

Televes®



T.OX SERIES

Ref. 563822

EN HDTV ENCODER/MODULATOR - Quad Composite to COFDM/QAM

QUICK
INSTALLATION GUIDE

Safety instructions

Caution statements

Product inspection - Inspect the equipment for shipping damage. Should any damage be discovered, immediately file a claim with the carrier.

Important Safety Instructions - To ensure proper installation and operation, take a moment to read this guide before proceeding with the installation. If you have any questions or comments about the T.OX Series - Encoders, please contact your dealer.

WARNING:
TO PREVENT FIRE OR ELECTRICAL SHOCK
DO NOT EXPOSE TO RAIN OR MOISTURE.



CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED
PERSONNEL.

	A product and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.
	The lightning flash with arrow head 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.

WARNING:
TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK, DO NOT EXPOSE THIS
PRODUCT TO RAIN OR MOISTURE.
DO NOT OPEN THE CABINET,
REFER SERVICING TO QUALIFIED
PERSONAL ONLY.

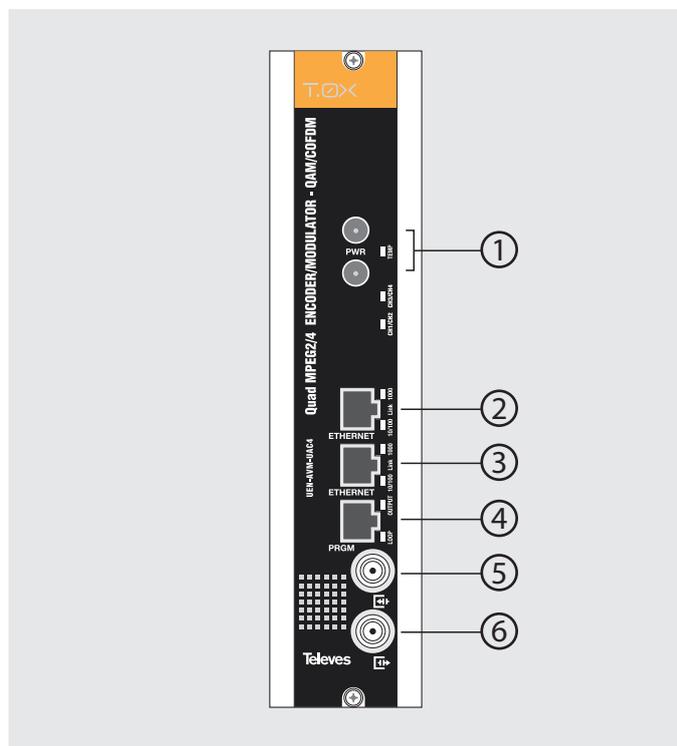
CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT
USE THIS (POLARIZED) PLUG WITH AN
EXTENSION CORD RECEPTACLE OR OTHER
OUTLET UNLESS THE BLADES CAN BE
FULLY INSERTED TO PREVENT BLADE
EXPOSURE.

