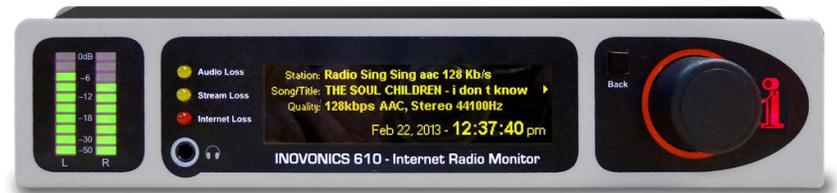


# 610

## Internet Radio Monitor

### Installation & User Guide

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*Serving the broadcast industry since 1972*



April, 2013 - Rev. 1 Firmware

**i INOVONICS**  
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# INOVONICS WARRANTY

- I **TERMS OF SALE:** Inovonics products are sold with an understanding of “full satisfaction”; that is, full credit or refund will be issued for products sold as new if returned to the point of purchase within 30 days following their receipt, provided that they are returned complete, and in “as received” condition.
- II **CONDITIONS OF WARRANTY:** The following terms apply unless amended *in writing* by Inovonics, Inc.
- A. The Warranty Registration Card supplied with the product *must* be completed and returned to Inovonics, or the Warranty registered online at [www.inovonicsbroadcast.com](http://www.inovonicsbroadcast.com), within 10 days of delivery.
  - B. The Warranty applies only to products sold “as new.” It is extended only to the original end-user and may not be transferred or assigned without prior written approval by Inovonics.
  - C. The Warranty does not apply to damage caused by misuse, abuse, accident or neglect. This Warranty is voided by unauthorized attempts at repair or modification, or if the serial identification tag has been removed or altered.
- III **TERMS OF WARRANTY:** Inovonics, Inc. products are warranted to be free from defects in materials and workmanship.
- A. Any discrepancies noted within THREE YEARS of the date of delivery will be repaired free of charge, or the equipment will be replaced with a new or remanufactured product at Inovonics’ option.
  - B. Parts and labor for factory repair required after the three-year Warranty period will be billed at prevailing prices and rates.
- IV **RETURN OF GOODS FOR FACTORY REPAIR:**
- A. Equipment will not be accepted for Warranty or other repair without a Return Authorization (RA) number issued by Inovonics prior to its return. An RA number may be obtained by calling the factory. The number should be prominently marked on the outside of the shipping carton.
  - B. Equipment must be shipped prepaid to Inovonics. Shipping charges will be reimbursed for valid Warranty claims. Damage sustained as a result of improper packing for return to the factory is not covered under terms of the Warranty and may occasion additional charges.

Section VIII  
TECHNICAL MATTERS

**‘Under the Hood’**

The Model 610 Internet Radio Monitor is very compact, utilizing mostly surface-mounted (SMD) components. Many of these are ‘application-specific’ and/or pre-programmed at the factory, but all of them are impossibly tiny. This makes servicing the unit in the field a difficult proposition at best. For these reasons, and also because of the small format of this manual, we have dispensed with schematic diagrams, servicing instructions and a listing of component parts.

Having said that, our policy has always been one of ‘full disclosure.’ We feel that, unless we are doing something deceitful, there should never be a reason to hide information from the user. With a clear conscience, and upon request, we will cheerfully provide additional documentation and divulge all but the very darkest secrets concerning any Inovonics product.

Because it is so small and lightweight, returning the 610 for factory servicing or firmware upgrades is an option that we encourage. Inovonics has never considered factory repair charges a significant source of revenue, and we are confident that you will be astonished at how reasonable our rates actually are!

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## Saving the Hardware Profile

The entire 610 setup, which includes selected hardware options, network connection preferences and the Preset Stations list, may be saved to your computer as a small text file. The Hardware Profile is useful for restoring a previous 610 setup or for 'cloning' a second unit for backup service.

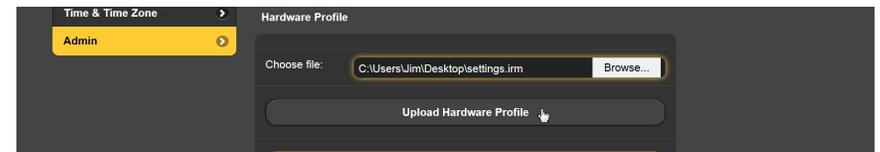
The Hardware Profile utility is found under the Web interface Admin screen.

