



User Manual

PROFLEX VERSATILE HEADEND MODULE Ref. 5500



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1. INTRODUCTION

1.1. Product description

The ProFlex satellite module has 4 inputs allowing the reception of 4 different satellite bands per module. Because the module has 8 satellite tuners and a built-in multiswitch, reception of 8 different transponders coming from any of the 4 input satellite bands is possible.

Depending on the type of configuration, up to 4 DVB-T/C multiplexes, 4 MPTS or 64 STPS streams can be distributed per module, offering you one of the most flexible and cost-efficient solutions available on the market. Other benefits include:

- versatile: one module for multiple applications
- flexible: tailor-made configuration
- future proof: configuration upgradable
- scalable: features upgradable
- feature activation can be time based

The ProFlex should be slid in a 19 inch DMH rack (Ref. 5065ETH).



1.2. Typical installation

The ProFlex can be used to provide high quality satellite television in a wide range of projects, both in the hospitality as in the residential market. Typical buildings or infrastructures where the ProFlex can be used include, but are not limited to:

- Large and small hotels, hostels, bed and breakfasts, holiday parks
- Hospitals, resthomes, prisons
- Large and small multi-dwelling units with an international public, settlements
- Maritime infrastructure such as boats, yachts, barges

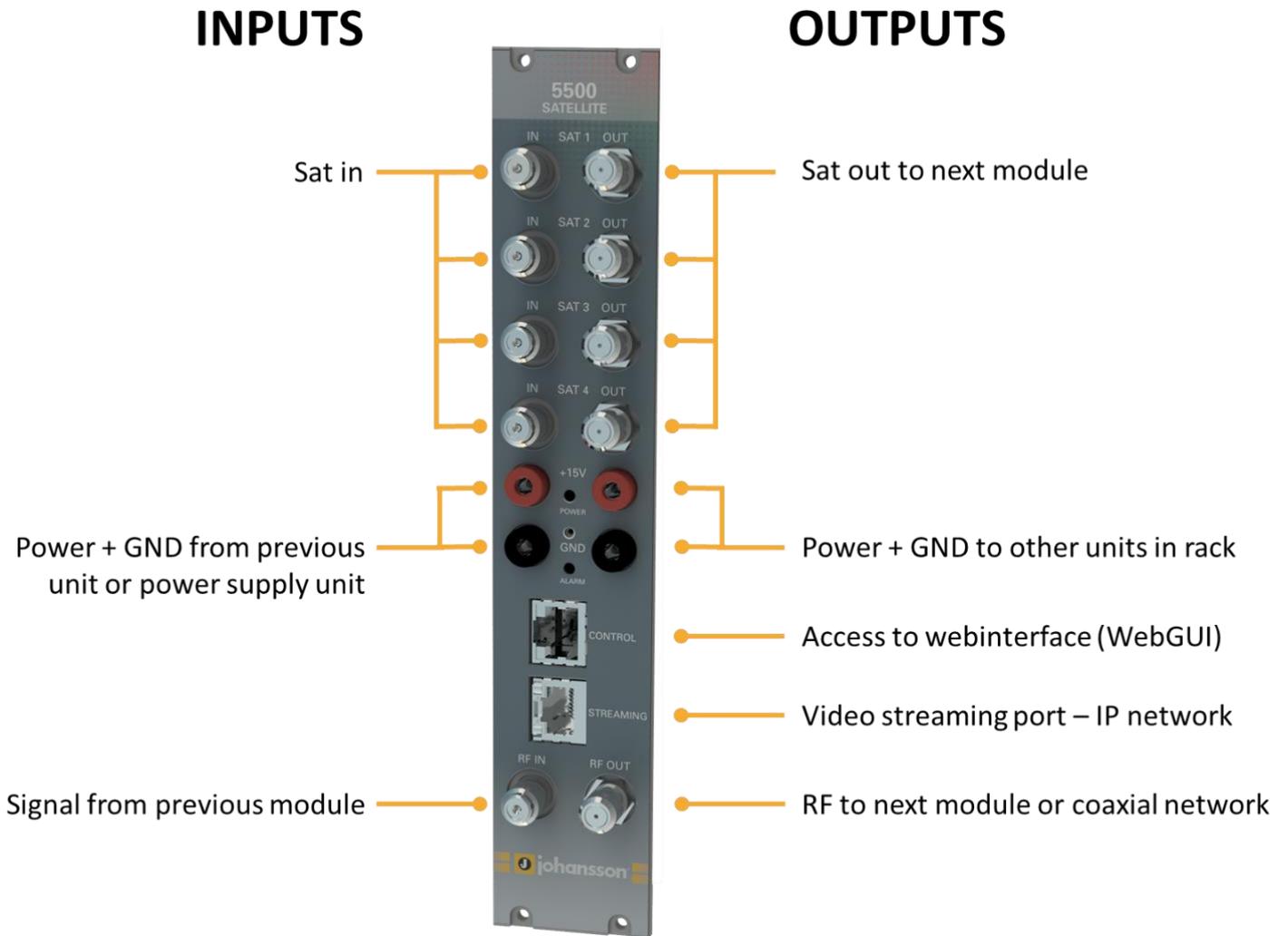
1.3. Package contents

- 1 x ProFlex (ref. 5500)
- 2 x DC banana bridges
- 5 x 75 Ohm terminators
- 4 x RF bridges

1.4. Product dimensions



1.5. Front view of the module



1.6. Mounting

Proper installation is critical to system performance. It is particularly important to install the ProFlex correctly in order to receive optimal signal quality.

- Install the ProFlex in a well ventilated and cool room. In case the ambient temperature of the room is higher than 30°C (or 91°F), the ProFlex must be used in combination with a fan unit (Ref. 5062ETH).
