Operation and Installation Guide

HDS2800 Series Encoder Modulator

High Definition (HD) Digital COFDM MPEG2 and H.264 Modulator with IP Multicast.

19” Rack Mount

Revision	4.0
Firmware version	
Released	
File	HDS2800 Rev 4.0.Docx

Contents

1.0 Key Features:

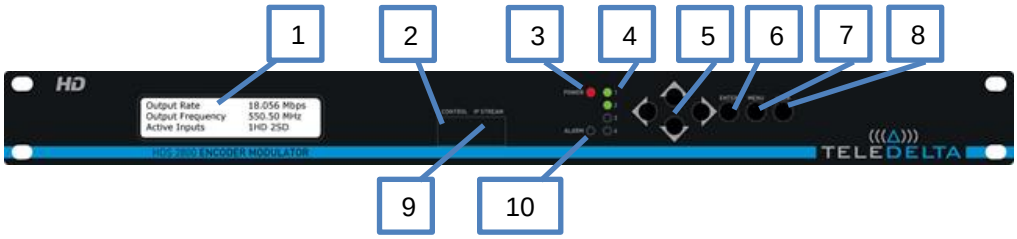
- Transparent resolution pass through up to 1920x1080 and 1280x720 @ 50P/60P (1080P, 1080I and 720P resolution – depending on input modules)
- 1 or 2 input modules provide up to 4 inputs (format and rate dependant)
- Input formats:
  - HDMI
  - HD/SD-SDI,
  - Composite PAL (CVBS 576I resolution)
  - ASI
- Multiple outputs:
  - on coax as selectable COFDM DVB-T (MPEG 2 and H.264)
  - as IP; MPTS UDP Multicast
  - as ASI
- Modular design – select input modules to suit the application.
- The HDS2800 series supports HDCP, Channel naming, installer selectable LCN's and DVB tables.
- Front panel LCD or built-in webserver .
- Frame chassis options include wall mount
- (1HD or 2 SD inputs), and rack mount options (2+ HD and 4+ Comp input channels)
- High quality modulation MER > 42.
- Output bandwidth fully adjustable up to 27Mbps
- Individual channel rate adjustment
- Selectable:
  - RF Frequency
  - RF Power output,
  - FEC,
  - Guard Intervals
  - Constellation
- HDMI modules auto switching provides redundant inputs
- Multiple HD/SD channels can be daisy-chained together to output as a single digital RF channel or can be spread over multiple RF channels.
- The HDS2800 has an excellent cost per HD digital channel.

TeleDelta is an Australian owned company, with local engineering and support facilities in Australia and New Zealand for more information please visit our website www.teldelta.com

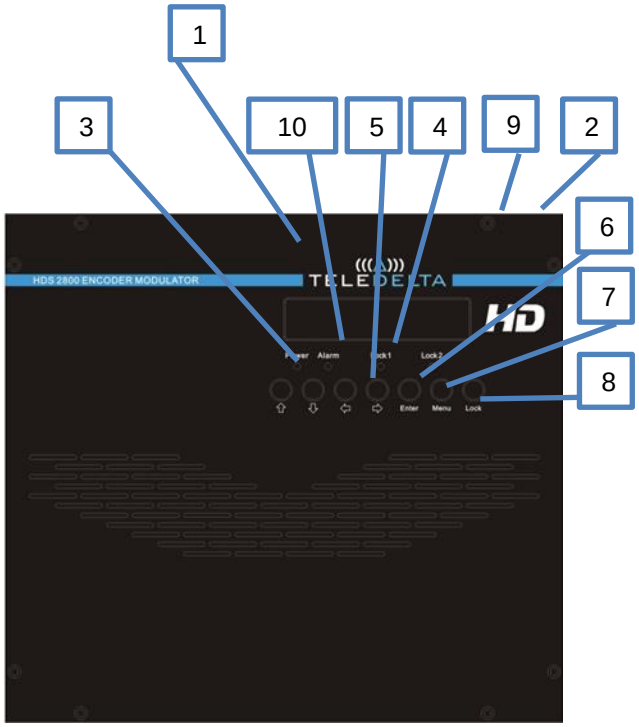
2.0 HDS2800 Rack and Wall Frames

2.1 Indicators and Key-buttons Details

Rack Mount Frame



Wall Mount Frame



1 LCD display
2 NMS port - access to internal management web server
3 Power Indicator
4 Channel Lock light(s)
5 Up and down, left and right button
6 Enter button: for confirm
7 Menu button: for back step
8 Lock button: press to lock / unlock
9 Data port – IP multicast output
10 Alarm indicator

2.2 Installation:

This section outlines some of the precautions users must maintain when installing, servicing and operating the TeleDelta HDS2800 Series.

General Precautions
Operate the HDS2800 in a dry, dust free environment

Unless qualified, do not open the cover of the HDS2800, doing so may void all warranty purposes.

Exercise caution when operating any electrical device, do not operate any device unless you are qualified to do so.

Do not stick your fingers into a light bulb socket.

3.0 Operation from the front panel

This version of the manual is intended for setup and maintenance of the unit using the NMS web interface.

