REF OUT (J8), IPPS REF (J9), J10, RF OUTPUT (J12), 10 MHz IN (J11), P1 TOP, JP1, JP2, JP3

GPS SER

IBOC SER

RJ45 BOARD 919-0552: I/Q DATA (P3), PHASE OUT (P2), MAG I/Q (JP1), SERIAL DATA (JP14), SERIAL DATA (JP15), P1/A, ETHERNET (P5), MODEM (JP11), SPARE NC (P4), 10MHz (J7)

849-0682

849-0682

P5

586-149

PHOENIX BOARD 919-0553: JP9, JP5

DB BULKHEAD

TO REAR PANEL

GPS DATA

949-0542

GPS DATA

949-0543

SAMPLE RATE CONVERTER 919-0550: PWR, 44.1 KHz (J16), 10 MHz (J1), J2

GPS 959-0376: 10 MHz OUT, CONT, IPPS, ANT, +12VDC, COM

CONT

IPPS

TO REAR PANEL

ANT

TO REAR PANEL

RED

BLK

GPS LED

GPS

849-0681

AUDIO CARD 1 959-0379

AUDIO CARD 2 959-0379

MOTHERBOARD 959-0383-003

COM 2

S2

S3

SERIAL CARD 959-0385: P1

MODEM CARD 959-0378: TELCO

SIC CARD 919-0549 (USES AGP CONNECTOR): J135, J2, JP1, J17, J133

USB1

USB2

ETHERNET

TO SHT. 2 919-0557-001 J1-4

TO SHT. 2 959-4167 POWER

POWER SUPPLY 959-0382-003: SRC POWER, XLR/BNC PWR, FAN, AUX POWER, ATX POWER, POWER 2, POWER 1

TO SHT. 2 959-0384-001 POWER 1

COM1

VGA

MOUSE

KEYBD

IDE 1

IDE 2

ATX 'T'

+12V POWER ATX

2nd FAN J15

MSE

KEY

TO REAR PANEL

TO REAR PANEL

ATX

TO SHT. 2 959-0252-001 H2

TO SHT. 2 959-4167 P1

TO SHT. 2 959-0384-001 IDC 40

TO SHT. 2 959-0386 IDC 40

TO SHT. 2

TO SHT. 2

TO SHT. 2

TO SHT. 2

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY 6-26-07

DESIGNER(S)

PROJ. LEADER

MFG.

MATERIAL

FINISH

SEE DWG RA592-0000

NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N.24TH ST.,P.O.BOX 3606 QUINCY,IL 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE: OVERALL WIRING DIAGRAM XPi-10

TYPE S | SIZE D | DWG. NO. 909-6027-MB3 | REV A

MODEL XPi 10 | SCALE NTS | SHEET 1 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN

TO SHT. 1
959-0383-003
COM 1

TO SHT. 1
959-0383-003
VGA

TO SHT. 1
959-0383-003
IDE 1

TO SHT. 1
959-0383-003
IDE 2

TO SHT. 1
959-0383-003
ATX

TO SHT. 1
919-0549
SIC CARD
J133

TO SHT. 1
959-0382-003
ATX POWER

TO SHT. 1
959-0382-003
POWER 1

TO SHT. 1
959-0382-003
POWER 2

TO SHT. 1
959-0376
+12VDC/COM

TO SHT. 1
959-0376
CONT

S2

849-0603

TSC SER

DISPLAY
410-0101

H2
H4 TSC H1
959-0252-001

TSC PWR

949-4263

CN2 CN3 P1

DISPLAY
CONTROLLER
959-4167

CN8

OSD
959-0387

CNA1 CNB1 POWER

LCD

DSPY

J1
J3
J2
LCD PWR
919-0558

IDC 40
POWER 1
HARD
DRIVE
959-0384-001

IDC 40
POWER 1
CD-ROM
959-0386

RED
BLK
WHT
J1
LED
919-0557-001
1 +5VSB
2 COM
3
4 GPS

TYPICAL
RED
BLK
BLK
YEL
+5V
COM
COM
+12V
BLK
RED

380-0310 FAN
RED
BLK
+12V
COM

RED
BLK
BLK
RED
+5V
COM
COM
+12V
RED
BLK
BLK
YEL

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY 6-26-07
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL
FINISH
SEE DWG RA592-0000
NEXT ASSY.

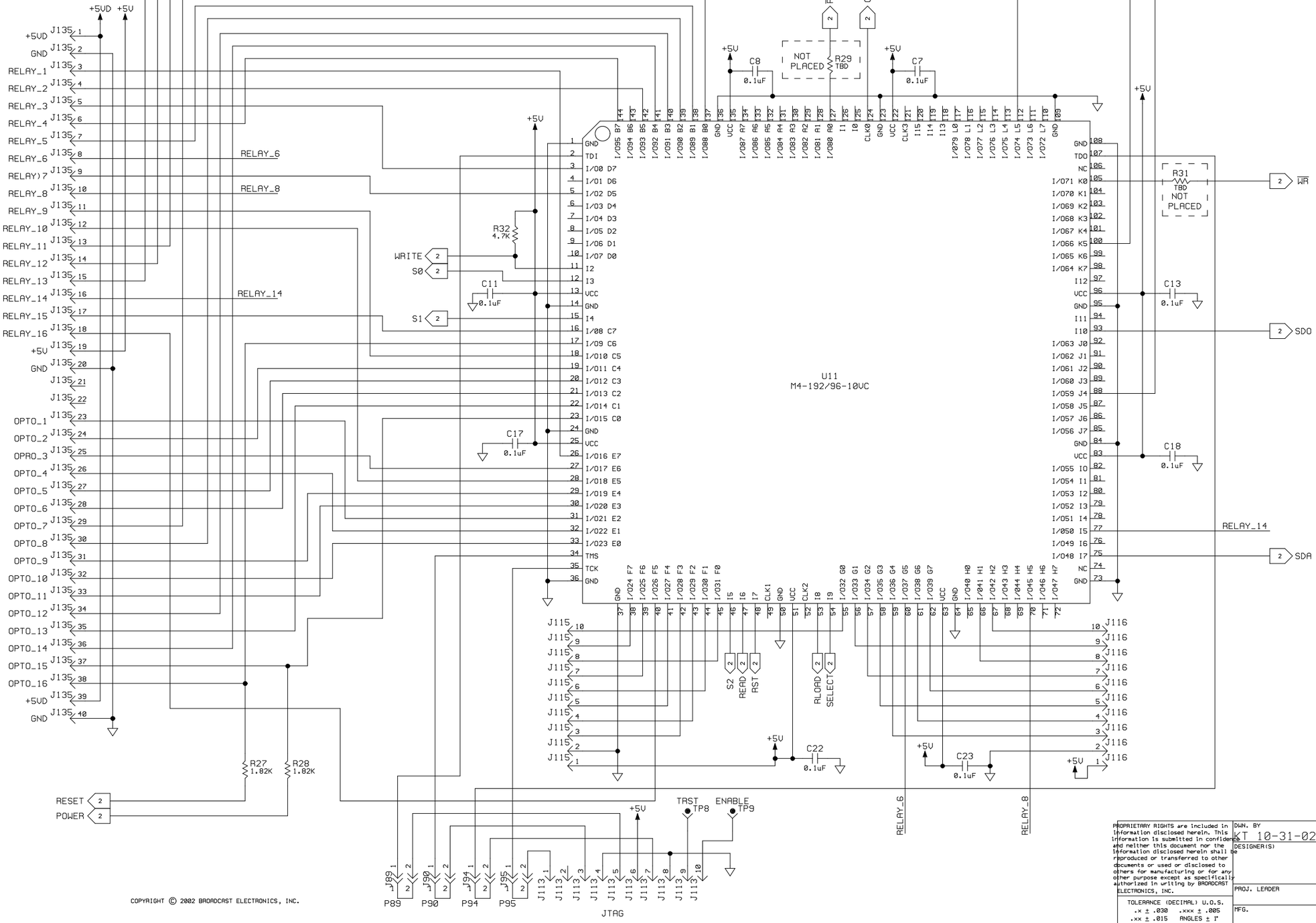
BROADCAST ELECTRONICS INC.
4100 N.24TH ST.,P.O.BOX 3606 QUINCY,IL 62305 217/224-9600
TELEX 250142 CABLE BROADCAST FAX 217/224-9607