- Slide the ProFlex in a 19 inch DMH rack (Ref. 5065ETH). screw 4 bolts in the front plate of the ProFlex to secure it to the DMH rack.
- Plug the 4 satellite cables in the Satellite in ports. If applicable, loop the satellite signal through to the next module using the RF bridges. If not applicable, insert a 75 Ohm terminator in each Satellite out port.
- If the ProFlex should receive RF signal from a previous module in the rack, plug the 125mm coaxial cable in the RF in port.
- If the ProFlex is configured to read CAM cards, insert 1 or 2 CAM cards* and smart cards* in the slots on the backside of the ProFlex. (*Not included with the ProFlex).
- Depending on your video communication network: If video communication is over IP network: plug an Ethernet cable in the streaming port and insert a 75 Ohm terminator in the RF out port. If video communication is over coaxial network: insert a coaxial cable in the RF out port.
- Connect the ProFlex to the power supply unit (Ref. 5051ETH or 5051UKETH) (power + GND) using the DC banana bridges. If applicable, also connect the ProFlex to the next module in the rack, making sure they are powered as well. Once it is powered, a **RED** LED above the control port will start blinking. When the LED stops blinking and turns **BLUE**, the module is completely booted and ready for configuration. This will take approximately 4 minutes.
- For configuration of the module, plug one end of the Ethernet cable in the control port, and the other end in a computer (to access the webinterface) or in a remote control unit (Ref. 5950) (to remotely access the Universal User Interface).
- More information about configuration of the ProFlex module can be found in the next section

2. CONFIGURING THE PROFLEX USING THE WEBINTERFACE

MINIMAL SYSTEM REQUIREMENTS

The WebGUI is supported by the following web browsers:

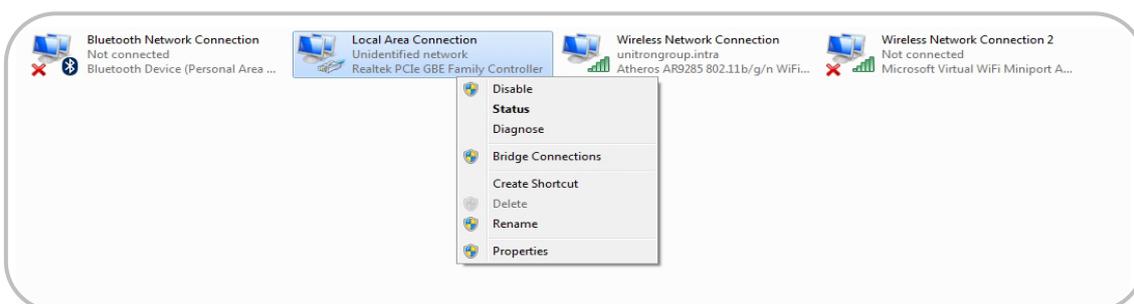
- Google Chrome
- Mozilla Firefox
- Internet Explorer
- Safari

Make sure to use the most recent version of the browser. When using a different browser, we cannot guarantee a correct functioning of the interface.

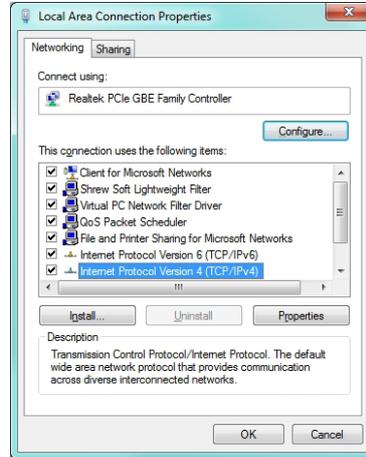
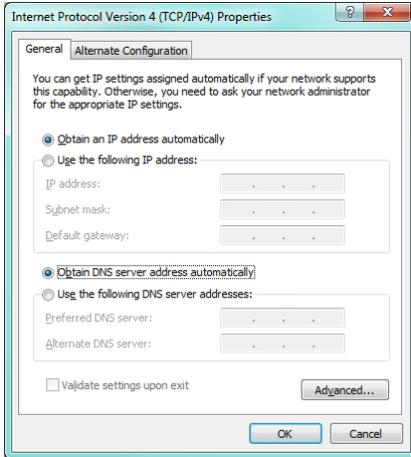
LOGGING IN TO THE DEVICE

To connect the module to your computer, plug one end of the Ethernet cable in the control port, and the other end in a computer. Once the ProFlex is powered and fully booted, the module is reachable and ready to be configured.

- The module will obtain an IP address from your PC, this will take a little while.
- For this operation to work, **it is important that the PC is NOT set with a manual IP address!**
 - o Set the adapter to obtain an automatic IP address as explained in the following procedure (for Microsoft Windows7®)
 - o Navigate to the *Control Panel* (Start → Control Panel).
 - o Enter the *Network and Sharing Center* and go to the *Adapter Settings*
 - o Right-click on the *Local Area Connection* and choose *Properties*.



- Double click on Internet Protocol Version 4 (TCP/IPv4) to enter the IP settings of your adapter.
- Make sure the *'Obtain an IP address automatically'* checkbox is selected.
- Click **OK** to save the settings.