Click: Download Hardware Profile to save the profile to your computer.



You will be asked to specify a 'save to' location, the Windows Desktop in this illustration. The file is automatically named settings.irm, although you may specify another name if you like.

To upload saved settings to your 610, first click: Browse... to locate your saved profile, and then click: Upload Hardware Profile to replace the setup parameters in your 610.



## Downloading the Alarm Log

The Alarms & Notifications screen includes a provision for downloading the Alarm Log to your computer as an alarmlog.csv (comma-separated values) file. This may be tucked-away for later failure analysis, and may be opened with any text-editing utility (Windows Notepad) or spreadsheet program (Microsoft Excel).

IP address of the 610. This should get you to the main Web page shown on the previous page, assuming that you are on the same network as the 610.

### **The Web Interface Pages**

The sample screenshot may be difficult to resolve in this small-format manual. Each page will present the Menu (upper-left), which serves the same purpose as the front-panel Main Menu. A larger (computer) browser screen allows us to consolidate functions on some screens, so Web interface Menu choices may be fewer. Most everything is there, however, so look around here and at the various other screens to find what correlates with the front-panel menu choices.

For example, the Now Playing screen pictured displays the metadata info on the program currently playing, and also hosts a Left/Right Level Meter, the URL Tuner and the Preset Stations utility. Whatever can be done from the front panel in any of these areas may be done here, and vice-versa. Especially when entering streaming URLs, it is much easier to copy and paste or type the Internet address into the Stream Address box here.

The Alarms and Notifications screen shows all three associated front-panel submenus on the one Webpage. Using the Web interface, the Alarm Log may be downloaded to your computer as described at the end of this section.

Between the Network and the Dynamic DNS screens, connection parameters may be set up and confirmed just as they are from the front panel of the 610. One bonus feature of the Web interface is the Hardware Profile utility also detailed at the end of this section.

Email Preferences duplicates the front-panel utility for setting-up the 610 to send e-mail or mobile-device text messages triggered by Audio-Loss, Stream-Loss or Internet-Loss alarms.

Similarly, Time & Time Zone presents an easy manner in which to set the local time offset from UTC, and to specify daylight saving time... or not.

The Admin screen is any easy means of setting up a password for the 610, but also has another bonus feature: Hardware Profile, described next.

## Section I

### INTRODUCTION

#### **Product Description**

The Inovonics 610 provides uninterrupted monitoring of “Internet Radio” streaming quality and performance. The 610 is easily set up and operated with the front-panel jog wheel and OLED display, and a full-featured Web interface is accessible using any PC, tablet or smart phone with a browser.

#### **Product Features**

Features of the Inovonics 610 include:

- Automatically decodes MP3, Ogg Vorbis and AAC Internet streaming audio formats.
- Displays stream metadata: Station ID, Song/Program Info, Quality (format and bitrate).
- Easy setup using the OLED screen and jog-wheel navigation of the monitor’s menu tree.
- Full-function Web interface works with any browser.
- Self-logging alarms for audio loss, stream loss and Internet loss. Provides alarm ‘tallies’ for remote indication and sends e-mail or text message alerts.
- Analog L/R and AES-digital program line outputs.
- Accurate front-panel LED metering.

## Product Specifications

**Network Connection:** LAN (RJ-45) jack accepts universal TCP/IP connection to Local Area Network, and via router to the Internet.

**Streaming Formats Supported:** MP3 (32kbps - 320kbps); Ogg Vorbis (32kbps - 500kbps); AAC (32kbps - 384kbps).

**Metadata Decoded/Displayed:** Station (streamer's ID); Song/Title (artist and title or program name); Quality (streaming rate, encoding format, mono or stereo and original sampling rate).

**Program Audio Output(s):** +4dBu balanced analog Left/Right (XLR), 200-ohm source impedance; AES digital (XLR), 48kHz sampling rate; Front-Panel Headphone Jack (3.5mm TRS), adjustable.

**Alarm Tallies:** Individual open-collector NPN transistor outputs for Audio Loss, Stream Loss and Internet Loss.

**Power Requirement:** 12VDC at 450mA (2.1mm x 5.5mm coaxial); a 'wall-outlet transformer' (WallWart®) switching-type power supply appropriate to the destination AC mains voltage is provided.

