7881IRDA Series
QUICK START GUIDE

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EVERTZ MICROSYSTEMS LTD.
5292 John Lucas Drive,
Burlington, Ontario,
Canada L7L 5Z9

Phone:	+1 905-335-3700	
Sales:	sales@evertz.com	Fax: +1 905-335-3573
Tech Support:	service@evertz.com	Fax: +1 905-335-7571
Web Page:	http://www.evertz.com	

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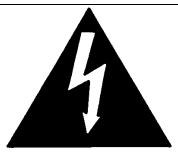
IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read these instructions
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE

INFORMATION TO USERS IN EUROPE

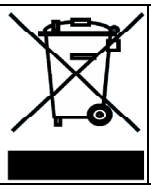
NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE

EN60065	Safety
EN55103-1: 1996	Emission
EN55103-2: 1996	Immunity



EN504192 2005
Waste electrical products should not be disposed of with household waste.
Contact your Local Authority for recycling advice

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	April 2013
2.0	Updated Section 2.2, and added section 2.3	April 2015

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1. OVERVIEW

The 7881IRDA series is the basis of a professional platform for receiving, demodulating and decoding digital DVB-S/S2 satellite signals.

This guide gives instructions for 7881IRDA first time setup. After completing the steps described in this manual, user is able to:

- Control the unit locally using front panel
- Connect remotely to the unit via IP network using the defined management IP address
- Receive signal from either RF, ASI or IP interface
- Output signal on SDI, ASI and IP interface

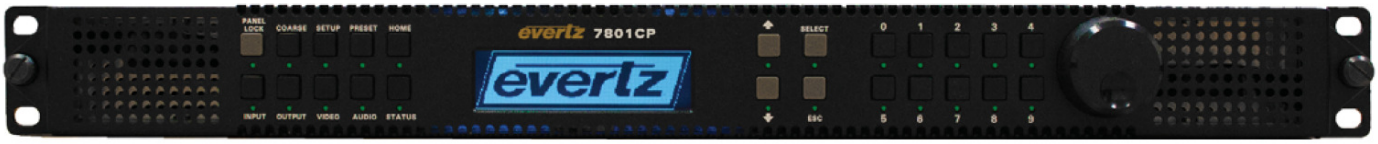

Figure 1-1: 7881IRDA in 1RU with Control Panel – Front View

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2. INITIAL SETUP

2.1. ASSUMPTIONS

Prior to the configuration process, it is assumed that 7881IRDA has been removed from its delivery box, it is installed in a rack, it has all needed power and modules (with possibly required Conditional Access modules) installed into its module slots and also SFP modules installed in the data port slot, and all the relevant cables connected.

2.2. CONFIGURATION OF MANAGEMENT IP CONNECTION

The first step is to configure the management IP connection so that you can create management access to unit via your Local Area Network. The current IP address on the unit is displayed on the Home Screen. Press the down arrow to navigate through multiple home screen pages and read the control port IP address.

User can change the management IP address from the front panel following the below steps:

- Enter the “SETUP” menu by pressing the “SETUP” button.
- Select the “Control Port” parameter by pressing “SELECT” button.
- The numeric keypad should light up allowing the user to enter the new IP address.
- After entering the new address press “SELECT” for the unit to take the new IP address.
- The unit will acquire the new IP address.

Note: Reboot is not required

- Confirm the new address is taken by navigating to home screen by pressing “HOME” button and using the down arrow to see the Control IP address.

2.3. HTTP BROWSER CONTROL

User can control the 7881IRDA using a HTTP browser following below steps:

- Connect a network cable (RJ-45) between the management connector labeled “ETHERNET” on the chassis and the LAN connector of the local PC or switch. As shown in the below figure.
- Open Firefox or Chrome (latest version recommended) browser and type in “Control Port” IP Address from section 2.2.

Note: The PC used for managing and administrative purposes must be in same subnet to establish proper connection to the chassis. You may need to change your PCs IP settings for DHCP to static during management IP connection configuration.

