Televes®

T.0X SERIES

Refs. 563802, 563821

EN **HDTV ENCODER/MODULATOR - Quad Composite to QAM**
HDTV ENCODER/MODULATOR - Quad Composite to QAM (EAS)

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.0X 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:

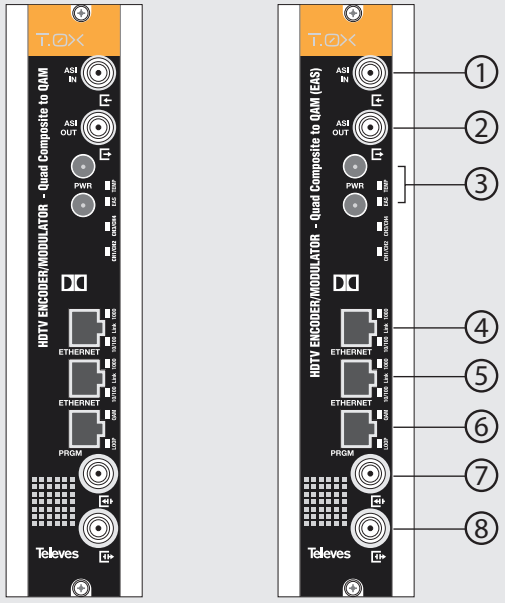
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

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.

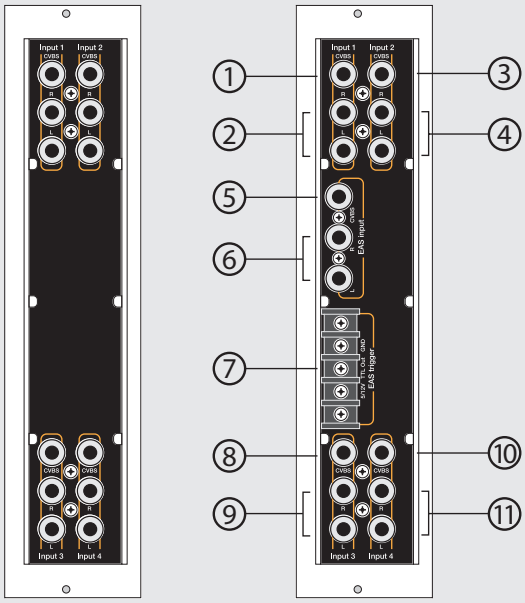
Description of connectors

Front view



563802 **563821 (EAS)**

Rear view



563802 **563821 (EAS)**

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

1.- CVBS input (Video/Closed Caption). Channel 1
2.- Analog (L/R) audio input. Channel 1
3.- CVBS input (Video/Closed Caption). Channel 2
4.- Analog (L/R) audio input. Channel 2
5.- EAS CVBS input (563821 only)
6.- EAS L/R analog audio input (563821 only)
7.- EAS control (563821 only)
8.- CVBS input (Video/Closed Caption). Channel 3
9.- Analog (L/R) audio input. Channel 3
10.- CVBS input (Video/Closed Caption). Channel 4
11.- Analog (L/R) audio input. Channel 4

LED indicators

Front LED alarms	TEMP	Color	Internal temp	Comment
		Solid green	Normal	Safe
		Slow blink orange	High	Warning
		Fast blink red	Very High	Danger
	EAS	Color	EAS status	Comment
		Solid green	ON	An alarm has been triggered and the system is broadcasting common EAS audio and video.
		Off	OFF	No alarm present. Each encoder in the system is broadcasting its own content.
	CH1/CH2 – CH3/CH4	Color	Channel status	Comment
		Off	Disabled / EAS	Channels disabled or unit in EAS mode.
		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.
	QAM	Color	Output mode	Comment
		Solid green	Normal	Output RF channel is ON, broadcasting audio/video (normal mode).
		Slow blinking green	Carrier wave, null or muted	Output RF channel is OFF or in an alternate signal mode.
	LOOP	Color	Output loop status	Comment
		Solid green	ON	Output loop-through enabled. Units may be daisy-chained using the internal combiner.
		Off	OFF	Output loop-through disabled. Units must be combined using an external combiner.