**Mounting Options:** An optional rack adapter mounts one or two 610s in a standard 19-inch 1U rack space.

**Size and Weight:** 1.6"H x 8"W x 6."D; 5 lbs. shipping weight.

## Section VII

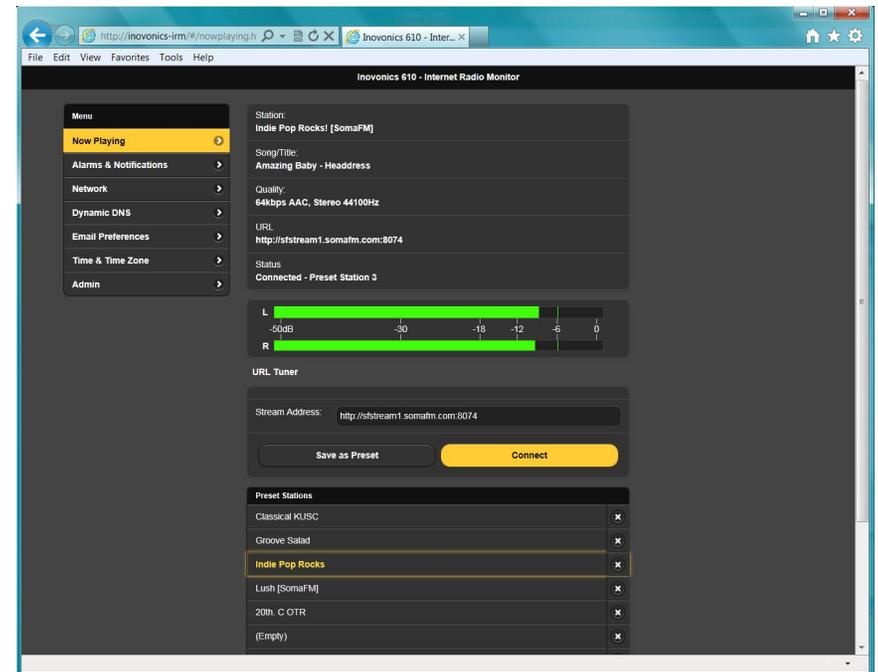
### THE 610 WEB INTERFACE

Up to this point we've used the front-panel display and 'jog wheel' knob to get the 610 Internet Radio Monitor up and running. Nearly any function may be accessed in this manner, but entering and editing text is much easier using the Web interface screen and a real keyboard.

Because the functionality of the Web interface is identical to what can be accomplished from the front panel, this discussion will not go into detail with each Web screen. These details have already been covered where operation is presented from a front-panel perspective. Functions that may be accessed only with the Web interface will be discussed however.

#### Connecting With the 610

From a Windows-environment browser, type in the Host Name followed by a / (forward slash). Otherwise enter the



## **Resetting the 610 to Factory Defaults**

You may reset the 610 to factory-default values if there is a good reason to do so. You might want to start afresh with the confidence that no previous settings are hiding somewhere in the bowels of the device, or as mentioned earlier, you might have forgotten the 610's password.

Do, and any case however, consider retaining the user settings as a small file on your computer. That way, if the reason for your factory reset proves fruitless, you can easily restore the prior settings. This involves saving a 'hardware profile,' which is detailed on Page 23.

To perform a full factory reset, first unplug power from the device. Next, hold-down the front-panel Back button and, while holding it down re-connect the power. This will purge all user-entered data from the 610.

## Section II

# GETTING STARTED

### **Unpacking and Inspection**

Immediately upon receipt of the 610 Internet Radio Monitor, inspect for any possible shipping damage. If damage is found or suspected, notify the carrier at once, and then contact Inovonics.

We recommend that you set aside the original shipping carton in the event that return for Warranty repair is required. Shipping damage sustained as a result of improper packing for return may invalidate the Warranty!

### **Warranty Registration**

Please complete the Warranty Registration process. Not only does registration assure coverage of the equipment under terms of the Warranty (printed inside the back cover of this manual), but the user is assured of receiving specific service and modification instructions, including software / firmware updates. Register online at:

[www.inovonicsbroadcast.com/product-registration](http://www.inovonicsbroadcast.com/product-registration)

### **Mounting**

The Model 610 Internet Radio Monitor is packaged in a compact, half-rack format. It comes with rubber feet so that it may sit on a desktop, or it may be placed atop an existing piece of rack-mounted equipment as long as at least 1U of panel space is left open to access the 610 front panel.