Important Safety Instructions

- 1. Read and Follow All Instructions** - All the safety and operating instructions should be read prior to and followed while operating this product.
- 2. Retain Instructions** - The safety and operating instructions should be retained for future reference.
- 3. Heed Warnings** - All warnings on the product and in the operating instructions should be adhered to.
- 4. Cleaning** - Disconnect this product from any electrical source before cleaning. Use a damp cloth; do not use liquid or aerosol cleaners.
- 5. Attachments** - Do not use attachments that are not recommended by the product manufacturer as they may cause hazards.
- 6. Water and Moisture** - Do not use this product near any source of water.
- 7. Mounting** - Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to persons or nearby objects, and serious damage to this product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
- 8. Ventilation** - Slots and openings in the chassis or cabinet are provided for ventilation and to ensure reliable operation of the product. These openings should never be blocked or covered in any way. This product should not be placed in any case, cabinet, or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.
- 9. Power Sources** - This product should be operated only from the type of power source indicated on the label.
- 10. Grounding or Polarization** - Do not bypass or defeat electrical plug polarization or grounding. Doing so will violate the warranty and may pose a risk of fire or electrocution.
- 11. Wire Protection** - Ensure all connected wiring is routed correctly to avoid damage including pinching, excessive bends, or compression.
- 12. Electrical Supply, Grounding, and Surge Protection** - Ensure that all local or national electrical codes are followed. Seek the advice of a licensed electrician, professional engineer, or other licensed expert.
- 13. Power Lines** - Always use caution and avoid operating this or any connected equipment near uninsulated power line or any other hazards.
- 14. Object and Liquid Entry** - Never allow objects or liquid of any kind into this product through openings. Doing so could result in fire or electric shock.
- 15. Servicing** - There are no user serviceable parts. Do not attempt to service this product or remove covers. Doing so may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel. Examples of damage requiring service include but are not limited to:
 - Damage to power-supply wiring.
 - If liquid has been spilled, or objects have fallen into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - If the product has been dropped or physically damaged.
 - When the product exhibits a distinct change in performance.
- 16. Replacement Parts** - Ensure that repairs are performed by qualified technicians and that only manufacturer supplied or authorized parts are used.
- 17. Safety Check** - Upon completion of any service or repairs to this product, ensure safety checks to determine that the product is functioning per manufacturer specifications are performed.
- 18. Heat** - The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat. Ensure that ambient temperature is maintained in the manufacturer specified operating range.

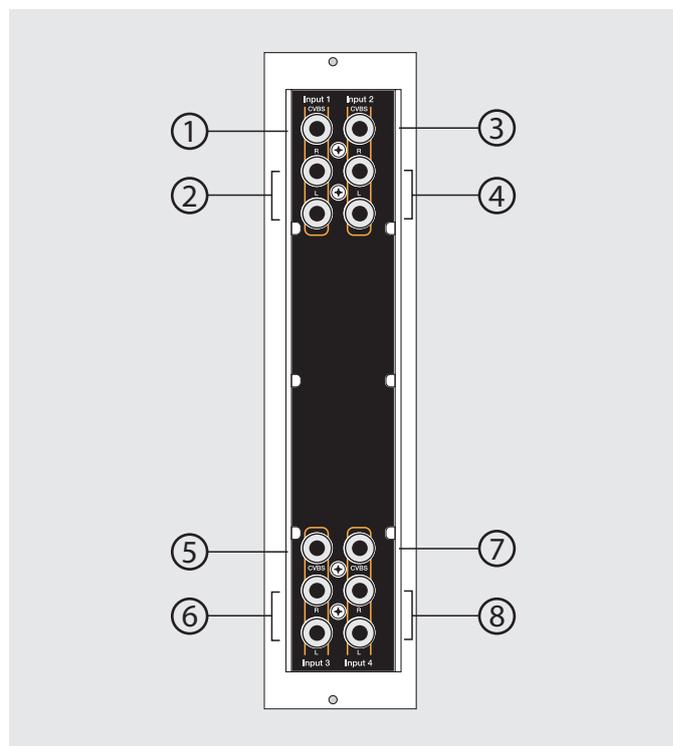
Description of connectors

Front view



- 1.- Power connectors
- 2.- Ethernet connector
- 3.- Ethernet connector
- 4.- Programmer connector
- 5.- RF loop through input
- 6.- RF output

Rear view



- 1.- CVBS input. Channel 1
- 2.- Analog (L/R) audio input. Channel 1
- 3.- CVBS input. Channel 2
- 4.- Analog (L/R) audio input. Channel 2
- 5.- CVBS input. Channel 3
- 6.- Analog (L/R) audio input. Channel 3
- 7.- CVBS input. Channel 4
- 8.- Analog (L/R) audio input. Channel 4

LED indicators

		Color	Internal temp	Comment
		TEMP	Solid green	Normal
Slow blink orange	High		Warning	
Fast blink red	Very High		Danger	
		Color	Channel status	Comment
		CH1/CH2 – CH3/CH4	Off	Disabled
Solid green	Lock		Inputs locked and unit encoding audio/video.	
Solid red	Unlock		Inputs unlocked and unit not encoding audio/video.	
Blinking red	Boot		Unit starting up.	
Solid yellow	Partial lock		Only one of the two inputs is locked and encoding audio/video.	
		Color	Output mode	Comment
		OUTPUT	Solid green	Normal
Slow blinking green	Carrier wave, null or muted		Output RF channel is OFF or in an alternate signal mode.	
Solid orange/red	Normal		Config bitrate doesn't fit in output	
		Color	Output loop status	Comment
		LOOP	Solid green	ON
Off	OFF		Output loop-through disabled. Units must be combined using an external combiner.	