For front panel (LCD) operation please refer to the LCD supplement – available on request

4.0 Programming via inbuilt Web Server / NMS operation

The inbuilt web interface allows fast setting of the unit's parameters. The web interface is required for the setting of the LCN and NIT table as well as labelling the input for on-screen display, OSD.

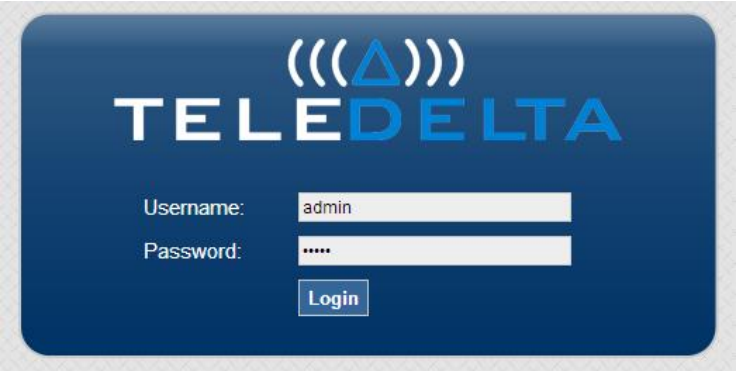
4.1 Connection and Login

Connect a PC equipped with a modern browser[1] to the NMS port. The HDS can be connected with a straight through cable or via a hub / switch.

Point your browser at the IP address for the unit. The IP that is set for the unit can be read at LCD menu location 5.1.

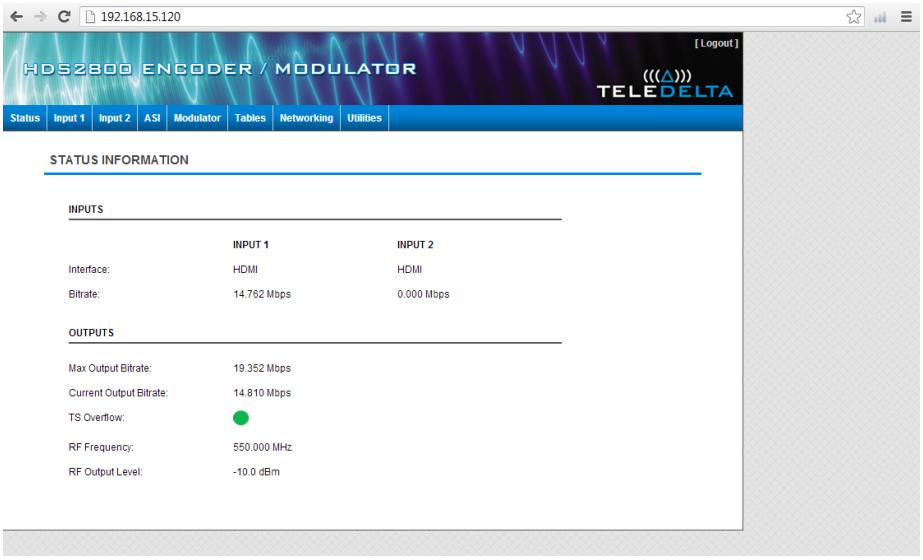
> *Hint: To read the IP address from the LCD, press* **Lock** *key to enter the menu tree and navigate to menu 5.1*

A login interface will appear. Both of the default user name and password are *admin* and are case sensitive.



> *Hint: To reset the username and password to default from the LCD, press* **Lock** *key to enter the menu tree and navigate to menu 5.5*

