EKSELANS BY ITS

USER MANUAL

CM 4T-CI-TC

082259

DVB T/T2/C TO COFDM/QAM TRANSMODULATOR WITH DUAL CI

V01

ITS Partner O.B.S S.L · Of. Cerdanyola 79-81 Local C
08172 Sant Cugat of the Vallès · Barcelona (Spain)
Phone: +34935839543 · info@ek.plus · www.ek.plus

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INTRODUCTION:

Description:

DVB T/T2/C to COFDM/QAM transmodulator with dual CI. One input with 4 independent tuners + LOOP. 4 FLEXIBLE output channels. Programming from PC connected to the power supply. Integrated remote management from FA 524 power supply.

Main features:

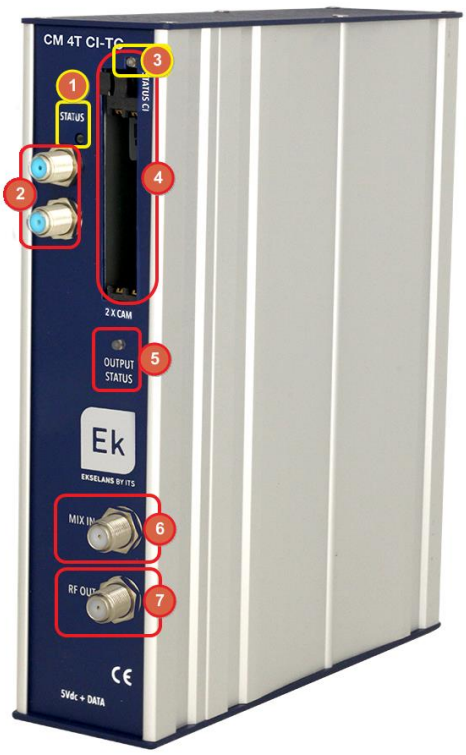
- Terrestrial and cable quad module (DVB-T/T2/C).
- 1 input / 4 independent tuners + LOOP.
- Dual Common Interface (CI) reader
- 4 COFDM/QAM flexible channels output
- Flexible remultiplexing of services on any output channel.
- Programming via PC Software ("CM Management") for Windows Configuration cloning and report generation.
- On-site management (FA 524 / CM PR) or remote management (FA 524)

Packaging content:

- 1x CM 4T-CI-TC Module (082259)
- 1x Power cable (082123)
- 1x Mounting tab (251008)



CONNECTIONS AND INTERFACES:



1.- Status LED. Status Information of the input tuners.

2.-Input connector and LOOP (Terrestrial Signal loop-through).

3.- Status LED. Status Information of the CI

4.- Dual CI slots input

5.- Status LED. Reports the status of the modulated output in COFDM/QAM. The output will be working properly when the LED flashes green.

6.- RF mix input connector.

7.- RF output connector. This output will supply the MUX's generated by the module itself, plus those entering through connector number 6.

1.-Ventilation grid.

2.- Power supply connector if using a single module with FA 55 power supply.

3.- Module power supply port and input data bus. (IN)

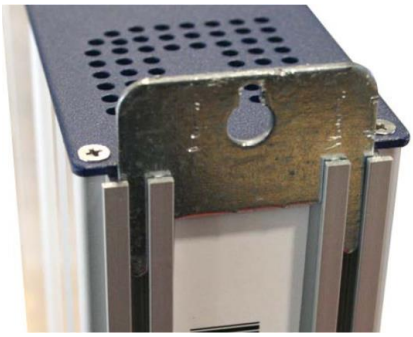
4.- Power supply port to the next module and output data bus. (OUT)

INSTALLATION AND CONNECTION:

General installation and connection:

1.- For installations of several modules (headend) or a single module, fix the transmodulator module to a wall chassis (CHM TR)or to a rack chassis (CHR TR).

To do this, use the supplied metal piece (COD: 251008) at the module rear top as indicated in the image.



⚠ **Important note**: In case of making a headend with several modules, always place the power supply module on the left side of the modules to be installed.

2.- Connect the power supply (FA 524) to the module or connect it to the previous module using the supplied power cable.

The FA 55 source can also be used to power a single module.

3.- Connect the input signals to the inputs of the transmodulator.

⚠ **Important note**: Pay special attention to the input type and port. Follow the indications on the front panel.