Installation

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

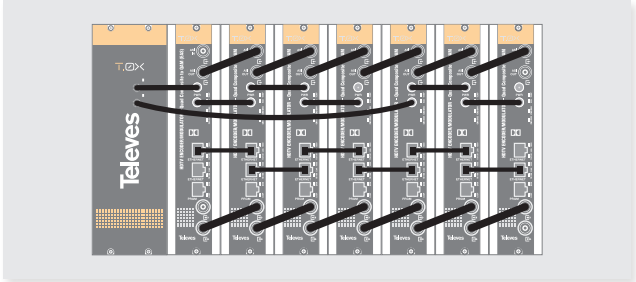


Figure 1

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

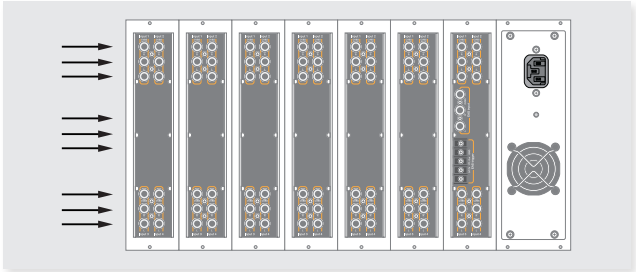


Figure 2

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.

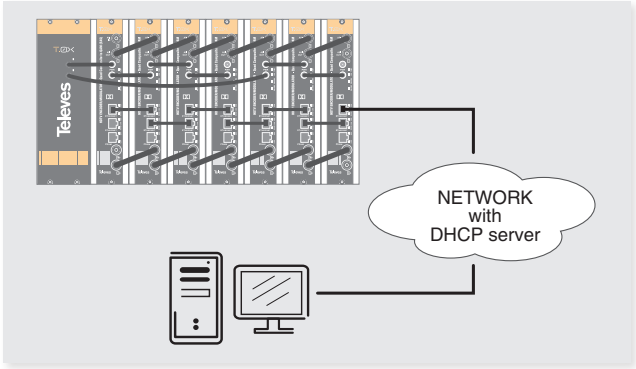


Figure 3 - Rack with DHCP server.

4. Power on the units.

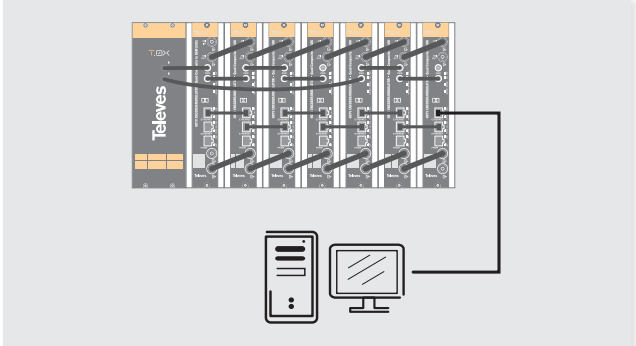


Figure 4 - Rack without DHCP server.

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.

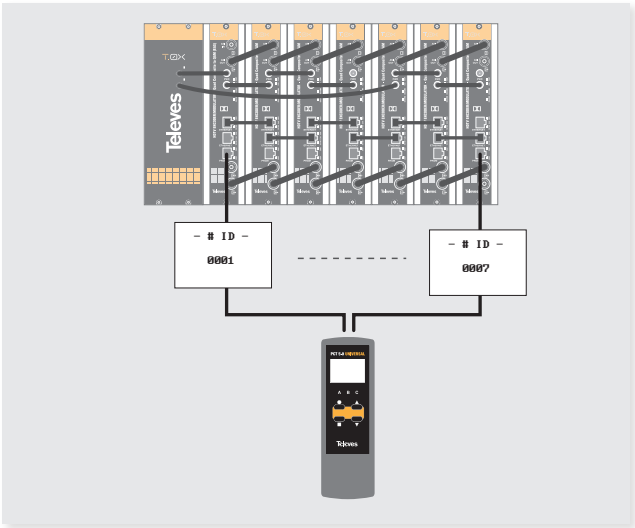


Figure 5 - Set a # number different for each unit.

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.