After login, the Welcome system status screen will display

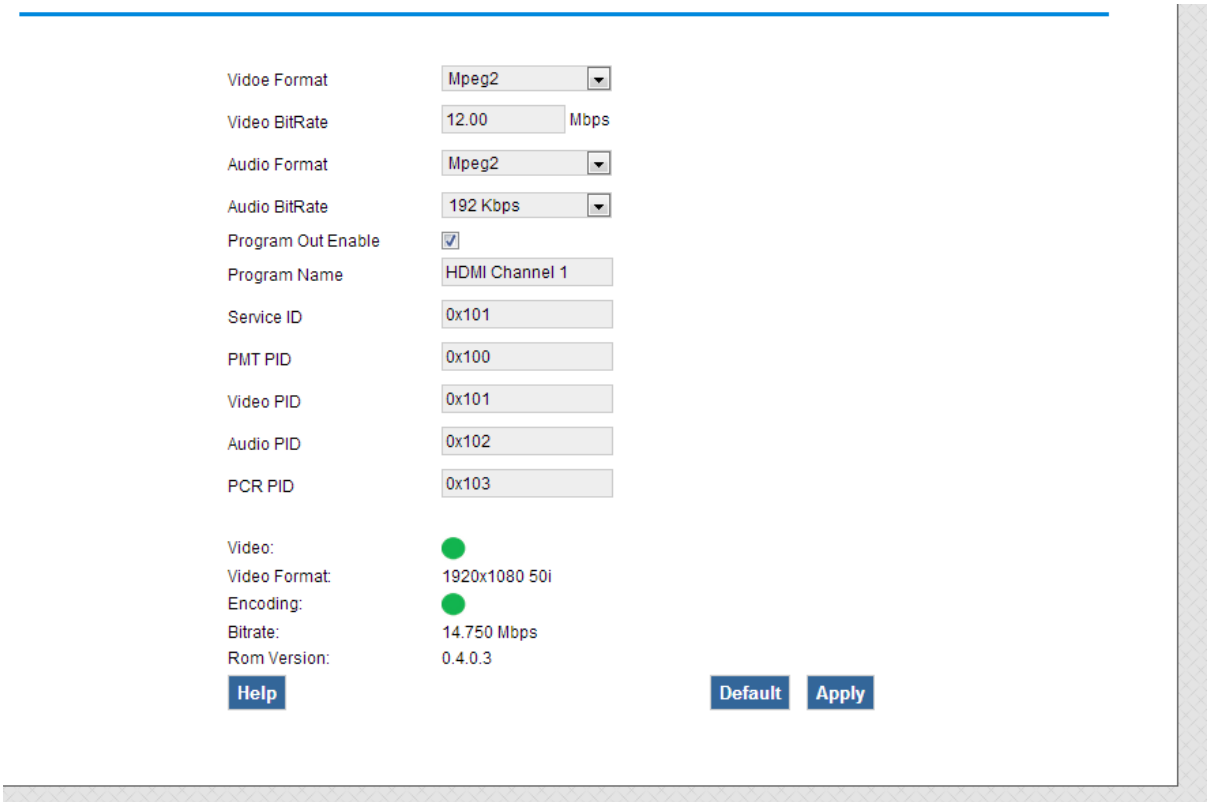


[1] As at May 2102 Google Chrome 18.0.1025.168 m, and IE9.0.6 are known to work. Goodness knows what the future will hold…

4.2 Input configuration setting

4.2.1 Select the Input(n) setting.

A HDMI input card is shown below



Label	Options	Comment
Video format	User set	MPEG2 / H.264 selectable video format on certain HD (HDMI) frames
Video bit rate	User set	The range is 1~19.5Mbps*
Audio format / bit rate:,	Default	The default value is MPEG2 and 128kbps and is not normally changed
Program out enabled	User set	Turn on/off program output
Program name	User set	Enter the program name to be displayed on the TV
PMT/Video/Audio/PCR PID.	Default	System will automatically select the default values
Encoding and video indicators	Indication only	Green is normal, Red is fault
HDMI input: it	Indication only	Indicates if there is real-time HDMI signal present
Video format:	Indication only	the current video format of the device
Bit rate:	Indication only	the current encoding bit rate

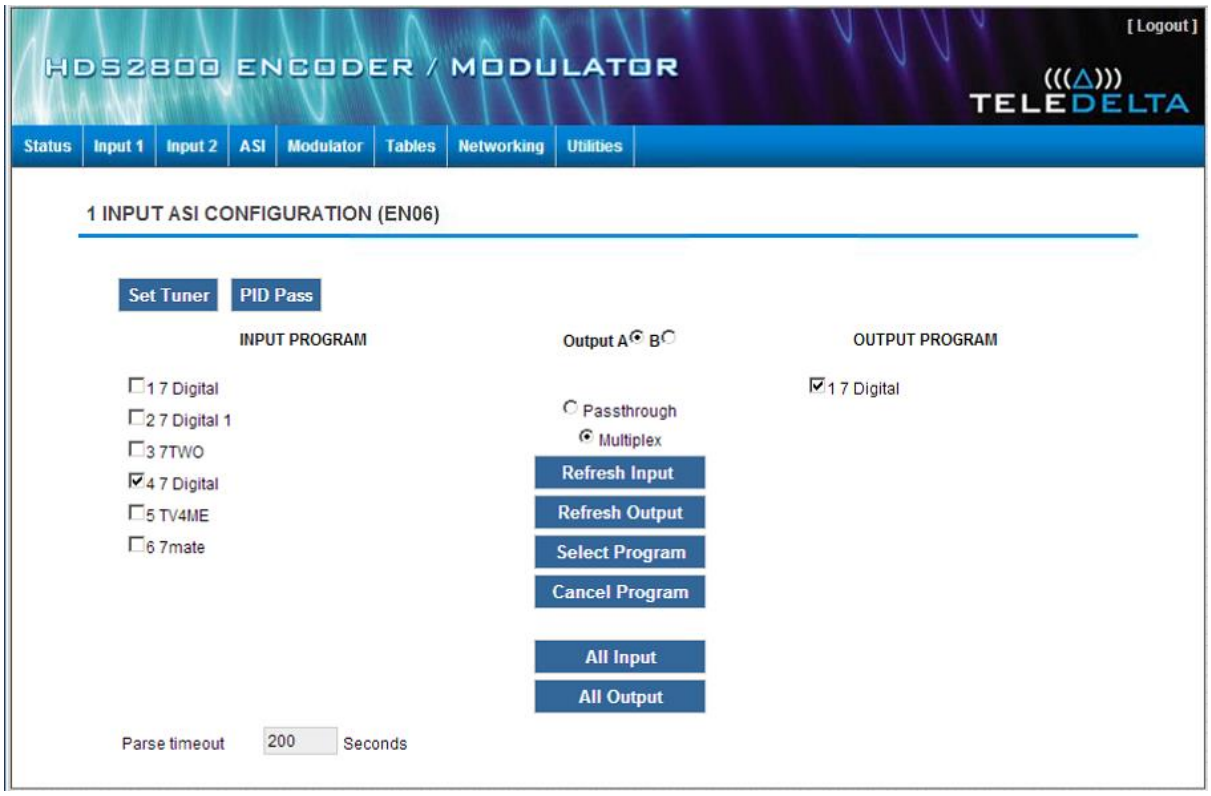
Interface settings must be altered to reflect the input modules on the HDS-2800.
For RCA modules the interface defaults to VGA, this must be changed to RCA.
The aspect ratio for RCA input modules must also be changed to 16:9.