TITLE
OVERALL WIRING DIAGRAM
XPi-10

TYPE	SIZE	DWG. NO.	REV
S	D	909-6027-MB3	A

MODEL XPi 10 SCALE NTS SHEET 2 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	10-31-02	REDRAWN IN P-CAD	KT	DK	----
C	8-10-05	SEE SHEET2	KT	DK	11319



TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 10-31-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0549
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE STATION INTERFACE

TYPE S | SIZE D | DWG. NO. 919-0549 | REV C

MODEL NNNN | SCALE NONE | SHEET 1 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	10-31-02	REDRAWN IN P-CAD	KT	DK	----
B	2-9-05	CHGD J133	KT	DK	11250
C	8-10-05	ADDED NOTES FOR P3	KT	DK	11319

+5V
+5VD
D1 GREEN
D2 GREEN
R24 1.82K
R25 1.82K
+5V=ALWAYS ON
+5VD=SWITCHED
ATX INTERFACE
J133 1–10
PS_ON_OUT
PS_ON_IN
C2 10uF
C35 10uF
J140
NOT PLACED
PW_OK
SDO
SDA
CLKIN
JP1 1–24
POWER_LED
POWER_FAULT
POWER_SWITCH
RESET
U4
PIC16F877
RC6/TX/CK 44
RC5/SDO 43
RC4/SDI/SDA 42
RD3/PSP3 41
RD2/PSP2 40
RD1/PSP1 39
RD0/PSP0 38
RC3/SCK/SCL 37
RC2/CCP1 36
RC1/T1OSI/CCP2 35
NC 34
RC7/RX/DT 1
RD4/PSP4 2
RD5/PSP5 3
RD6/PSP6 4
RD7/PSP7 5
VSS 6
VDD 7
RB0/INT 8
RB1 9
RB2 10
RB3/PGM 11
NC 33
RC0/T1OSO/T1CKI 32
SC2/CLKOUT 31
OSC1/CLKIN 30
VSS 29
VDD 28
RE2/AN7/CS 27
RE1/AN6/WR 26
RE0/AN5/RD 25
RA5/AN4/SS 24
RA4/T0CKI 23
NC 12
NC 13
RB4 14
RB5 15
RB6/PGC 16
RB7/PGD 17
MCLR/VPP 18
RA0/AN0 19
RA1/AN1 20
RA2/AN2/VREF- 21
RA3/AN3/VREF+ 22
C26 20pF
C27 20pF
Y1 20MHz
R6 39
C34 0.1uF
WR
RD
WRITE
TPS
RESET
POWER
S0
S1
S2
C33 0.1uF
SELECT
RLOAD
RST
READ
MAX3221CAE
U24
EN
C1+
V+
C1-
C2+
C2-
V-
R1IN
FORCEOFF
VCC
GND
T1OUT
FORCEON
T1IN
INVALID
R1OUT
C28 0.47uF
C31 0.1uF
C32 0.47uF
C29 0.47uF
C30 0.1uF
R20 332
R21 332
R22 332
R23 332
J2 1–10
J8
PIC ICD PROGRAM
J3
P3
TEST PURPOSES ONLY
NORMAL OPERATION
J130
RESET
MAX705TCSA
U5
WDO
RESET
WDI
PFO
MR
VCC
GND
PFI
R18 4.75K
C25 0.1uF

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 10-31-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0549
FINISH
NEXT ASSY.

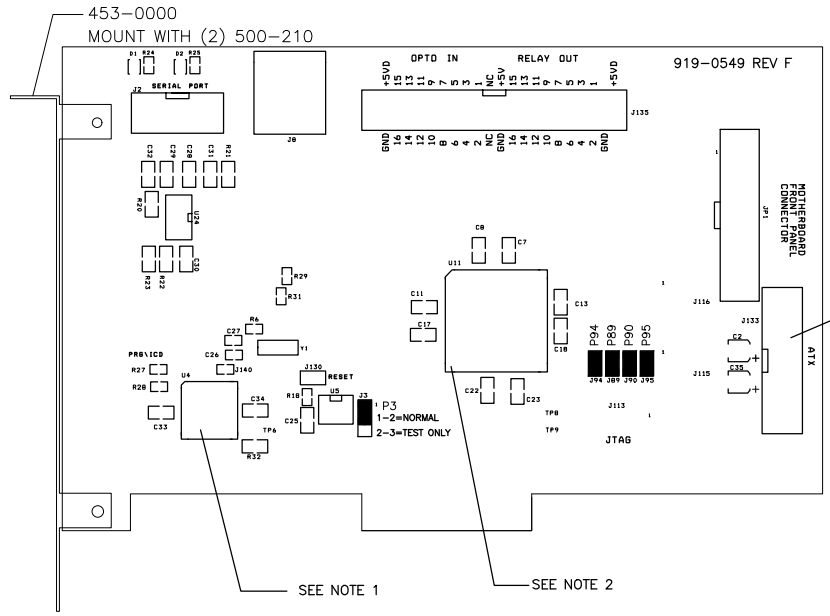
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE STATION INTERFACE

TYPE	SIZE	DWG. NO.	REV
S	D	919-0549	C

MODEL NNNN SCALE NONE SHEET 2 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-31-02	MODEL RELEASE	KT	DWK	----
B	10-1-02	ADDED 453-0000 & 2 500-210	KT	DWK	10797
C	10-29-02	ADDED P3,P89,P90,P94 & P95	KT	DWK	10809
D	11-8-02	ADDED SOFTWARE NOTES	KT	DWK	10823
E	2-3-03	ADDED NOTE TO REMOVE PIN 2 OF J133	KT	DWK	10895
F	2-9-05	CHGD TAB & J133, MOVED JP1	KT		11250
G	8-10-05	ADDED JUMPER TABLE & ADDED NOTES TO P3			



NOTES:
1) INSTALL 979-0549-U4 VER 1.0
2) INSTALL 979-0549-U11 VER 1.0
3) ADD LABELS TO U4 & U11 INDICATING U# AND VER#.

JUMPER TABLE		
	NORMAL OPERATION	TEST PUPOSES ONLY
P3	1-2	2-3
P89	INSTALLED	N/A
P90	INSTALLED	N/A
P94	INSTALLED	N/A
P95	INSTALLED	N/A

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TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 5-31-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0549
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

TITLE STATION INTERFACE BOARD

TYPE A | SIZE C | DWG No. 919-0549 | REV G

MODEL NNNN | SCALE 1/1 | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
1	10-7-02	PROTOTYPE RELEASE	KT		----
A	11-15-02	TIED U5-OUT NET TO +5V; MODEL RELEASE	KT	DK	----
B	1-28-03	CHGD C25,C26,R26: ADDED C53,C54: FIXED J4	KT	DK	10877
C	12-29-04	CHGD R26 TO 3.01K	KT	DK	11215

NOTES:
1. ALL RESISTORS IN OHMS: 1/10W, 1% UNLESS OTHERWISE SPECIFIED.
2. LAST COMPONENT USED:C54,D4,DS2,J16, K1,L5,P15,Q5,R84,T3,TP11,U14
3. COMPONENTS NOT USED:C17-C21, C38-C42,J5,R31,R53-R56,R63,R65, R59,TP1-TP8,U8,P1-P11
4. SEE ASSEMBLY:AC919-0550
5. * INDICATES NOT PLACED: R31,R51,R52,R67,C25,U9 C33,C35,C36,C37,R12
6. # DENOTED XP1 FUNCTION