GENERAL CONFIGURATION

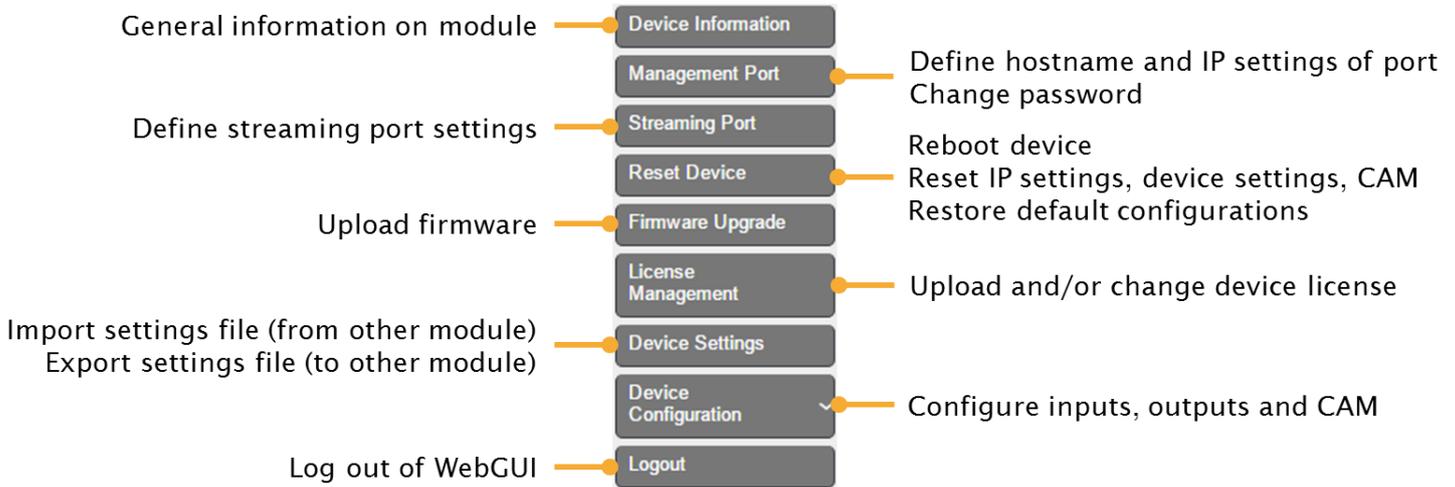
- Open your network browser, and go to:

 <http://start>

- The landing page with information about the device will appear. On this screen, you see information about the device type, name, ID, serial number, firmware version, hardware version and device features. In the top right corner, you will see the device status. If the status "LED" is green, there are no alarms. When you move your cursor over the status "LED", the alarm status will appear.

Device Information		Temperature: 50 °C
Device Type:	DVB-S TO DVB-C	
Device Name:	Satellite Module	
Device Id:	U0000000000000000	
Serial Number:	SN00000000000000	
Firmware Version:	550F0014_1.1.0.Beta-1.4	
Hardware Versions		
Main Board:	1.0	
Expansion Board:	Not Installed	
Device Features		
Tuner:	8	
Mux:	4	
CAM:	2	

- By clicking on login, you can log in to the module. Use the password “admin”.
! change the password as soon as you log in to the module via Management Port”!
- After logging in, the Device information window will appear again. The menu structure of the web interface can be found in the left column. In the picture below, the different functionalities of the different menu buttons are described.



- **The following actions are critical for optimal system performance:**
 - **Management port:**
 - Define the hostname and IP settings of your management port:
Here you can configure the hostname of the module. This name can be used to access the module by simply typing it into your browser as the address and surf to it. This is more convenient than using the IP address.
 - Change your password to secure your module for unauthorized users
 - **Streaming port:**
 - Define the IP settings of your streaming port.
 - Set Time-to-Live according to your network needs (default is 64)
 - Set Encapsulation to UDP or RTP
 - **Reset device:**
 - If it is at issue, go to the Reset Device tab to reboot your ProFlex. Via this tab you can also reset certain settings or restore the default configurations of your ProFlex. All settings can be reset to default by means of a factory reset.
 - The ProFlex can also be manually reset. This can be done by inserting a pin (e.g. a paperclip) in the small opening in the front plate of the ProFlex right above the letters “GND” (between the power and alarm LEDs).
 - By pressing this button less than 2 seconds (LED above management port will turn **RED**), the device will reboot
 - By pressing this button longer than 5 seconds (LED above management port will blink **GREEN**), the device will reboot, the IP settings will be reset and the password will be reset to the default, i.e. “admin”.