4.- Install the "CM Management" software on the PC. It can be downloaded from the web www.ek.plus section Software / CM Headend. Link

5.- To program the module, make any of the following connections:

5a.- PC – FA 524 Programming via **USB.** Connect the FA 524 power supply to a PC using a USB (A) - USB (B) cable.

5b.- PC – FA 524 Programming via **Ethernet.** Connect the power supply and the PC via Ethernet cable, connect these on the same LAN (the power supply provided with the address **192.168.0.222**). If it is necessary to be connected when not connected to the LAN itself, the CM KEY access key must be enabled beforehand.

5c.- PC - CM PR Programming via USB. Connect the module to the device using the power and data cable. Connect the PC to the CM PR using the USB cable.
6.- Run the PC SW program.
⚠ **Important note**: Connect the FA 524 source or CM PR programming device and FA 55 power supply to the PC before running the software to be correctly detected by the PC driver

Installing a multi-module headend:

If you want to add a module on an existing headend with other CM series modules, it is very important to follow the following indications.

•Connect the different modules in series using the provided power cable and then the power supply, which should always be the first module from the left of the headend.

• Check the consumption of the modules. Usually up to 5 modules can be connected with an FA 524 source. However, we recommend checking the consumption of the modules to be installed.

•It is recommended to place the modules with CI after the power supply.

•It is possible to use the long jumper to get the input signal to adjacent modules.

•Regulate the attenuation at the output of each module to compensate for cable losses at high frequency.

"CM Management" PROGRAMMING SOFTWARE:

The "CM Management" programming software allows you to program and manage all the modules of the CM headend. The program is available only for Windows operating system (version XP, 7 and above). Once downloaded from the website www.ek.plus section Software / CM Headend, run it having previously connected the PC to the USB port of the FA 524 or CM PR power supply. This will ensure that the driver detects the control panel.

Main screen:

The appearance of the main screen of the "CM Management" software is as follows:

Always check that you have installed the latest software version of the WEB. We can connect directly by USB or LAN.

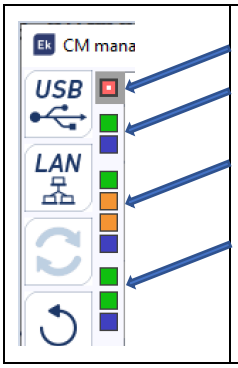
For the LAN connection, select the equipment and connect by selecting: 

- ID.: enter the MAC of the corresponding power supply.
- KEY: enter the CM Key, if any. If not "0".
- LOCAL IP: the local IP will be entered if connected by LAN from the same network.
- DESCRIPTION: description.

Using the "CM Management" Software, you can manage and program all the modules connected to the power supply. The function of each of the main side options is explained below:

	Connect to the modules via the power supply using the USB connector.
	Connect to the modules via the power supply using the LAN interface.
	Firmware update Button for any of the cards. If any SW is available, the corresponding card will be displayed with a white triangle in the inner left corner. By double-clicking this button, it will change to orange color and the icon will go from gray to blue. Clicking the icon will update the FW of all selected cards. It is recommended to update one at a time by doing a RESET to the power supply at the end.
	Reset selected card. This feature is not available for all cards.
	This option allows you to upload a programming configuration previously saved on the PC to the headend. The configuration file will have a *. dtc extension.
	This option allows you to save on the PC a programming configuration of a headend, to be loaded later following the steps of the previous point. THE DISTRIBUTION OF THE MODULES MUST BE IDENTICAL TO THAT OF THE *.dtc FILE.
	Data-logger. It allows to save the data of the different modules of the header in a single *. html file.
	Allows you to change the output of DVB-T modules (COFDM) to DVB-C (QAM). After the change, a power RESET has to be done. Not active for this model.

The main screen of the "CM Management" allows you to easily identify the different modules connected to the power supply, as showed on the following screen:



Power supply and headend manager (red).

Identification of a module with an input card (green) and an output card (blue).

Identification of a module with an input card (green), two CIs (orange) and an output card (blue).