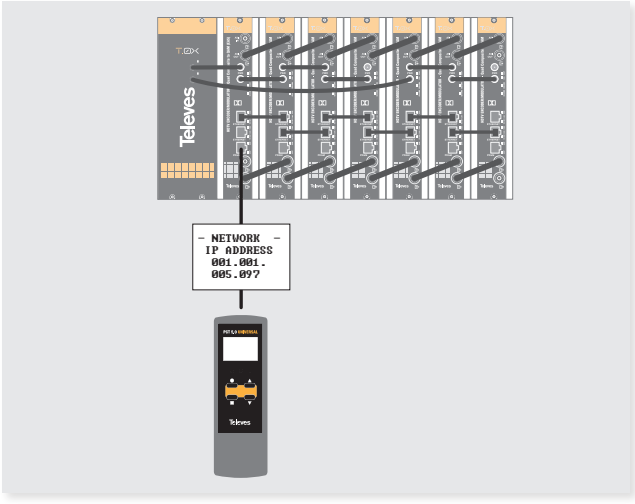


Figure 6 - Read the IP address of one unit.

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 = 0.0.0.0

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.

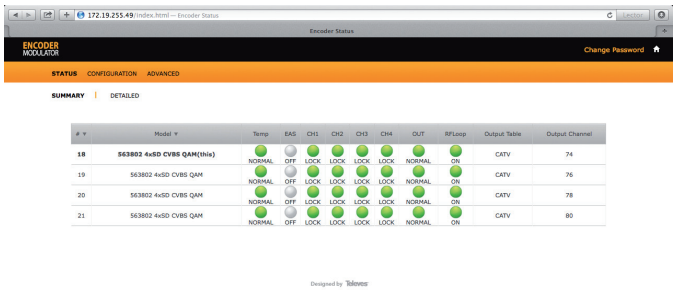


Figure 7 - Status > Summary tab.

Figure 8 shows an example of a detailed status page.

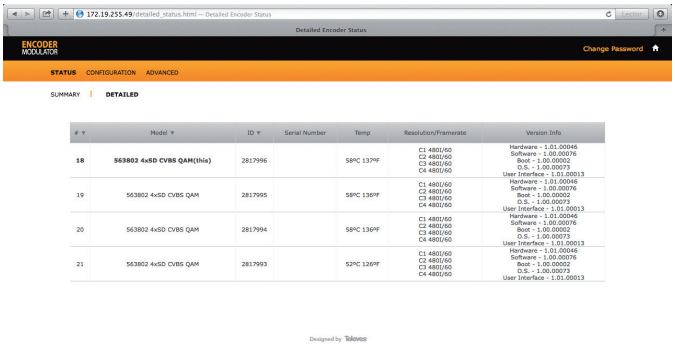


Figure 8 - Status > Detailed tab.

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.

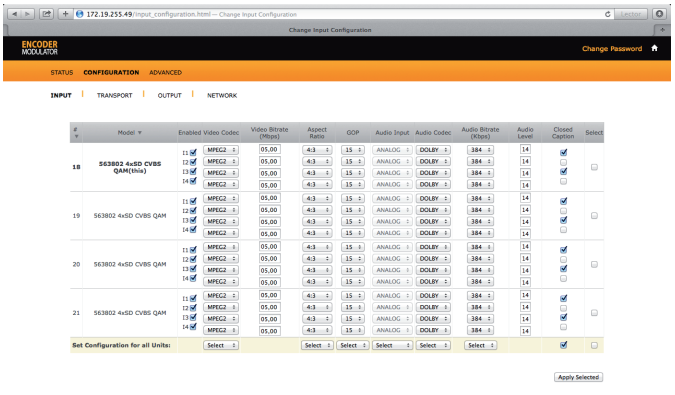


Figure 9 - Configuration > Input tab.

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

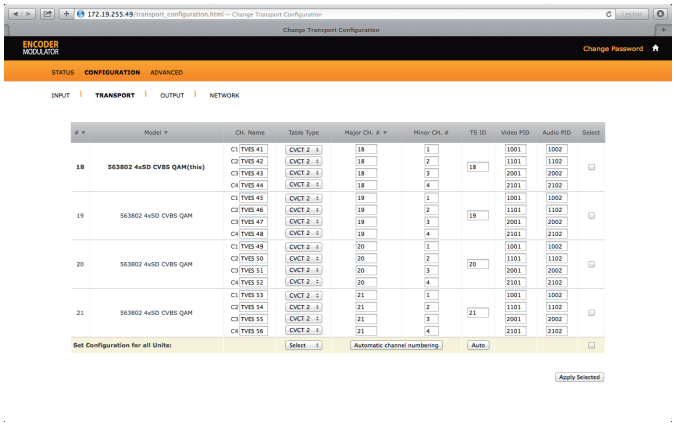


Figure 10 - Configuration > Transport tab.

