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# Colosseum

**8500**
**8501/8501UK**
**8505/8505UK**
**8506/8506UK**
**8550**
**8555**

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# CONTENTS

# 1. INTRODUCTION

## SAFETY INSTRUCTIONS

**Read these instructions carefully before connecting the unit**

⚠ To prevent fire, short circuit or shock hazard:

- Do not expose the unit to rain or moisture.

- Install the unit in a dry location without infiltration or condensation of water.

- Do not expose it to dripping or splashing.

- Do not place objects filled with liquids, such as vases, on the apparatus.

- If any liquid should accidentally fall into the cabinet, disconnect the power.

⚠ 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.

- The unit must not be exposed to any source of heat (sun, heater,...).

- 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 your local authority's recycling processes

## PACKAGE CONTENTS

Be sure all items listed below are included:

| 1 | Colosseum |
|---|-----------|

| 1 | CAT6 ethernet cable |
|---|---------------------|

| 1 | power cord |
|---|------------|

| 1 | user manual |
|---|-------------|

# 2. HARDWARE INSTALLATION

The unit placed on a table (1), or mounted to the wall (2).
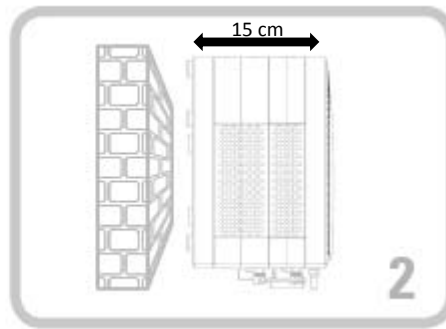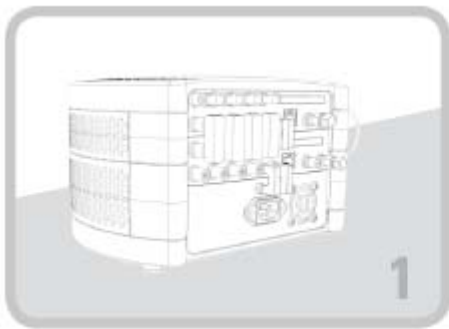


For wall-mounting, drill two holes, 23 cm apart and insert two screws

(min length from wall to screw head is 12 mm, and diameter of screw head is max 11.5 mm).

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After positioning of the unit (wall or table), connect the cables. Connect the cables as shown in the picture:



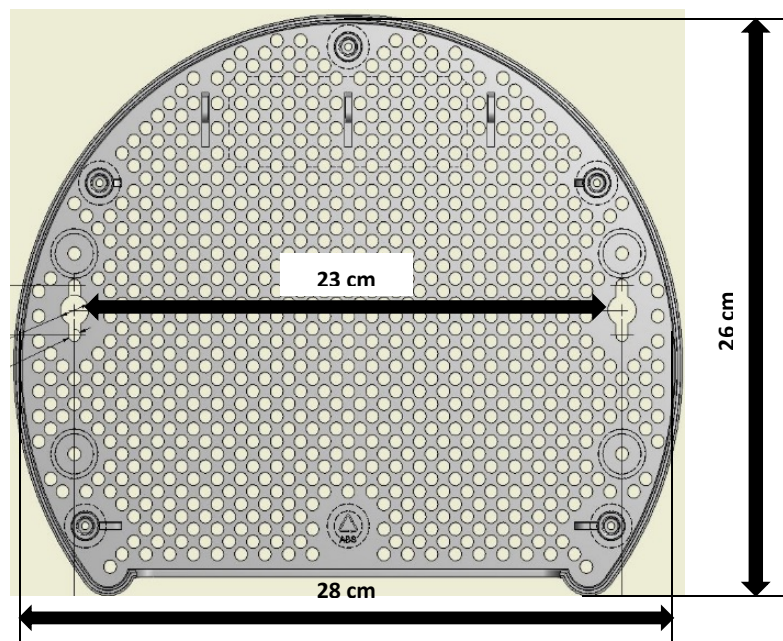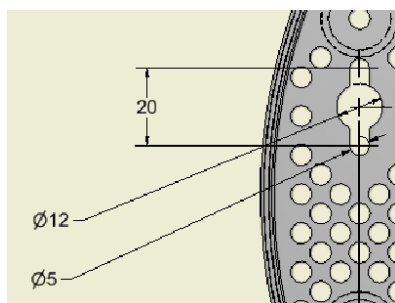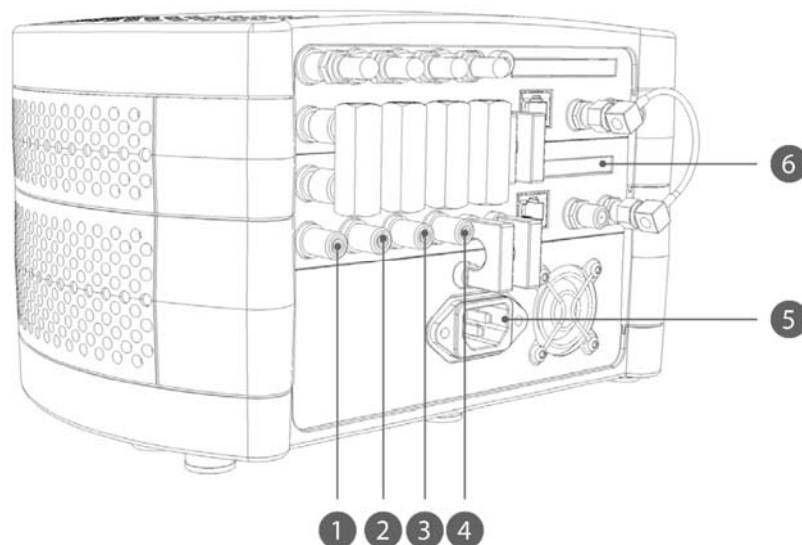**1** ASTRA 19.2° Vertical Low