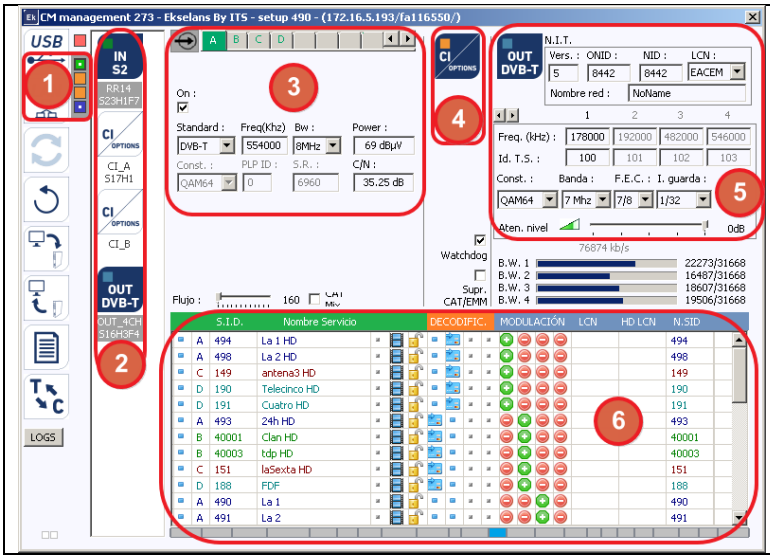
Identification of a module with two input cards (green) and one output card (blue).

In this case it would be a power supply and three modules, each one with its different internal cards.

Click on the corresponding module to enter its specific configuration menu

Never open the CM MANAGEMENT program twice, this will cause configuration problems.

CM 4T-CI-TC module configuration :



1. Selected module.
2. Selected module configuration.
3. Input card. Select between DVB-T / DVB-T2 and DVB-C
4. CI section.
5. Output card. Select output frequency in KHz.
6. Program pool available in the configured inputs.

Input card:

In this part of the menu the input card will be configured. Selecting A, B, C or D we will select the input tuner that we want to configure:

WHERE: Turn on or off the selected entry.

Standard: Three types: DVB-T, DVB-T2 or DVB-C per selected input.

Freq. (KHz): CENTRAL frequency of the MUX to be tuned. Channel 23 ➔490000

Bw.: Bandwidth. Select channel bandwidth. 7 or 8 MHz. (8Mhz. UHF band)

Power: Input power at the selected frequency. (dBuV)

C/N: Input quality at the selected frequency. (dB)

PLP ID: Identifies the input stream, Single or Multiple. If it is multiple, the client can choose the identifier they want to see.

If we select DVB-C, the following boxes are activated:

Const.: Constellation, select between QAM16-QUAM32-QUAM64-QUAM128 or QUAM256.

S.R.: Enter the required value.

Once the parameters are configured correctly, the signal will be acquired indicating an approximate value of **Level** (in dBuV) and **Quality**.IT CANNOT BE CONSIDERED AS A PROFESSIONAL MEASURE.

Program Pool:

In this table will be listed all the channels, services, which correspond to the selected entries. From here you select the services that you want to assign to each output MUX. Each service is assigned to the input tuner from which it has been tuned.

S.I.D.: S. I. D. (Service Information Descriptor) assigned at source to that service.

Service Name: name assigned to the service at source. Then a symbol appears indicating if the service is TV or Radio, and if it is encrypted or open.

DECODIFIC.: This module is provided with two slots to insert two CAMs. By clicking on it, we activate or not the service so that it decodes in the selected CAM. See an example.

MODULATION: each circle corresponds to an output MUX: 1, 2, 3 or 4. Clicking on it, it changes from red to green, this service is assigned to an output MUX.

DVB-T output card:

This part of the menu consists of three different sections:

- N.I.T. (Network Information Table) parameters
- RF output channel parameters
- Information window on the throughput of each MUX output

N.I.T. parameters:

- Vers: N.I.T. version
- O.N.I.D.: Original Network Identification Descriptor.
- N.I.D.: Network Identification Descriptor.
- L.C.N.: Logical Channel Number. LCN type selection (EACEM for Europe, ITC for the United Kingdom …)
- Network Name: Identifies the name of the local DTT (Digital Terrestrial Television) network.

RF output channel parameters:

- Freq. (KHz): Center frequency, in KHz, of the desired output channel. E.g. CH21=474000
- T.S. ID: Identifier of the T.S. In general, it is not necessary to modify it.
- Const.: Select the desired output constellation: 64QAM, 16QAM, QPSK.
- Band: Output channel bandwidth: 7MHz or 8MHz.
- F.E.C.: Select error correction level: 7/8, 5/6, 3/4, 2/3, 1/2.
- Guard I.: Select guard interval: 1/32, 1/16, 1/8, 1/4.