Repeat the setup as required for all inputs fitted (1-4).

4.2.2 ASI Input Setting

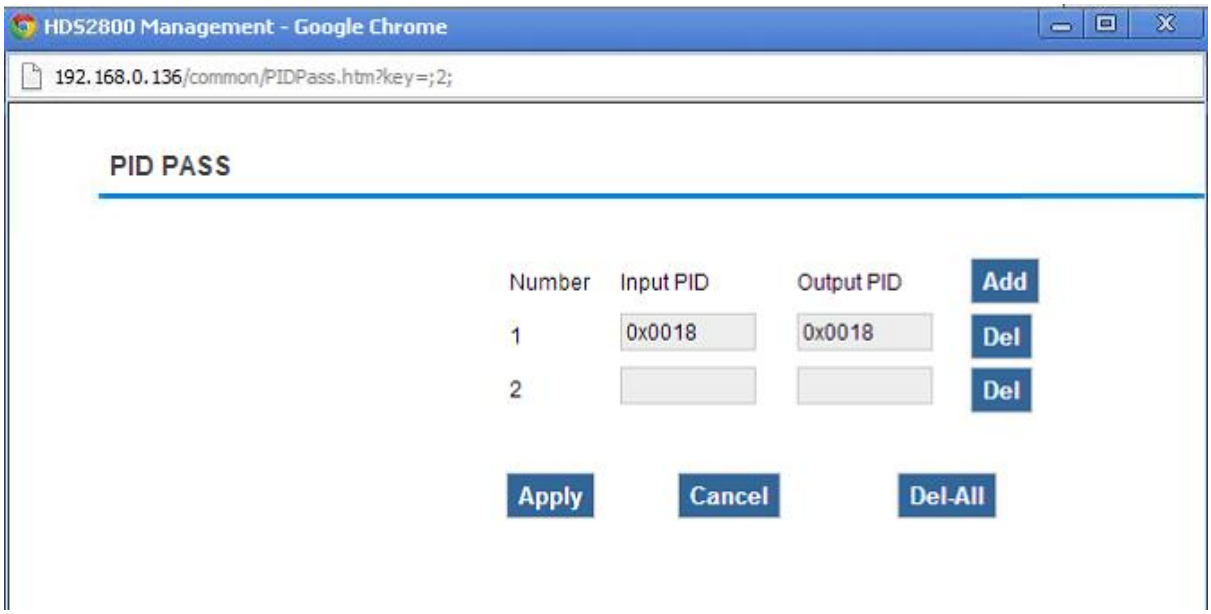
ASI Input
If fitted the ASI option is fitted the ASI tab will display ASI input program information as below.

In this example an incoming ASI stream carries Seven Networks DTT formats as a 20+MiB stream. Filtering is carried out to output only 7Digital and PID 18



Label	Options	Comment
Output A - B	User set	Select the carrier output channel for the multiplexed programs. This selection does not exist for the HDS2800 single carrier units.)
Passthrough	User set	If selected, all the input programs will pass through without any changes.
Multiplex	User set	Enable mux to select which programs are passed through
Refresh Input	Click	Click to re scan the input stream and rebuild program list
Refresh Output	Click	Click to refresh the Output program list
Select Program	Click	Transfers input programs marked with "√", to the output stream
Cancel Program	Click	Removes output programs marked with "√", from the output stream
All Input	Click	Selects all the input programs with one-click.
All Output	Click	Selects all the output programs with one-click.
Parse Timeout	Default	Time limitation to parse the input stream (before TimeOut)
PID Pass	Default	Table is blank – see details below

- Click the PID Pass button to trigger a dialog box as below, enter any PIDs required for pass through. In some streams, there are required PIDs which won't belong to any program, (such as EPG & NIT tables,) from here you can pass them through the multiplexing module without changing anything.

