

INO *mini*
704

RDS/RBDS Encoder

Installation & User Guide



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WARRANTY(inside back cover)

Section I

INTRODUCTION

Product Description

The INOmini 704 is Inovonics' fourth-generation standalone RDS RadioData encoder in a small-format package, yet incorporating the dynamic messaging features of the company's flagship Model 732 encoder.

The 704 accepts 'now-playing' metadata from any of the popular station playout systems to scroll song title and artist information on listeners' radio faceplates. Additional house-keeping functions help listeners find favorite programming options and enable networking and timekeeping features.

Product Features

Features of the INOmini 704 include:

- Works with virtually any automation (playout) system and all common FM audio processors, exciters and transmitters.
- Easy LAN/Internet setup using the built-in Web-server interface and any computer or mobile device with an Internet connection. The 704 includes one TCP port and one UDP port for IP network communications.
- The front-panel LCD screen and jog-knob permit review of settings and enable on-site setup of networking parameters and the RDS injection level.
- Full SNMP compliance permits interface with other transmitter-plant equipment.
- The 704 pilot-locks to a stereo-generator SYNC output, to the 19kHz component in the composite/MPX program signal, or defaults to an internal time base for monaural operation.
- When issued, free firmware updates are easily installed in the field.

Product Specifications

RDS Applications Supported: **PS** (Program Service Name: your station's 'street name' and/or scrolling song info); **PI** (Program Identification: station ID calculated from call letters in US & Canada, assigned by broadcast authorities elsewhere); **PTY** (Program Type: your station's format or theme); **PTYN** (Program Type Name: a further refinement of your PTY); **AF** (Alternative Frequencies: yours and your rebroadcast 'translator' frequencies); **RT** (RadioText: additional scrolling messaging); **CT** (Clock/Time: sets the listener's car clock); **DI** (Decoder Information: mono-stereo data flag); **M/S** (Music/Speech data flag).

Flashing Panel Alarms: A PI code is essential to RDS operation. **NO PI CODE RDS MUTED** will flash and the 704 will not function until a PI code is entered. When the pilot alarm is enabled, **PILOT LOSS** flashes if lock with the stereo pilot is lost.

MPX/Pilot Input: An unbalanced/bridging input (BNC) accepts either the complete composite-multiplex stereo baseband signal or 19kHz TTL-level stereo pilot sync from the stereo generator. Maximum amplitude: 5Vpp. The 704 reverts to an internal time base for monaural transmissions.

RDS Output: Unbalanced, 75Ω (BNC); delivers the RDS sub-carrier (only) to feed the RDS/SCA input of an FM exciter. Output level adjustable from zero to 4Vpp.

Network Port: Network connector (RJ45) accepts multiple IP networking connections; one TCP port and one UDP port.

Power Requirements: +12VDC at 240mA. Two, paralleled coaxial DC power jacks (5.5mm x 2.1mm) allow the 704 to 'daisy-chain' with companion INOmini units. A universal 90-240VAC inline switching power supply is supplied.

Size and Weight: 1.8" (46mm) high, 5.3" (135mm) wide, 6.1" (155mm) deep; 4 lbs (1.8kg) shipping weight.

Mounting Options: An optional rack adapter accepts up to three INOmini modules in a 1U, 19-inch rack space. The INOmini 704 may also be fastened to any convenient surface with two small screws.

Section II

INSTALLATION AND CONNECTION

Unpacking and Inspection

Immediately upon receiving the INOmini 704 encoder, inspect for 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 materials should return for Warranty repair become necessary. 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 automatically receives firmware updates and any specific service or modification instructions. Register online at:

www.inovonicsbroadcast.com/support/productregistration

Mounting

The INOmini 704 RDS/RBDS Encoder is packaged in Inovonics' standardized INOmini module. You may set the unit on top of an existing piece of rack-mounted equipment, as long as a 1U or more of panel space is left open *above* the rack-mounted host to access the encoder. A pair of chassis base mounting holes allow the 704 to be fastened to the inside of an equipment rack cabinet with #4 self-tapping screws.

An optional rack-mount kit is available that houses up to three INOmini modules. The kit includes blanking panels for unused spaces and two 'daisy-chain' power cables so that two or three INOmini modules may share a single power supply.