Aten. Level: The power level of the modulator is 95dBuV; it can be adjusted 20dB by using this attenuator

Information window on the flow rate of each output MUX:

Four bars are displayed that correspond to each output MUX. The green line indicates the percentage of channel occupied.

The number above indicates the total throughput being transmitted.

At the end of each bar there are two numbers: the first indicates the throughput being modulated in that channel and the second the maximum throughput possible for the selected modulation parameters. The first should not exceed 80% of the second unless for services with constant throughput.

DVB-C output card:

In the case of DVB-C everything is the same as in DVB-T except the modulation parameters:

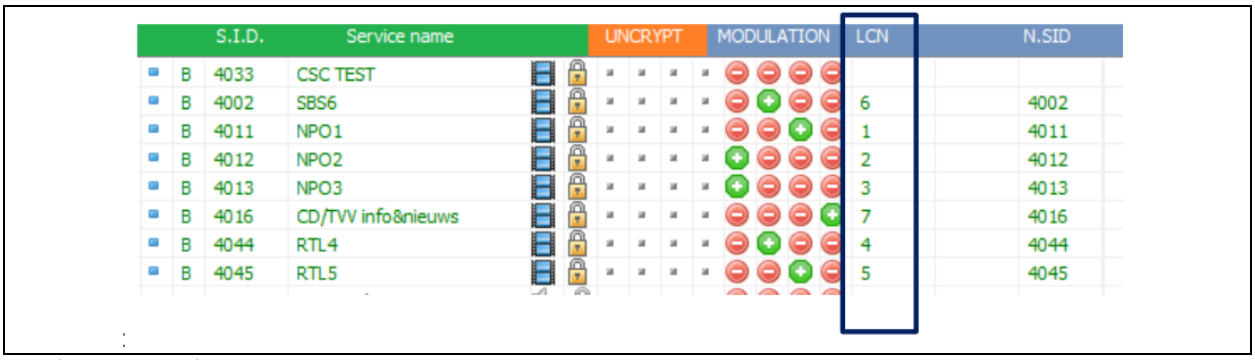
- Const.: Select the desired output constellation: 256QAM, 128QAM, 64QAM, 16QAM.
- Band: Output channel bandwidth: 7MHz or 8MHz.
- S.R.: Enter the required value.

Whenever the modulation of a headend module is changed, the power supply must be restarted.

Advanced settings:

LCN function:

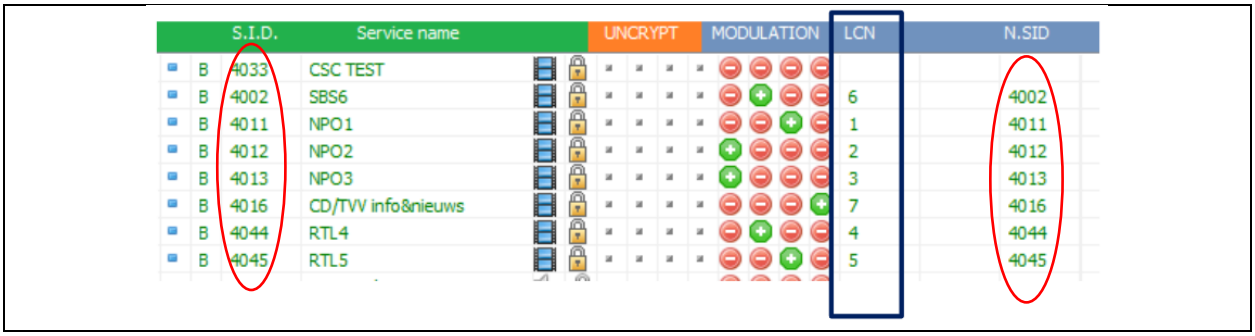
The transmodulator allows you to label the information Transport Streams so that the television programs are shown in the desired order on the TV, in its program guide as indicated from the header. In this way, all TV sets with LCN function will have the same contents in each program number of the TV. While this function is useful in the case of hotels or cable operators, by avoiding the manual reordering of the programs on each TV, the tuning of each TV is required. To assign the program number, simply double-click on the LCN column of the program to be modified and apply the desired position number. Example:



:

Configuration of SID and NSID parameters:

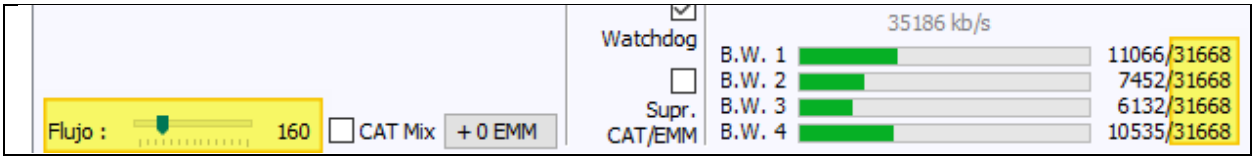
Transmodulators allow you to "remapping" SID fields. This functionality will allow you to change the content of a program on the TV leaving it on the same output channel of the headend module, without the need to retune the TV. To do this, it is necessary to activate the new program to be transmitted in the same NSID where the previous one was being broadcast, by double-clicking on the NSID column of the program to be modified. Example:



Flow: Adjust the data transfer rate to the output:

As a general rule, we will set the FTA (Free To Air) modules to 160Mbps

Example flow calculation: 31668Mbps x 4 = 126672 Mbps – The value above would be 160 Mbps.



IMPORTANT:

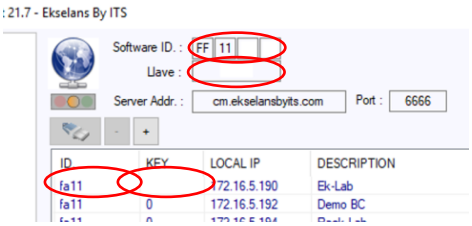
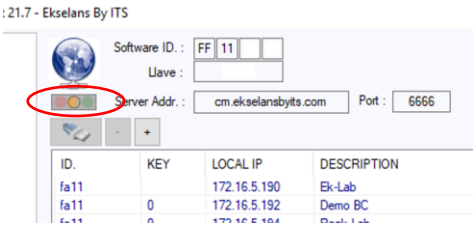
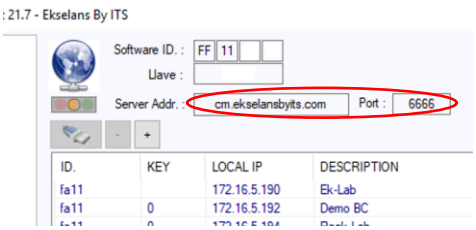
If the CI (Common Interface) is used, in any of its two slots, the maximum speed specified by the service provider to leave the flow at the appropriate value must be considered, as **all the selected flow will be delivered through the CAM regardless of whether it has to be encoded or not.**

Remote headend management:

The CM headend can be managed remotely. This function is integrated in the FA 524 power supply and in each of the head-end modules. To do so, a CM KEY (082015 code) must be available.

Each CM KEY is associated with **a single power supply** and will only enable remote management of that power supply. The installer will provide the Power Supply identifier to ITS Partner when requesting the CM KEY.

Each installer company, in either event, will have a unique Software ID and Key which will be supplied together with the CM KEY.

	**Software ID:** Installer/Installer Company Identifier. **Key**: Installer/Installer Company Identifier. **ID:** Power Supply Identifier (MAC). **KEY:** CM KEY supplied.
	**Red:** No Internet connection. **Orange:** Internet and server connection. **Green:** Headend modules connection established
	Address and port of the data server which facilitates the remote connection. **It is configured by default. DO NOT CHANGE.**

FAQS

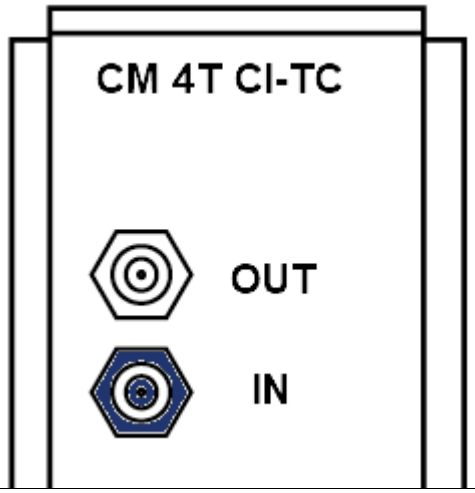
- What loads can I use for in the module?
  No loads needed.