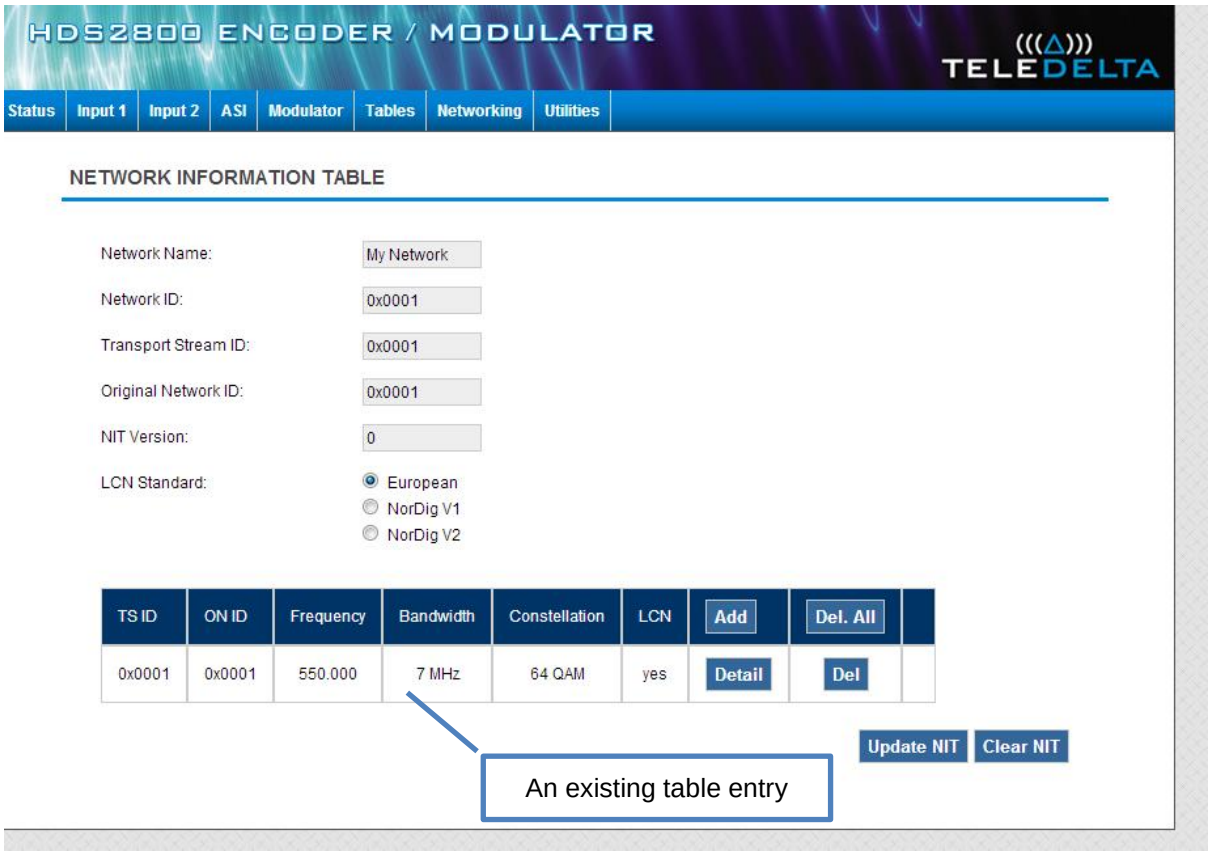


Click "Add" to add more boxes for the Input & Output PIDs, then click "Apply" to confirm.

4.3 NIT table setting

The location of the NIT is defined in compliance with the ISO/IEC 13818-1 [1] specification, but the data format is outside the scope of ISO/IEC 13818-1 [1]. It is intended to provide information about the physical network.

Important: Set the Modulator settings BEFORE creating a NIT. (refer Modulator section 4.5 below)



The syntax and semantics of the NIT are defined as follows, (Defaults are shown above)

- Network name: The name of current network, user can set as required.
- Network ID: This is a 16-bit field which identifies the terrestrial network that supports the service indicated.

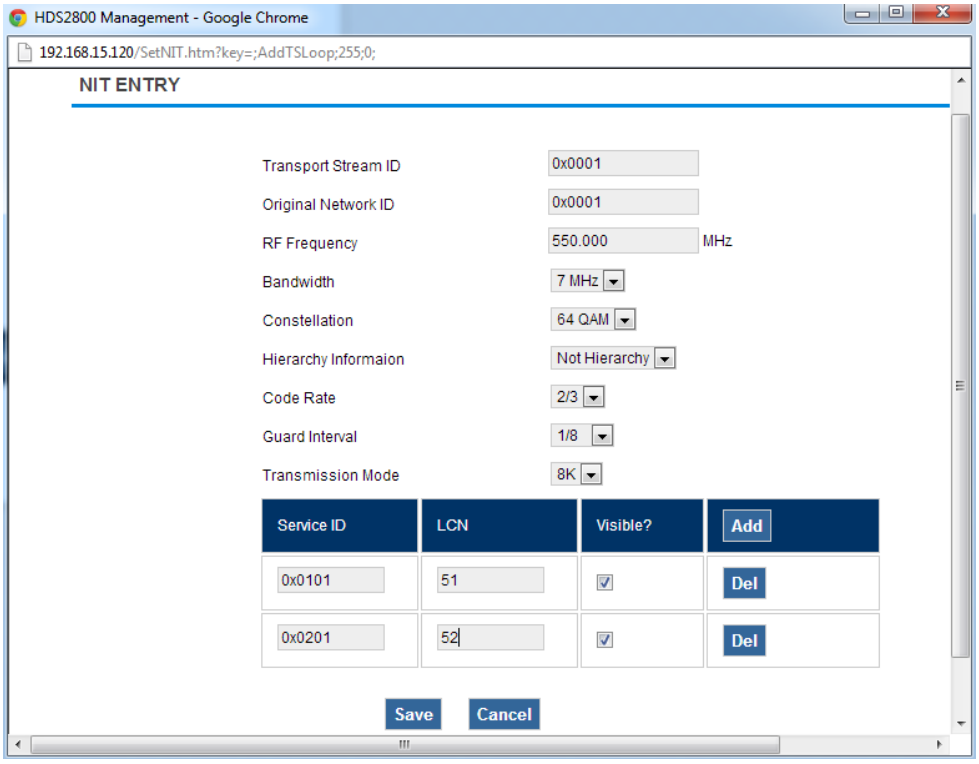
The NIT table MUST be updated for both modules, A and B. If there are no existing table entry's, add a new table with the following RF Frequency; 550.500MHz. Leave all other parameters as default and set the LCN's in ascending numbers. (E.g. 101, 102, 201, 202...)