AC Mains Power

Each Inovonics INOmini module is supplied with an outboard universal 90-240VAC switching-type power supply. As the

actual power consumed by the INOmini 704 is 240mA at 12 volts DC, a second DC connector on the rear panel allows the user to 'daisy-chain' INOmini modules. This means that two or more units may be fed from the same AC supply, but with the caution that the total input power specification of a given assortment of modules must not exceed the current rating noted on the power supply label.

Battery Operation

The INOmini 704 may optionally be powered by either a wet or a sealed (gel) 12-volt lead/acid battery. The nominal input voltage should never exceed 15V, and protection should be afforded against voltage surges from charging circuits.

Radio Frequency Interference (RFI)

Although the 704 encoder will doubtless be used in the proximity of other radio gear, please do practice reasonable care in locating the unit away from *abnormally* high RF fields.

The Front-Panel Display and Jog- Knob

The front-panel MENU knob scrolls the LCD through various viewing menus, some of which allow adjustment of certain functions. *Turn* the knob to select the menu, and then *push* the knob. Any item that can be edited will begin to blink. *Turn* the knob to change a setting, and then *push* again until blinking ceases to exit that menu and restore navigation.

Rear Panel Connections

MPX/PILOT
INPUT

This is a high impedance, bridging input to synchronize and properly phase the 57kHz RDS subcarrier with the 19kHz stereo pilot tone. The input will accept either the composite-multiplex program signal, seeking and locking to the low-level 19kHz pilot present therein, or can be fed from a dedicated SYNC output offered by some stereo generators (stereocoders) or FM exciters. Generally, the SYNC output of these devices is a TTL-level, 5Vpp squarewave.

RDS
OUTPUT

This BNC output contains *only* the RDS subcarrier signal, *not* the composite-

multiplex program signal with the RDS subcarrier already combined. The RDS subcarrier must be combined by the stereo-generator or FM exciter, either of which will generally have a dedicated RDS or SCA 'broadband' input for this. If not, it's a relatively simple matter to whip-up a simple resistive combiner. Feel free to ask us how.

The level of the RDS subcarrier is set using the Webpage interface, as explained on Page 16. Level can be varied between zero and 4Vpp. This range should accommodate the sensitivity of the exciter's broadband input for a nominal 5% injection of the RDS subcarrier, referenced to total peak modulation of $\pm 75\text{kHz}$ deviation. The 5% RDS deviation in this regard would be $\pm 3.75\text{kHz}$.

NETWORK

The RJ45 NETWORK jack links the 704 to station automation, and allows remote control via LAN and the Internet. Establishing communications to and from the 704 is discussed in Sections III and IV.

+12VDC POWER I/O

Two paralleled coaxial power connectors allow 'daisy-chaining' INomini modules. This allows one DC supply to power as many as three modules mounted in a single rack adapter, provided that the rating of the supply is not exceeded. Two short 'pigtail' cables are provided with each rack adapter.

The INomini 704 draws 240ma at +12VDC. Check the rating on the label of the power supply to make sure it has sufficient capacity for all the modules it must support.

These power connectors are not a locking type, and the mating plugs pull out rather easily. A plastic Ty-Wrap® can secure power cords to the plastic anchor provided just above the jacks.

Locked Menus

To guard against knob bumping and inadvertent menu editing at the installation site, the very last of the LCD screens allows you to lock-out the jog knob from the editing mode. If you find that when you push the knob you are unable to enter the menu to change a setup selection, turn the knob to the last menu screen, shown here.



Menus: Locked

Push the knob and Menus will blink. Then *turn* the knob to select Menus: Unlocked and push the knob again to set this selection. From there you may navigate back to whichever screen you were trying to edit.

Bringing up the Webpage Server

When you initially power-up the 704, it will load the factory-default setup. You will see the first menu screen on the LCD display, but within a few seconds a red-flashing screen will advise you of alarm condition(s).



