EKSELANS BY ITS

USER MANUAL

CM 8S 2CI-8TC

082324

Octo transmodulator 4 inputs
8 DVB S/S2/S2X tuners
double CI reader (2 x CI).

V02

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INTRODUCTION:

Description:

Octo transmodulator 4 inputs - 8 DVB S/S2/S2X tuners, with dual Common Interface reader (2 x IC). 13/18V, 22KHz, DiSEqC, Unicable (SatCR-dCSS). Multistream / BISS compatible. COFDM-QAM output. Intelligent service remultiplexing. 8 RF output channels (4 + 4 adjacent). Programming from PC connected to the power supply. Integrated remote control from the FA 524 Key power supply.

Key features:

- OCTO module with 4 SAT inputs and 8 tuners (DVB-S/ S2/S2X). Supports multistream.
- BISS compatible.
- Independent control of each input 13/18V - 22KHz DiSEqC (A/B/C/D).
- Unicable LNB Support: SatCR / dCSS.
- Flexible remultiplexing of services on any output channel.
- Editing NIT tables, SID remapping, and passing or deleting EMM messages and CAT tables.
- Programmable QAM/COFDM output.
- Output of up to 8 COFDM channels / 8 QAM channels.
- High output level.
- Excellent output signal quality with a high MER.
- LCN / LCN HD insertion.
- Programming via SW PC ("CM Management").
- Configuration cloning and reporting.
- On-site (FA 510 / CM PR) or remote (FA 524) management.
- 2 common interface slots.

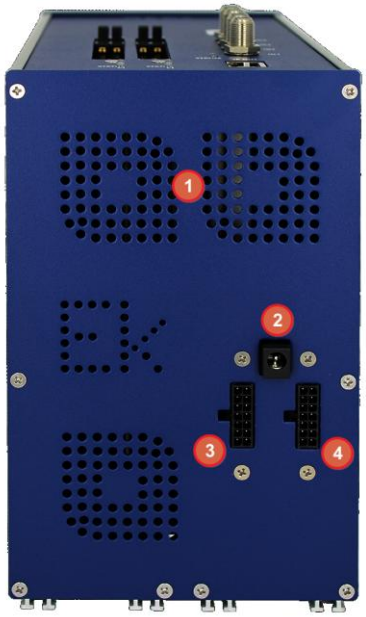
Packaging Contents:

- 1x CM 8S 2CI-8TC Module (082324).
- 1x Power cable (082321).
- 2x Mounting tab (251008).



CONNECTIONS AND INTERFACES:

1. Status LED. Input tuner status information. Status LED. Input tuner status information.
2. 1X Dual IC input.
3. Input connectors to each tuner.
4. Status LED. Reports the status of the modulated output in COFDM/QAM. The output will be working properly when the LED flashes green.
5. RF mix input connector.
6. RF output connector. In this output, the MUX's generated by the module itself will be presented, plus those that enter through connector number 5.



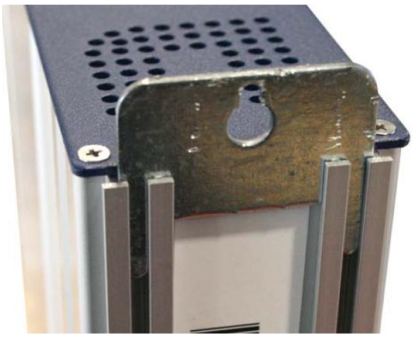
1. Ventilation grille.
2. Power connector for the case of using a single module with FA 55 power supply.
3. Module power port and input data bus (IN).
4. Power port to the next module and output data bus. (OUT).

INSTALLATION AND CONNECTION:

General installation and connection:

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

To do this, assemble the supplied metal part (COD: 251008) on the upper rear of the module as indicated in the image.



⚠ **Important note**: In the case of making a headend with several modules, always have the power supply to the **left** 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 power supply can also be used to power a single module.

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

⚠ **Important note**: Pay special attention to the type of entrance and the port. Follow the directions on the front.