Refer to the next section for Adding, setting editing the NIT table.

- Update NIT: click to update the NIT tables in system, always do this after an update to the table
- Clear NIT: click to remove all the tables that have been inserted before.

4.3.1 Add, Set, Edit the NIT table

Click “Del-All” and “Add” to pop up a new table, or “Detail” to show the existing table.

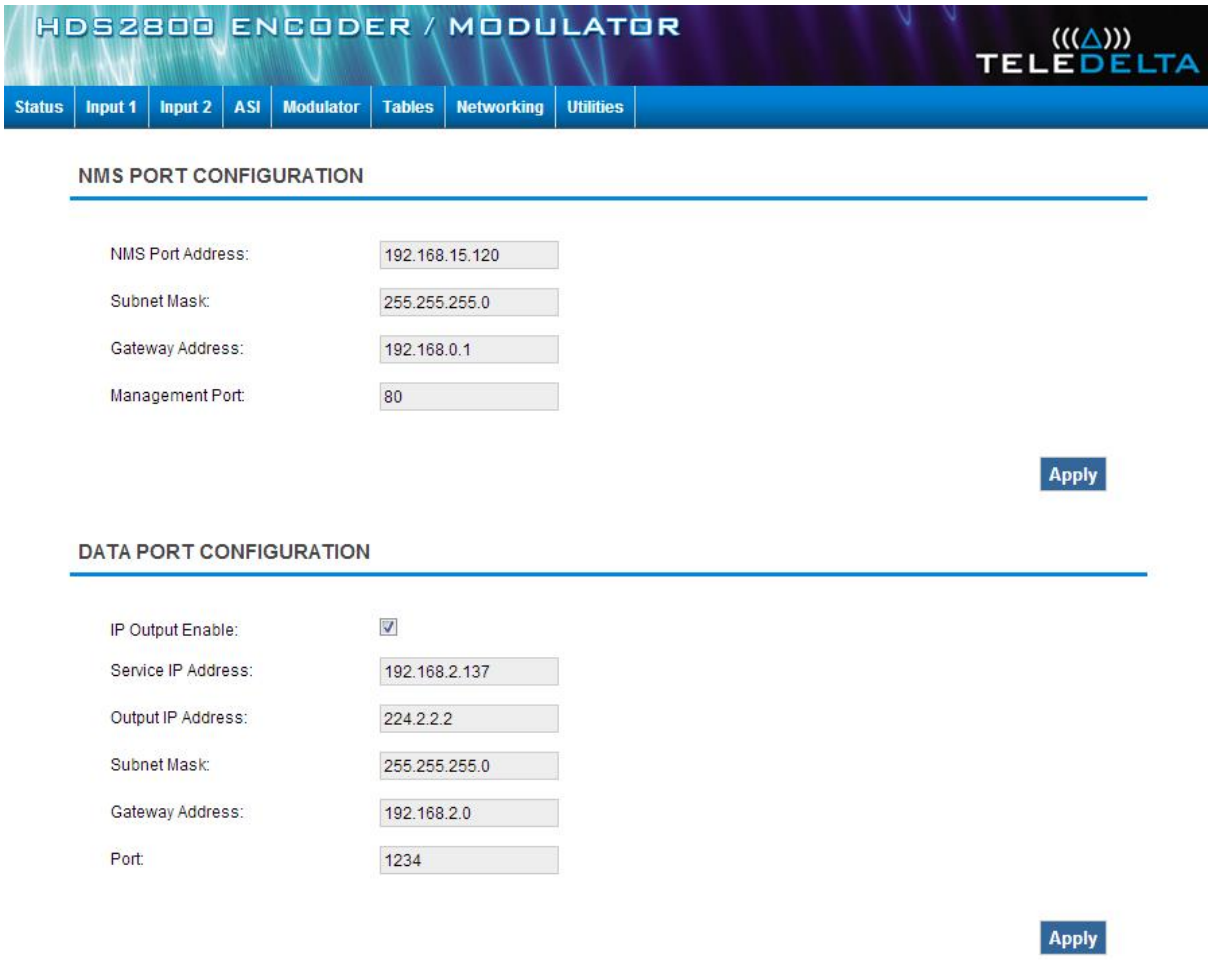


Label	Options	Comment
Transport stream ID	Inherited	16-bit field label identifying the TS which contains the service, event or mosaic described by the cell. The default value is not normally changed. Inherited from previous window
Original network ID	Inherited	16-bit field, a label which in conjunction with the following fields uniquely identifies a service, event or mosaic. The default value is not normally changed. Inherited from previous window
RF Frequency	Inherited	Inherited from Modulator settings. Don’t change.
Bandwidth	Inherited	Inherited from Modulator settings. Don’t change.
Constellation	Inherited	Inherited from Modulator settings. Don’t change
Hierarchy information	Not used	Hierarchy information: this option only for ISDB-T standard device. Don’t change
Code rate	Inherited	Inherited from Modulator settings. Don’t change
