



## Twin Transmodulator equipped with remultiplexing DVBS/S2 – DVBT (COFDM) or DVBC (QAM), with CI

Transmodulator generating two COFDM or QAM (Annex A) multiplex from the multiplexing of the services available in up to 4 different TV SAT transponders. These may be extracted from 2 different satellite polarities (2 independent SAT inputs), or from a single satellite polarity, using the headend's input loop.

The encrypted satellite channels are transformed into free terrestrial services through the CI interface and the appropriate CAM module. Depending on the CAM type used (standard/professional), one or several services may be opened for free visualization.

The selection of the desired output modulation can be possible via an embedded web user interface, which allows the configuration of the module.

<b>Ref.</b>	565401
<b>Logical ref.</b>	U4Q2CQA-S2-CI
<b>EAN13</b>	8424450273708

Packing

Physical data

<b>Box</b>	1 pcs.	<b>Net weight</b>	1,074.00 g
		<b>Gross weight</b>	1,210.00 g
		<b>Width</b>	50.00 mm
		<b>Height</b>	217.00 mm
		<b>Depth</b>	175.00 mm
		<b>Main product weight</b>	990.00 g

## Highlights

- Embedded user web interface for module configuration:
  - Selection of output modulation COFDM (DVB-T) or QAM (DVB-C)
  - Configuration of the entire headend selecting one of the module as a master
  - Automatic detection of the modules that are connected to the master
  - Cloning function to replicate configurations between modules and headends
  - Headend control indicators: module temperature, CAM status ...
- Access to the headend configuration through a self-created WiFi network (using the kit with ref.216802)
- Total or selective removal of the services present in the received transponder, to avoid them being detected (and memorized) by the receivers (STB)
- Editable TS\_ID, which makes programme/service detection easier on the receiver (STB), since the channel scan is based on this identifier
- LCN (Logical Channel Number) allows the assignment of the services present in the output to an LCN, which makes the ordering of the channels easier on the receivers (STB)
- Provides information regarding both the occupation of each specific service and the global output occupation, which allows the optimization of the services being distributed
- Device monitoring and signal status LEDs

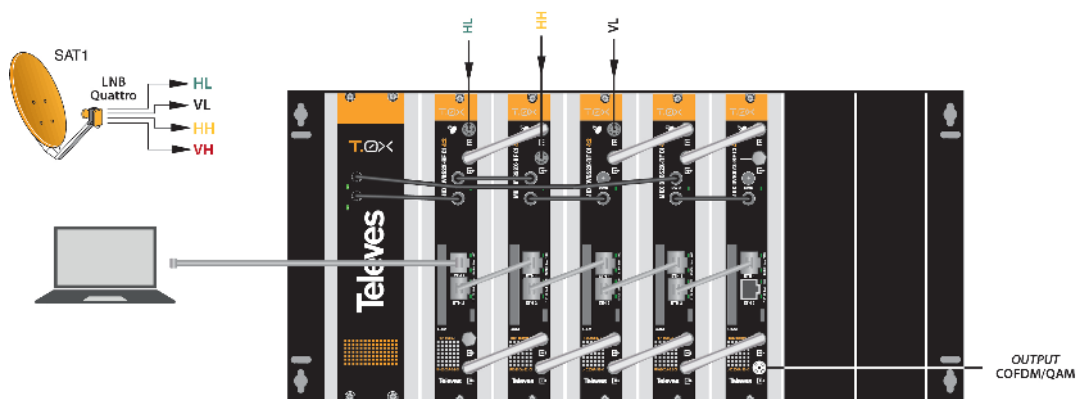
## Main features

- Its outputs can be configured with loop mode either activate or deactivate
- Service decryption by insertion of a PCMCIA module
- Null packet insertion ("Stuffing") allows the receiver (STB) to perform a faster scan
- PID filtering allows the removal of undesired services from a Multiplex (enhanced occupation use); very interesting when combined with CAM use
- S\_ID editable to prevent the receivers (STB) in an installation from retuning when the output-Multiplex's services are modified
- Editable Network\_ID, Original Network\_ID and Cell\_ID allow the control of network identifiers