REV	DESCRIPTION	DRAFTER	APPROVED	ECN
G	4-20-07 CHG'D R44 (102-5112) MADE FL1-FL12 (102-0000)	JTB		11529
F	6-23-06 CHG'D U7 TO(216-4111):ADD L3,L4(366-0010-001)	JTB	DK	11451
E	5-17-05 CHGD NOTES: SEE SHEET 2 ALSO	KT	DK	11289
D	2-14-05 CHGD NOTES: SEE SHEET 2 ALSO	KT	DK	11259

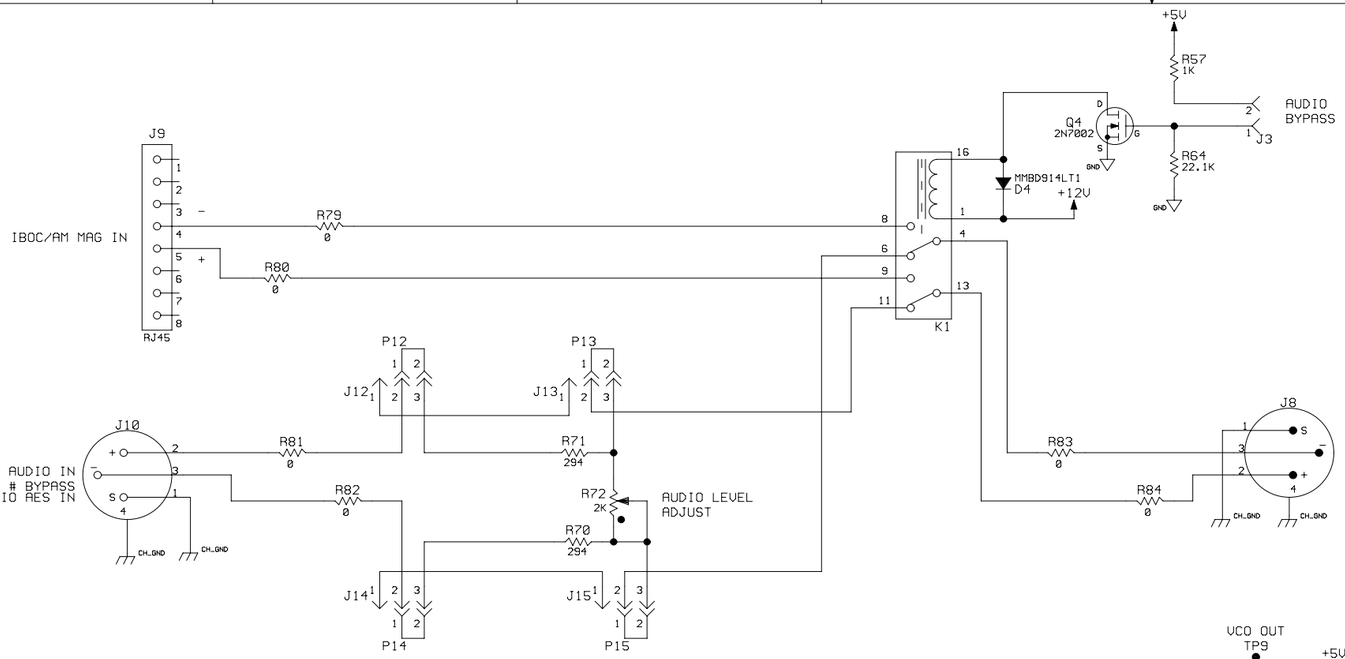
TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 8-2-02
DESIGNER(S)
PROJ. LEADER
MFG.
MATERIAL SEE BOM 919-0550
FINISH
NEXT ASSY.

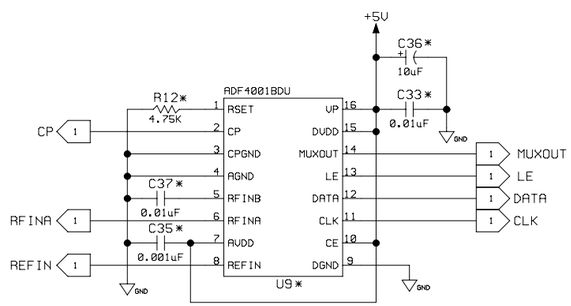
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

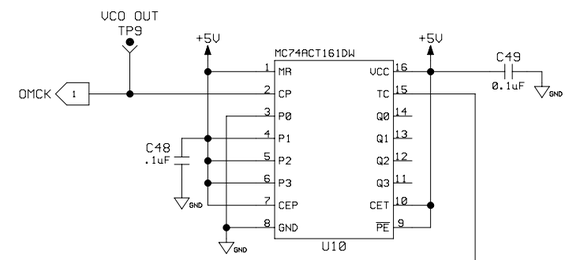
TITLE: SRC CARD
TYPE S | SIZE D | DWG. NO. 919-0550 | REV G
MODEL AS1/XP1 | SCALE NONE | SHEET 1 OF 2

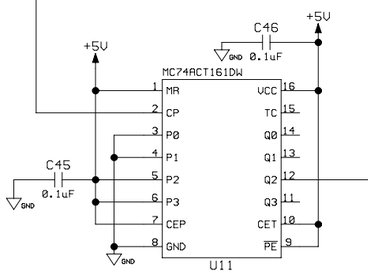
REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
1	10-7-02	PROTOTYPE RELEASE	KT		----
A	11-15-02	DEL C41 & C42; TIED U13-4 & R67 TO GND	KT	DK	----
B	1-28-03	ADDED R70,R71,R72; FIXED J10	KT	DK	10877
C	2-14-05	ADDED J12-J15,P12-P15 & JUMPER TABLE	KT	DK	11259
D	5-17-05	ADD C31-C33,C35-C37,J16,R12,R27,R31,R44,U7,U9	KT	DK	11289
F	6-23-06	CHG'D U7 TO (216-4111)ADD L3,L4(365-0010-001)	KT	DK	11451
G	4-20-07	CHG'D R44 (102-5112) MADE FL1-FL12 (102-0000)	JTB		11529

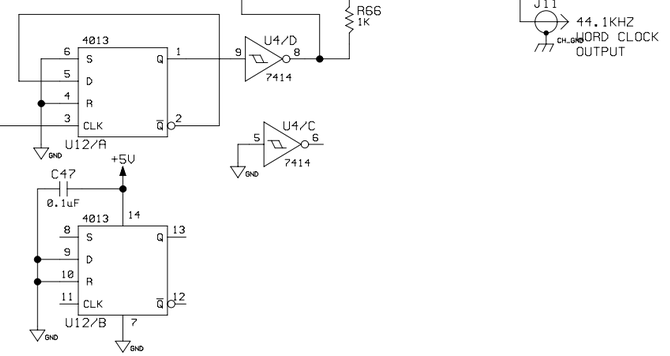


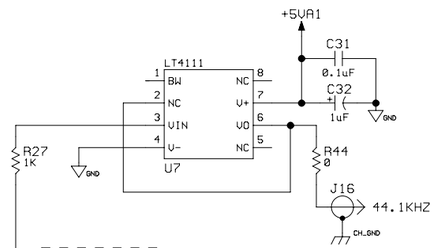
JUMPER SETTINGS		
	XP1-10	AS1-10
J12	1-2	2-3
J13	1-2	2-3
J14	1-2	2-3
J15	1-2	2-3











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TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 8-2-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0550
FINISH
NEXT ASSY.

