



User Manual

UNIVERSAL HDMI Modulator

14MM-JM02

(Optional 14MM-JM02-IR IR Kit,
Sold Separately)



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1. INTRODUCTION

1.1. Product description

Convert your local HDMI signal into an RF signal, ready for distribution over coaxial cables. These modulators support all universal cable and terrestrial standards.

- 1 HDMI input, capable of receiving all resolutions up to 1080p60.
- 1 RF input, to by-pass terrestrial or cable signals.
- 1 RF output: DVB-T(2), DVB-C, DTMB, ATSC-C/T and ISDB-T
- IR link (14MM-JM02-IR IR Kit sold separately)
- Perfect picture thanks to a MER comparable to other premium headend equipment.
- Easy to use menu structure, in combination with the Johansson rotary/push button.
- Optimized for cascading multiple modulators on your coaxial network.
- Smallest housing in its range.
- Most stable HDMI modulator on the market

1.2. Package contents

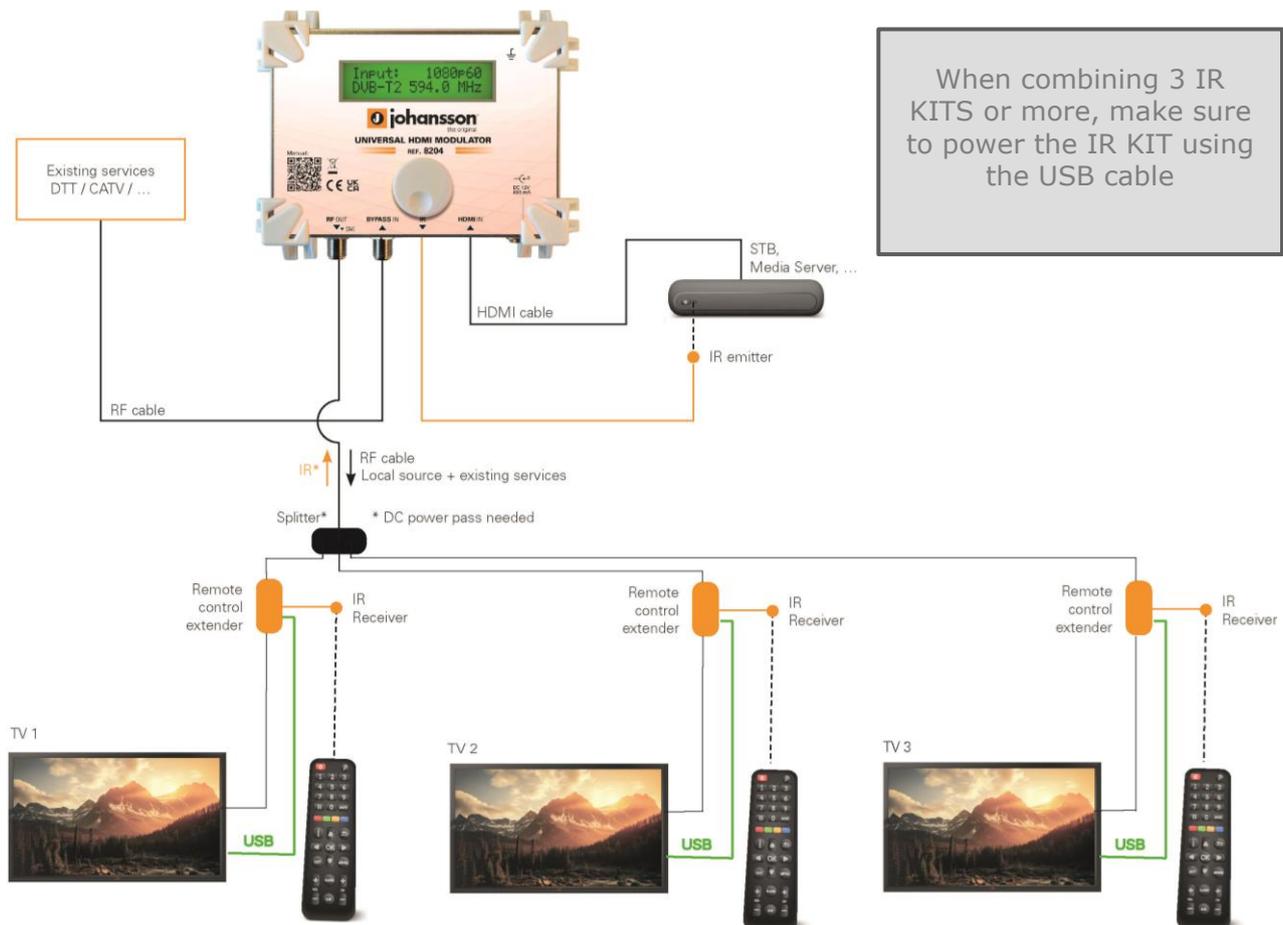
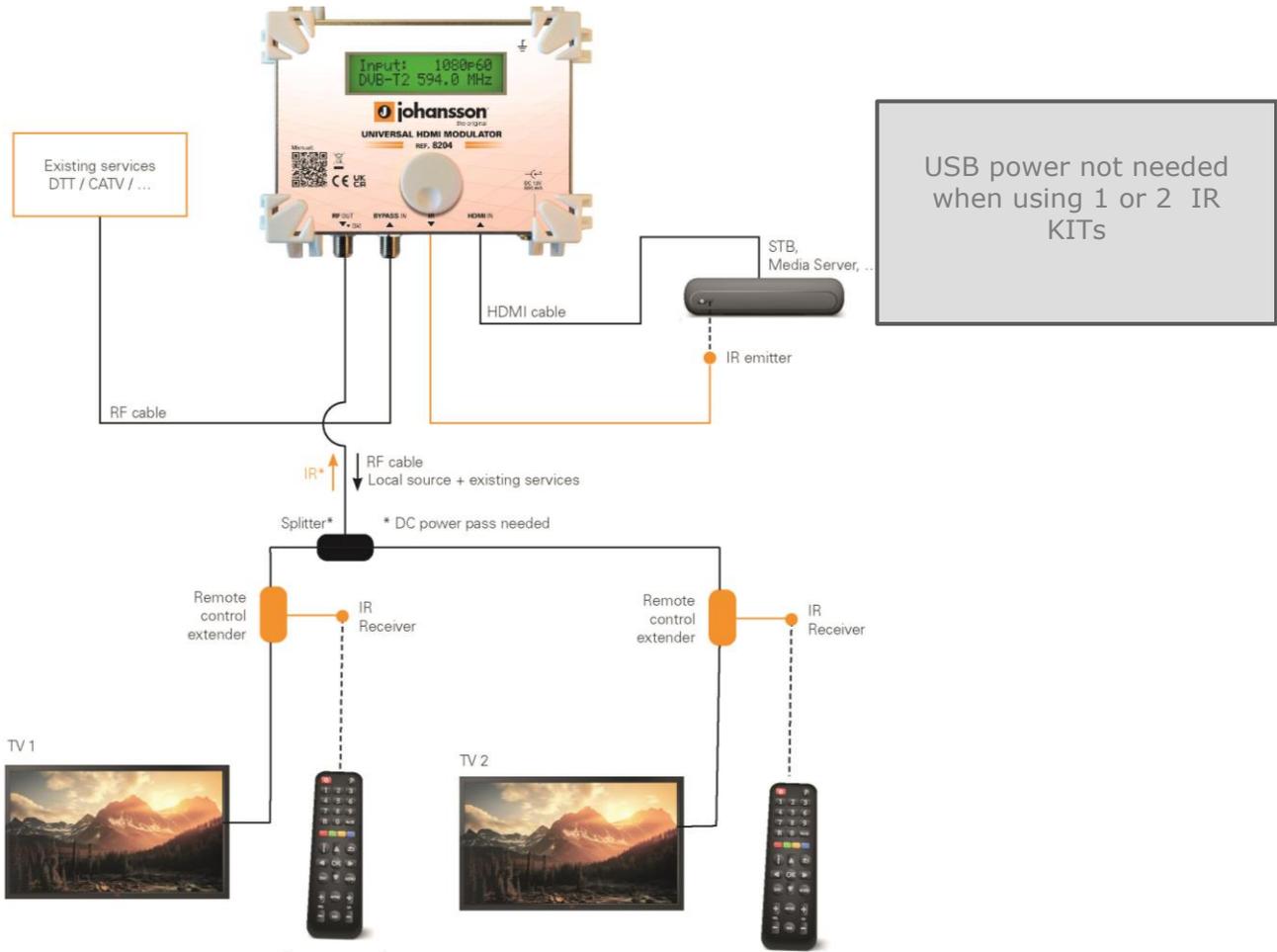
- 1x HDMI Modulator (ref. 14MM-JM02)
- 1 power adaptor