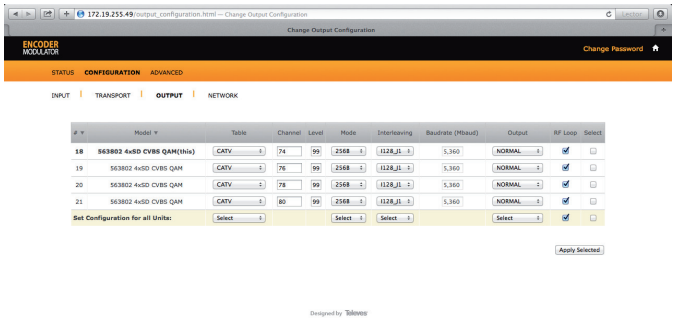


Figure 11 - Configuration > Output tab.

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.

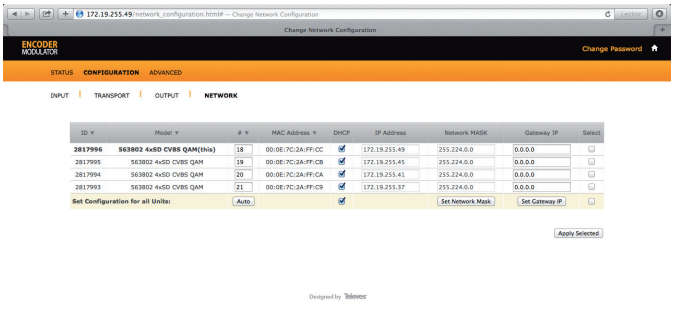
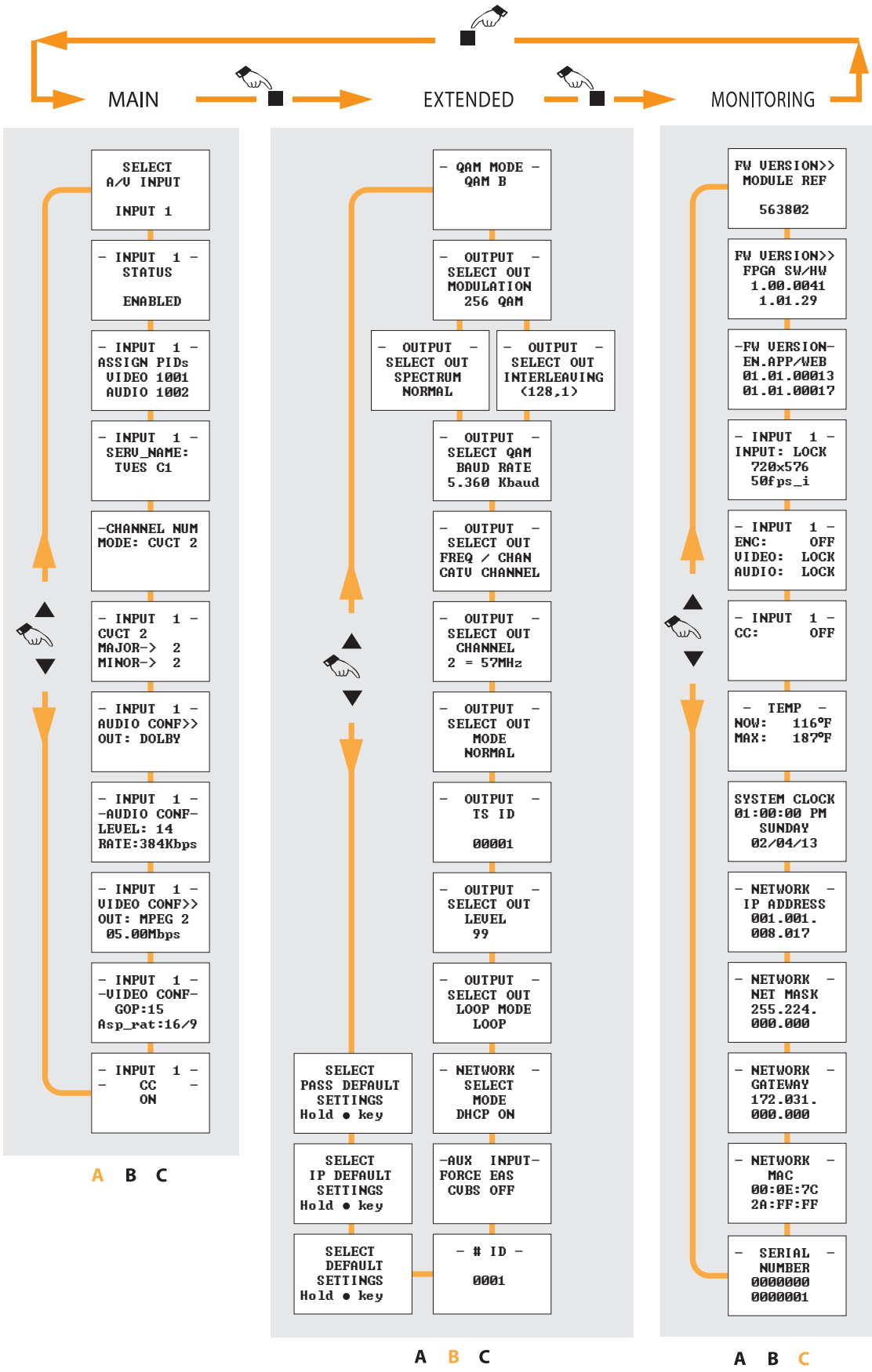