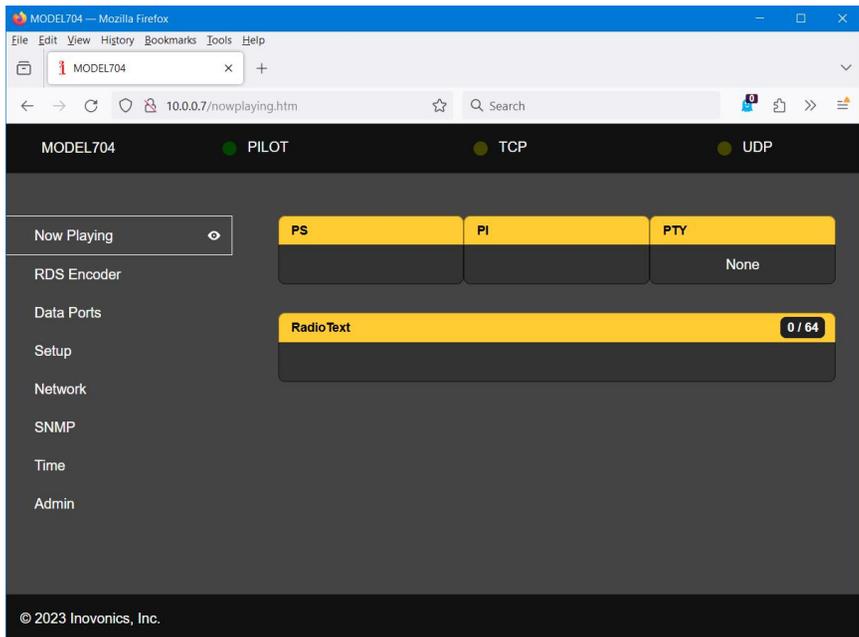
NO PI CODE
RDS MUTED

For the present, disregard the flashing alarm(s) and turn the jog-knob clockwise until you get to the screen shown next. You'll notice that by turning the knob, you temporarily pause the flashing alarm(s).



Mode: DHCP
10.0.0.7

Your router should already have assigned an IP address to the 704 using DHCP. The address is the string of numbers on the second line of the LCD. In this example the IP address is 10.0.0.7. With your computer on the same LAN as the 704, bring up your browser and type the encoder's IP address into the browser's address line. This will bring the 704's Webpage interface Now Playing 'home' Webpage onto your computer screen as shown on the next page.



Navigating the Webpages

Referring to the screenshot above, or to your computer screen if it is connected to the 704, a list of the encoder’s Webpages (screens) appears down the left side of each page. Click on these to access the various functions for setup and operation. Some ‘nuts & bolts’ setup items are available on-site using the front-panel LCD and jog-knob, but you must have a network connection to enter and send the actual RDS data to the encoder.

This Now Playing page displays the outgoing RDS information in the PS, PI, PTY and RadioText fields. At the top of the page, the encoder is identified as MODEL704. This ID may be changed, however, to personalize the installation, or perhaps to differentiate this encoder from another 704 on the same network. This ID is the Hostname: entry on the Network Webpage (see Page 18).

Three ‘virtual LEDs’ at the top of the page show PILOT lock, and activity on the TCP and UDP ports.

Section III RDS SETUP AND OPERATION

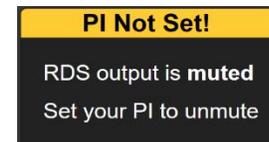
Basic RDS Setup

Navigate to the RDS Encoder Webpage. Here you will enter important RDS setup data specific to your station, your programming format and the protocols pertinent to your play-out system. Each item will be detailed, starting at the top. Intricacies of networking setup are addressed in Section IV.

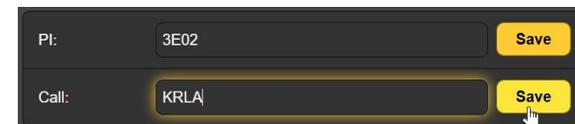
Entering the PI Code or Call Letters

The RDS/RBDS RadioData System depends in large part on a radio’s automatic identification of your station. The PI code is your station’s ‘digital address.’ In the US and Canada, the hexadecimal PI code is derived directly from call letters, and the 704 does this for you. In other parts of the world the code will be assigned by the local broadcasting authority.

NOTE: The 704 encoder will not generate the RDS subcarrier without a PI code entry. Front-panel, Webpage and SNMP ‘alarm’ notifications will alert you to this requirement.



For US and Canadian stations, simply type your call letters into the Call: field near the top of the page. When you then click **Save**, the hex code will pop-up in the PI: field and you’ll be ready to go.



In other parts of the world, obtain the hex code from your country’s broadcasting authority. The code is always a four-character hexadecimal (letters and/or numbers) combination. Enter the code directly in the PI: field and click **Save**.