## Application example

### CONNECTION OF A LNB QUATTRO TO A 5-TRANSMODULATOR HEADEND

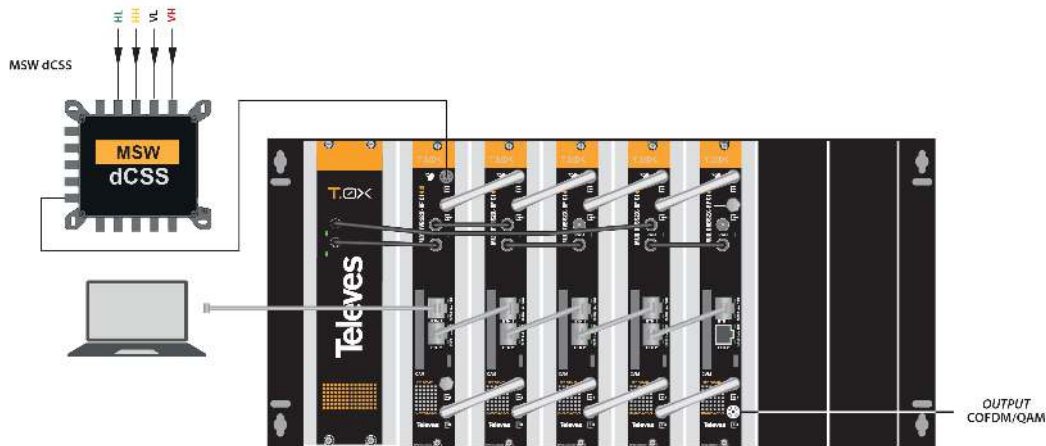
Processing headend that includes 20 transponders with signals from the 4 polarities of an LNB Quattro. Each polarity is connected to different inputs of the modules. It is also possible to link several modules so that they have the same polarity at their input.



### CONNECTION OF A MSW dCSS TO A 5-TRANSMODULATOR HEADEND

Processing headend that includes 20 transponders with a single-coaxial signal from a dCSS MSW. The signal is connected to the master module, which supplies the signal in loop mode to the rest of the modules. In the configuration web interface, an UB is assigned to each transponder. In this way, you obtain a cleaner,

tidier installation that will be simpler and quicker to modify.



## Functionalities

### Remultiplexing of services



The unit has four demodulators (TS A, TS B, TS C, TS D) that, depending on how the loop mode is configured, one or two bands and polarities should be available for all demodulators.

The inputs can also be configured to receive signals from a dCSS multiswitch of up to 4 different satellites in a single cable.

### Configuration of the terrestrial signals at the outputs



It is possible to select the standard between DVB-T or DVB-C, which is applied to the two outputs of the module. In addition, the desired services can be selected, individually or multiple, for each output as well as in which RF channel these services will be included.

### Programming of the entire headend selecting one of the module as a master



Configure one of the modules as a master of the entire headend. Any module can be selected as the master. Once the master mode is activated, the unit searches for other units connected to the network (ETH2).

The units can be visually ordered in the web interface to identify them more easily with the real position in the headend. Each of the modules can be identified by temporarily activating the flash of the front LED.

## Separated networks in each module



Each unit has two Ethernet RJ45 connectors, which can be used on a single network or on two separate networks. Users can enable the separation of these networks (Split Net Ports) and configure the IP address, subnet mask, and default port link, as well as the DHCP client mode.

## Cloning of headends configurations



The web interface allows to export/import files for duplicating units (or complete headends) configurations. This function helps to reduce time in typical installations, due of having previously a configured file. The exportation of these files also allows to have a headend configuration backup.