**2** ASTRA 19.2° Horizontal  Low

**3** ASTRA 19.2° Vertical High

**4** ASTRA 19.2° Horizontal  High

**5** Power cord

**6** CI slots

NOTES
- Connect the 4 cables of a Quad/Quattro LNB to prevent alarm messages. Some LNB's require a lot of power to work properly. The unit is able to deliver this power, only when the 4 polarities are connected.
- Do not change the bridges or load resistors!
- The max. Ø of the coax cable = max. 1,1mm

# 3. WEBGUI

## MINIMAL SYSTEM REQUIREMENTS

The WebGUI is supported by the following web browsers
(and newer versions of these browsers):

- Chrome 4
- Safari 3.1
- Firefox 3.6
- Explorer 8
- Opera 10.6

When using a different browser, we cannot guarantee a correct functioning of the interface. The webGUI will indicate this with a warning message. This message will be shown every time you browse to another menu item. Please install one of the above browsers to avoid this.

## LOGGING IN TO THE DEVICE

Connect the module to your PC.



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!**

Set the adapter to obtain an automatic IP address as explained in the following procedure (for Microsoft Windows7®)

Navigate to the *Control Panel* (Start → Control Panel).
Enter the *Network and Sharing Center* and go to the *Adapter Settings*
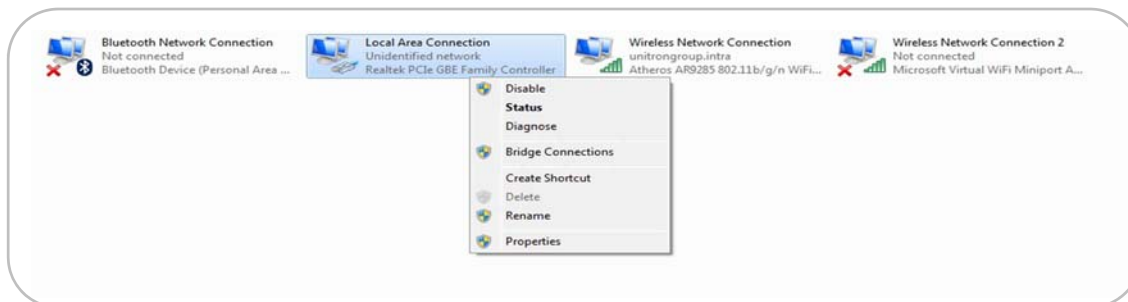


Right-click on the *Local Area Connection* and choose *Properties*.
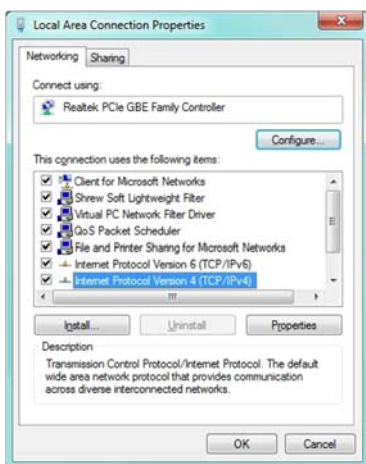


Double click on *Internet Protocol Version 4 (TCP/IPv4)* to enter the IP settings of your adapter.