- *Firmware Upgrade:*
 - Click on the **BROWSE** button, and open the upgrade file. Click **UPLOAD** to send the file to the device, this will install the new firmware on the device.
- *License management:*
 - For first configuration, the device license is already set and should not be altered.
 - For a license upgrade, first upload the license file* and then activate the device license via “Activate Device License” and press Apply. Finally, reboot the device to make sure the firmware upgrade succeeds.
 - * the procedure to obtain a new license file is to send your current license identifier (LID) to UnitronGroup and request for a new configuration according to your needs
- *Device Settings:*
 - Go to this tab if you want to import a settings file from another module (click on **choose file** and select the .exp file on your computer), or export a settings file (so you can later upload it to another module).
 - This tab can also be used to store and restore the device settings
- *Device configuration*
 - This action is discussed below
- *Logout:*
 - When you are finished configuring the ProFlex, click logout to secure the web interface for unauthorized users.

DEVICE CONFIGURATION

It is of utmost importance that your device is configured in a right way in order to make the ProFlex installation successful. To do so, follow the below mentioned steps carefully.

1. Input

1.1 Define the LNB settings (INPUT > LNB > INPUT 1-4)

- **Input:** Sequence number of the input (also indicated on the front of the actual module)
- **Label:** custom label for each input (e.g. VLow, or ASTRA 19.2VLow, ...)
- **Voltage:** The LNB voltage to select the polarization
 - 13V: Vertical polarization
 - 18V: Horizontal polarization
- **Tone:** LNB tone to select low/high band
 - ON: high band
 - OFF: low band
- **DiSeqC®:** control of a DiSeqC® switch (A/B/C/D)
- **Band:** Satellite band
 - Ku-band
 - C-band
- **Extended Voltage:** Add 1V to the LNB voltage to compensate the cable losses for long coaxial cables.
- **Enable:** do not forget to enable the LNB input, this is disabled by default)
- Press **APPLY** to confirm the parameters.

DMH - Satellite Module (Uncalibrated) 550F0014_1.1.0.Beta-1.4

Device Information
Management Port
Reset Device
Firmware Upgrade
License Management
Device Settings
Device Configuration
Input
LNB
Input 1
Input 2
Input 3
Input 4
Tuner
Stream
Output
CAM
Logout

Input 1

Label:

Voltage: Extended Voltage:

Tone:

DiSeqC:

Band:

Enable:

Refresh Apply

1.2 Define the settings for each of the 8 tuners (INPUT > TUNER > TUNER 1-8)

- **Input:** this refers to the LNB inputs; make sure the transponder frequencies you choose correspond to the right polarity of the LNB inputs
- **Frequency:** choose the frequency of the transponder you want to receive
- **Baud Rate:** choose the baud rate of the transponder signal you want to receive
- **Modulation:** choose between DVB-S and DVB-S2
- **Enable:** click the tick box to enable the tuner (this is disabled by default)
- Check the lock status, signal level, signal quality and signal to Noise in the top right of the window to see if the tuner locks on the selected transponder
- Press *APPLY* to confirm the parameters.
- The module will now set the tuner to this frequency. Wait until the correct parameters are loaded. When the tuner is able to lock on the frequency, the services status from this transponder will be shown in the top right corner.