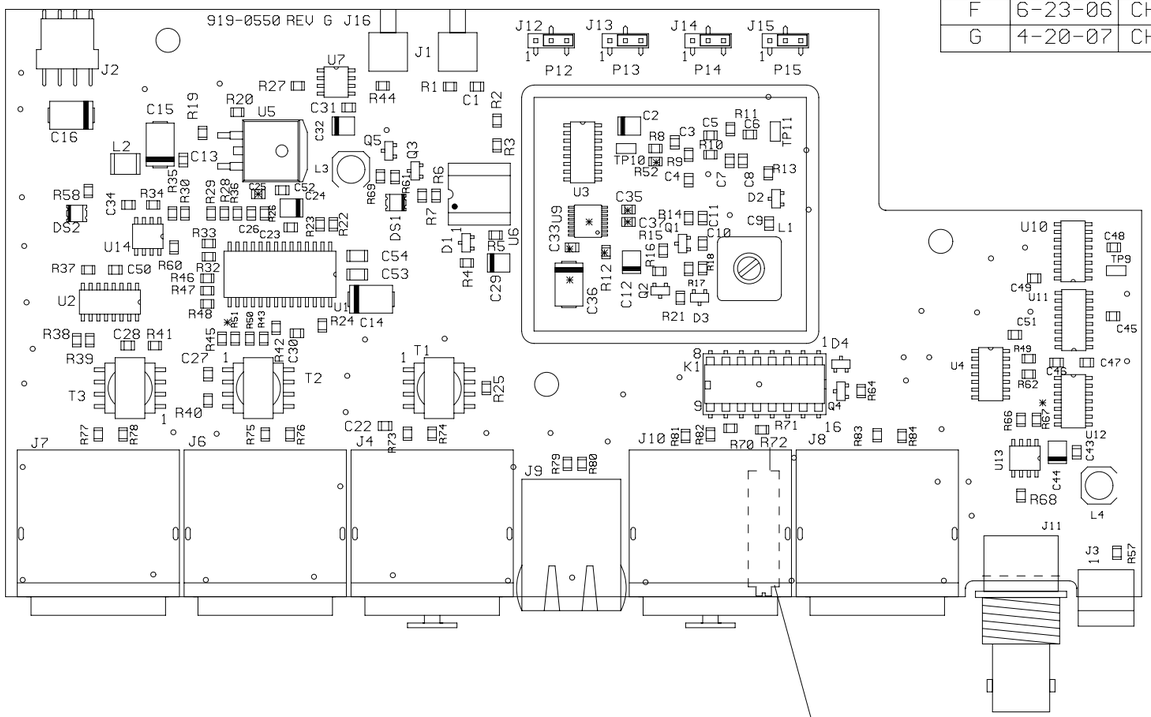
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

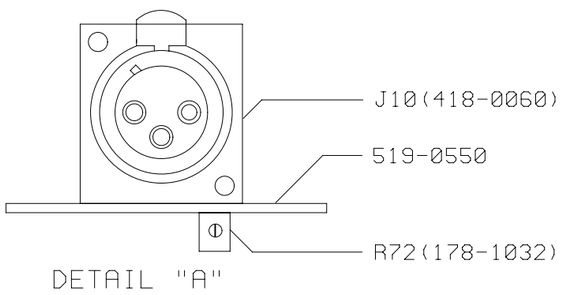
TITLE: SRC CARD

TYPE S | SIZE D | DWG. NO. 919-0550 | REV G

MODEL AS1/XP1 | SCALE NONE | SHEET 2 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
1	9-26-02	PROTOTYPE RELEASE	KT		----
A	11-15-02	FIXED L1; DEL C41 & C42, CHGD NETS: MODEL BUILD	KT	DK	----
B	1-29-03	ADDED R70-R72,C53,C54; CHGD C26,R26; MARKED C25 AS NOT PLACED; FIXED J4 & J10	KT	DK	10877
C	12-29-04	CHGD R26 TO 102-3011	KT	DK	11215
D	2-15-05	ADDED J12-J15,P12-P15; MADE BOARD 0.300" WIDER	KT	DK	11259
E	5-18-05	ADDED C31-C37,J16,R12,R27,R31,R44,U7,U9	KT	DK	11289
F	6-23-06	CHG,D U7 TO (216-4111):ADD L3,L4(366-0010-001)	JTB	DK	11451
G	4-20-07	CHG'D R44 (102-5112)CHG'D FL1-FL12 TO(102-0000)	JTB		11529





DETAIL "A"

NOTES:

1) * INDICATES PART NOT PLACED (C25,C33,C35-C37,R12,R51, R52,R67,U9)
2) INSTALL SOFTWARE 979-0550-U6 VER 1.0, BEFORE ASSEMBLY
3) INSTALL R72 ON SOLDER SIDE BEFORE INSTALLING J10.

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 8-19-02

DESIGNER(S)

PROJ. LEADER

MFG.

MATERIAL SEE BOM 919-0550

FINISH

NEXT ASSY.

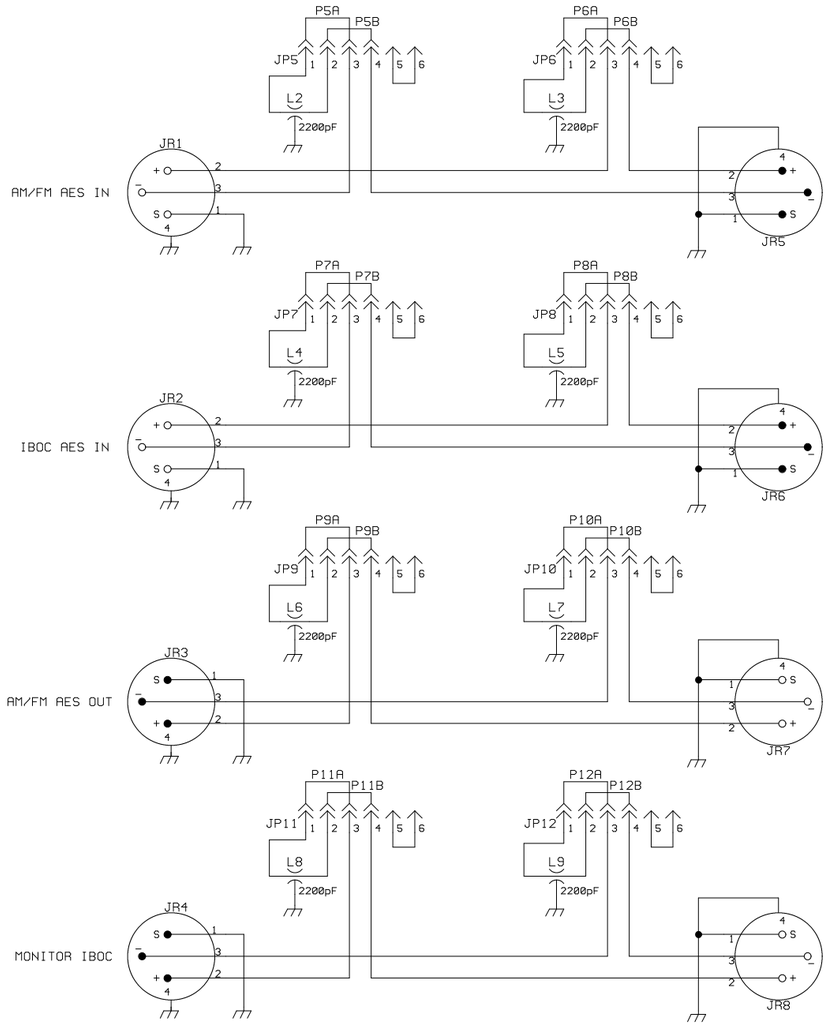
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