Make sure the *'Obtain an IP address automatically'* checkbox is selected.
Click *OK* to save the settings.

Open your network browser, and surf to the name of the module:

- The name of the first module (in the middle) = **MOD1**
- The name of the second module (on top) = **MOD2** (ref.8500 & 8501/8501UK).

You will now log in to the module. After logging in, the Summary window appears.
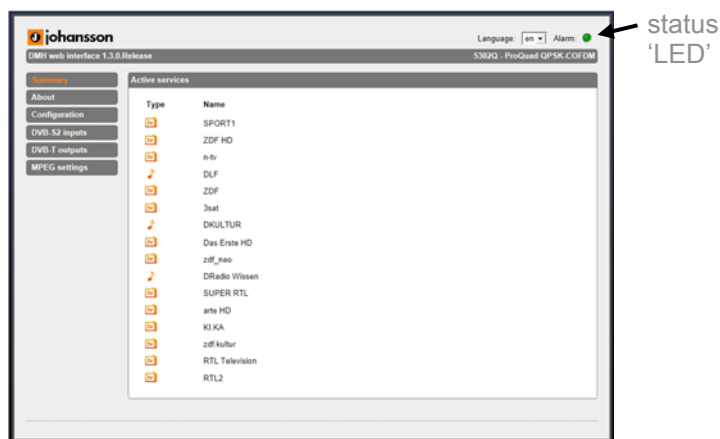


status 'LED'

On this screen, you see all the services, streamed by this module. The type of module, the status and the language are visible on every screen. In the picture above, the status 'LED' is green, indicating that there are no alarms. The alarm status is shown when you move over the status 'LED' with your mouse.

## GENERAL CONFIGURATION

### ABOUT

The 'about' tab gives some basic information about the device. Here, you can find the serial number, the software version and release date. These are useful to check if you have the latest software version installed on your device. New versions can be found on the website. If you experience serious problems, you can download a troubleshoot information file. Save this file, and mail it to us for analysis.
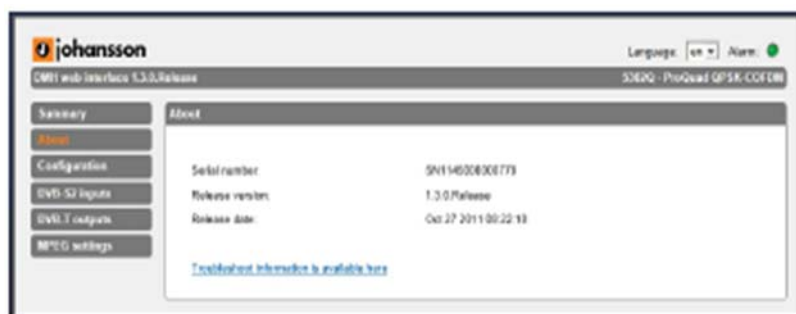
## GLOBAL

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.



Just enter 'http://hostname' into your favorite browser (not case sensitive)
and press enter:

MOD1



MOD2
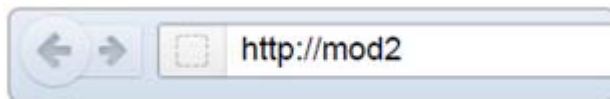


## FACTORY RESET

All settings can be reset to default by means of a factory reset.
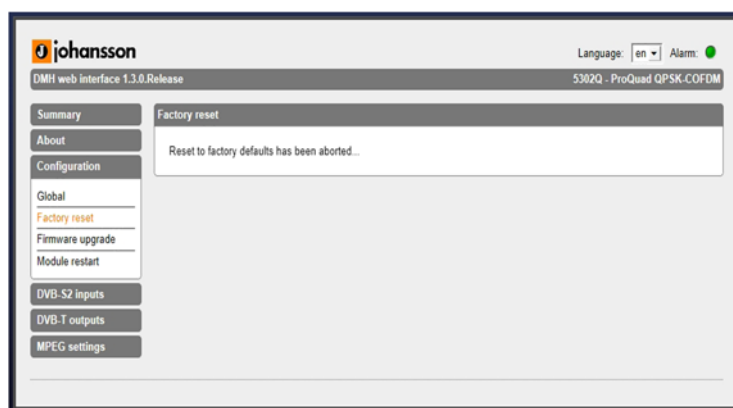
## FIRMWARE UPGRADE

To upgrade the firmware of the device, click the Firmware upgrade menu item.
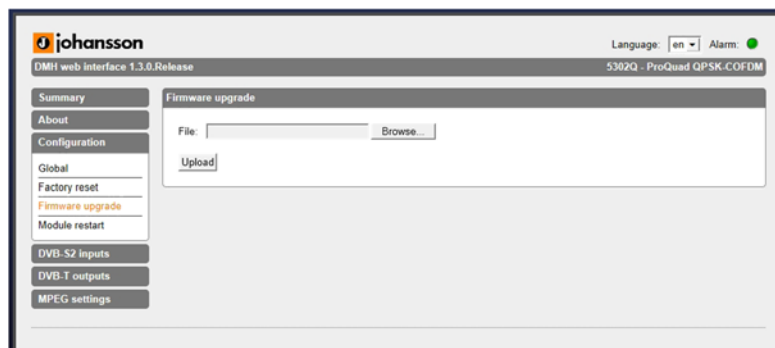


Click on the *BROWSE* button, and open the upgrade file. Click *UPLOAD* to send the file to the device, this will install the new firmware on the device.

## MODULE RESTART

Press this menu item to restart the module.

# CONFIGURATION OF THE INPUT

Go to the LNB Settings menu to configure the 4 LNB inputs.



- • 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
  - o 13V: Vertical polarization
  - o 18V: Horizontal polarization

- • Tone: LNB tone to select low/high band
  - o ON: high band
  - o OFF: low band

- • DiSEqC®: control of a DiSEqC® switch (A/B/C/D)

- • Band: Satellite band
  - o Ku-band
  - o C-band

- • Ext. Voltage: Add 1V to the LNB voltage to compensate the cable losses for long coaxial cables.

Press *APPLY* to confirm the parameters.

Go to the *TUNER* menu to configure the tuner frequency. The modules have 4 independent tuners, which can be assigned to every input, thanks to a built-in multiswitch.

**Tuner 1 - Settings**

| | |
|---|---|
| Input: | H high |
| Frequency (MHz): | 12188 |
| Baud Rate (kBaud): | 27500 |

Apply

- Input: One of the 4 labels configured in the previous step. This selects the satellite input.
- Frequency: Transponder frequency
- Baud rate [kBaud]

Press *APPLY* to confirm the parameters. The module will now set the tuner to this frequency. Wait until the correct parameters are loaded.

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When the tuner is able to lock on the frequency, the list of services from this transponder will be shown.
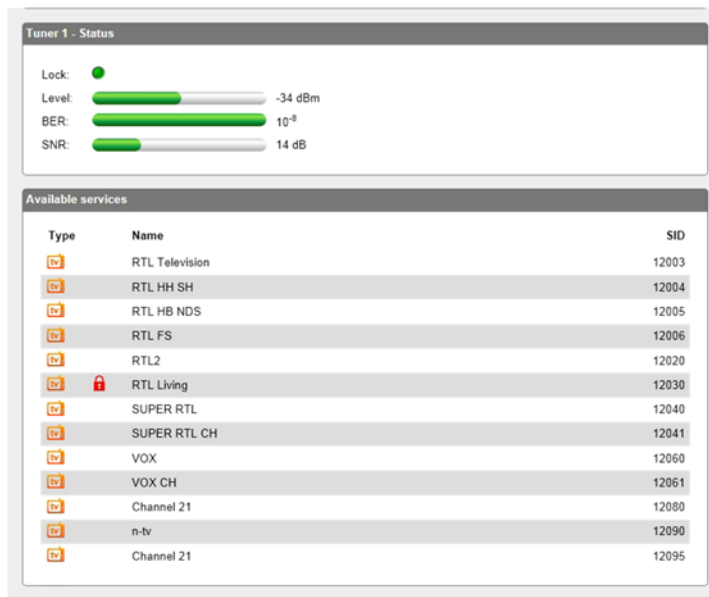


The status of the tuner is shown.