The screenshot displays the web interface for a satellite module. The top bar shows 'DMH - Satellite Module (Uncalibrated)' and the version '550F0014_1.1.0.Beta-1.4'. A left sidebar contains navigation options: Device Information, Management Port, Reset Device, Firmware Upgrade, License Management, Device Settings, Device Configuration (expanded), Input, LNB, Tuner (expanded), Stream, Output, CAM, and Logout. The 'Tuner' section is expanded to show 'Tuner 1' selected. The main area for 'Tuner 1' displays the following settings:

- Lock Status: Tuner locked (indicated by a green dot)
- Signal Level: 83 dBuV (indicated by a green progress bar)
- Signal Quality: 10⁻⁶ (indicated by a green progress bar)
- Signal to Noise: 15 dB (indicated by a green progress bar)

The configuration form includes:

- Input: 4 (dropdown menu)
- Frequency (MHz): 11836 (text input)
- Baud Rate (kBaud): 27500 (text input)
- Modulation: DVB-S (dropdown menu)
- Enable:

Buttons for 'Refresh' and 'Apply' are located at the bottom right of the configuration area.

1.3 Check for each tuner the configuration of your streams (INPUT > STREAM > STREAM 1-8)

- The streams will show you which services are included in each of the tuned transponders.
- A lot of details of each service can be found here.

DMH - Satellite Module (Uncalibrated) 550F0014_1.1.0.Beta-1.5

Stream 1 Input Rate: 37.99 Mbps

Device Configuration

Input

Stream 1

Stream 2

Stream 3

Stream 4

Stream 5

Stream 6

Stream 7

Stream 8

Output

CAM

Logout

Network Name: ASTRA 1

ONID: 1
TSID: 1101
NID: 0
Version: 2

Services

Service 1: |BR Fernsehen Süd (28107)

SID: 28107
Type: 1
Crypted: FALSE
Provider Name: ARD

Elements

Element 1: PMT

PID: 200
Shared: TRUE

Element 2: MPEG-2 video

Element 3: MPEG-1 audio layer-II

Element 4: MPEG-1 audio layer-II

Element 5: PES private data

Element 6: PES private data

Element 7: PES private data

Element 8: 12

Element 9: 11

Element 10: 5

Refresh

2. Output

2.1 Set all the MPTS* (OUTPUT > MPTS > MPTS 1-8)

- **Stream:** choose the input stream you set in INPUT
 - **Name:** choose the name of the stream
 - **Path:** choose the routing of the service: FTA (Free-to-Air) – CAM 1 – CAM 2
 - **Priority:** provides the possibility to prioritize some services (e.g. Primetime channels) to guarantee better quality on TV in case of sporadic bandwidth overflow due to throughput limitation of the multiplex. It is advised not to exceed 30% of total number of services to be prioritized for each multiplex.
 - **Enable:**
 - **New SID:** Change the Service Identifier to remap the SID
 - **LCN:** Give a Logical Channel Number to order the number of channels on the end-devices
 - Define this for each channel in the list
 - Press *UPDATE* to confirm the parameters.
- The bitrate bar shows the current bitrate of the selected multiplex. Depending on the model, the ProFlex disposes of 4 multiplexes. The maximum bitrate per MUX is 30 Mbps (DVB-T) or 50 Mbps (DVB-C). It is however advisable to keep a buffer of 4 Mbps, to prevent possible overflow (bitrate of services can fluctuate in time). Select another multiplex by clicking on the tabs on top of the page.

The screenshot shows the web interface for the DMH - Satellite Module (Uncalibrated). The main content area is titled "MPTS 1" and shows the "Output Rate: 32.52 Mbps". Below this, there are configuration fields for "Stream" (set to 1), "Name" (BR Fernsehen Süd), "Path" (FTA), "Priority" (unchecked), "Enable" (checked), "New SID" (empty), "LCN" (0), and "HD LCN" (0). There are "Add", "Update", and "Delete" buttons. Below these is a table of services:

	Stream	ONID	TSID	SID	Path	Priority	Enable	New SID	Name	LCN	HD LCN
<input type="radio"/>	7	133	33	77	FTA	0	1	107	HSE24 TREND	7	0
<input type="radio"/>	8	1	1107	17500	FTA	0	1	108	SAT.1	8	0
<input type="radio"/>	6	1	1091	28800	FTA	0	1	106	RTL Austria	6	0
<input type="radio"/>	5	1	1089	12060	FTA	0	1	105	VOX	5	0
<input type="radio"/>	4	133	7	53	FTA	0	1	104	N24 Austria	4	0
<input type="radio"/>	3	1	1082	20001	FTA	0	1	103	ProSieben Sch...	3	0
<input type="radio"/>	2	1	1079	28014	FTA	0	1	102	zdf_neo	2	0
<input type="radio"/>	1	1	1101	28110	FTA	0	1	101	BR Fernsehen ...	1	0

There is a "Refresh" button at the bottom right of the table.