Three Flags

Program the next three ‘flag’ fields on the page to give RDS radios a heads-up on some of your station’s transmission specifics.

If yours is an all-talk or news station, you might want to click **Speech** in the Music/Speech (MS): field. **Music** is the default setting, and stations with mixed programming should stay with this option.

The usefulness of the Decoder Identification (DI): setting may have some altruistic and historic significance, but unless your station broadcasts in the monaural mode 24/7, the default **Stereo** selection is advised.

The Clock Time (CT): utility is capable of setting listeners' car radio to the correct local time, but this has proven a double-edged sword, particularly near time-zone borders. Setup of this utility is discussed in Section V. The Clock Time (CT): flag tells the encoder whether to send the clock and time information (**On**) or not (**Off**).

PTY and PTYN

RDS radios can help the listener search for preferred programming, but you must tell the radio what you offer.

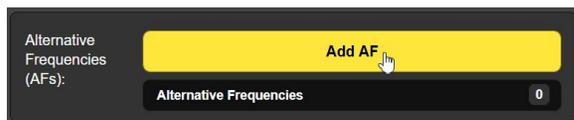
In the Program Type (PTY): field, click the down arrow ▼ at the far-right. This opens a list of some 30 popular programming formats. Choose one that is the closest to your station's programming plan.

You can further refine your station's format in the Program Type Name (PTYN): field, which is used in addition to the selected PTY: entry. The PTYN field is not pre-defined and requires a brief and succinct one or two words typed-in, such as 50s Hits or Disco. This field is limited to just eight characters.

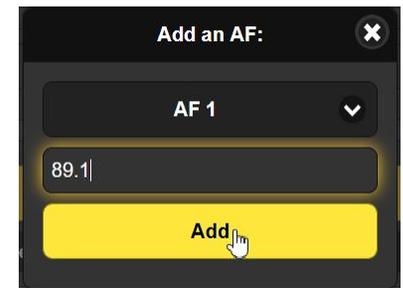
Alternative Frequencies

RDS radios are capable of seeking the best signal from multiple sources carrying the very same, synchronous programming. European radio networks depend on this technology, and independent broadcasters with rebroadcast 'translators' can make good use of it as well.

Build an AF list by first clicking Add AF:. This will bring up the entry box shown on the following page.



It is essential to include your station's own primary frequency in this list, along with all your translator frequencies. Enter your primary station frequency as AF 1 so you won't forget, then click Add and continue to enter other translator frequencies. AFs will be listed below this block.



Click **X** to the right of an AF entry on the list to delete it. Deleting an AF leaves a gap in the list, but the ▼ in the Add an AF: box allows you to overwrite an existing entry with a new frequency without leaving a gap.

RDS or RBDS?

RDS, the Radio Data System, is of European origin. RBDS, or Radio Broadcast Data System differentiates the system, with its slight variations, used in North America. These variations are subtle, mostly having to do with PTY categories and the treatment of emergency messaging (which the 704 does not do anyway). In this manual we refer to the technology universally as "RDS." But to avoid any confusion, and because RDS radios also come in domestic and overseas versions, be sure that the proper mode is chosen for your area. The RDS/RBDS: factory default setting is RBDS (NA).

Dynamic PS

Normally, the 704 would receive song title and artist information from the station's playout system, and commands from automation are covered a bit later in the discussion. It then properly parses and scrolls this info into the 8-character display area on the radio faceplate. The PS field can accommodate messages up to 128 characters, including spaces.

The 704 additionally allows you to manually insert a message into the PS field that will temporarily replace the song info from automation; if, for example, you wanted to immediately promote a forthcoming program segment or community event. If your station is not automated, dynamic PS can still give you an RDS presence with a repeating static message to brand and promote your station.

To compose a typed-in PS message, place your cursor in the DPS: field and click. This places a 'glow' around the entry blank, indicating that DPS messaging is in the edit mode.

Highlight and delete any existing text in the field, then type-in your message, up to 128 characters, including spaces, and click **Save** to begin sending the message.



Your DPS: message will repeat until it is replaced, either by another typed-in message or by artist/title or other data from station automation.

DPS Settings

'Parsing' relates to the method by which a PS-field message is formatted for display on the 8-character radio faceplate. The 704 offers a couple of options.