1.3. Hardware installation

- Connect the Power Adapter to the Power supply socket
- Connect an earth wire to the appropriate clamp
- Connect the HDMI output of a Blu-Ray player, DVD player, a satellite receiver or any other video source with the HDMI input
- Connect your TV to the RF output connector
- Optionally, you can insert an existing coaxial distribution to the Bypass In connector. This will result in a combination of the HDMI modulated signal and the existing coaxial distribution on the RF output connector

INSTALLATION WITH IR LINK

(14MM-JM02-IR, sold separately)



1.4. 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 plug.



To avoid any risk of overheating:

- Install the unit in a well aired location and keep a minimum distance of 15 cm around the apparatus for sufficient ventilation
- Do not place any items such as newspapers, tablecloths, 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 your local authority's recycling processes

2. SOFTWARE SETTINGS

The use of the Johansson rotary/push button is very simple, see the table below.

	<p>Push the button 2s to enter the basic configuration.</p> <p>Push the button to confirm your selections.</p>
	<p>When rotating the button you scroll through the different screens.</p>

 **Important remark :** For fastest manipulation of the menu, the modulator only activates the settings at the end ("Save & Exit").

Before entering the menu, the modulator already gives you on the start screen the most important parameters of the modulator :

```

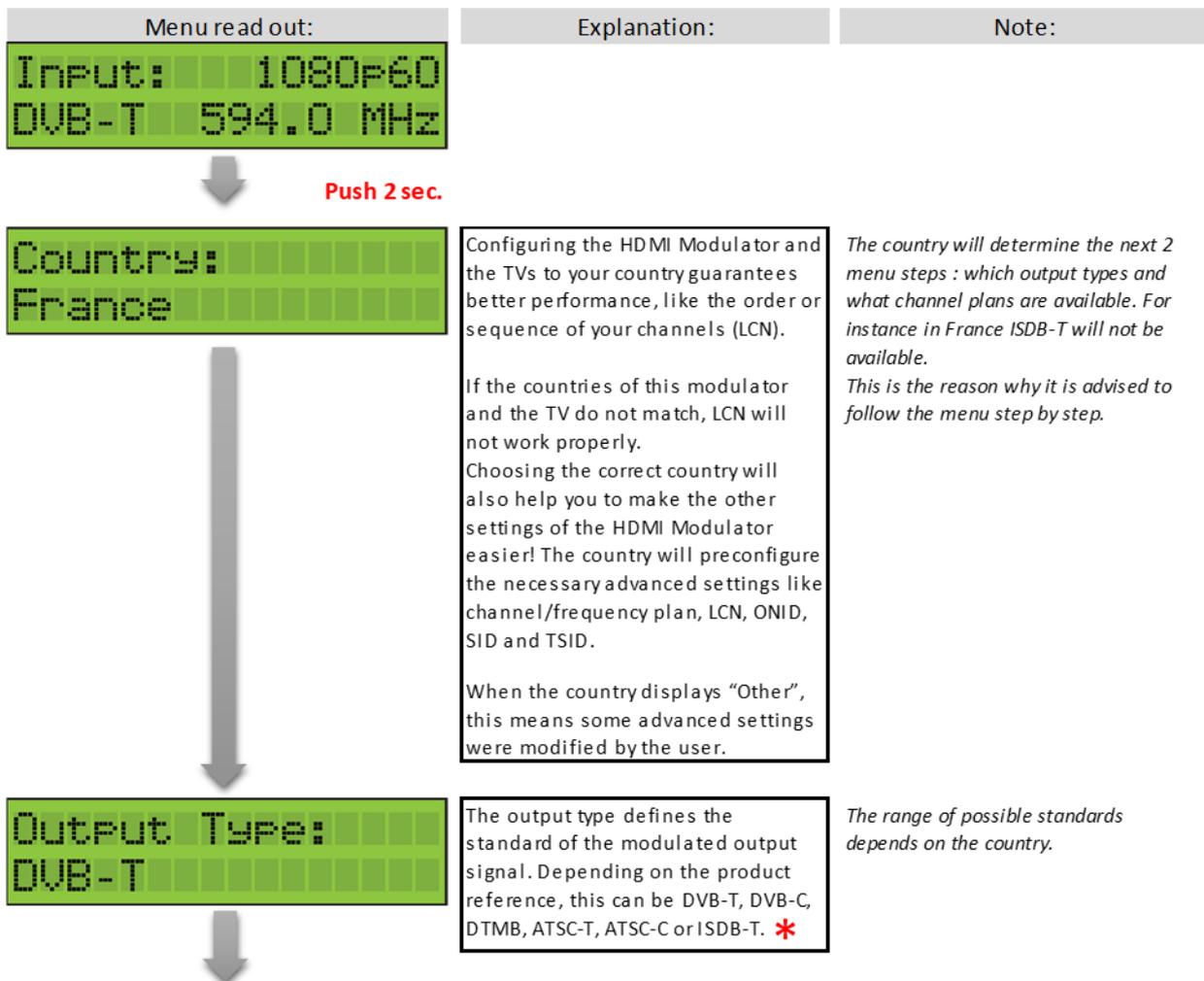
Input: 1080p60
DVB-T 594.0 MHz
  
```

- The first row indicates if an HDMI signal is detected and its resolution.