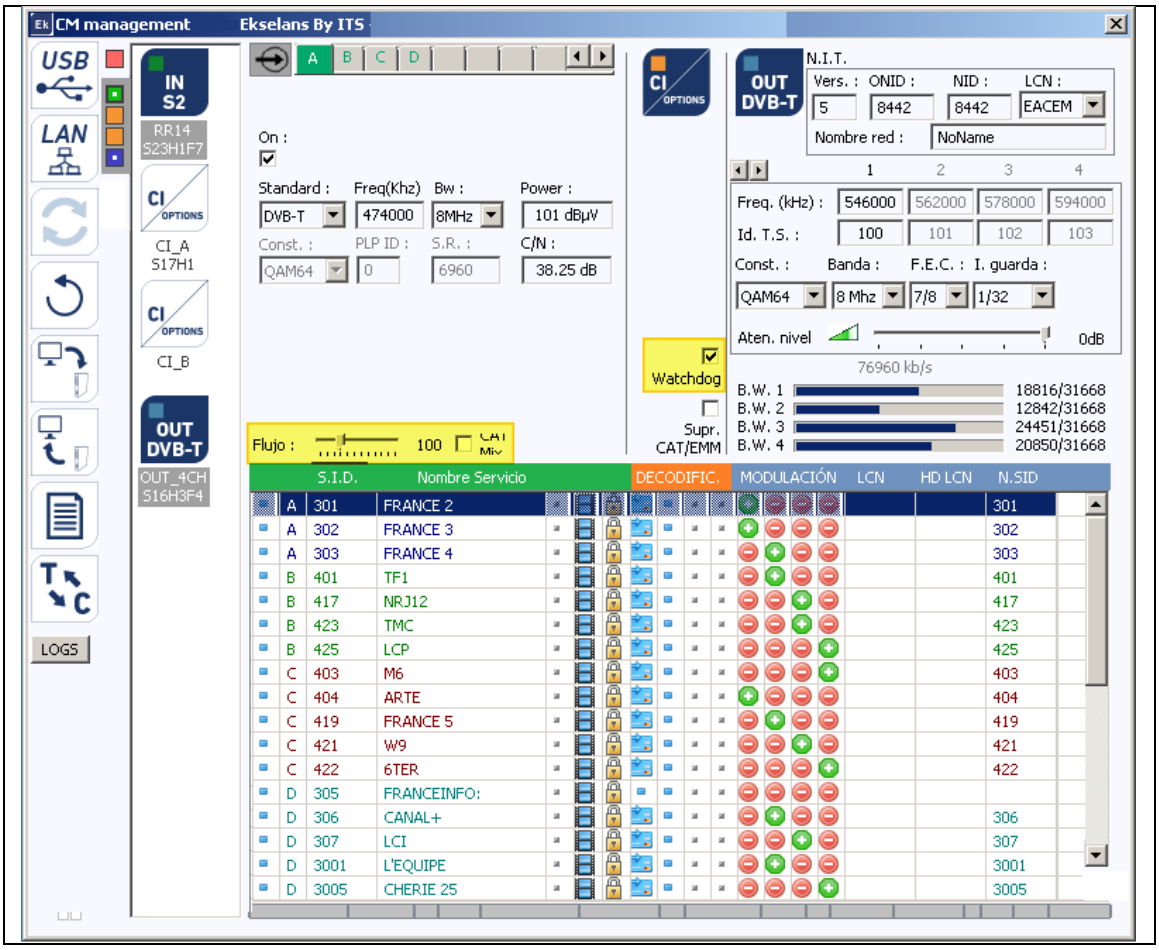
- Doesn't detect the headend module?
  Put FA 524 on the left. Connect the headend module to the right. Plug the power into the FA 524, connect a USB cable to the PC and open the CM MANAGEMENT program. Press the USB button and it will connect to the module.

- Why is there no signal at the tuner input?

	Check the input signal by connecting the Metek to the 2 OUT connector. Leave the signal input on the 1 IN connector.

- Can I see an example of a configuration?

	UHF input: A: DVB-T Channel 21 ➔474000 / 8MHz. B: DVB-T Channel 22 ➔482000 / 8MHz. C: DVB-T Channel 23 ➔490000 / 8MHz. D: DVB-T Channel 24 ➔498000 / 8MHz.



16 encrypted output services.

Output modulation:
Channel 30 – 546000 kHz. - 3 services.
Channel 32 – 562000 kHz. - 5 services.
Channel 34 – 578000 kHz. - 4 services.
Channel 36 – 594000 kHz. - 4 services.

Specifications

To see the technical sheet of the equipment, click on the following link:

https://ek.plus/en/search/082259

CE Certificate

To see the CE certificate of the equipment, click on the following link:

https://ek.plus/en/search/082259