✍ **Note: The PC used for managing and administrative purposes must be in same subnet to establish proper connection to the chassis. You may need to change your PCs IP settings for DHCP to static during management IP connection.**

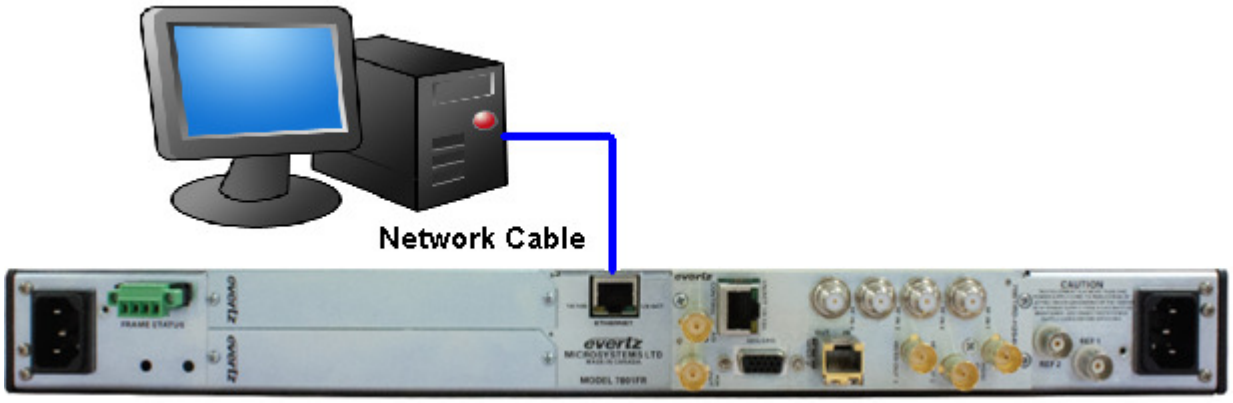

Figure 2-1: Connecting 7881IRDA to PC

- Log in as: "**root"**; password: "**evertz"**

*Note: Default username and password is "**root"** and **"evertz"** respectively. This is read/write privileges.*

*For read only privileges, customer needs to access with user name and password **"customer"** and **"customer"** respectively.*

- User will be directed to FC Menu.
- To access the 7881IRDA web controls, click on the "7881IRDA" link under "Name" column in "Products" section.