Parse: Auto has proven the preferred and recommended setting. Short words are grouped together, and if a word has more than eight characters, the first eight are shown and the remaining letters 'marched' along at the end.

The other parsing options break letters and spaces into groups according to the number selected (1-8), and march those groups across the display like a Times Square 'ticker tape' display. So, a setting of 1 has characters marching: A-B-C-D-E-F, a setting of 2 marches two at a time: AB-CD-EF, up to a grouping of 8, which offers no overlap of text to aid its easy reading. The PS display box on the Now Playing screen shows the message as-parsed, as does the LCD on the 704 front panel.

DPS Speed (Sec): sets the number of seconds between individual DPS 8-character transmissions. Some car radios may not be able to keep up with the fastest DPS Speed (Sec): 1 setting, but nearly all should be able to manage a speed of 2.

DPS Defaults

The 704 encoder has provision to insert a static default PS message if the PS field is not updated within a certain time period. For example, putting up your call letters or an appropriate 'barker' message is preferable to having the last song

info displayed for an hour or more if the network link to the playout system is lost.

Type your default message into the DPS Default: field, and click Save. Also be sure to set the DPS Timer (Min): to the number of minutes you are prepared to wait for new data from station automation to resume. The timer will automatically reset when the 704 receives new data.

RadioText

RadioText (RT) is quite similar to Dynamic PS messaging discussed above, except that it is sent as a single 64-character block, rather than 8-character individual segments. Various radios will display RadioText differently, and often the listener will have to press a TEXT or INFO button to view the message. Although RadioText is often used for song information, usually in tandem with scrolling-PS, its primary utility is station and program promotion.

Please refer to the above discussion of Dynamic PS; RadioText setup is identical, except that parsing and repetition intervals (speed) are not factors.

You may, however, make use of the RadioText Remove Extra Spaces utility provided by the 704. Some automation systems add unnecessary blank spaces in a RadioText message, making display awkward. Enable: has a factory default of Off, but you may turn the function On if yours is one of the playout systems that makes trouble in this regard.

DPS and RT Commands

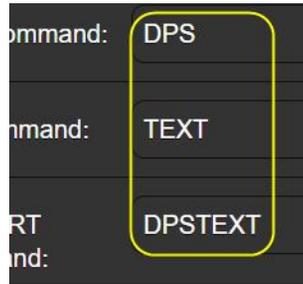
Commands that the 704 encoder receives over its LAN/ Internet connection must be formatted properly for the encoder to interpret and reformat them into RDS data groups for transmission.

RDS encoders from other manufacturers and playout systems vary somewhat in the command sets they use and recognize. Thus the three vital 'steering' preambles for PS and RT messaging are brought out under DPS & RT Commands where they may be modified if necessary.

To send the artist and title for a song, station automation would probably send something like this: Lose Control by Teddy Swims. But the 704 encoder needs to know what field to put this information into, so automation must prefix the

info with a preamble. For scrolling-PS title and artist, automation would need to send: DPS=Lose Control by Teddy Swims↵. To put this into just the RadioText field instead: TEXT=Lose Control by Teddy Swims↵, and to put the message into both the PS and the RT fields: DPSTEXT=Lose Control by Teddy Swims↵.

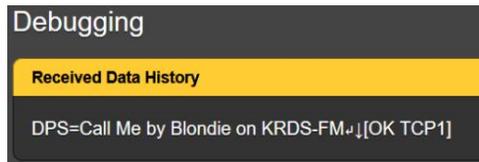
Note that in all three instances, the message is preceded by a preamble and equal sign, and ended with that little arrow, which is an 'Enter' or 'Carriage Return' symbol (ASCII Carriage Return: decimal value 13). If your automation insists on an alternative command set, overwrite *just the text* of the preamble, as shown on the Webpage, clicking **Save** each time. The = should be automatically appended by the playout system.



Command Debugging

There may well be instances when what you send isn't what you see on the RDS radio in your car. To help troubleshoot these situations, we've put a debugging screen at the top of the Data Ports Webpage. This screen shows exactly what data was last received by the 704, and the area will grow to display the last 256 characters.

In this first illustration, automation has sent song information correctly. You see the complete transmission, consisting of the preamble, the equal sign, the message and a carriage return. Note that the message is followed by a reply from the 704, the "OK" answerback with the port the command came in on.