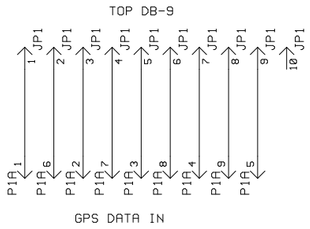
TITLE: SRC CARD

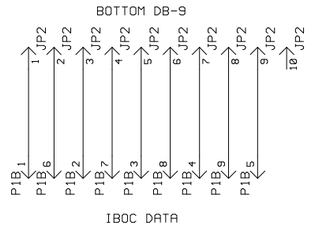
TYPE	SIZE	DWG No.	REV
A	B	919-0550	G

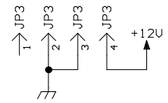
MODEL ASi/XPi | SCALE 1/1 | SHEET 1 OF 1

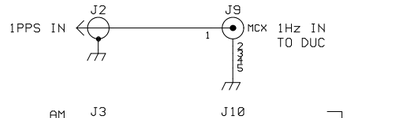
REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-31-02	MODEL RELEASE	KT		----
B	10-3-02	TIED J4 & J11 TO T1 PIN 1; CHGD J11 TO A 417-1701	KT	JW	10799
C	10-29-02	ADDED NOTES & P5A-P12B & CLEANED UP TO MATCH BOARD	KT	DK	10811
D	1-28-03	DEL R10 & R15	KT	DK	10870
E	5-16-05	CHGD JR1-JR8	KT	KS	11285

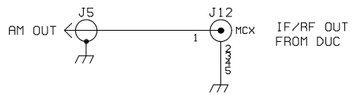


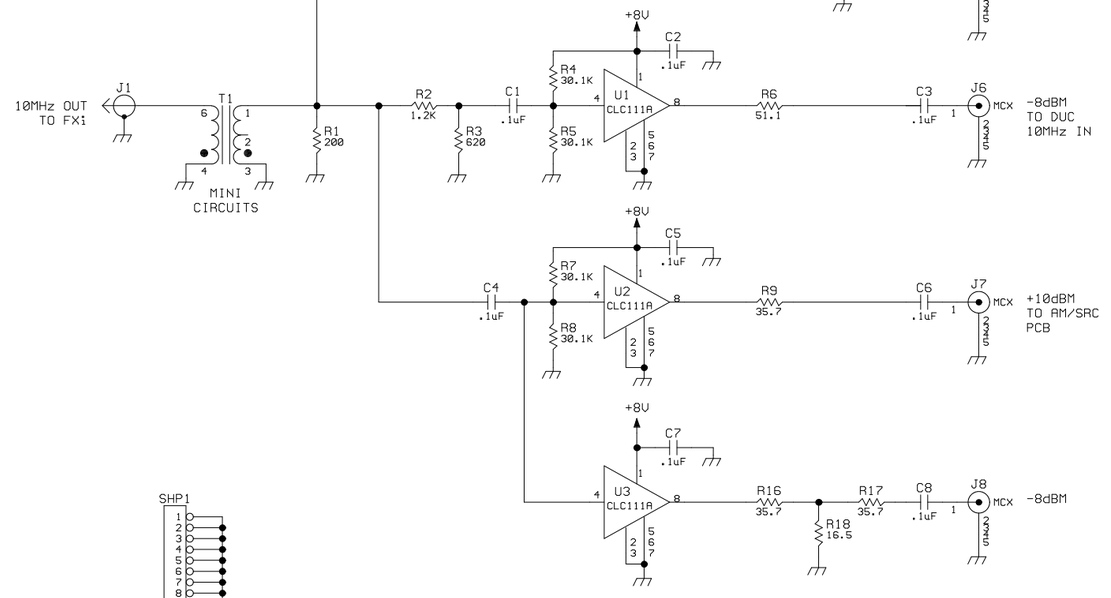


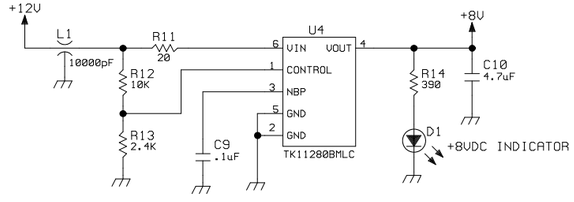


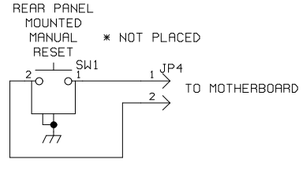


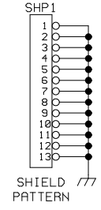












TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY	KT 5-31-02
DESIGNER(S)	
PROJ. LEADER	
MFG.	
MATERIAL	SEE BOM 919-0551
FINISH	
NEXT ASSY.	

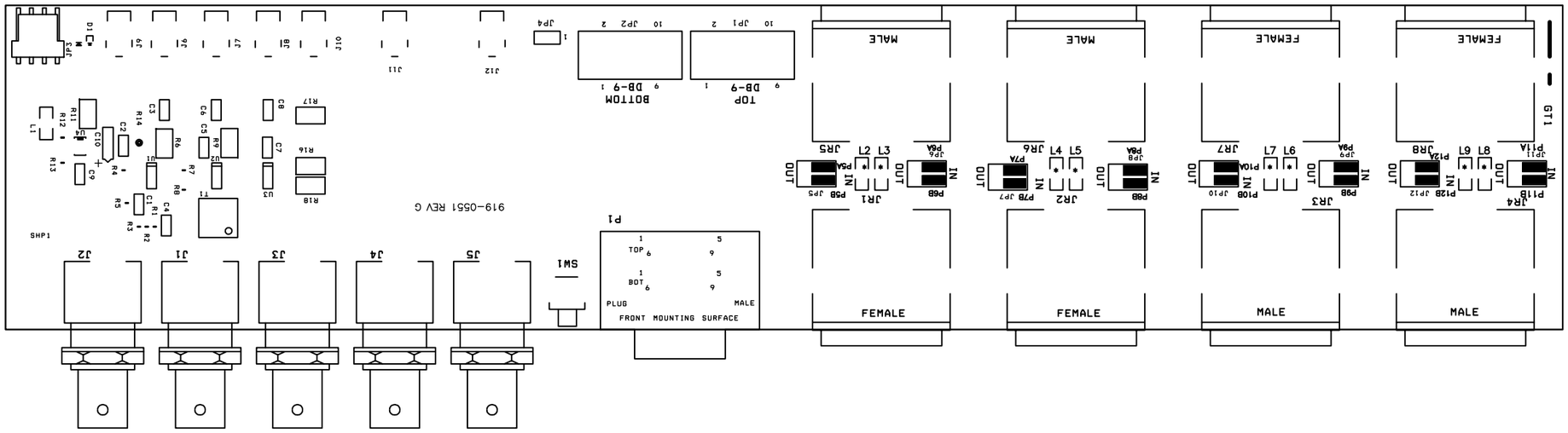
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE: XLR-BNC I/O INTERFACE

TYPE	SIZE	DWG. NO.	REV
S	D	919-0551	E

MODEL NNNN | SCALE NONE | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-30-02	MODEL RELEASE	KT	JW	---
B	10-3-02	ADDED 4 .028 HOLES & TRACE : CHANGED J11 TO A 417-1701	KT	JW	10799
C	10-29-02	ADDED P5A-P12B; INDICATED L2-L9 & ADDED NOTES	KT	DK	10811
D	1-29-03	DEL R10 & R15	KT	DK	10870
E	5-16-03	CHGD JP5-JP12 TO 417-2600	KT	DK	10965
F	3-15-05	ADDED 4 0.171 HOLES	KT	DK	11265
G	5-16-05	CHGD JR1-JR8	KT		11285



NOTES:
1) * INDICATES COMPONENT STUFFED ON SOLDER SIDE (L2-L9)

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1 °

DWN. BY KT 5-31-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0551
FINISH
NEXT ASSY.