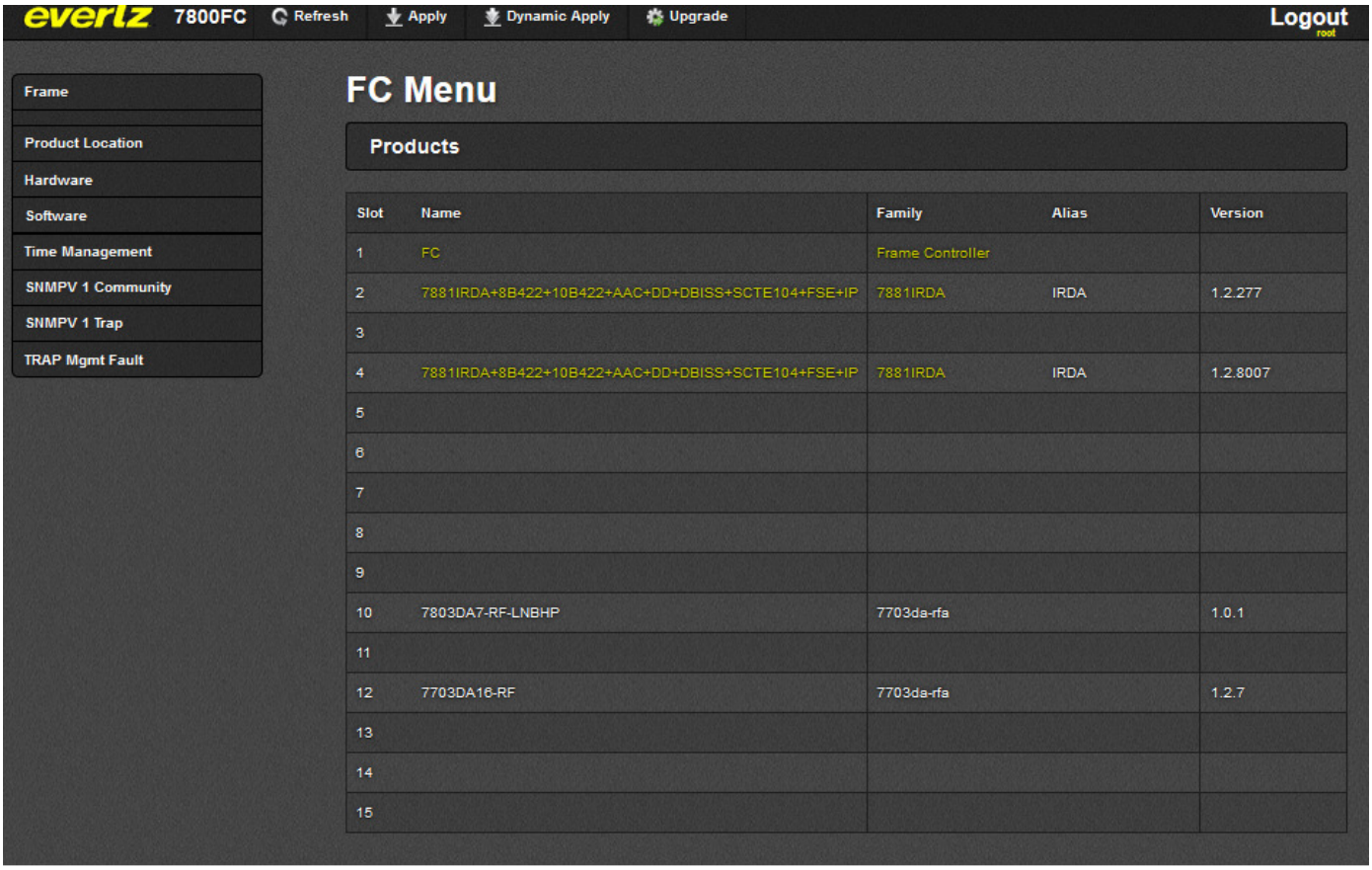

Figure 2-2: WebEASY - 7800FC Main Menu

2.4. SETTING UP USER LOGIN CREDENTIALS AND CHANGES PRIVILEGES

You can change the roles of the user by following the steps below from the FC webpage

* click on any of the tab on the left side, e.g. Hardware tab
* login and Use: “**admin**”/”**admin**”
* click users button on lower/right side
* Under " Users" tab
* click "modify" button for customer and change the role for it to be **RW**
* Then logout the FC and log in as customer/customer
* Re-login to FC

You need to do the same thing for IRD

* You need to login to card directly With
  http://<IP address>/slot/<Slot#>/htdocs/login.php
* User login: “**admin**”/”**admin**”
* click users button on lower/right side,
* click "Login" tab
* under “Users" tab
* click "modify" button for customer and change the role for it to be **RW**
* Then logout the IRD and log in as “**customer**” / “**customer**”

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3. INPUT SETTINGS

3.1. SELECT SOURCE

7881IRDA allows the user to choose the input source from selection of 6 different inputs. User has options of choosing one of the four RF inputs as its source or an ASI or IP as its source. To choose input to the IRD follow the below steps:

- Navigate to the “Input” tab and select “Main source” to either RF1-4,ASI or IP.
- If redundancy is not required please set “Source Mode” to “Force Main”.
- Hit “Apply” after changing the settings and hit “Refresh” to ensure the values are applied and taken. (located at top the page)

3.2. RF TUNE

If source to the IRD is RF input it is assumed that a valid RF input is connected to the rear plate of the IRD. To tune to a certain frequency/transponder use the below steps:

- Navigate to “RF Tune” controls under “Input” tab.
- Select the RF channel to tune from 1 to 4.
- Enter the respective parameters for the RF feed.

Note: User can enter Sat Freq and LNB Freq or only L-Band Freq in Sat Freq field.

- Hit “Apply” after changing the settings and hit “Refresh” to ensure the values are applied and taken. (located at top the page)
- “Lock Status” parameter should read “Lock” to confirm the signal tuned. For detailed RF monitoring navigate to “Status” tab.

✍ **Note: Satellite frequency, LNB Frequency, Symbol Rate and Standard are mandatory fields to get a Lock ON.**