If the message is not formatted correctly, the 704 will reply with a NO instead of OK, as shown in this second snapshot.



Legend and Command List

Click the big + next to this heading on the Data Ports Webpage. A pull-down listing of information will give you a comprehensive explanation of abbreviations and commands that you are likely to encounter when programming for the 704 encoder. There are also some explanatory notes here that will help with message formatting.

Port Status

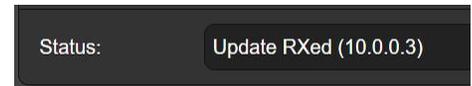
These two windows display the IP address of either the current, or the most recent, equipment that is, or has been, communicating with the 704. In this instance, a computer on the same LAN as the encoder was last active on the TCP: port, now Idle.



Port Options

The TCP Port and the UDP Port are set-up independently. Under Options: for each port you may Enable the port, or not, set up to Echo incoming commands, or not, and to Reply with an acknowledgement to commands, or not. The Port: and UDP Multicast Group: numbers, may be changed from the factory defaults by overtyping. No followup 'Save' is required).

The Status: field will show the current state of the port, whether it is idle, awaiting data, has received an invalid command, or if an update has been properly received. The IP address of the sender is identified here too.



RDS Output

NOTE: The RDS subcarrier output level and phase adjustments are found on the Setup Webpage. In addition, level (only) may also be adjusted from the front panel of the 704. Simply navigate to the RDS Output Lvl. screen, *push* the knob to enter the menu, *turn* the knob to edit the level, and then *push* again to write your value to memory and exit.

Enable: turns the subcarrier On and Off. Level (Vpp): may be set to any peak-to-peak output value between zero and 4Vpp in 50 millivolt increments. You may grab the slider and move it, click the slider and then use keyboard ◀ and ▶ keys to increment the level up and down, or overwrite the desired p-p voltage into the level readout box.



Phase (° degrees): of the RDS subcarrier (relative to stereo pilot phase) should remain at the 90-degree factory preset unless you have a very special reason to change it.

Pilot Alarm

NOTE: The Pilot Alarm may be toggled either on the Setup Webpage, or from the 704 front panel.

In most cases your 704 encoder will be locked to the 19kHz stereo pilot. In this operating mode, you will probably want to set the Pilot Alarm to Enable: On, so that front-panel and SNMP alarms will alert you to pilot sync loss. Only when broadcasting full-time in monaural would you set Enable: Off. But whether the alarm is On or Off, loss of stereo pilot will switch the 704 over to its internal time base.

When an external pilot is present, regardless of the Pilot Alarm setting, the simulated-LED PILOT indicator at the top of each of the Webpages will glow green.

Section IV NETWORK AND SNMP SETUP

Local and Remote Setup

IP Network setup is most easily done using the Webpages interface. Yet networking parameters may also be set from the 704 front panel using the jog knob and LCD readout.

From the front panel, bring up the screen of interest. *Push* the knob, and any item capable of local editing will begin to blink. *Turn* the knob to edit a value, and *push* again to cycle to the next editable item, if there is one. A closing *push* will exit the menu and once again allow menu navigation.

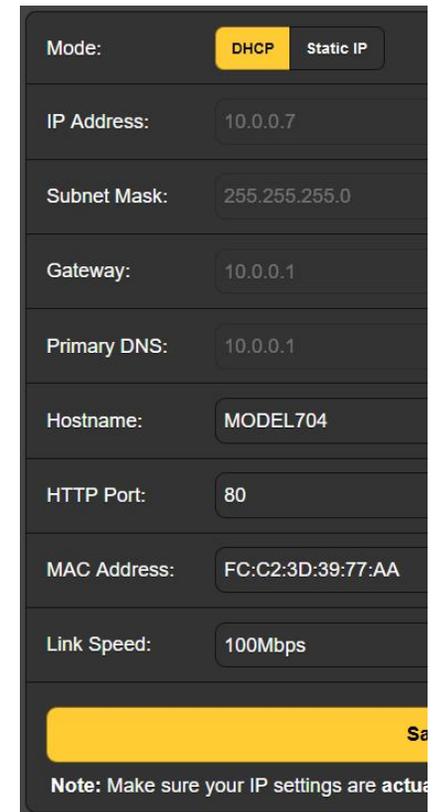
Network Settings

Basic networking setup is accomplished on the Network Webpage. The active half of this page is reproduced here.