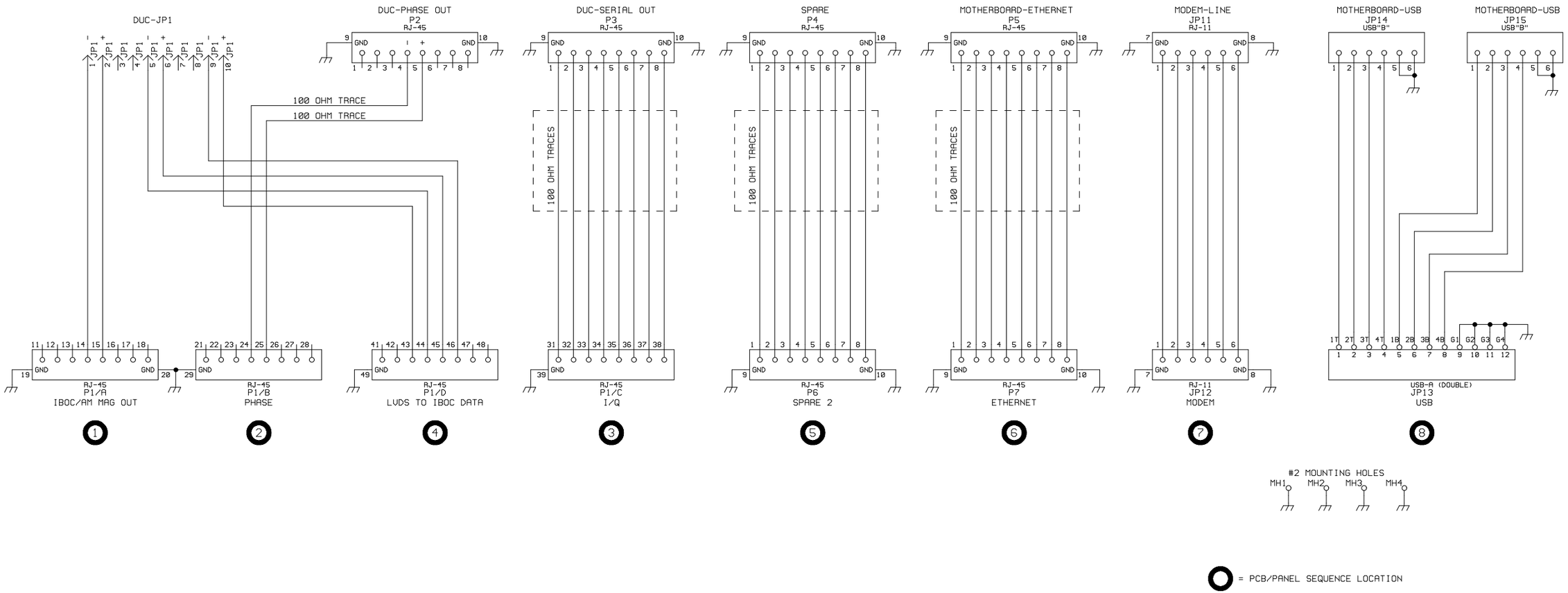
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

TITLE: BNC XLR BOARD

TYPE	SIZE	DWG No.	REV
A	B	919-0551	G

MODEL NNNN | SCALE 1/1 | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	10-24-02	REDRAWN IN P-CAD; ENGINEERING RELEASE	KT		----



TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 10-24-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0552
FINISH
NEXT ASSY.

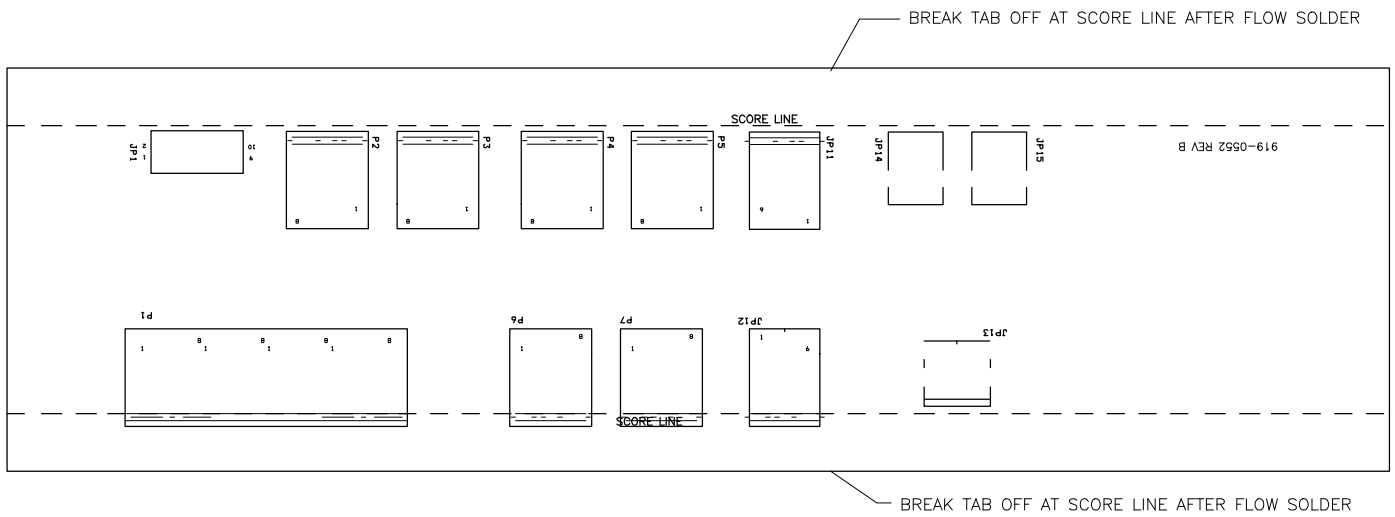
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE
RJ-45/USB/DB-9 I/O INTERFACE

TYPE	SIZE	DWG. NO.	REV
S	D	919-0552	A

MODEL NNNN | SCALE NONE | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-29-02	MODEL RELEASE	KT	DK	----
B	3-2-05	ADDED 2 0.500 INCH BREAKAWAY TABS	KT	DK	11263



TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 5-29-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM
919-0552
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

TITLE RJ USB

TYPE	SIZE	DWG No.	REV
A	C	919-0552	B

MODEL NNNN SCALE 1/1 SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	10-23-02	REDRAWN IN P-CAD; ENGINEERING RELEASE	KT		----

MB1 MB2 MB3 MB4

5V_ISO1

+5V

R3 390 U7391CT-ND

R5 3.3K U733CT-ND

R6 390 U7391CT-ND

R4 3.3K U733CT-ND

ILQ621 U1 U2 U3 U4

C2 C3 C5

INPUT 1 (DIGITAL CARRIER ON)
INPUT 2 (DIGITAL CARRIER OFF)
INPUT 3 (AUDIO RAMP UP TO DELAY)
INPUT 4 (AUDIO RAMP DOWN FROM DELAY)
INPUT 5 (AUDIO DELAY INCREASE)
INPUT 6 (AUDIO DELAY DECREASE)
INPUT 7 (AUDIO-A BYPASS ØN)
INPUT 8 (AUDIO-A BYPASS OFF)
INPUT 9 (AUDIO-B BYPASS ON)
INPUT 10 (AUDIO-B BYPASS OFF)
INPUT 11 (DAY)
INPUT 12 (NIGHT)
INPUT 13
INPUT 14 (SYSTEM SHUTDOWN)
INPUT 15 (SYSTEM POWER ON/OFF TOGGLE)
INPUT 16 (SYSTEM RESET)

JP1 JP3 JP6 JP8

STBY_ISO

R10 390 R11 390 R12 3.3K R13 3.3K

STBY

DSP1N5S U16

DR1P5-05S05 U17

C9 10uF C10 10uF C11 10uF C12 10uF

U13/A U13/B U13/C U13/D U13/E U13/F
U14/A U14/B U14/C U14/D U14/E U14/F
U15/A U15/B U15/C U15/D U15/E U15/F
SN74AC14

C13 C14 C15 .1uF

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 10-23-02
DESIGNER(S)
PROJ. LEADER
MFG.