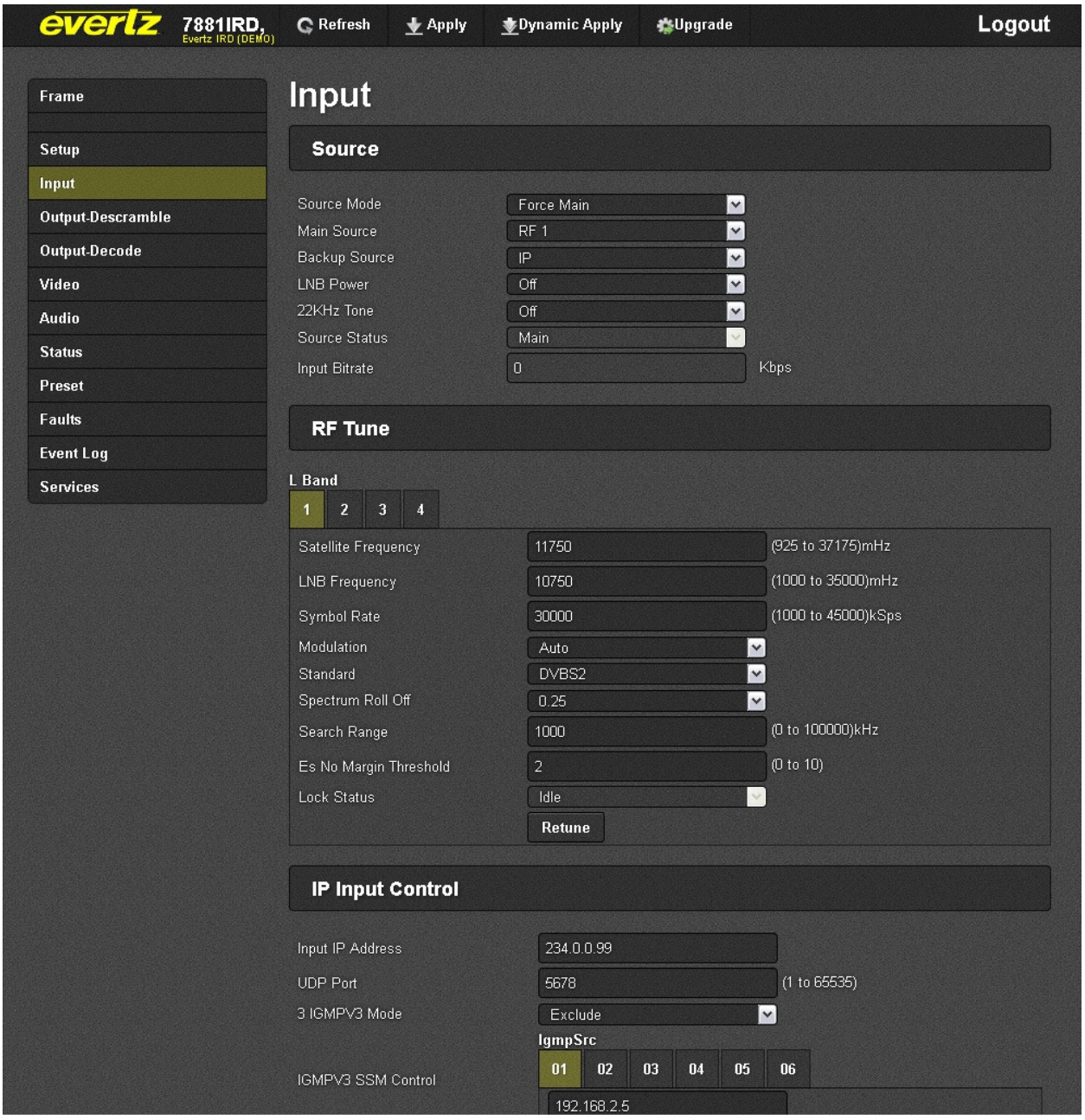

Figure 3-1: WebEASY - 7881IRDA Input Tab

3.3. ASI INPUT

If the source to the IRD is ASI stream over coax it is assumed that a valid source is connected to the ASI INPUT port on the rear plate of the unit. To select ASI as source to the IRD, select “ASI” as “Main Source” under “Source” section of the “Input” tab. Input bit rate parameter should reflect a valid bit rate confirming the ASI input is present. For in depth monitoring of the input navigate to “Input TS Monitor” section of the “Status” tab. Press “Reset Counter” and then “Refresh” to get accurate reading.

3.4. IP INPUT

IP input can be selected as source to the 7881IRDA. It is assumed that a RJ-45 ethernet cable with valid TSoIP multicast stream is connected to the SFP connector labeled as “MPEG IP” on the rear plate of the 7881IRDA. To select the IP Input as your source and configure IP settings follow the below steps:

- Select “IP” as “Main Source” under “Source” controls in “Input” tab.
- Navigate to the bottom of the “Input” tab for “IP Input Control” settings.
- Enter a valid multicast “Input IP address” and “UDP Port” in the fields.
- If IGMPv3 protocol is not in place ignore the rest of the IP controls.
- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)
- “Input Bitrate” field under “Source” control should have a valid bitrate present confirming the IP input is valid.
- For in depth monitoring of the input stream navigate to “Input TS Monitor” section of the “Status” tab. Press “Reset Counter” and then “Refresh” to get accurate reading.