## Status reports generation



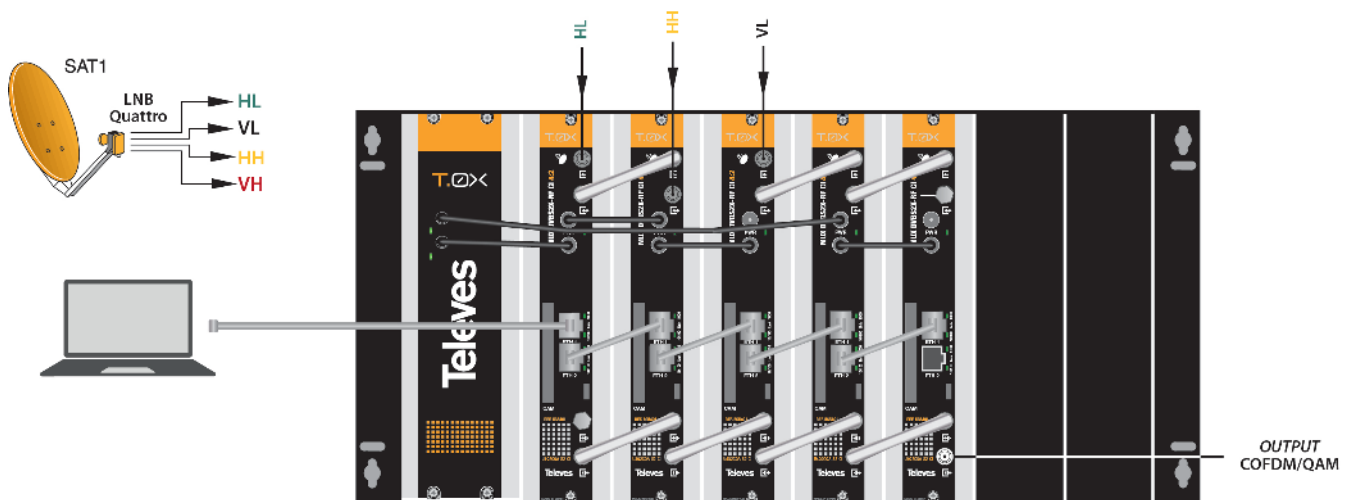
Users can download report files on the selected unit, or of the complete headend, to make easier debugging in the event of an incident.

## Mounting details

### HEADEND CONFIGURATION WITH ETHERNET CABLE

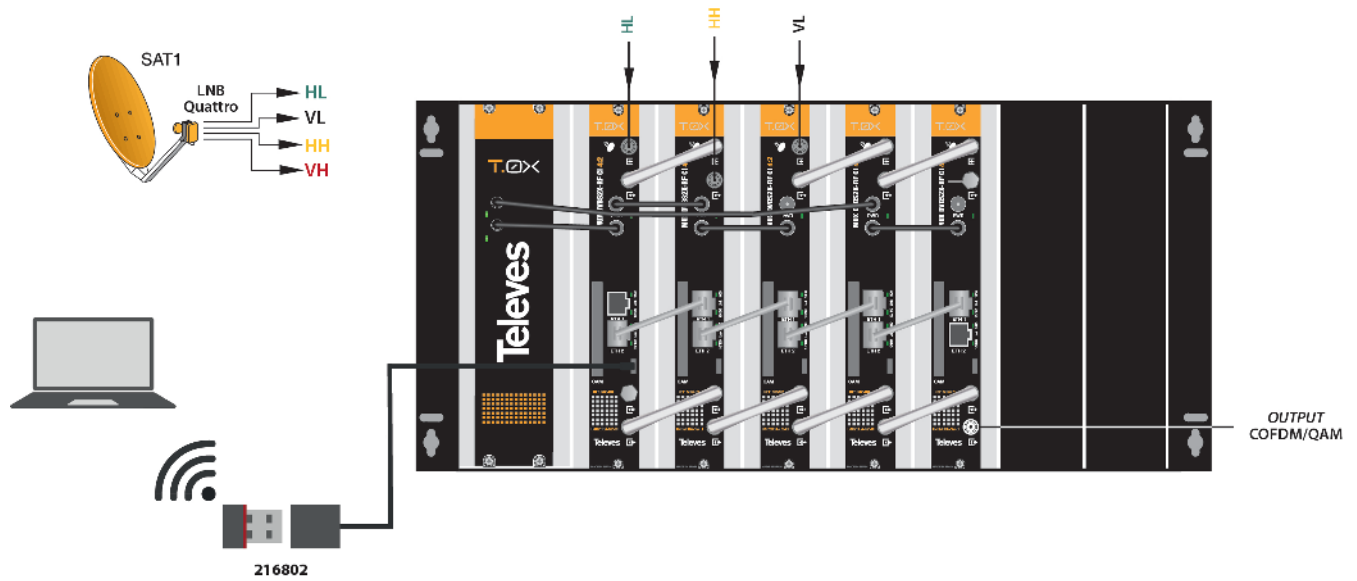
The unit's IP must be known to access its control web interface. By default, this code is printed on the rear label.