NOTE: Changes to any of the fields requires clicking the **Save** bar afterward to commit the changes to 704 memory.

In this example, Mode: is set to the DHCP default, allowing the router to assign the primary connection parameters. Toggling instead to Mode: Static IP, the grayed-out items may then be edited by clearing the field and typing-in different values. This would be a job for a networking professional.

Hostname: identifies this particular 704 on the network, and as mentioned earlier, this name can be changed if, for example, you have another



704 on the same network. Clear the field and type-in up to 15 characters using all-caps and no spaces.

HTTP Port: 80 is a common default port, but this can be changed if circumstances warrant. The MAC Address: is factory-assigned, unique to each individual encoder and cannot be changed. Link Speed: is an indication of connection status and the best expected bitrate between your 704 and the LAN.

SNMP Operation

NOTE: SNMP (Simple Network Management Protocol) allows your 704 to directly communicate with, and to be controlled by, other SNMP-enabled gear on your network.

The 704 will interface directly with a network controller, technically known as the SNMP Manager. The 704 has an embedded ASCII text file called a Management Information Base, or MIB. In setting up for SNMP operation, the MIB file will have to be downloaded from the 704 through the Web interface, and then uploaded to the SNMP Manager.

The SNMP submenu default Mode: setting is Disabled, which inhibits communication between the 704 and the SNMP Manager.

Changing to Mode: Read Only allows the 704 to be interrogated by the SNMP Manager, so that programmed setup parameters, alarms, etc. can be integrated with other equipment on the network.

Setting to Mode: Read & Write allows the SNMP Manager to send commands to the 704.

SNMP Security

SNMP 'communities' serve as passwords for this function. In the Read Community: and Write Community: fields, overtype the factory defaults and enter text that is specified for the read/write strings on your SNMP Manager monitoring device. Click **Save** after entering.

SNMP Ports

The default SNMP Ports, General Port: 161 and Traps Port: 162, are customary for a majority of SNMP operations. These may be overtyped to change them as required. Click **Save** after making any changes.

Trap Destinations

When the 704 *initiates* an alarm, rather than being *queried* or *polled* for one, the alarm is known as a 'trap.' Three local network IP addresses may be entered in the Trap Destination 1:, 2:, and 3: fields, each corresponding to other devices on the LAN that need to be apprised of alarm and status info. Click **Save** after entering.

The MIB File

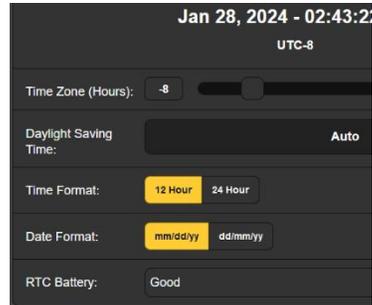
A MIB file is a small text file required by the SNMP Manager. At the bottom of the SNMP Webpage, click: **Download MIB** to save this file in the usual Windows manner. The MIB file is in plain text with a .mib extension, and may be read with Windows Notepad.

Section V

ADMIN AND OTHER MATTERS

Time Setup

Please thumb back and note once again the Clock Time (CT): cautions on Page 11. If you elect to take the plunge anyway, and participate in sending clock time and date updates to listeners' radios, your 704 *must* be set to the proper time zone. It also has to make proper allowance for Daylight Saving Time and synchronize periodically with a third-party time server. These decisions are programmed on the Time setup Webpage reproduced in part here to the right.



Time Zone (Hours): is the offset from UTC, or Universal Coordinated Time. In the example above, Time Zone (Hours): 8 represents the US West Coast. Simply adjust the slider until the time display at the top matches your Rolex.

Daylight Saving Time: may safely be left at the factory default of Auto, for most of the US anyway, or forced On or Off, depending on to the way DST is managed in your location.

Time Format: and **Date Format:** simply let you select how time and date are displayed at the top of this Time Webpage. Selection has no effect on how radios may display this info.

The Real Time Clock (RTC) built into the 704 maintains clock accuracy between updates from the time server, or when connection to the server is lost. The clock is kept alive by a battery, the readily-available Type CR 2032. The 704 monitors this battery and advises its condition as Good until you are advised to Replace it.