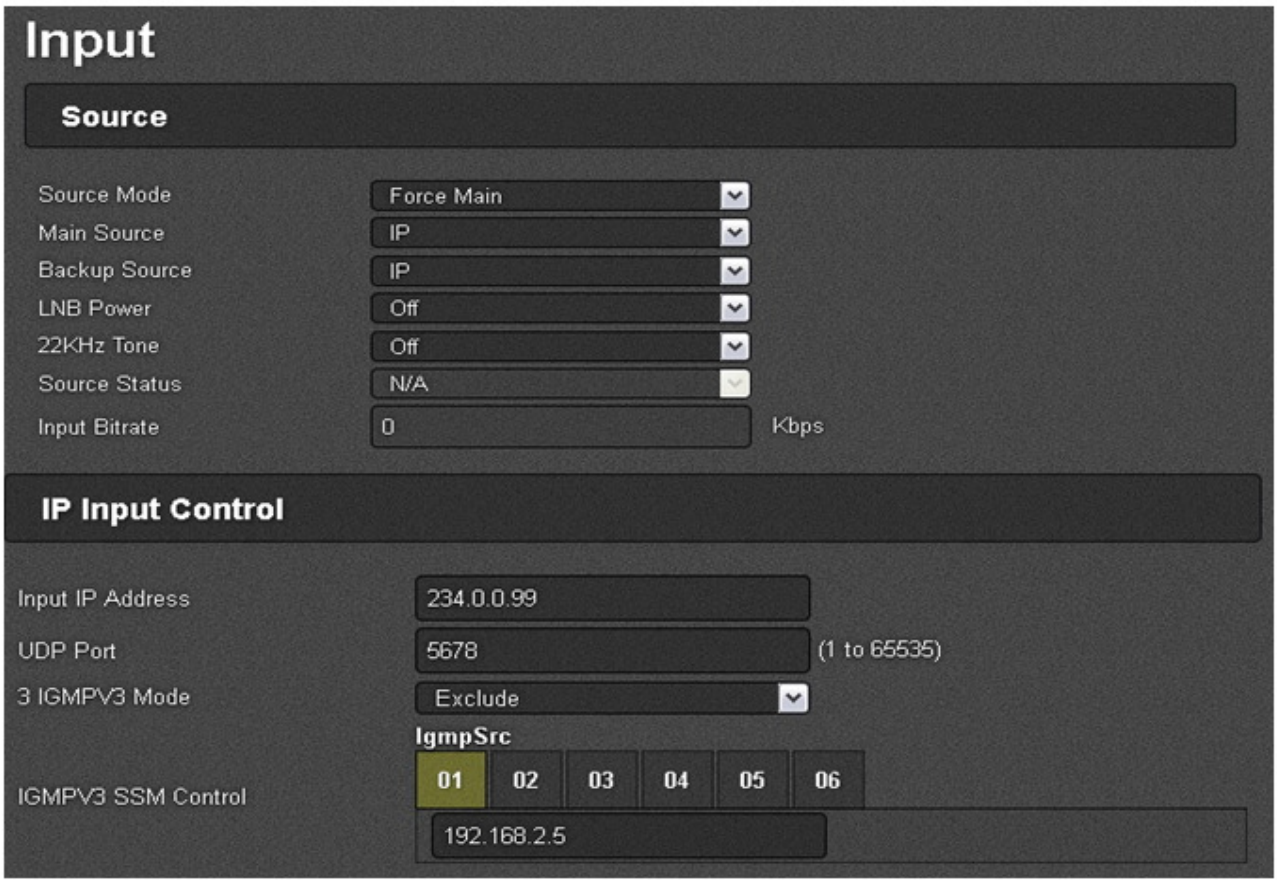

Figure 3-2: WebEASY – 7881IRDA Input Tab / Setting IP Configurations

Note: The data port IP address may need to be changed in some cases if the IP stream is originating from a layer III network switch. The data port configuration controls are present under "Setup" tab. Device reboot is required to take new data port IP address.

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4. OUTPUT SETTINGS

4.1. HD/SD SDI OUTPUT

The 7881IRDA in default mode is configured to auto decode “First program in PAT” and auto detect MPEG2 or H.264 to give HD/SD-SDI out. Navigate to “Video Monitor” under Status tab to get detailed info about the current service/program being decoded.User can change the decoder modes by following steps:

4.1.1. First Program in PAT

- Navigate to “Video Decode” controls under “Output-Decode” tab.
- Set “Program Tuning Mode” to “Auto PID Select”. This mode will automatically detect different types on PID in the selected program using DVB-ASI descritors.
- Set “Auto Program Select Mode” to “First Program in PAT”. This mode will automatically start decoding the first program in the program association table.
- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)

4.1.2. User Defined Program Number

- Navigate to “Video Decode” controls under “Output-Decode” tab.
- Set “Program Tuning Mode” to “Auto PID Select”. This mode will automatically detect different types on PID in the selected program using DVB-ASI descriptors.
- Set “Auto Program Select Mode” to “Specific Program Select”. This mode will allow user to manually choose the Program number to decode.
- Choose the Program number in the “Program Number Select” field.
- Hit “Apply” after choosing the value and hit “Refresh” to ensure the values are applied and taken. (located at top the page)
- “Decoded Program” monitor only control should reflect the program ID selected by user to decode.