1. Connect a PC directly to the module's ETH1 port with an Ethernet cable.
2. Configure the PC's IP address on the same subnetwork as the module.
3. Open a browser and go to the URL `https://ip_module`



### HEADEND CONFIGURATION WITH WIFI ADAPTER

The unit can also be connected via Wi-Fi using the adapter kit Ref. 216802. This adapter must be connected to the micro USB port on the front of the unit. After an automatic initialization process, connection to a Wi-Fi network will be possible, provided its SSID has the following format: `Televes_mng_XXYYZZ`. To go to the configuration website, open a browser and go to the URL `"https://config.local"`.



## Technical specifications

SAT INPUTS	Input frequency		MHz	270...2320
	Symbol rate		Mbaud	2 - 42,5 (Max 140 Mbps netto bitrate)
	Frequency steps		MHz	1
	Input level		dBm	-60 ... -25
	Input/Output connectors			"F"-female
	Input impedance		$\Omega$	75
	LNB powering		V/KHz	13V/17V/ OFF - 22KHz (ON/OFF)
	dCSS MSW control			SCR II (EN50494/EN50607/SKY UK)
	Satellite selection (DiSEqC)			A,B,C,D
	Through losses		dB	$\leq 1,5$ typ (2 max)
	Modulation	DVB-S2X		QPSK, 8PSK, 8/16/32 APSK (EN 302307-2)
		DVB-S2		QPSK, 8PSK (EN302307)
		DVB-S		QPSK (EN300421)
	FEC inner code		LDPC	9/10, 8/9, 5/6, 4/5, 3/4, 2/3, 3/5, 1/2
	FEC outer code			Bose-Chaudhuri-Hocquenghem
QAM MODULATOR	Modulation format			QAM 16,32,64,128,256
	Symbol rate		Mbaud	2 - 7,5 (select.)
	Roll-Off factor		%	15
	Block code			Reed Solomon (188,204)
	Scrambling			DVB ET300429
	Interleaving			DVB ET300429
	Bandwidth (max.)		MHz	8,3
	Spectral inversion (select.)			Normal/Inverted
COFDM MODULATOR	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
	Scrambling			DVB ET300744
	Interleaving			DVB ET300744
	Cell_id			Seleccionable
	Spectral inversion (select.)			Normal/Inverted



RF OUTPUT	Output frequency		MHz	46...862
	Frequency steps		KHz	1
	Max. output level (select.)		dBμV	85±5
	Attenuation (select.)		dB	>15
	Through losses (typ.)		dB	≤ 1,5
	Return losses (typ.)		dB	> 10
	Input/Output connectors			"F"-female
	Output impedance		Ω	75
GENERAL	Control interfaces			Ethernet 10/100/1000 USB 2.0
	Consumptions (@24V)	Base	mA	700
		+ CAM		+ 100
		+ LNB		+ 250/LNB
		Max.		1300
	Max. operating temperature		°C	45
	Protection index		IP	20