- Status:
  - o Green: tuner locked
  - o Red: tuner unlocked
- Level: input signal level [dBm]
- BER: Bit Error Rate
- SNR: Signal to Noise Ratio [dB]

The table 'Available services' shows all the services found in the transponder

- Type: Type of data

  📺 TV service

  🎵 radio service

  🔒 locked service (encoded)

  🔓 unlocked service (decoded)

- Name: Service name
- SID: Service Identifier (unique ID for a service)

# CONFIGURATION OF THE OUTPUT

Navigate to the *MUX SETTINGS* to configure the COFDM output parameters.



The 4 multiplexes are adjacent, and only the frequency of the first mux needs to be configured, the others will automatically be set according to this frequency and the bandwidth.

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NOTES

- Check if the MUX frequencies of the different modules do not overlap!
- The TSID must have a different value, put in the values manually!
- The LCN numbers can also be changed manually.
- Always press APPLY if you want to save the new settings!

- Mux: The multiplex number (1 to 4)

- Frequency [kHz]: multiplex frequency in the VHF-UHF range:

  47000 to 830000 kHz. When entering a frequency outside this frequency range,

  an error will be shown to the user



- Level [dBm]: signal output level (range: -40 to -25dBm)

- Constellation:
  - QPSK
  - 16-QAM
  - 64-QAM

- Code Rate:
  - 1/2
  - 2/3
  - 3/4
  - 4/5
  - 5/6
  - 7/8

- Guard interval:
  - 1/32
  - 1/16
  - 1/8
  - 1/4

- Status:
  - ON: the multiplex is active
  - OFF: the multiplex is not active

- Bandwidth: 6/7/8 MHz

- Spectral inversion:
  - ON: the frequency spectrum will be inverted
  - OFF: no frequency inversion

Press *APPLY* to save the settings to the module.

## *Ref. 8550 and 8555*

- Mux: The multiplex number (1 to 4)

- Frequency [kHz]: multiplex frequency in the VHF-UHF range:

  47000 to 830000 kHz. When entering a frequency outside this frequency range,

  an error will be shown to the user



- Baud Rate (kBaud): 6900

- Level [dBm]: signal output level (range: -40 to -25dBm)

- Constellation:
  - o 16-QAM
  - o 64-QAM

- Status:
  - o ON: the multiplex is active
  - o OFF: the multiplex is not active

- Bandwidth: 6/7/8 MHz

- Spectral inversion:
  - o ON: the frequency spectrum will be inverted
  - o OFF: no frequency inversion

Press *APPLY* to save the settings to the module.

The TSID & LCN parameters are used to setup the logical channel numbering (channel sequence on the TV).



- • TSID: Transport Stream Identifier
- • LCN: Logical Channel Number

Navigate to the *SERVICE ASSIGNMENT* menu to setup the TV and radio services at the output.

Press the  button to add a new service.

A list of available services (from all 4 tuners) will appear on the screen. Click on the service to be added and wait until the service is loaded into the list. The list will be refreshed and the added service will appear.

- LCN (Logical Channel Number): A logical channel number, also known as virtual channel, is a channel designation which differs from that of the actual channel (or range of frequencies) on which the signal travels.
- Name: Service name
- SID: Service Identifier
- On:
  o Check to enable the service at the output.
  o Uncheck to disable the service.
- CAM: Check to pass the service through the CAM card. Encoded services will automatically pass through the CAM.
- Icons:
   add a new program to the list of services
   update the current service,
  this icon will become active if some setting has changed
   delete the service from the list, pressing this icon will remove the program permanently (you can add it again)

**NOTES**

The bitrate bar shows the current bitrate of the selected multiplex. The number of services per multiplex is restricted to 8. Depending on the model, the colosseum disposes of 4 multiplexes, each capable of transporting 8 programs. The maximum bitrate per MUX is 32 Mbps (depending on the modulation parameters). 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.