4.1.3. User Defined Service Name

- Navigate to “Video Decode” controls under “Output-Decode” tab.
- Set “Program Tuning Mode” to “Auto PID Select”. This mode will automatically detect different types on PID in the selected program using DVB-ASI descriptors.
- Set “Auto Program Select Mode” to “Specific Service Name”. This mode will allow user to manually choose the Program name to decode.
- Choose the Program Name in the “Service Name Select” field.
- Hit “Apply” after choosing the value and hit “Refresh” to ensure the values are applied and taken. (located at top the page)
- “Decoded Program” monitor only control should reflect the program ID selected by user to decode.

4.1.4. User Defined PIDs

- Navigate to “Video Decode” controls under “Output-Decode” tab.
- Set “Program Tuning Mode” to “Manual PID Select”. This mode will allow user to manually enter the PID values of all the elementary components.
- Enter the PID values of all the components under the “Manual PID Control” section.

- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)

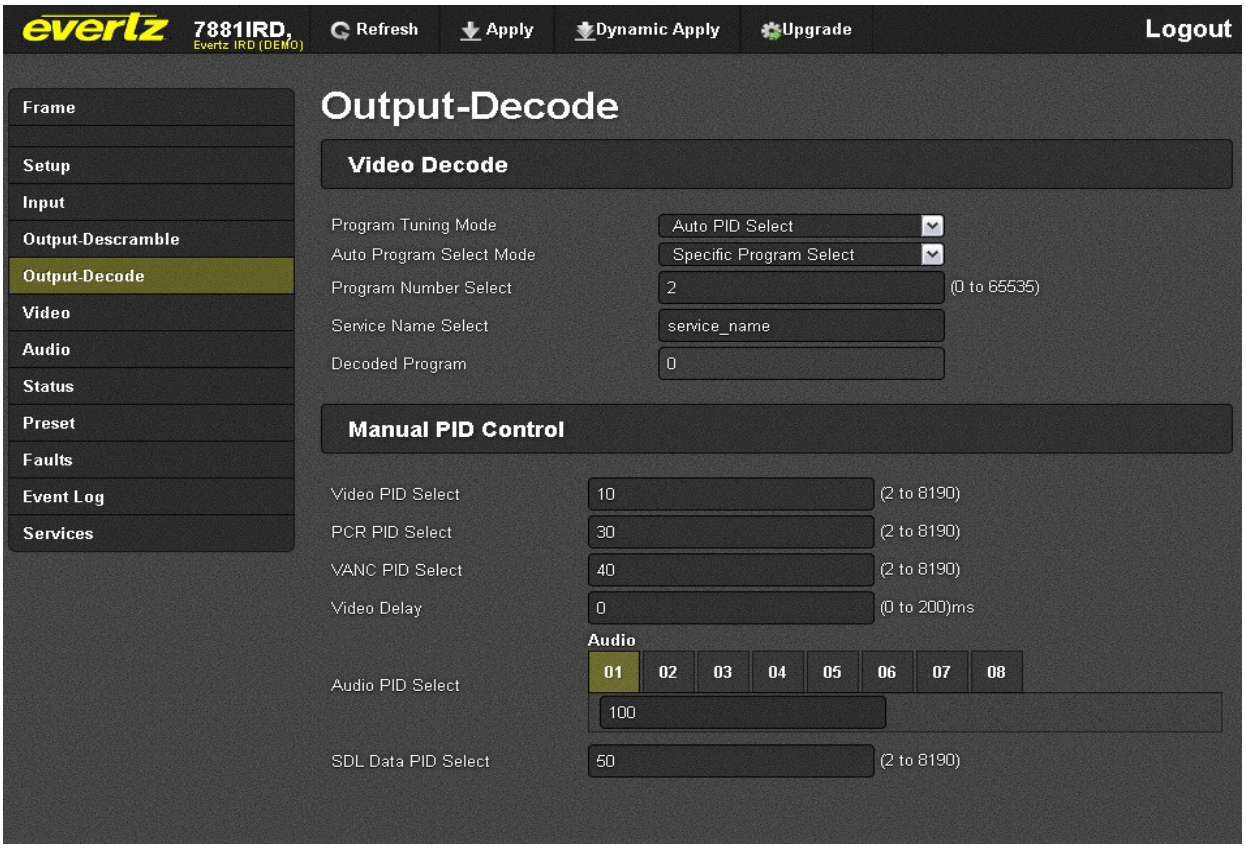

Figure 4-1: WebEASY – 7881IRDA Output Decode

4.2. ASI OUTPUT

When a valid input source is present, by default 7881IRDA should have a valid ASI output present. It is assumed that a BNC coax cable is connected between the ASI output connector and the ASI analyzer. To monitor the ASI output and change the ASI output settings follow the below steps:

4.2.1. Monitor ASI Output

- Navigate to “Output TS Monitor” under “Status” tab to monitor the ASI output.
- Press “Reset Counter” and then “Refresh” to get accurate reading.