Guard interval	Inherited	Inherited from Modulator settings. Don’t change
Transmission mode	Inherited	Inherited from Modulator settings. Don’t change
Service ID	Inherited	Inherited from Input settings. Don’t change
LCN: logical channel number	User set	Enter the logical channel number. The LCN can be added more than one by re-clicking “Add” option

- Del: clicking “Del” to delete the added LCN information
- Save: clicking “Save” to save the current NIT parameters
- Cancel: clicking “Cancel” to exit the edit interface

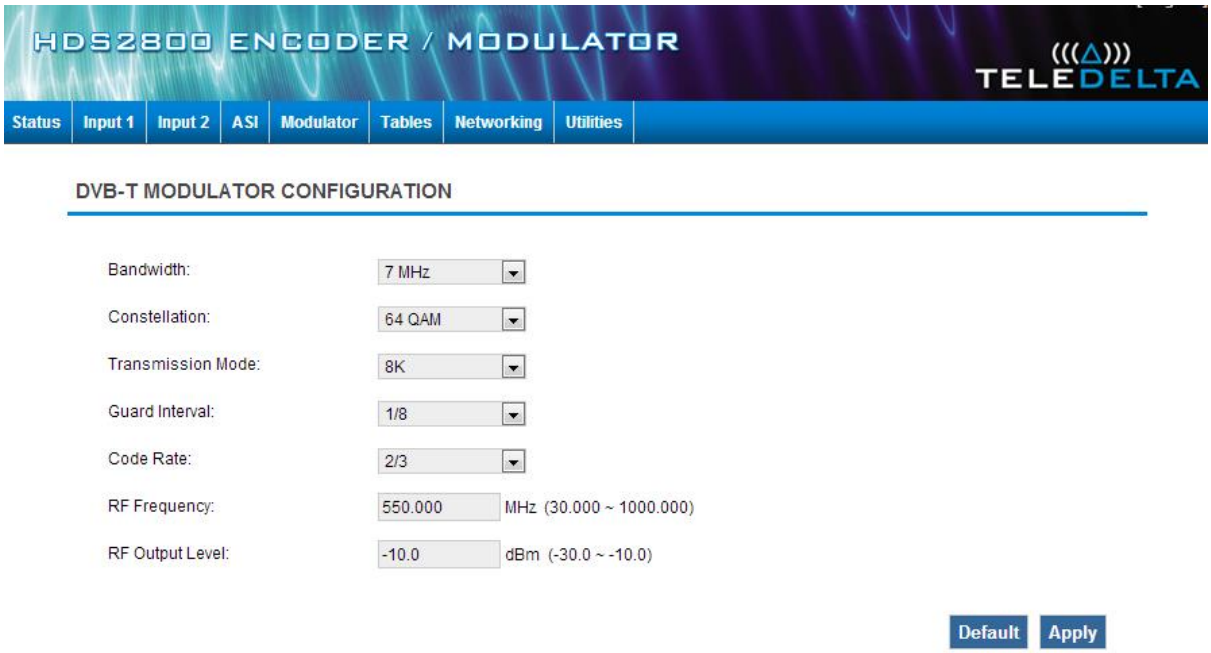
4.4 IP Output Setting

Follow the on screen help guidelines for setting the IP output configuration. Separate documentation is available for the implementation of IP systems.



Note: In this example if using VLC, set the VLC network stream to udp://@224.2.2.2:1234 and connect the stream from the **DATA** *port – ensure your computers firewall is either disabled or accepting of the above port address*

4.5 Modulator setting



Label	Options	Comment
Bandwidth	User set	the range is: 6MHz, 7MHz and 8MHz. **Australia is 7MHz**
Constellation	User set	QPSK, 16QAM and 64QAM. **Use 64QAM**
Transmission mode	User set	Use 8K
Guard interval	User set	Use 1/8
Code Rate	User set	Use 2/3
RF Frequency	User set	Range is 30~1000MHz
RF output level	User set	Range is -30~-10dBm