Front LED alarms

Installation

1. Install all units in the rack and connect them as shown in Figure 1.

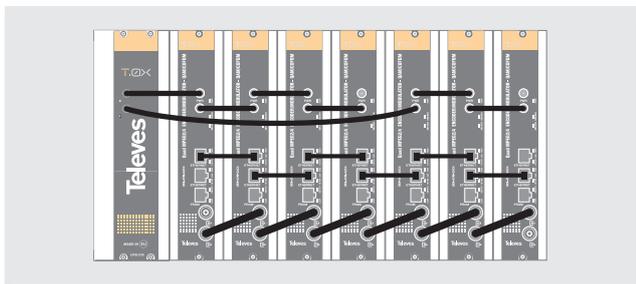


Figure 1

2. The audio and video input signals connect to the back of the modules.

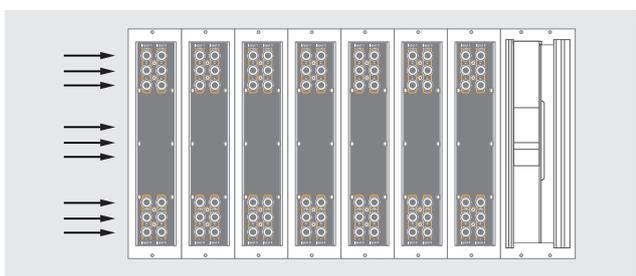


Figure 2

3. If a network is available that provides IP addresses through DHCP, connect the encoders to the network as shown in Figure 3. If such a network is not available, then a computer will need to be connected as shown in Figure 4.

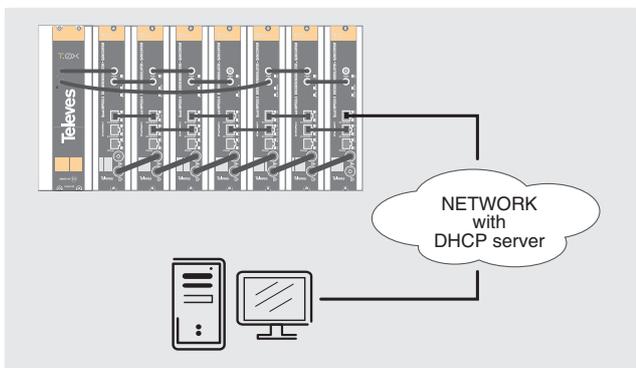


Figure 3 - Rack with DHCP server.

4. Power on the units.

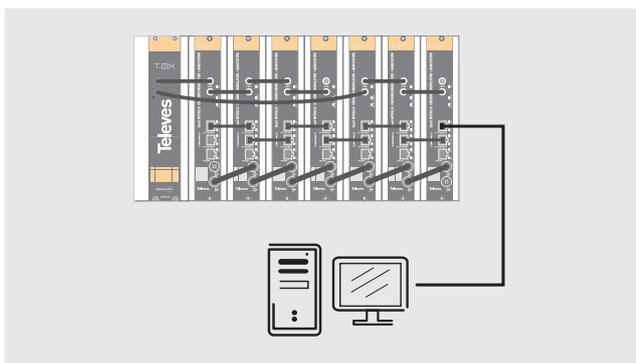


Figure 4 - Rack without DHCP server.

5. Connect the programmer to each unit and set a unique number in the "# ID" field according to the order of installation of the units in the rack.