4.2.2. Service/Program Filtering on ASI output

- Navigate to “ASI Output Control” under “Output-Descramble” tab.
- Enable “ASI Service Filter” control and hit Apply.
- Navigate to Service Control below “ASI Output Control” to disable services from output. By default all service will be allowed to pass.
- Select “No” on “Output Service on ASI” control under specific service user wants to filter.

Note: Press “Apply” after selecting No on each Service or use “Dynamic Apply”.

4.2.3. Change Output Bitrate on ASI Output

User can manually lower the ASI bitrate after filtering services to maintain CBR and remove unnecessary null packets while saving bandwidth. Follow the below steps:

- Navigate to “ASI Output Control” under “Output-Descramble” tab.
- Enable the “ASI Output Bitrate Control”
- Set the desired output bitrate in “ASI Output Bitrate” field. Units is kbps
- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)
- To ensure a clean output is present out the IRD; navigate to “Output TS Monitor” under “Status” tab. Reset the counter and hit “Refresh” to make sure no CC errors are present.

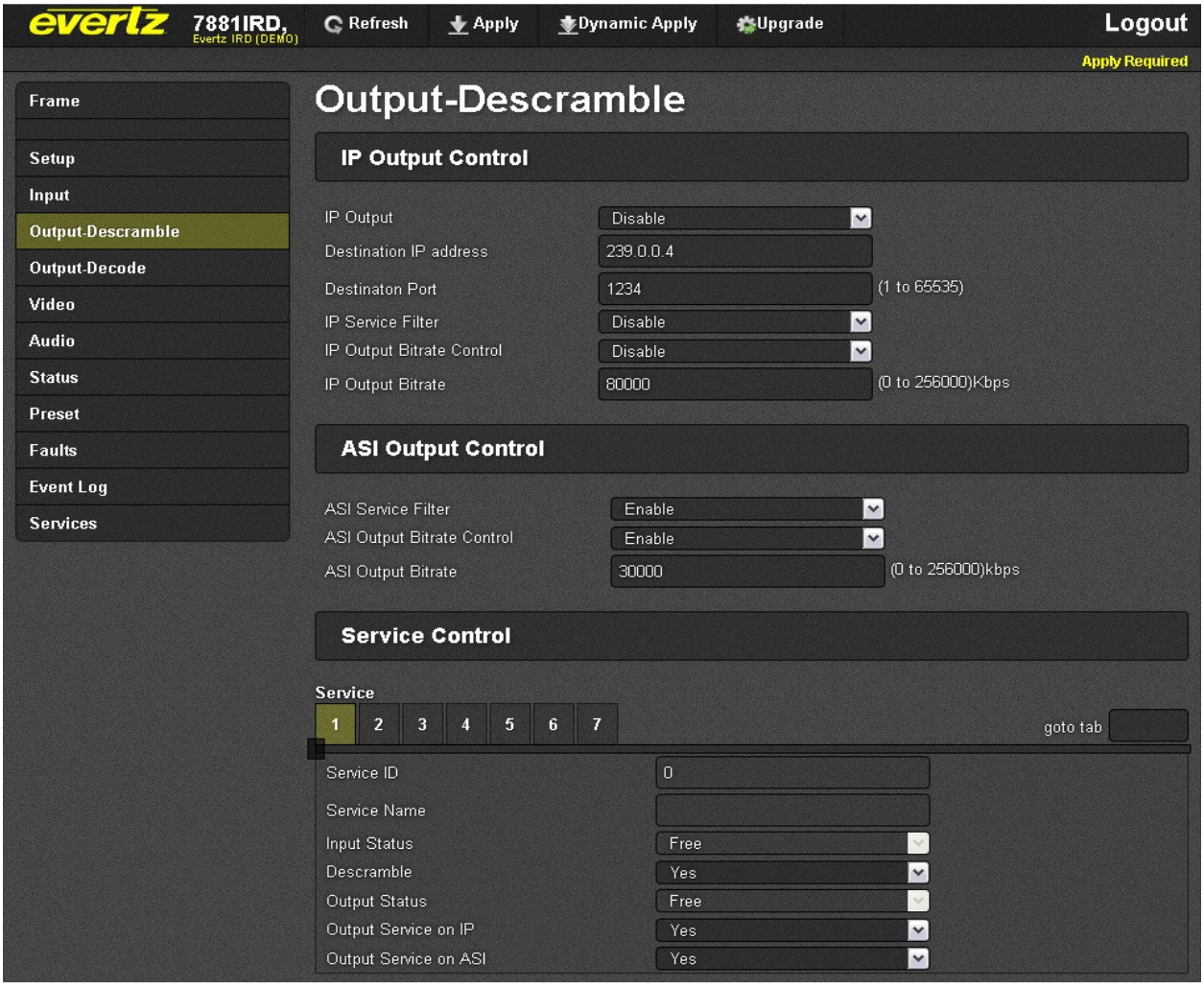

Figure 4-2: WebEASY – 7881IRDA Output Descramble

4.3. IP OUTPUT

User can follow the below steps to configure the IP output settings. It is assumed that RJ-45 Ethernet cable is connected between SFP connector on the back of the rear plate and IP analyzer/switch.

4.3.1. Enable IP Output

- Navigate to “IP Output Controls” under “Output Descramble” tab.
- Enable the “IP Output” control.
- Enter a valid “Destination IP address” and “Destination UDP Port”.
- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)

4.3.2. Service/Program Filtering on IP Output

- Navigate to “IP Output Control” under “Output-Descramble” tab.
- Select “Service Filter” setting for “IP Service Filter” control and hit Apply. (If “Decoded Service” is selected, all services except the one being decoded will be dropped from the output making the output an SPTS.)