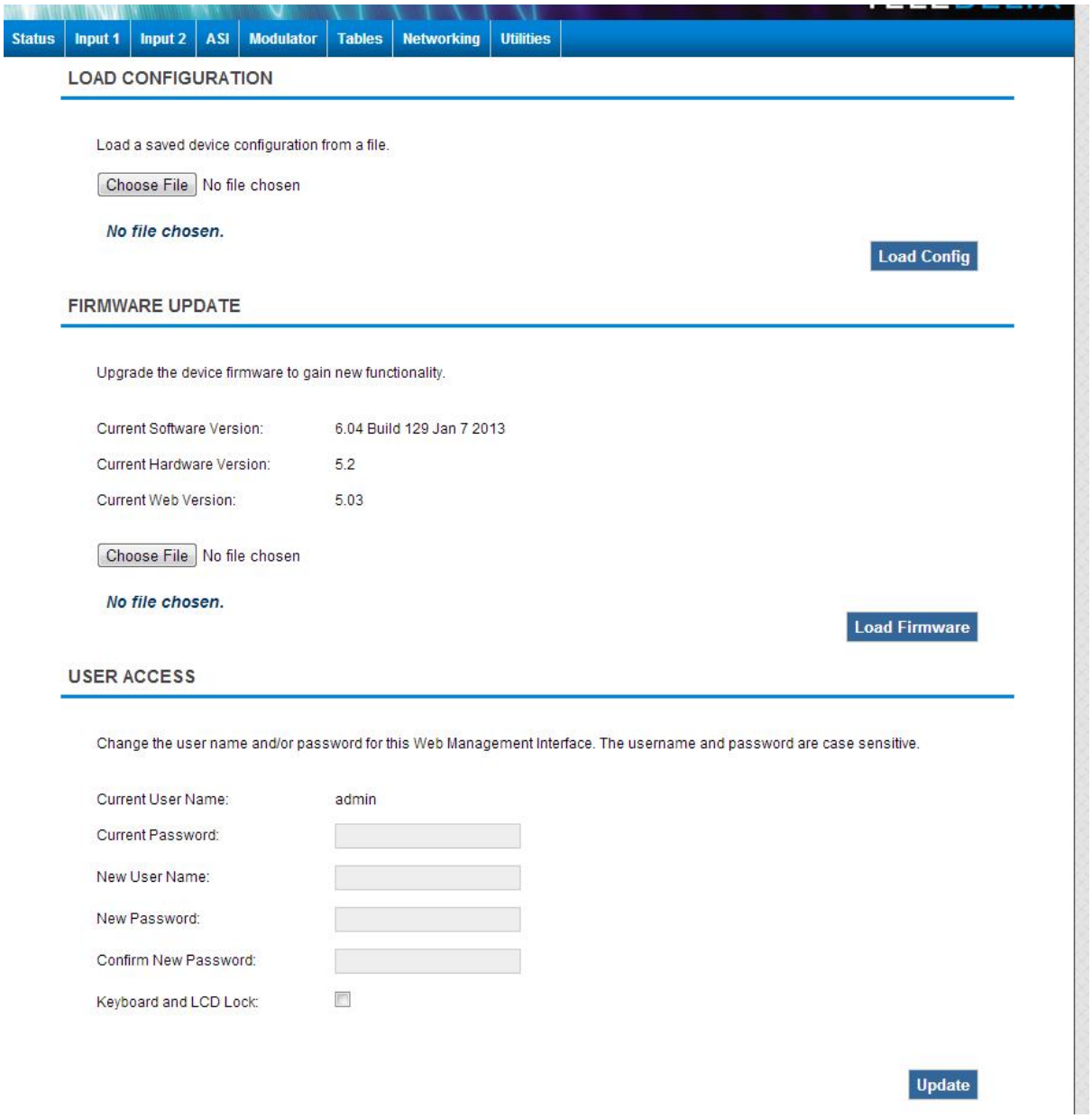
Set RF Frequency to 550.500MHz for Australian compatibility.

4.6 Utilities - Save/Restore

Follow the on screen help guidelines

Labels	Comment
Save Boot Configuration	Saves the current setup as the start-up or restore settings.
Restore Boot Configuration	Cancels current settings and restores the last saved settings
Factory Default Configuration	Resets all settings to factory defaults.
Backup Configuration	Saves the current setup to a re-loadable file

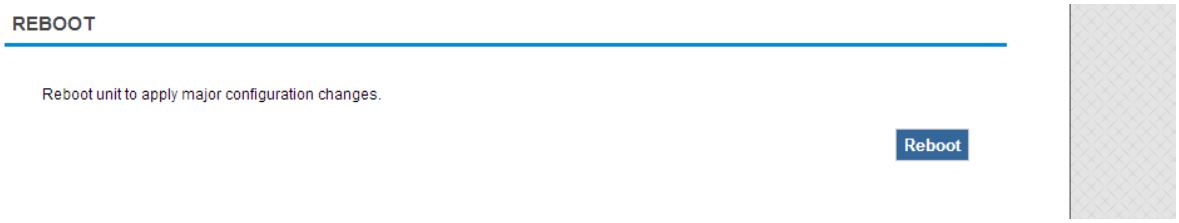
***Continued Below:**



Labels	Comment
Load Configuration	Load a saved configuration from file
Firmware Update	Update of existing firmware
User Access	Adjustment of login, password and security details
Backup Configuration	Saves the current setup to a re-loadable file

4.7 Reboot

Click to initiate a re-boot of the unit and the re-load of the most recently saved settings (see above)



4.8 Firmware

This function is used to upgrade the device's latest software program.

Follow the instructions provided with the software updates.