Figure 12 - Configuration > Network tab.

Menu flow chart

For programming Unit operation



● Enable edit mode / Position cursor (in edit mode) / Disable edit mode.

■ Change section / Save parameters (press and hold for 3 sec.)

▲▼ Change menu / Modify value (in edit mode)

Technical specifications

References				563802, 563821*
INPUTS	VIDEO	Connectors		4 sets - 1x RCA for Video (CVBS)
	AUDIO	Connectors		4 sets - 2x RCA for Analog Audio (L, R)
	CLOSED CAPTIONING	Connectors		4 sets - 1x RCA for Video (CVBS in)
	EAS*	Connectors		3x RCA (CVBS, L, R)
		Trigger	Vdc	5-12 (Dry Contact Closure)
	ASI	Connectors		1x BNC
		Format		DVB-ASI
		Standard		ETSI EN 50083-9
	QAM	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
		Video bit rate		Variable
	AUDIO	Output format		Dolby® Digital AC-3 or MPEG1 Layer 2
		Sampling rate	kHz	48
		Output bitrate		Variable
	CLOSED CAPTIONING	Format		EIA-608
OUTPUT	QAM	Connectors		1x "F" Female
		Modulation standards		ITU-A: 16, 32, 64, 128, 256, 512, 1024 QAM
				ITU-B: 64, 256 QAM
		Frecuency Range	MHz	5 - 1002 (supports return path applications)
		Channel plans		CATV STD, T_CHANNELS, Broadcast, Frequency
		Max output level	dBmV	+55 (+43 with loop-through)
		MER	dB	>40 (typ)
		Spurious	dBc	-60
		Impedance	Ω	75
		I/Q Phase Error	º	<1
		I/Q Amplitude Imbalance	%	<1
	ASI	Connectors		1x BNC
		Format		DVB-ASI
ALARMS / MONITORING / CONTROL		Local control		Full configuration with LCD handheld programmer
		Local monitoring		EAS status LED
				LOOP status LED
				QAM status LED
				TEMP status LED
				CH1/CH2 - CH3/CH4 status LEDs
				Ethernet status LEDs
		Remote monitoring		Centralized web based remote control, management, alarms, and software upgrades
		Control		Daisy-chain integrated ethernet switch
GENERAL		Power supply	Vdc	24
		Power disipation	W	<16
		Operating Temperature	ºF / ºC	32 to 122 / 0 to 50

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