An optional rack-mount kit is available that can accommodate a single or a pair of 610s. The kit comes with a blanking panel for an unused space, and with a 'daisy-chain' power cable so that two 610s may share a single supply.

### **AC Mains Power**

The 610 is supplied with an outboard switching-type power supply suited to the destination mains voltage. The actual power consumed is 450mA at 12 volts DC. A second DC connector on the rear panel of the 610 allows the user to

'daisy-chain' two units to share a common AC power supply. Do make sure that the total input power specification does not exceed the current rating noted on the power supply label.

### **Radio Frequency Interference (RFI)**

Although we have anticipated that the 610 will find a home in radio broadcasting environments, please do practice reasonable care in locating the unit away from *abnormally* high RF fields.

### **The Front-Panel Display and Controls**

The front-panel OLED graphic display screen presents the setup/operate menu tree in an easy-to-read format, and all setup can be done with jog wheel entry. The display does employ a screen saver, so when the screen goes completely dark, simply push the jog wheel or Back button once to bring the screen back to life. No selection or change is made with this wake-up call.

### **Navigating the Menus**

Basically, you *turn* the jog wheel knob to cycle among and highlight menu items, and then *push* the knob to select/edit the highlighted item. To further clarify:

- 1) If you land on a menu item that requires a text or numerical entry, a text-entry screen appears. *Turn* and *push* the knob to select and input characters, punctuation, backspace, etc. Then select Save and *push* the knob to commit, or press the Back button next to the knob to cancel the operation.
- 2) If the selection is a checkbox, *push* the knob to toggle it.
- 3) If the screen shows a 'slider,' *turn* the knob to change the value and then *push* the knob or press the Back button to commit.

You may always press the Back button repeatedly to return to the Main Menu screen shown here.



to allow unbridled access to the unit. The password is retained in non-volatile memory nonetheless.

If you forget the password, then you must perform a complete 610 reset to factory defaults. This is described on Page 20.

### **Panel Display Brightness**

By navigating to Setup / Admin / Brightness, you may change the brightness of the graphic display from an approximate 70% default value to a higher or lower setting. We don't recommend a higher setting because there is little visible difference between 70% and 100%, and a high setting may shorten the life of the OLED graphic display. A lower setting may appear sharper and be a bit kinder on the eyes in a dark room.

### **Updating the 610 Firmware**

The Inovonics 610 Internet Radio Monitor is a *firmware*-based product. 'Firmware' refers to the code loaded into the microcontroller that defines not only how the 610 hardware works, but it also holds the Web interface for remote operation of the product.

From time to time, and as propriety demands, Inovonics may issue firmware updates, always free of charge. These updates are *bootloaded* into the 610. A bootloader is a simple software routine that runs on a computer connected to the same local network (LAN) as the 610.

When updates are available, they will be issued with complete installation instructions. Until updates and the all-important instructions are received, we recommend against exploring the Firmware Update screen under Setup / Admin. If curiosity overcomes you there are still two warning screens beyond this point. However, should you ever get to the dreaded 'point of no return' screen shown here, simply power-cycle the unit to cancel the update and return to normal operation. Further experimentation in this area could render your 610 inoperable, requiring a return to the factory for a 'hard' firmware reload.

**FIRMWARE UPDATE:  
Ready for Upload**

## Section VI

# HOUSEKEEPING FUNCTIONS

### Time and Time Zone

The 610 Internet Radio Monitor maintains a real-time clock to ensure the accuracy of the Alarm Log. The 610 automatically downloads the current date and time from the Internet, but the proper time zone must be specified for your location.

From the Main Menu, navigate to Setup / Time & Time Zone. Bracket the Time Zone slider, push the knob, and then turn the knob to dial-in your offset from UTC, or Coordinated Universal Time.



In the US, the Pacific Coast is UTC -8.0, Mountain Time is UTC -7.0, Central is UTC -6.0 and Eastern is UTC -5.0. And, yes, there are areas in this world that are offset by half-hours too!

Daylight Saving Time is accommodated with the two check boxes. You may check the  Auto DST box to have the Internet do the work for you, or check the  DST box to 'force' Daylight Saving Time. Leaving both boxes unchecked ignores DST completely.

### Password Protection

You may assign a password to the 610. The password must then be entered for front-panel access, or entered into the Web interface to establish communication between your computer or mobile device and the 610.