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# CONFIGURATION OF THE MPEG SETTINGS

This menu item is only visible with modules having a DVB-S 2 input.
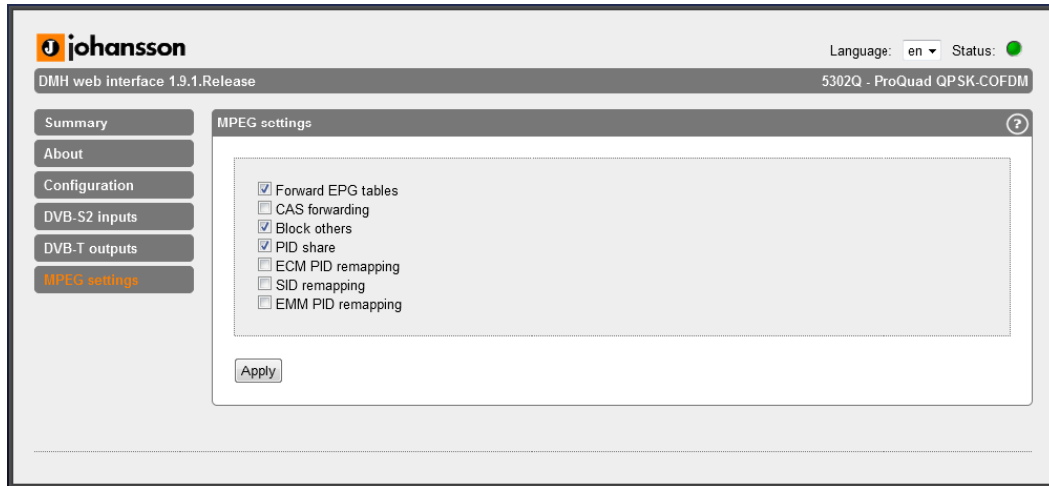


- • Forward EPG tables: Forward Electronic Program Guide tables to the TV's.

- • CAS forwarding: Forward the Control Access System tables
       (CAT, EMM, ECM) to descramble the programs with a set-top box.

- o CAT: Conditional Access Table

- o EMM: Entitlement Management Message

- o ECM: Entitlement Control Message

- • Block others: Block private data.

- • PID share: Enable sharing of the PES, PCR and ECM.

- • ECM PID remapping : remapping of the ECM PID's

- • SID remapping: it's replacing the service ID's with the LCN values set for this service
    (no need to rescan the MUX on TV when replacing the service)

- • EMM PID remapping: remapping of the EMM PID's

    → Press  to have more information about the MPEG settings!

# 4. TECHNICAL SPECIFICATIONS

| | 8500 | 8501/8501UK | 8505/8505UK | 8506/8506UK |
|---|---|---|---|---|
| **INPUT** | **DVB-S(2)** | | | |
| NB OF INPUTS | 4 satellite bands | | | |
| TUNER | 8 tuners (8 transponders) | | 4 tuners (4 transponders) | |
| FREQUENCY RANGE | 950 – 2150 MHz | | | |
| LEVEL | -55 to -25dBm | | | |
| BANDWIDTH | 36 MHz | | | |
| MODULATION | DVB-S2: QPSK, 8PSK / DVB-S : QPSK | | | |
| LNB POWER (DC+TONE) | 0V / 13V / 18V / 22kHz / DiSEqC® | | | |
| LNB CURRENT PER INPUT | max. 250 mA | | | |

| | | | | |
|---|---|---|---|---|
| **TV OUTPUT** | **DVB-T** | | | |
| NB OF OUTPUTS | 1 | | | |
| FREQUENCY RANGE | 47-862 MHz | | | |
| MULTIPLEXES | 8 adjacent | | 4 adjacent | |
| CHANNEL BANDWIDTH | 6/7/8 MHz | | | |
| MODULATION | QPSK,16-QAM, 64-QAM | | | |
| OFDM MODE | 2K | | | |
| FORWARD ERROR CORRECTION | 1/2, 2/3, 3/4, 5/6, 7/8 | | | |
| GUARD INTERVAL | 1/4, 1/8, 1/16, 1/32 | | | |
| MODULATION ERROR RATE | 40 dB | | | |
| SPECTRAL INVERSION | yes | | | |
| OUTPUT LEVEL | 68 to 83 dBµV adjustable | | | |
| CI SLOT | NO | 2 slots | NO | 1 slot |
| CAPACITY | up to 64 programs | | up to 32 programs | |