MATERIAL SEE BOM 919-0553
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE TERMINAL STRIP, I/O INTERFACE

TYPE S | SIZE D | DWG. NO. 919-0553 | REV A

MODEL NNNN | SCALE NONE | SHEET 1 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	10-23-02	REDRAWN IN P-CAD; ENGINEERING RELEASE	KT		----

+5V
5V_ISO2
DR1P5-05S05
VIN+ VIN+ NC NC NC NC VOUT- VOUT- VOUT+ VOUT+ VIN- VIN-
U18
C7 10uF
C8 10uF
R1 390 U7391CT-ND
R2 390 U7391CT-ND
R7 390 U7391CT-ND
R14 390 U7391CT-ND
DN1 MA718
DN2 MA718
DN3 MA718
DN4 MA718
DN5 MA718
AD4C111
U5
U6
U7
U8
U9
U10
U11
U12
C1
C4
C6
G1 G2
G2 G1
S2A D5
S2A D6
S2A D7
S2A D8
D1 S2A
D2 S2A
D3 S2A
D4 S2A
D9 S2A
D10 S2A
D11 S2A
D12 S2A
JP2
JP4
JP7
JP9
OUTPUT 1 (DIGITAL CARRIER ON/OFF STATUS)
OUTPUT 2 (AUDIO RAMP UP/DOWN STATUS)
OUTPUT 3 (AUDIO DELAY IN/DECREASE STATUS)
OUTPUT 4 (AUDIO-A BYPASS STATUS)
OUTPUT 5 (AUDIO-B BYPASS STATUS)
OUTPUT 6 (DAY/NIGHT STATUS)
OUTPUT 7 (SYSTEM SHUTDOWN STATUS)
OUTPUT 8 (SYSTEM OPERATIONAL STATUS)
OUTPUT 9 (SYSTEM ALARM STATUS)
OUTPUT 10
OUTPUT 11
OUTPUT 12
OUTPUT 13 (AUDIO-A BYPASS STATUS (RELAY))
OUTPUT 14 (AUDIO-B BYPASS STATUS (RELAY))
OUTPUT 15
OUTPUT 16 (SYSTEM OPERATIONAL STATUS)

TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 10-23-02
DESIGNER(S)
PROJ. LEADER
MFG.

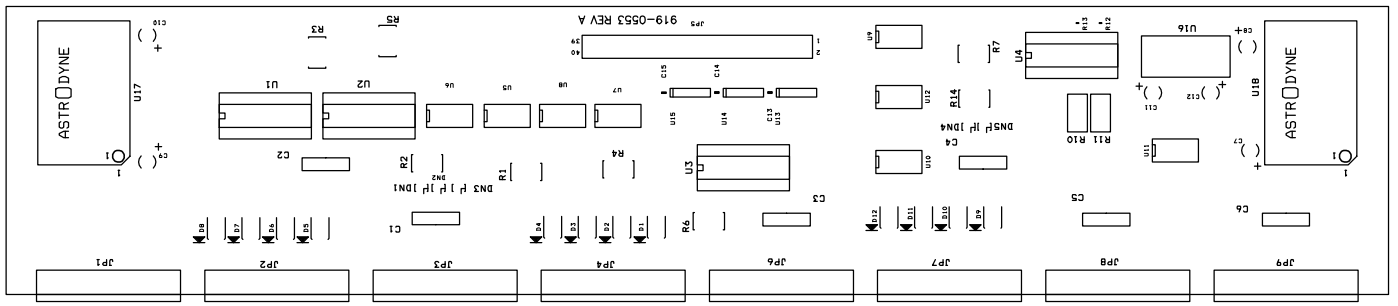
MATERIAL SEE BOM 919-0553
FINISH
NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE TERMINAL STRIP, I/O INTERFACE

TYPE S | SIZE D | DWG. NO. 919-0553 | REV A
MODEL NNNN | SCALE NONE | SHEET 2 OF 2

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-29-02	MODEL RELEASE	KT		----



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TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 5-28-02	MATERIAL SEE BOM 919-0553	BROADCAST ELECTRONICS INC.
DESIGNER(S)	FINISH	4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305 217/224-9600 FAX 217/224-9607
PROJ. LEADER		TITLE: PHOENIX BOARD
MFG.	NEXT ASSY.	TYPE A · SIZE C · DWG No. 919-0553 · REV A
		MODEL NNNN · SCALE 1/1 · SHEET 1 OF 1

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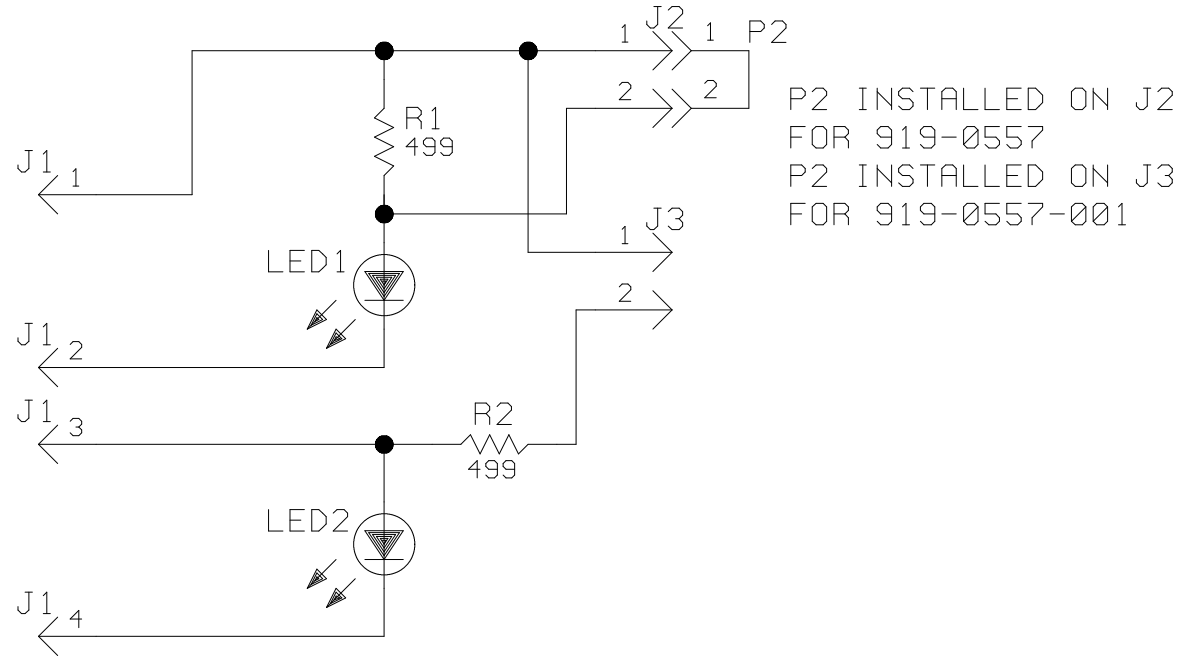
REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-23-02	MODEL RELEASE	KT	RH	----
B	9-18-02	ADDED R1,R2,P2,J2 & J3; ENGINEERING RELEASE	KT		10782



TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 5-23-02

DESIGNER(S) RH 5-23-02

PROJ. LEADER

MFG.