From the Main Menu, navigate to Setup / Admin / Security. Using the data entry screen (push the knob again), enter and then Save a password of your choosing. You will need to remember this password, not only to get into your Internet Radio Monitor, but to change the password to a new one. From the Security menu, you may choose either to  Enable password protection, or you may leave this box unchecked

### Headphone Monitoring

The front-panel PHONES jack will accommodate both low- and high-impedance stereo headphones with a 3.5mm stereo plug. When headphones are plugged in, the display will automatically go to the Headphone Volume screen, and the jog wheel knob will adjust the listening level. When the volume has been set at a comfortable level, push the Back button to return to the previous menu. The Headphone Volume screen may also be reached from the Main Menu.

### Rear Panel Connections

#### NETWORK

The rear-panel RJ-45 jack connects with your local network (LAN), and from there through your network router to the Internet and the rest of this big, beautiful world. The network connection conforms to standard TCP/IP protocol.

#### G A S I

These are alarm "tally" outputs for remote indication of fault conditions. Designations are also noted on the rear panel and stand for: Ground, Audio Loss, Sream Loss and Internet Loss.

The three alarm outputs are the collectors of NPN transistors that saturate to ground for an alarm condition. Up to 100mA may be 'sunk' by each of these outputs to operate relays or LED indicators using an external voltage source up to 24VDC. The negative side of the external power source must be returned to the G (Ground) terminal on the rear panel of the 610.

The plastic connector body may be unplugged from the chassis to make connection easier and for quick disconnect.

#### ANALOG LINE OUTPUTS L/R

The active-balanced analog line outputs supply a program level of +4dBu at 0dBFS, the digital-full-scale value of the incoming stream. These outputs have a 200-ohm source impedance.

AES DIGITAL  
AUDIO OUTPUT

The balanced, transformer-isolated AES digital audio output has a fixed sampling rate of 48kHz. An incoming stream level of 0dBFS gives a 0dBFS AES digital output.

+12VDC  
POWER I/O

Two paralleled 'coaxial' connectors allow 'daisy-chaining' two 610s that share a common rack adapter, provided that the rating of the supply is not exceeded. A short 'pigtail' cable is provided with each rack adapter for power loop-through.

The Model 610 Internet Radio Monitor draws a maximum of 450mA. Check the rating on the label of the power supply to make sure it's gutsy enough for the modules it must support.

These power connectors are not a locking type, and the mating plugs pull out rather easily. A Ty-Wrap® will secure power cables to the plastic anchor positioned above the power connectors if you foresee this as a problem.

Navigate from the Main Menu to Setup / Email Preferences. Under SMTP Server an example might read smtp.gmail.com. Enter this information by bracketing the SMTP Server box and pushing the knob to bring up the text entry screen. Turn and push the knob to make the entry, and then Save it.



The default Port 465 and Use SSL would be the proper choices in this particular Gmail case, but other e-mail servers have different requirements.

Under Sender, you would enter the account Username for the account and a Password.

Under Recipients you may enter up to three e-mail addresses that will receive the fault alerts. Put in the entire e-mail address, such as: tech@mystream.com.

When all the necessary account information has been entered, the Send Test Email utility will confirm proper setup.

Some e-mail programs and third-party junk-mail filters may classify messages from the 610 as SPAM. To avoid missing alerts, add the 610's e-mail address to the 'contacts' list(s) of all recipients.

When all the necessary account information has been entered, the Send Test Email utility will confirm proper setup.

### **Alarm Log Settings**

From the Main Menu, navigate to Setup / Alarm Log Settings. A slider labeled Email When: may be set to send an e-mail notification when the Alarm Log is a certain percentage of its capacity. This could be an alternative to individual e-mail alerts; instead you get just one e-mail after a significant number have been logged. The log is capable of holding 2000 individual fault incidents; the slider may be set to any value between 1% and 100%.

Below the slider is the Clear Log button. Activating this will clear the Alarm Log completely. There is a second "Are you sure..." screen after this button is activated.

Once the program level falls and remains below the Audio Threshold, for 5 seconds, the front-panel LED will begin to flash at a 1-second rate. At the end of the Timer period the LED will glow steadily, a closure to ground will be applied to the rear-panel Audio Loss alarm terminal, and the alarm will simultaneously be noted in the Alarm Log.

### E-mail Notifications

Navigate to Alarms & Notifications / Email Notifications. Here you may check boxes to receive an e-mail alert whenever



the 610 logs any (or all) alarms, both when the fault condition occurs, and when it is cleared. Be forewarned, however, that you will receive a notification for each and every fault occurrence, so if the network is having a bad day you could be inundated. Of course if the Internet is down, you are not going to receive e-mails from the 610 anyway.