| | | | | |
|---|---|---|---|---|
| **GENERAL** | | | | |
| CONNECTORS | RF:20 x 'F' connector female  Management: 2xRJ-45 (Ethernet)  DC: 'banana sockets' | | RF:10 x 'F' connector female  Management: 1xRJ-45 (Ethernet)  DC: 'banana sockets' | |
| POWER SUPPLY | 15 VDC | | | |
| CONSUMPTION | 3A | | 1,5A | |
| OPERATING TEMPERATURE | 0 to 40°C | | | |
| DIMENSIONS | 280x260x150 mm | | | |

| | 8550 | 8555 |
|---|---|---|
| **INPUT** | **DVB-S(2)** | |
| NB OF INPUTS | 4 satellite bands | |
| TUNER | 8 tuners (8 transponders) | 4 tuners (4 transponders) |
| FREQUENCY RANGE | 950 – 2150 MHz | |
| LEVEL | -55 to -25dBm | |
| BANDWIDTH | 36 MHz | |
| MODULATION | DVB-S2: QPSK, 8PSK / DVB-S : QPSK | |
| LNB POWER (DC+TONE) | 0V / 13V / 18V / 22kHz  /  DiSEqC® | |
| LNB CURRENT PER INPUT | max. 250 mA | |

| | | |
|---|---|---|
| **TV OUTPUT** | **DVB-C** | |
| NB OF OUTPUTS | 1 | |
| FREQUENCY RANGE | 47-862 MHz | |
| MULTIPLEXES | 8 adjacent | 4 adjacent |
| CHANNEL BANDWIDTH | 6/8 MHz | |
| MODULATION | 6 MHz: 64-QAM<br>8 MHz: 64-QAM/256-QAM | |
| MODULATION ERROR RATE | 40 dB | |
| SPECTRAL INVERSION | yes | |
| OUTPUT LEVEL | 68 to 83 dBµV adjustable | |
| CAPACITY | up to 64 programs | up to 32 programs |

| | | |
|---|---|---|
| **GENERAL** | | |
| CONNECTORS | RF:20 x 'F' connector female<br>Management: 2xRJ-45 (Ethernet)<br>DC: 'banana sockets' | RF:10 x 'F' connector female<br>Management: 1xRJ-45 (Ethernet)<br>DC: 'banana sockets' |
| POWER SUPPLY | 15 VDC | |
| CONSUMPTION | 3A | 1,5A |
| OPERATING TEMPERATURE | 0 to 40°C | |
| DIMENSIONS | 280x260x150 mm | |

# 5. CONDITIONS OF WARRANTY

PERIOD 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 specifcations.
- 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-authorised person.

NOTE

Date of production is YYWW format, example 1425 = year 2014 – week 25.
For the serial number barcodes, the date corresponds to the 4 first numbers

# 6.   UHF FREQUENCY TABLE

| TV band | Channel | Frequency MHz |
|---------|---------|---------------|
| IV | 21 | 470-478 |
|  | 22 | 478-486 |
|  | 23 | 486-494 |
|  | 24 | 494-502 |
|  | 25 | 502-510 |
|  | 26 | 510-518 |
|  | 27 | 518-526 |
|  | 28 | 526-534 |
|  | 29 | 534-542 |
|  | 30 | 542-550 |
|  | 31 | 550-558 |
|  | 32 | 558-566 |
|  | 33 | 566-574 |
|  | 34 | 574-582 |
|  | 35 | 582-590 |
|  | 36 | 590-598 |
|  | 37 | 598-606 |
|  | 38 | 606-614 |
| V | 39 | 614-622 |
|  | 40 | 622-630 |
|  | 41 | 630-638 |
|  | 42 | 638-646 |
|  | 43 | 646-654 |
|  | 44 | 654-662 |
|  | 45 | 662-670 |
|  | 46 | 670-678 |
|  | 47 | 678-686 |
|  | 48 | 686-694 |
|  | 49 | 694-702 |
|  | 50 | 702-710 |
|  | 51 | 710-718 |
|  | 52 | 718-726 |
|  | 53 | 726-734 |
|  | 54 | 734-742 |
|  | 55 | 742-750 |
|  | 56 | 750-758 |
|  | 57 | 758-766 |
|  | 58 | 766-774 |
|  | 59 | 774-782 |
|  | 60 | 782-790 |
|  | 61 | 790-798 |
|  | 62 | 798-806 |
|  | 63 | 806-814 |
|  | 64 | 814-822 |
|  | 65 | 822-830 |
|  | 66 | 830-838 |
|  | 67 | 838-846 |
|  | 68 | 846-854 |
|  | 69 | 854-862 |