- The second row shows the output type and output frequency.

2.1. Basic configuration

In this part we will make the BASIC CONFIGURATION to start using the HDMI Modulator. In most cases, this will be sufficient to configure the product. Only in special cases, where detailed settings have to be set, you will need to use the advanced configuration. See the next paragraph.

The best way to configure the product is to follow the menu step by step. Some of the settings have effect on 1 or more of the following settings. This means for instance that step1 (Country) will overrule step 2 (Output type). If you have set for instance the output type to ATSC-T and then you go back to country and configure this to be France, ATSC-T will be changed into DVB-T (as ATSC is not supported in France).



Channel :
36 (594.0 MHz)

This parameter determines on which output frequency the modulated signal will be transmitted.

If a channel plan exists for your country and the selected output type, the modulator will allow you to select the channel. If not, you will need to set the frequency.

F.i. when output type is set to "DVB-C", the frequency will be displayed.

The channel plan depends on the country and the output type.



CH Name:
Modulator

This is the name which will be displayed on the TV screen.

max 15 characters small & capital letters, numbers, "-" "_" "space" Scroll till underlined arrow to confirm



Level:
80 dBμV

This determines the level of the RF modulated signal on the output.

This output level ranges from 59 to 95 dBμV

dBm can also be used (see Advanced>Preferences).



IR ENABLE
YES / NO

Choose to turn IR on or off



Advanced ▶

See explanation in "2.2 Advanced configuration".