Alarms are logged on a kind of 'hierarchical' basis. If the Internet connection is lost, you will get only an Internet Loss alarm logged, not a Stream Loss and/or an Audio Loss concurrently. The Stream Loss alarm will be logged when the Internet radio station goes "off the air," and an Audio Loss is logged only when the Internet and stream are intact but there's no program playing. The front-panel LEDs and rear-panel tallies do respond indiscriminately, however. If you pull out the LAN cable you'll get immediate Stream Loss and Internet Loss LED and rear-panel alarms, and an Audio Loss one after the timeout period.

### E-mail Setup

Once it has been set up, the 610 sends e-mails in exactly the same manner as an e-mail 'client' (program) such as Outlook or Thunderbird. Of course e-mails may be addressed directly to e-mail recipients, but can easily be sent as text messages to mobile phones. If you are not familiar with this latter process, there is a very good tutorial at: <http://sms411.net/how-to-send-email-to-a-phone/>.

In either event you will have to know various setup options, which may simply be borrowed from an existing e-mail account if you don't want to set up a separate one just for 610 alarm notifications.

## Section III

### CONNECTING TO THE INTERNET

#### Front Panel vs. Web Interface

The 'responsive' design of the 610 Web interface provides an optimal viewing experience across a wide range of devices. From desktop computer monitors to mobile phones, a minimum of resizing, panning, scrolling is required. Data entry using a real keyboard will almost always prove easier than knob-and-button menu navigation, and the Web interface is thoroughly covered in a later section.

Initial 610 configuration (setup) is described using front-panel 'knob and button' data entry, since this is necessary to get the unit online in the first place.

#### DHCP IP Assignment

With the LAN jack on the back of the 610 connected to your network, navigate from the Main Menu to Setup / Network / IP Settings. Here you may select:  DHCP to have your router automatically assign an IP address to the 610. Once DHCP connection is established, the fields on the right-hand side of the screen should populate automatically.



#### Manual IP Setup

For any of several reasons you may need to set the IP address of the 610 manually. Check the  Static IP box and continue to turn the knob to bracket the various network options shown on the right. Push the knob to bring up each data-entry screen, and then turn and push to enter the proper decimal-delineated numbers. Use Backspace to erase an entry or to make corrections and, when you're finished, Save the new entry.

It is not within the scope of this discussion to detail the manual-IP setup procedure, but a competent IT professional should be familiar with the intricacies of this operation.

## Assigning a Host Name

This second item on the Network menu allows the user to give a unique name to a particular Internet Radio Monitor. This will identify the 610 when accessing it via the network. The factory-default name is INOVONICS-IRM. A valid reason to change this might be to differentiate one 610 from another on a common network.

Push and turn the knob to assign a new name and Save the name when finished. Although Host Names are entered in all-capital letters, it is not necessary to use all-caps when addressing the monitor. For instance, under the Windows® operating system you may access the 610 through a Web browser on the same network simply by typing its name and a forward-slash (inovonics-irm/) into the browser address bar like this:



Non-Windows browsers will probably require entering the unique IP address of the 610.

## Accessing the 610 Remotely

As just explained, you may access the 610 Web interface on the same local network (LAN) by entering its IP address or, under Windows, its Host Name into your browser address bar. The IP address of the 610 may be seen on the Network / IP Settings screen (IP:) or on the Network / Status screen (Internal IP:).

To address the 610 from outside your LAN (from the Internet) the unit must have a static IP address. If your router makes DHCP assignments for other equipment on the network, simply assign the 610 a static IP that is outside the router's DHCP range. This should be an easy matter with the aid of the router's Help utility.

It is also necessary to open a specific port for the 610 on the network router. Within the router's Port Forwarding utility you will be able to enter your static IP address for the 610 (Internal IP), followed by a colon and a port number. The port number may be any number in the range indicated by the router. If your Internet Service Provider (ISP) assigns you a static IP address, then it is a simple matter to address

## Section V

### ALARMS AND NOTIFICATIONS

The 610 Internet Radio Monitor provides alarms for three separate fault conditions: Audio Loss, Stream Loss and Internet Loss.

Three front-panel LEDs signal these faults, and a closure to ground on the rear panel allows the alarms to be monitored remotely. Alarms may also be programmed to trigger e-mail or text message alerts; this is addressed later in this section.