- Navigate to “Service Control” section to disable services from output. By default all service will be allowed to pass.
- Select “No” on “Output Service on IP” control under specific service user wants to filter.

Note: Press “Apply” after selecting No on each Service or use “Dynamic Apply”.
Note: In this mode the dropped services will be replaced by nulls maintain the same output bitrate. If user wants to change the bitrate follow the change output bitrate instructions.

4.3.3. Change Output Bitrate on IP Output

User can manually change the IP output bitrate after filtering services to maintain CBR and remove unnecessary null packets while saving bandwidth. Follow the below steps:

- Navigate to “IP Output Control” under “Output-Descramble” tab.
- Enable the “IP Output Bitrate Control”
- Set the desired output bitrate in “IP Output Bitrate” field. Units is kbps
- Hit “Apply” after entering the values and hit “Refresh” to ensure the values are applied and taken. (located at top the page)

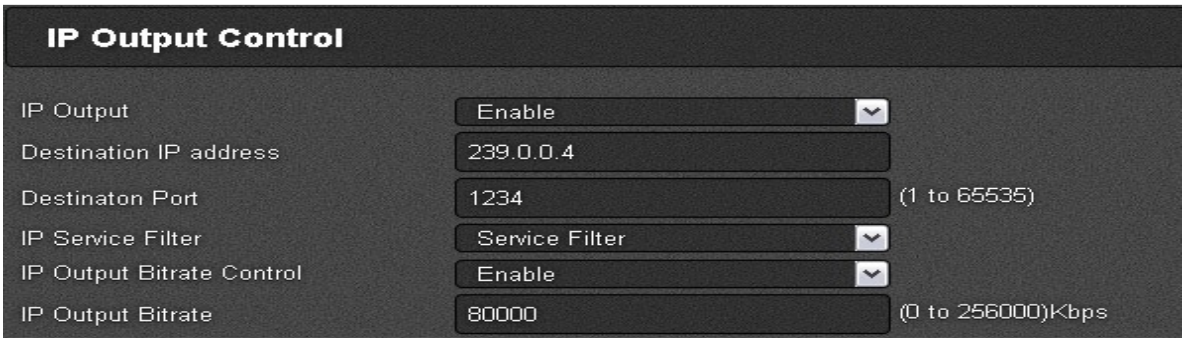

Figure 4-3: WebEASY – 7881IRDA Output Descramble / IP Output Control

5. TIPS

5.1. CONTROL HINTS

Control hits are available for every control. Press the “?” button at the bottom right corner of every page to enable control hits for parameters on that page. When “?” is pressed another “?” will appear beside every control. Just hover over the “?” and user can read the description of that control.

5.2. SERVICES

When a valid input is present user can navigate to “Services” tab to view the incoming programs on the source TS. Click on the service names to get a tree view of all the elementary components and PID values.

5.3. STATUS

Status tab provides in-depth monitoring of all aspects on the IRD including RF monitoring, TS input and output monitoring, decoded video monitoring etc.

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