CANCEL ⌘ EXIT

This will exit without saving and storing the new settings.



Save & Exit

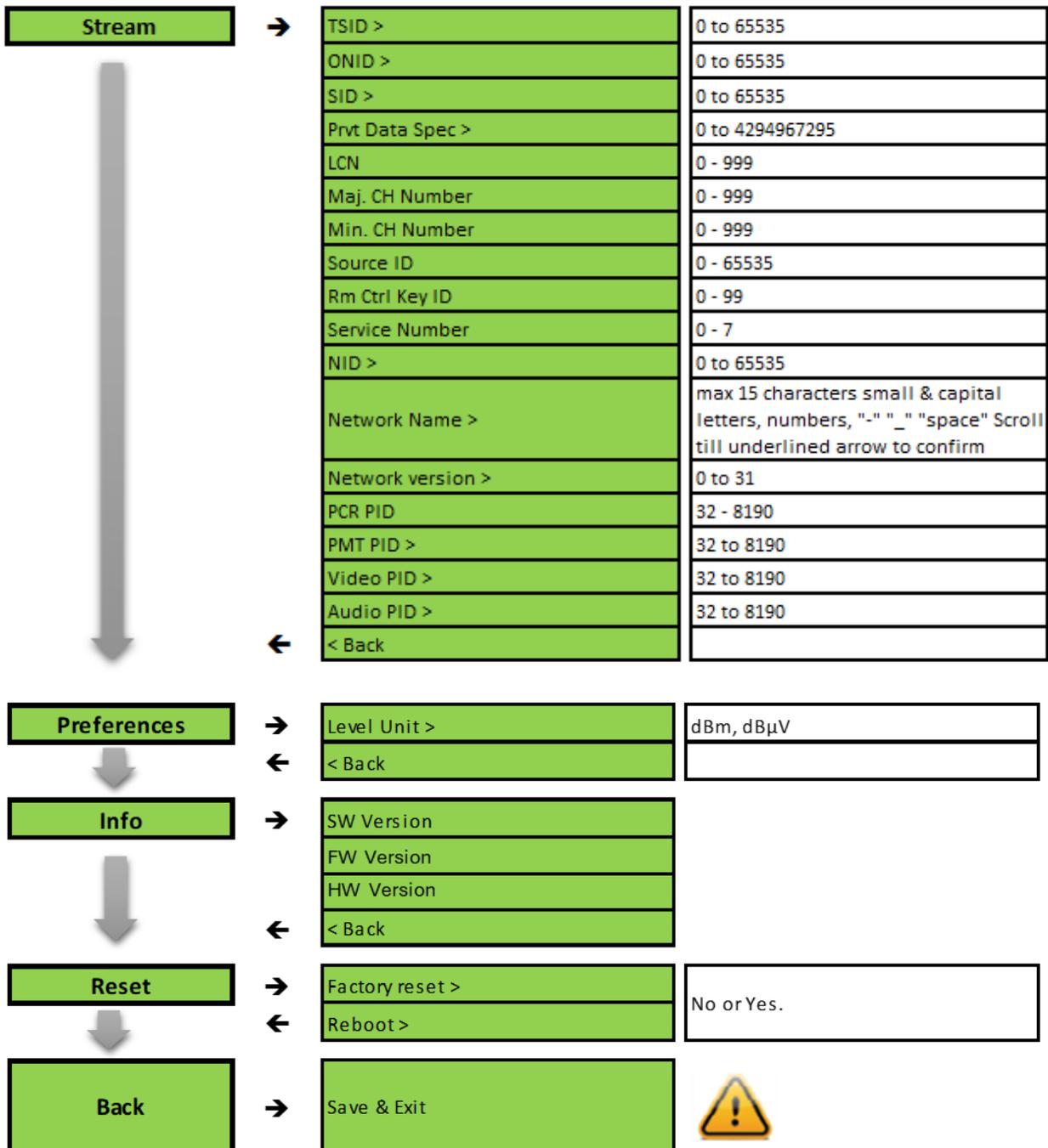
This will activate and store the new settings.