#### The Alarm Log

Navigate to Alarms & Notifications / Alarm Log will display a listing of all alarms, the most recent on top. The type of Alarm, the particular Station tuned, and the Time & Date of the occurrence are shown, both when the fault occurs and when operation is restored. This log is available with the Web interface as well.

#### Audio Loss Setup

From the Main Menu, navigate to Alarms & Notifications / Audio Loss. There are two settings to be made here.



The Timer slider sets the number of seconds between the onset of 'dead air' and the alarm. How this is set may depend on the stream format. A classical music or an oral interpretation stream might call for a setting of 30 seconds or more to allow for the soft passages or long pauses inherent in these formats. A high-energy music outlet, on the other hand, could be safe with a 10-second setting.

The Audio Threshold slider sets the peak level, below which program audio peaks must remain for the programmed Timer period. Again this may depend on the format, but an all-around setting suggestion is -21dB.

been truncated as this field will accept only 15 characters, including spaces. Once you have assigned a suitably concise name, Save the name, which will then appear at the bottom of the Preset Stations list.



The list may be re-ordered through a slightly convoluted process. You may move any existing preset to the top of the list by making it the 'Now Playing' station and renaming it with the same name. You'll then have two identical listings, and the duplicate underneath may be deleted. Repeat as necessary to get the list sorted to your satisfaction.

To delete a preset, go to the very bottom of the Preset Stations menu, highlight Delete and push the knob. The flashing X highlight may be positioned over any preset, and when you push the knob again that preset will be deleted.

the 610 from anywhere. Just type the IP address and port number into your browser; for example:



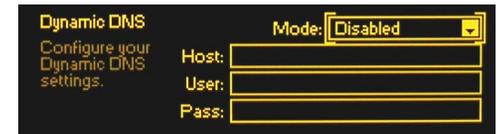
But if your ISP issues you a *dynamic* IP, which is very often the case, then you must utilize the services of an IP-forwarding provider, discussed next.

### Dynamic DNS

It would not be possible to address equipment behind a dynamic IP address if it were not for IP-forwarding providers available on the Internet. Their service, which is either free or at a very modest charge, will allow the 610 to keep the provider apprised of its reassigned IP address each time that address is updated by the ISP. The IP-forwarding provider intercepts data attempting to connect with the 610 and converts the IP address to the updated one.

There are three popular forwarding service providers available on the Internet. Their basic forwarding service (all you really need) may be free of charge, but advanced features may command a nominal annual fee. All services require registration on the appropriate Website.

From the Main Menu, navigate to Setup / Network / Dynamic DNS. In the Mode: field Disabled is the default selection,



but here you may choose among the three popular providers. Write down these provider names and put a www in front of each in your Web browser to learn more about their services and to register with whichever provider seems to best meet your needs.

When you register, the provider will issue you a Hostname, Username and Password. Use the front-panel knob to enter these into each of the three fields. When finished the screen should look something like this.



## Network Status

Highlight Status at the bottom of the Network menu and push the knob. This brings up a screen that gives full particulars of the network connection. This screen is useful for troubleshooting or for verifying connection parameters.

## Section IV

### “TUNING-IN” YOUR AUDIO STREAM

From the Main Menu, navigate to URL Tuner. The Stream Address entry box will be bracketed, push the knob to bring up the data-entry screen.

This is where you enter the URL of the Internet radio station. There is a full set of alphanumeric characters here, a few handy URL extensions at the bottom, and the usual Backspace and Save.



The entry method is self-explanatory, but you may find it necessary to search the station’s Website to find the right streaming address, often including a port number as shown in this example.

When the URL has been entered and saved, turn the knob to bracket Connect and push the knob. The station should begin to play.

### The ‘Now Playing’ Screen

Highlight Now Playing on the Main Menu and push the knob. This information screen displays the metadata that accompanies a Webcast. The Station, Song/Title (program title) and Quality (data and sampling rates and coding method) are all shown here. Information that overruns the display is scrolled. Internet date and time are also posted.

### Saving and Managing Presets

A station that has been tuned-in and is currently playing may be saved as one of ten presets.

From the Main Menu, navigate to Preset Stations. Highlight Save Now Playing Station at the top of the list and push the knob.

This will open a data-entry screen where you can assign a name to the station. Use Backspace to erase the default station name provided by the broadcaster, which may have