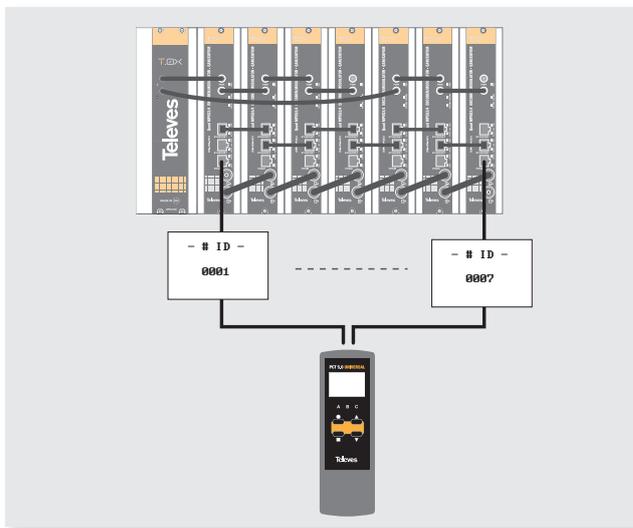


Figure 5 - Set a # number different for each unit.

6. Connect the programmer to a unit, usually the first one, and read the IP address. Each unit can work as a master controller for the other units. All units can be configured by connecting to only one.

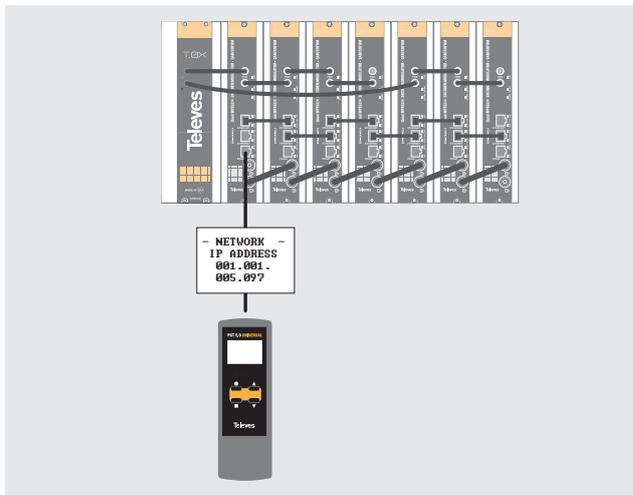


Figure 6 - Read the IP address of one unit.

7. If a network was connected in Step 3 then proceed to step 8. If not, set the address of you computer as follows:

IP value = 172.20.0.2
netmask = 255.0.0.0
gateway = 172.20.0.3

NOTE: The default factory configuration of the units has an IP address in this range (it should be different for each unit). If a unit was ever provided an address before, manually or through DHCP, this unique address may no longer exist. Resetting to IP factory defaults, will return the original unique private address though.

8. In your web browser, enter the IP address from Step 6 as the URL. A login prompt will appear. By default the parameters are:

Login: encoder
Password: encoder

The **Status > Summary** page should appear as the first page. This provides a summary of all the units installed in the network and the units will be sorted by the number entered in Step 5. The “Change Password” option only changes the password of the encoder currently logged in to. To change the password for the remaining modules, each one will need to be logged into with its unique IP address and the change made for each.



Figure 7 - Status > Summary tab.

Figure 8 shows an example of a detailed status page.

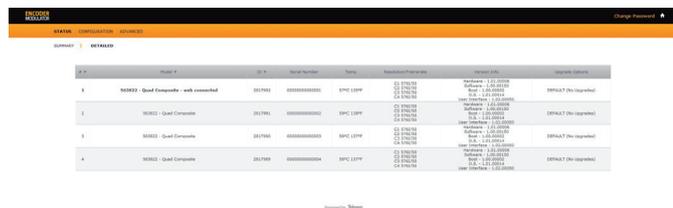


Figure 8 - Status > Detailed tab.

9. Configure all units:

Select “CONFIGURATION”. This page has 4 options, INPUT, TRANSPORT, OUTPUT, and NETWORK, shown in Figures 9, 10, 11, and 12 respectively. For each configuration page, the last column is “Select”. Any changes made, will be saved only to the units with this associated “Select” box checked when “Apply Selected” is clicked. This applies to all 4 of the sections under the Configuration Menu.