* or SPTS according to the configuration of your ProFlex

2.2 Define the networks (OUTPUT > NETWORK > NETWORK 1-4)

- **ONID:** The Original_Network_ID (ONID) is defined as the “unique identifier of a network”, check the spreadsheets on <http://www.dvbservices.com> to find your correct ONID
- **TSID:** Choose your Transport Stream ID
- **NID:** Choose your Network ID
- **Network Name:** set your network name
- **Version:** set the version of the network (value between 0 and 31)
- **Private Data Specifier:** choose between EACEM - ITC - NORDIG
- Press *APPLY* to confirm the parameters.

DMH - Satellite Module (Uncalibrated) 550F0014_1.1.0.Beta-1.4

Network 1

ONID:

TSID:

NID:

Network Name:

Version:

Private Data Specifier:

2.3 Set all the Mux* (OUTPUT > MUX > MUX 1-4)

- **Frequency(kHz):** Here you can select the frequency you want to transmit on. For DVB-T: 47000 to 862000, for DVB-C: 47000 to 1002000
- **Level(dBm):** define the level of RF (between -25 to -40)
- **Constellation:** Choose the type of constellation you want to use. (64QAM, 16QAM, QPSK)
- **Bandwidth:** Choose the desired bandwidth.
- **Spectral Inversion:** checking this tickbox, you inverse the RF signal. This is only needed for receivers that do not automatically detect spectral inversion
- **Enable:** click the tick box to enable the tuner (this is disabled by default)
- Press *APPLY* to confirm the parameters.

DMH - Satellite Module (Uncalibrated) 550F0014_1.1.0.Beta.1.4

Device Information

Management Port

Reset Device

Firmware Upgrade

License Management

Device Settings

Device Configuration

Input

Output

MPTS

Network

Mux

Mux 1

Mux 2

Mux 3

Mux 4

CAM

Logout

Mux 1

Frequency(kHz): 362000

Level(dBm): -25

Constellation: 64-QAM

Bandwidth: 8

Spectral Inversion:

Enable:

Refresh Apply

* or UDP according to the configuration of your ProFlex

3. CAM

3.1 Set the CAM configurations for the ProFlex (CAM > CAM 1-2)

- **Only do this if you use a ProFlex module with the CAM feature enabled**
- **Type:** To prevent network overflow, it is important to choose the type of the CAM (this can be found on you CAM-card:
 - Low-speed (legacy CAM) up to 50 Mbps
 - High-speed (modern CAM) up to 100 Mbps
- **Watchdog:** The watchdog monitors the scrambling status of all services going through the CAM. In case one or more service sare no longer descrambled, the watchdog will proceed to the reset of the CAM module to try to restore the descrambling of the service(s). Activate this feature only once all services are properly descrambled by the CAM module.
- **Reference Transponder:** It is necessary to enable and select a reference transponder in the CAM menu (for each CAM individually). The CAM module needs authorization to descramble services. Select the reference transponder with authorization information for each CAM individually.
- Press *APPLY* to confirm the parameters.