We have factory-programmed-in a reliable default Time Server:. However, some organizations do not permit their equipment to have Internet access because of security concerns. If you elect to use another Internet server, or an in-

house server on your LAN, you may overtype the Server: entry with another and click **Save**.

Status: shows the most recent date and time that the 704 RTC sync'd to the Time Server. This can alert you to any communications problem between the 704 and the server.

Security & Passwords

704 encoder Web access and settings may be protected by a two-tier password utility. There is no provision to protect front-panel access. A Web Admin password enables setup adjustments and changes, the Web User password only allows viewing the settings.

On the Admin Webpage, first enter your Web Admin Password (Read/Write): and click **Save**. You will immediately be asked to enter that password to refresh your access to the 704.



When the sign-in box appears on your screen, disregard the Username field. Just enter your password in the Password field and click Sign In. Then, if you wish, you may enter a second password in the Web User Password (Read Only): field on the Admin Webpage to grant Webpage viewing-only privileges to other station personnel.



Lost Password

There is only one method to restore access to the 704 if passwords are lost, and this must be done at the encoder installation site. A 'hard reset' will restore the 704 encoder entirely to factory defaults, including blank password fields. (You can save your settings with a Hardware Profile, discussed next.)

To initiate a hard reset, first unplug the rear-panel DC power connector from the 704. Then, while holding-down the jog-knob, plug the power connector back in. Release the jog-

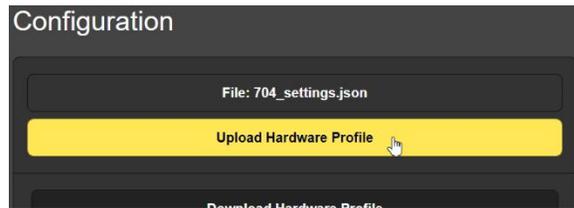
knob after Loading Factory Presets appears on the LCD screen.

The Hardware Profile

You can quickly and easily save all the settings, static messages and passwords resident in your 704 encoder. This allows you to restore the encoder after a hard reset, or to clone a second unit.

Under Configuration on the Admin Webpage, click Download Hardware Profile. This will save all the setup data resident in your 704 as a small .json file. The file may automatically save to your Windows Downloads folder, or your browser might ask you where to save it. In any case it should be easy to find on your computer, and you can then move it into a folder dedicated to this purpose.

To restore the saved settings to your 704, click Select Hardware Profile... . A Windows Explorer window will help you locate the saved .json file, which you then double-click to bring onto the Webpage as depicted here. Then click Upload Hardware Profile to send it to the 704. Both the Web interface and front-panel LCD will display restoration progress, and you will be back in business very shortly.



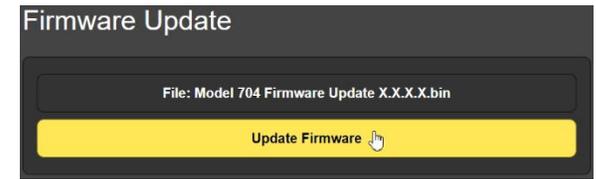
Two other options are offered under Configuration. Reboot performs the same function as powering the 704 down and back up again. Load Factory Defaults returns your 704 to factory settings, with the exception of your IP address, which is retained so you won't have to search for the encoder on your LAN.

Firmware Updates

Updates to 704 firmware will be issued as small .bin files. When received from Inovonics, or downloaded from our Website, you may place these temporarily on your Windows Desktop.

Click Select Firmware Update and use the Windows Explorer window that pops-up to locate the .bin file, and then double-

click it. With the file ready to load, as shown here, click Update Firmware. The page will display update progress and the encoder will boot with your previous settings intact .



The Admin Webpage gives you immediate access to a PDF copy of the 704 manual, and also lists the unit's serial number, the resident firmware version information, and how long the unit has been in operation since last rebooted or power-cycled.

From the front panel you can also confirm the resident firmware version. Hold-down the jog-knob for a few seconds to view the 704 Firmware Rev# screen. Press the jog-knob to return to the main menu sequence.

LCD Background Color

When confirming the firmware version, as just described, you will find that if you turn the jog-knob a click to the right, you have local control over the LCD display backlight color. Experiment with this if you like, although the factory settings (R:255 G:55 B:20) will undoubtedly give the friendliest rendering of a neutral white. To escape to the menu tree, turn back to the 704 Firmware Rev# screen and press the knob.



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, 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.

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