# 7.    POWER CONVERSION TABLE

| µV 75Ω | dBµV | dBm |
|---|---|---|
| 1 | 0 | -109 |
| 1.5 | 3.5 | -105.5 |
| 2 | 6 | -103 |
| 2.5 | 8.0 | -101 |
| 3 | 9.5 | -99.5 |
| 3.5 | 11 | -98 |
| 4 | 12 | -97 |
| 4.5 | 13 | -96 |
| 5 | 14 | -95 |
| 6 | 15.5 | -93.5 |
| 7 | 17 | -92 |
| 8 | 18 | -91 |
| 9 | 19 | -90 |
| 10 | 20 | -89 |
| 15 | 23.5 | -85.5 |
| 20 | 26 | -83 |
| 25 | 28 | -81 |
| 30 | 29.5 | -79.5 |
| 35 | 31 | -78 |
| 40 | 32 | -77 |
| 45 | 33 | -76 |
| 50 | 34 | -75 |
| 60 | 35.5 | -73.5 |
| 70 | 37 | -72 |
| 80 | 38 | -71 |
| 90 | 39 | -70 |
| 100 | 40 | -69 |
| 150 | 43.5 | -66.5 |
| 200 | 46 | -63 |
| 250 | 48 | -61 |
| 300 | 49.5 | -59.5 |
| 350 | 51 | -58 |
| 400 | 52 | -57 |
| 450 | 53 | -56 |
| 500 | 54 | -55 |
| 600 | 55.5 | -53.5 |
| 700 | 57 | -52 |
| 800 | 58 | -51 |
| 900 | 59 | -50 |

| mV 75Ω | dBµV | dBm |
|---|---|---|
| 1 | 60 | -49 |
| 1.5 | 63.5 | -45.5 |
| 2 | 66 | -43 |
| 2.5 | 68 | -41 |
| 3 | 69.5 | -39.5 |
| 3.5 | 71 | -38 |
| 4 | 72 | -37 |
| 4.5 | 73 | -36 |
| 5 | 74 | -35 |
| 6 | 75.5 | -33.5 |
| 7 | 77 | -32 |
| 8 | 78 | -31 |
| 9 | 79 | -30 |
| 10 | 80 | -29 |
| 15 | 83.5 | -25.5 |
| 20 | 86 | -23 |
| 25 | 88 | -21 |
| 30 | 89.5 | -19.5 |
| 35 | 91 | -18 |
| 40 | 92 | -17 |
| 45 | 93 | -16 |
| 50 | 94 | -15 |
| 60 | 95.5 | -13.5 |
| 70 | 97 | -12 |
| 80 | 98 | -11 |
| 90 | 99 | -10 |
| 100 | 100 | -9 |
| 150 | 103.5 | -5.5 |
| 200 | 106 | -3 |
| 250 | 108 | -1 |
| 300 | 109.5 | +0.5 |
| 350 | 111 | +2 |
| 400 | 112 | +3 |
| 450 | 113 | +4 |
| 500 | 114 | +5 |
| 600 | 115.5 | +6.5 |
| 700 | 117 | +8 |
| 800 | 118 | +9 |
| 900 | 119 | +10 |
| 1000 | 120 | +11 |

| µV 75Ω | dBµV | dBm |
|---|---|---|
| 1 | 120 | +11 |
| 1.5 | 123.5 | +14.5 |
| 2 | 126 | +17 |
| 2.5 | 128 | +19 |
| 3 | 129.5 | +20.5 |
| 3.5 | 131 | +22 |
| 4 | 132 | +23 |
| 4.5 | 133 | +24 |
| 5 | 134 | +25 |
| 6 | 135.5 | +26.5 |
| 7 | 137 | +28 |
| 8 | 138 | +29 |
| 9 | 139 | +30 |
| 10 | 140 | +31 |

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