DMH - Satellite Module (Uncalibrated) 550F0014_1.1.0.Beta-1.4

Device Information
Management Port
Reset Device
Firmware Upgrade
License Management
Device Settings
Device Configuration
Input
Output
CAM
CAM 1
CAM 2
Logout

CAM 1

Type:

Watchdog:

Refresh Apply

Reference Transponder

Enable

Reference

Refresh Apply

3. TECHNICAL SPECIFICATIONS

Input		
Inputs	-	4 x satellite (4 satellite bands per module) 1 IP Gigabit input (4 MPTS transport streams per module)
Integrated multiswitch	-	Yes, allows flexible routing of satellite programs to multiplexes (QAM or QOFDM)
Configuration	-	Built-in webserver or optional UUI configuration software
Remote access	-	via RMU ref. 5950
Encoded programs	-	From all 8 tuners. Can be routed through 1 or 2 CAMs and can be decoded using multi-service CAMs
Output: DVB-T		
DVB-T output	Mbps	Up to 31.7 / multiplex
DVB-C output	Mbps	Up to 51.3 / multiplex
IP output	-	Up to 4-MPTS transport streams in Unicast (CBR)
IPTV output	-	Up to 64-SPTS channels in Multicast (VBR)
General		
Dimensions	-	5 RU x 8 TE x 367 mm
Configuration possibilities		
1	-	DVB-S/S2 to DVB-C
2	-	DVB-S/S2 to DVB-T
3	-	DVB-S/S2 to IPTV
4	-	DVB-S/S2 to IP
5	-	IP to DVB-C
6	-	IP to DVB-T
Features possibilities		
1	#Tuners	1 to 8
2	#Mux	1 to 4
3	#CAM	0, 1, 2
4	#SPTS	16, 32, 48, 64
5	#MPTS	1 to 4
6	#IPLOOP	0, 1 to 4

4. SAFETY INSTRUCTIONS



Read these instructions carefully before connecting the unit

- ⚠ To avoid any risk of overheating:
 - Install the unit in a well aery location and keep a minimum distance of 15 cm around the apparatus for sufficient ventilation
 - Do not place any items such as newspapers, table-cloths, curtains,... on the unit that might cover the ventilation holes.
 - Do not place any naked flame sources, such as lighted candles, on the apparatus
 - Do not install the product in a dusty place
 - Use the apparatus only in moderate climates (not in tropical climates)
 - Respect the minimum and maximum temperature specifications
- ⚠ To avoid any risk of electrical shocks:
 - Connect apparatus only to socket with protective earth connection.
 - The mains plug shall remain readily operable
 - Pull out power plug to make the different connections of cables
 - To avoid electrical shock, do not open the housing of adapter.



Maintenance

- ⚠ Only use a dry soft cloth to clean the cabinet.
- ⚠ Do not use solvent
- ⚠ For repairing and servicing refer to qualified personnel.



Dispose according to your local authority's recycling processes

5. CONDITIONS OF WARRANTY

Unitron N.V. warrants the product as being free from defects in material and workmanship for a period of 24 months starting from the date of production indicated on it. See note below.

If during this period of warranty, the product proves defective, under normal use, due to defective materials or workmanship, Unitron N.V, at its sole option, will repair or replace the product. Return the product to your local dealer for reparation

THE WARRANTY IS APPLIED ONLY FOR DEFECTS IN MATERIAL AND WORKMANSHIP AND DOES NOT COVER DAMAGE RESULTING FROM:

- Misuse or use of the product out of its specifications.
- Installation or use in a manner inconsistent with the technical or safety standards in force in the country where the product is used
- Use of non-suitable accessories (power supply, adapters...).
- Installation in a defect system.
- External cause beyond the control of Unitron N.V. such as drop, accidents, lightning, water, fire, improper ventilation...

THE WARRANTY IS NOT APPLIED IF:

- Production date or serial number on the product is illegible, altered, deleted or removed.
- The product has been opened or repaired by a non-authorized person.

NOTE

Date of production can be found in the product's serial number code. The format will either be "YEAR W WEEK" (e.g., 2016W01 = year 2016 week 1) or "YYWW" (e.g., 1447 = year 2014 week 47).



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