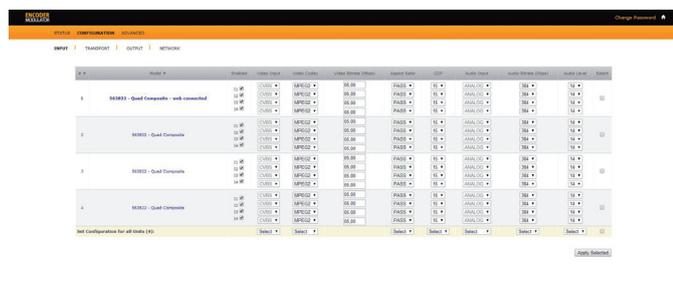


Figure 9 - Configuration > Input tab.

Some items have an automatic configuration option, such as “Automatic channel numbering” shown in figure 10.

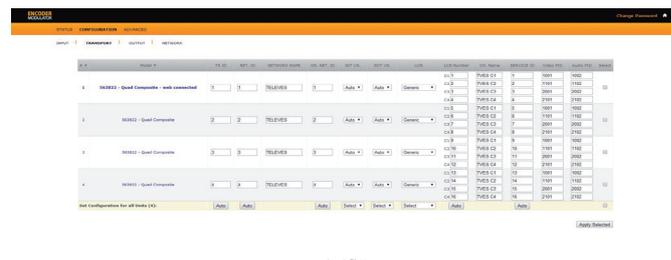


Figure 10 - Configuration > Transport tab.



Figure 11 - Configuration > Output tab.

The network configuration page allows a change to the Number assigned in Step 5. This option also has an “Auto” assignment feature. The “Auto” option will ask for confirmation since it will overwrite the settings of all units set in Step 5 and the ordering will likely not be as the units were placed in the rack.



Figure 12 - Configuration > Network tab.

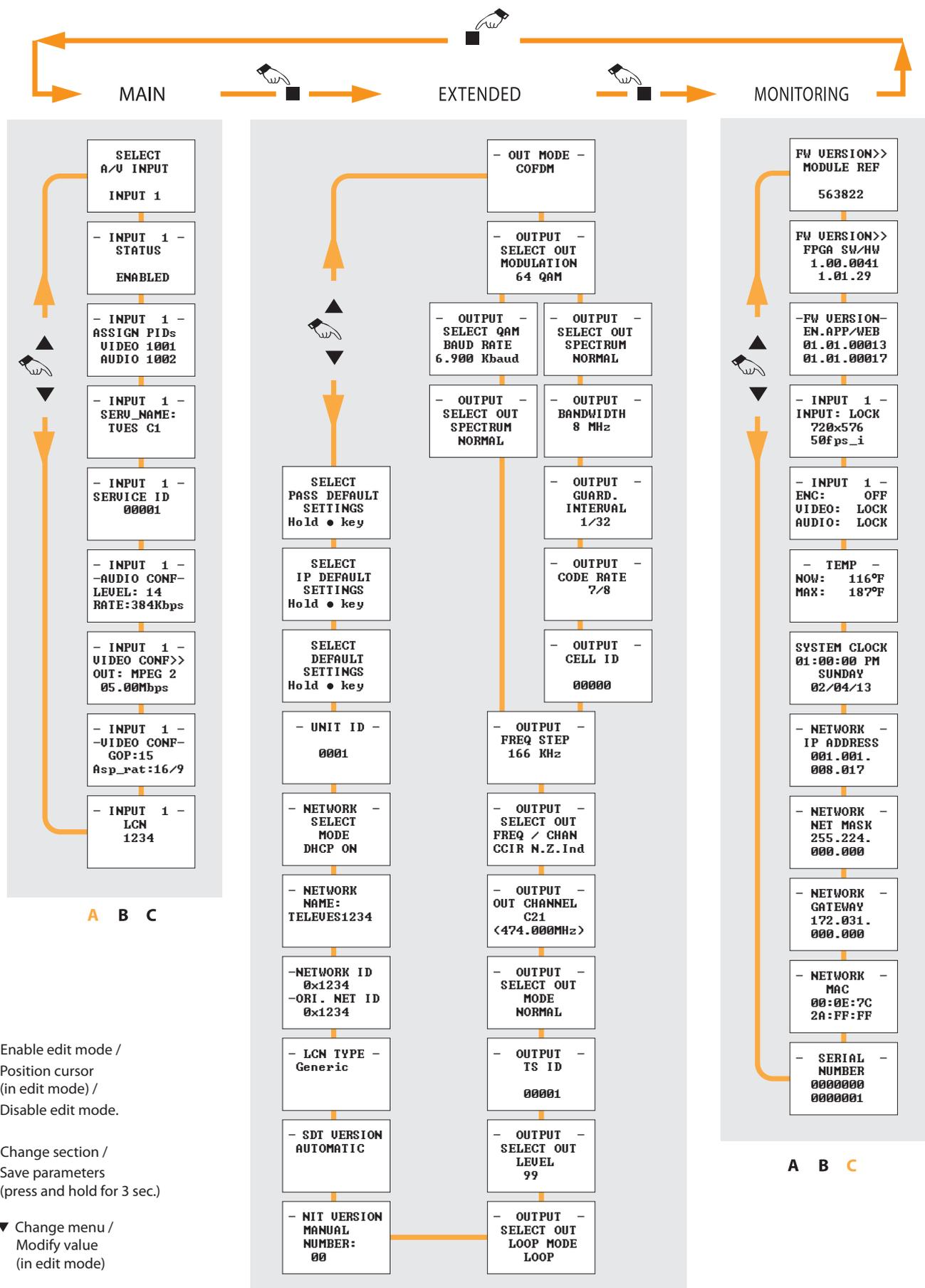
Clicking on the unit name, a new window is opened and show the unit settings summary.