2.2. Advanced configuration

In this part we will explain the ADVANCED CONFIGURATION of the HDMI Modulator. This will however not be needed in most installation. The advanced configuration includes the following screens:

Menu read out:	Parameter *	Range (can depend on product reference and other settings)
RF Output 	→ Output Type >	DVB-T, DVB-T2, DVB-C, ISDB-T, ATSC-T, ATSC-C, DTMB
	Frequency >	100-1000 MHz
	Bandwidth >	6, 7, 8 MHz
	Symbol Rate >	5000 - 7000
	Constellation >	QPSK, QAM-4NR, QAM-16, QAM-32, QAM-64, QAM-128, QAM-256, 8VSB
	Guard Interval >	1/4, 1/8, 1/16, 1/32 For DVB-T2: 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
	Code rate >	1/2, 2/3, 3/4, 5/6, 7/8
	FFT Mode >	2k, 8k
	Carrier Type: >	Multi-carrier , single-carrier
	Interleave >	None, 240, 720
	Sync Frame >	420, 595, 945
	PN Phase >	Constant, Variable
	← < Back	
Video 	→ Encoding Type	H264 , MPEG-2
	Bit Rate >	Starting from 2000 Kbps, but limited by MUX settings (see note 1)
	GOP Size >	1 to 60
← < Back		
Audio 	→ Encoding Type >	AAC, MPEG2
	← < Back	



Note 1 : If you are not able to reach for instance 18.000kbps, you will need to increase the bandwidth by changing the "RF Output" settings (set constellation to 64QAM, guard interval to 1/32 and/or code rate to 7/8).

Note 2 : Don't forget to "Save & Exit" to activate your new settings.

* This menu in the manual shows all possible options. However, depending on the chosen Output Type/standard on the device, only certain options will be displayed.

3. TECHNICAL SPECIFICATIONS

HDMI INPUT

Video resolution	-	480i up to 1080p
Video encoding	-	H264/AVC / MPEG-2
Audio encoding	-	MPEG1 Layer II / AAC
Connector type	-	HDMI Type A

RF INPUT

Frequency	MHz	5-1218
Loss to RF output	dB	2

RF OUTPUT (=RF INPUT SIGNAL + HDMI MODULATED TRANSPONDER)

Modulated channel frequency	MHz	174 - 1000
Output level	dB μ V	OFF / 50 - 95
MER	dB	Typ. 38

OUTPUT SETTINGS

Output type	-	ISDB-T	DVB-T	DVB-T2	DVB-C	ATSC-T	ATSC-C	DTMB
Bitrate	Mbps	2 - 23	2 - 31.5	2 - 40	2 - 50.5	2 - 19	2 - 26,5	2 - 32
Channel bandwidth	MHz	6,7 or 8			2 or 8	6		6 or 8
Constellation	-	COFDM (QPSK / 16QAM / 64QAM)		QPSK 16QAM 64QAM 256QAM	16QAM 32QAM 64QAM 128QAM 256QAM	8VSB	64QAM	4QAM QAM-4NR 16QAM 32QAM 64QAM
Other settings	-	Code rate Guard Interval 2K-8K						Interleave Code rate 2K-8K Sync frame PN phase

CONFIGURATION

Basic configuration	-	Country Output Type Output Frequency Output Level Channel Name
Advanced configuration	-	RF Video & Audio SID PMT, VPID, APID NIT, ONID PDS TS ID

POWER & DIMENSIONS, ETC...

Power	-	Input Voltage: 12 VDC Consumption: 5W (6W max.) Jack \varnothing 2.1 mm
Dimensions, weight	-	155 x 120 x 60 mm. 0.6 kg.
Accessories	-	12V power adapter

4. 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 is YYWW format, example 1644 = year 2016 – week 44.
For the serial number barcodes, the date corresponds to the 4 first numbers



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