MATERIAL SEE BOMS
919-0557
919-0557-001

FINISH

NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE FRONT PANEL LED BOARD

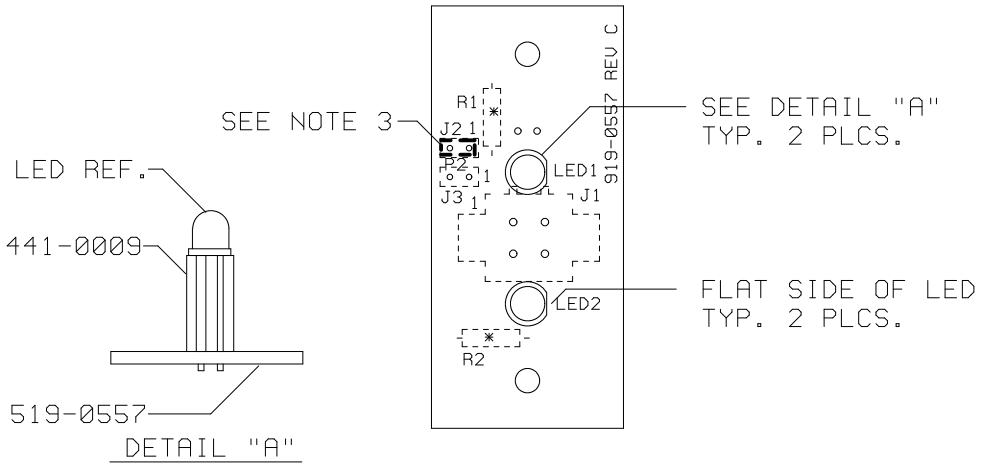
TYPE	SIZE	DWG. NO.	REV
S	A	919-0557/-001	B

MODEL FM-IBOC | SCALE NONE | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	5-23-02	MODEL RELEASE	KT		----
B	8-15-02	CORRECTED DETAIL	KT		----
C	9-18-02	ADDED R1,R2,J2,J3,P2; ENGINEERING RELEASE	KT		10782

NOTES:

1: J1,J2,J3,R1,R2 ARE MOUNTED ON THE SOLDER SIDE.
2: * INDICATES R1,R2 ARE NOT MOUNTED ON 919-0557.
3: P2 IS INSTALLED ON J2 FOR 919-0557.
P2 IS INSTALLED ON J3 FOR 919-0557-001.



COMPONENT	919-0557	919-0557-001
LED1	323-9224	323-9224
LED2	323-9217	323-9224

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 5-23-02

DESIGNER(S)

PROJ. LEADER

MFG.

MATERIAL SEE BOMS
919-0557
919-0557-001

FINISH

NEXT ASSY.

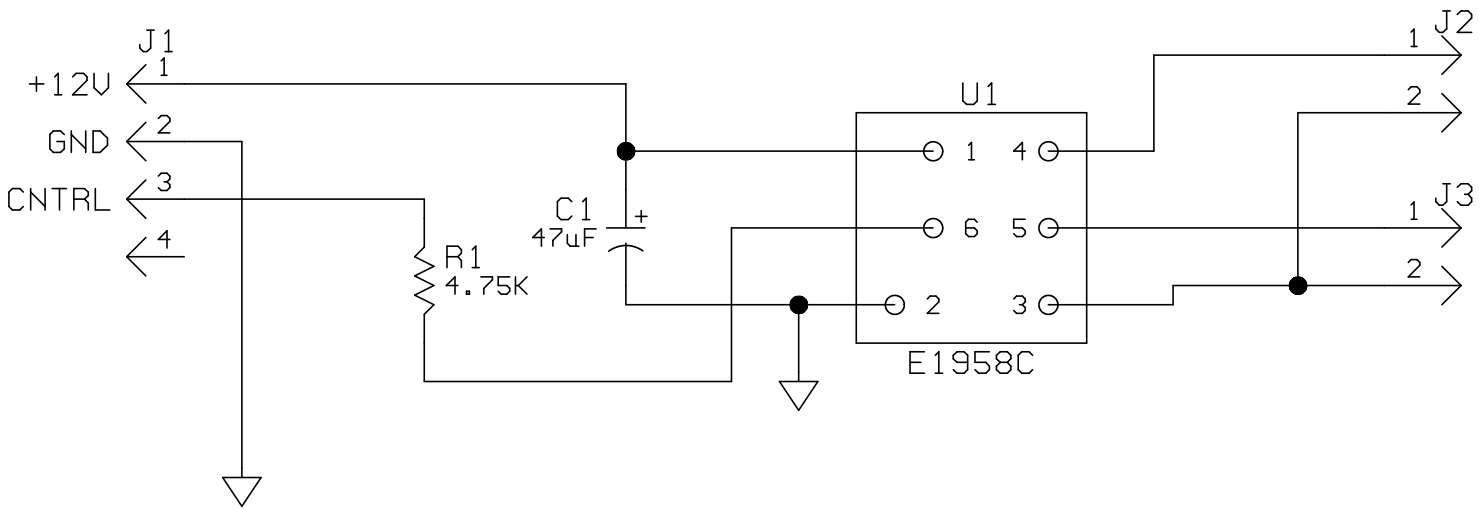
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

TITLE
FRONT PANEL LED BOARD

TYPE	SIZE	DWG No.	REV
A	A	919-0557/-001	C

MODEL NNNN | SCALE 1/1 | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	7-2-02	PROTOTYPE RELEASE/MODEL RELEASE	KT	JT	----
B	2-9-05	ADDED R1	KT		11251



TOLERANCE (DECIMAL) U.O.S.
.x ± .030 .xxx ± .005
.xx ± .015 ANGLES ± 1°

DWN. BY KT 7-2-02

DESIGNER(S)

PROJ. LEADER

MFG.

MATERIAL SEE BOM 919-0558

FINISH

NEXT ASSY.

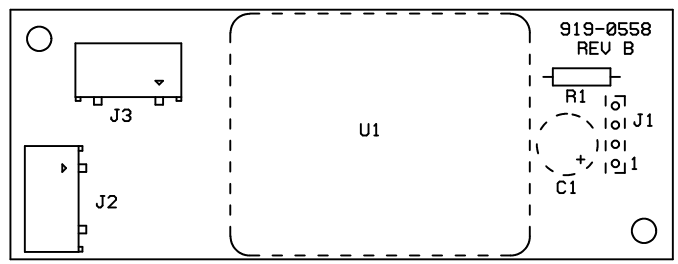
BROADCAST ELECTRONICS INC.
4100 N. 24TH ST., P.O.BOX 3606 QUINCY, IL. 62305
217/224-9600 FAX 217/224-9607

TITLE LCD POWER

TYPE	SIZE	DWG. NO.	REV
S	A	919-0558	B

MODEL NNNN | SCALE NONE | SHEET 1 OF 1

REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
A	7-3-02	MODEL RELEASE	KT		----
B	2-10-05	ADDED R1	KT		11251



NOTES:

1) DASHED OUTLINE COMPONENTS PLACED ON SOLDER SIDE: (C1,J1,U1)

TOLERANCE (DECIMAL) U.O.S.
.X ± .030 .XXX ± .005
.XX ± .015 ANGLES + 1°

DWN. BY KT 7-3-02

DESIGNER(S)

PROJ. LEADER

MFG.

MATERIAL SEE BOM 919-0558

FINISH

NEXT ASSY.

BROADCAST ELECTRONICS INC.
4100 N. 24TH ST. P.O.BOX 3606 QUINCY,IL. 62305
217/224-9600 FAX 217/224-9607

TITLE
LCD POWER SUPPLY

TYPE	SIZE	DWG No.	REV
A	A	919-0558	B

MODEL NNNN | SCALE 1/1 | SHEET 1 OF 1