Figure 13 - Advanced configuration

Menu flow chart

For programming Unit operation



Technical specifications

References			563822
INPUTS	VIDEO	Connectors	4 sets - 1x RCA for Video (CVBS)
	AUDIO	Connectors	4 sets - 2x RCA for Analog Audio (L, R)
	OUTPUT	Connectors	"F" Female (loop-through combiner input)
ENCODING PROFILE	VIDEO	Output Format	MPEG-2 / H.264
		Resolution	480i & 576i Supports auto-scan for input resolution
		Aspect Ratio	4:3, 16:9 and pass through
		GOP	10, 12, 15, 16, 18, 20, 24 or 30
		Transport rate	Variable
	AUDIO	Video bit rate	Variable
		Output format	MPEG1 Layer 2
		Sampling rate	kHz 48
		Output bitrate	Variable
OUTPUT	RF	Connectors	1x "F" Female
		Frequency Range	MHz 46 - 862
		Max output level	dBμV +115 (+103 with loop-through)
		MER	dB >40 (typ)
		Spurious	dBc -60
		Impedance	Ω 75
		I/Q Phase Error	° <1
		I/Q Amplitude Imbalance	% <1
	QAM	Modulation format	16, 32, 64, 128, 256
		BaudRate	Mbaud 6,9
		Roll-off	% 15
		Code	Reed Solomon
		Spectrum Mode	Normal / Inverted
	COFDM	Frequency Step	KHz 250
		Modulation format	QPSK, 16QAM, 64QAM
		Guard Interval	1/4, 1/8, 1/16, 1/32
		FEC	1/2, 2/3, 3/4, 5/6, 7/8
		Bandwidth	MHz 6, 7, 8
		Cell_id	Editable
		Frequency Step	KHz 125 / 166
		PSI PARAMETERS	Transport Stream ID
Original Network ID	Editable		
Network ID	Editable		
Logical Channel Number	Editable		
NIT Version	Manual / Automatic		
SDT Version	Manual / Automatic		
Type LCN	Generic / UK / NorDig V1 / NorDig V2		
Network Name	Editable		
Service PID	Editable		
Service Name	Editable		
Service ID	Editable		
MONITORING / CONTROL	Local control	Full configuration with LCD handheld programmer	
	Local monitoring	LOOP status LED	
		OUTPUT status LED	
		TEMP status LED	
		CH1/CH2 - CH3/CH4 status LEDs	
	Remote monitoring	Ethernet status LEDs	
Control	Centralized web based remote control, management, alarms, and software upgrades Daisy-chain integrated ethernet switch		
GENERAL	Power supply	Vdc 24	
	Power disipation	W <16	
	Operating Temperature	°F / °C 32 to 113 / 0 to 45	

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