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

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

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

5b.- Programming by PC – FA 524 via **Ethernet**. Connect the source and PC via Ethernet cable, put them on the same LAN (the source comes with the address **192.168.0.222**).

If you need to connect from outside the LAN itself, you need to pre-activate the CM KEY passkey.

5c.- Programming by PC - CM PR 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.- Execute the PC programming SW.
⚠ Important note: Connect the FA 524 power supply or the CM PR programming device and FA 55 power supply to the PC before running the software so that the PC driver detects it correctly.

Installing a multi-module headend:

If you want to install the module as one more element of a headend formed by other modules of the CM series, it is very important to follow the following instructions:

· Connect the different modules in series using the power cable provided after the power supply, which must always be to the left of the header.

· Verify the consumption of the modules. Up to 5 modules can usually be connected to an FA 524 power supply. However, we recommend checking the consumption of the modules to be installed.

It is recommended that IC modules be placed next to the power supply.

PROGRAMMING SOFTWARE "CM Management":

The "CM Management" programming software allows you to program and manage all the modules of the CM header. The program is only available for Windows operating system (XP version, 7 and above). Once downloaded from the website www.ek.plus , Software / CM Header, 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 the latest version of the WEBSITE software installed.

We can connect directly by USB or LAN.

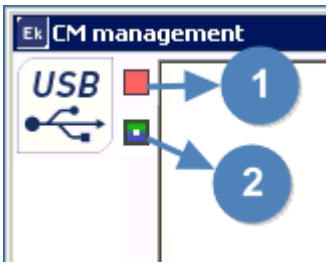
In the case of LAN, we will select the equipment and connect by pressing: 

- ID: We will enter the MAC of the corresponding power supply.
- KEY: we will enter the CM Key, if there is one. If not "0".
- LOCAL IP: we will enter the local IP in the case of connecting by LAN from the same network.
- DESCRIPTION: description.

Using the "CM Management" software, all modules connected to the power supply can be managed and programmed. Here's what each of the main side options does to do:

	Connect to the modules via the power supply using the USB connector.
	Connect to the modules via the power supply using the LAN interface.
	Button to update Firmware of any of the cards. If there is a SW available, the corresponding card will be marked with a white triangle in the inner left corner. Double-clicking will change color to orange and the icon will change from gray to blue. Clicking on the icon will update the FW of all selected cards. It is recommended to update one by one by doing a power RESET at the end.
	Reset selected card. This feature is not available for all cards.
	This option allows you to load a previously saved programming configuration on your PC to the header. The configuration file will have a *.dtc extension.
	This option allows you to save a programming configuration of a headend on the PC, to be later loaded following the steps in the previous point. THE DISTRIBUTION OF THE MODULES MUST BE IDENTICAL TO THAT OF THE *.dtc file.
	Data-logger. It allows you 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 (COFDM) modules to DVB-C (QAM). After the change, a power RESET must 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 can be seen in the following screen:

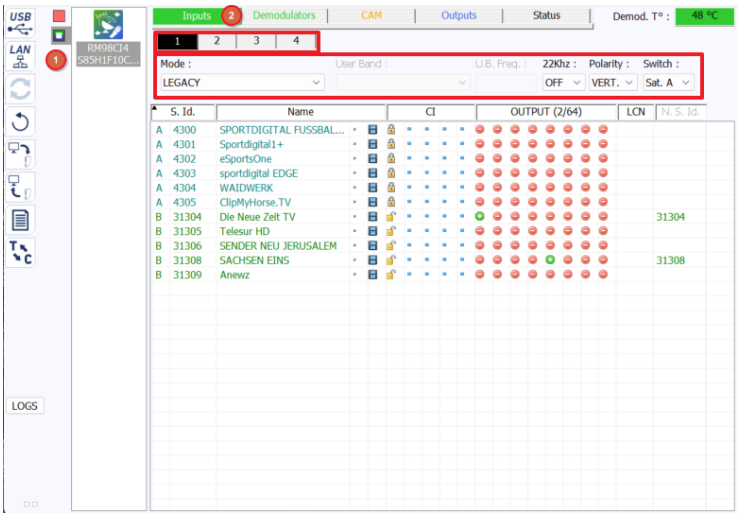


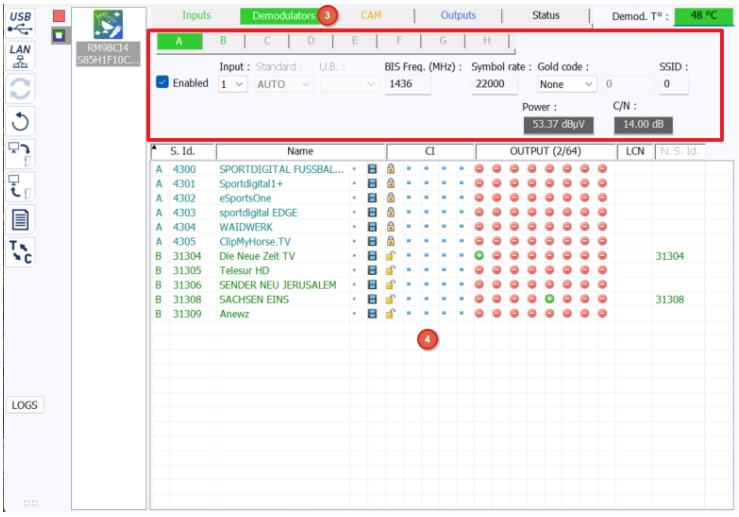
1. Power supply and equipment manager. (Red box).
2. Team Identification (Green and Blue Box)

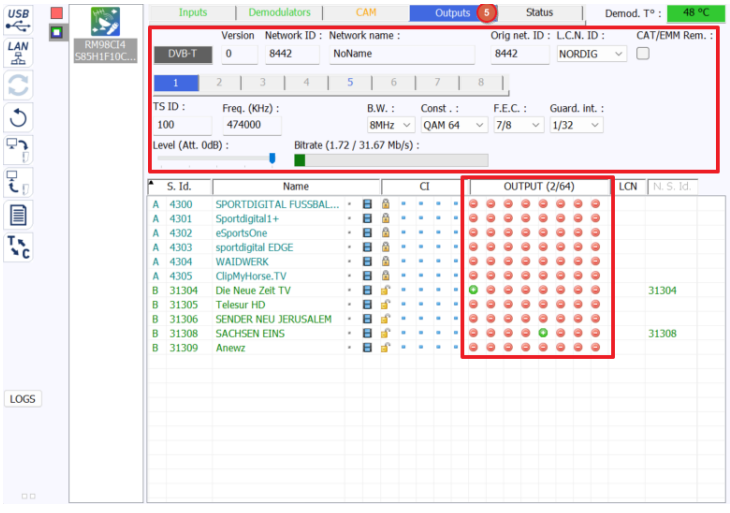
By clicking on the corresponding module we will enter its specific configuration menu.

Never open the CM MANAGEMENT program twice, it will give you configuration problems.

CM 8S 2CI-8TC Module Configuration:







1. Selected module.

2. We configure "Inputs" according to the type of LNB (if it is "normal" we put LEGACY).

3. We set up the "Demodulators".

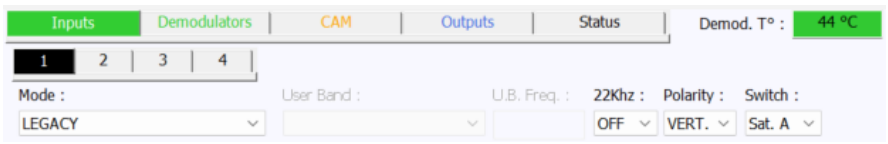
4. Pool of programs available in the configured inputs and outputs.

5. Exit card with selected services. ATTENTION will not appear carrier until the first serve is given.

Entry Card:

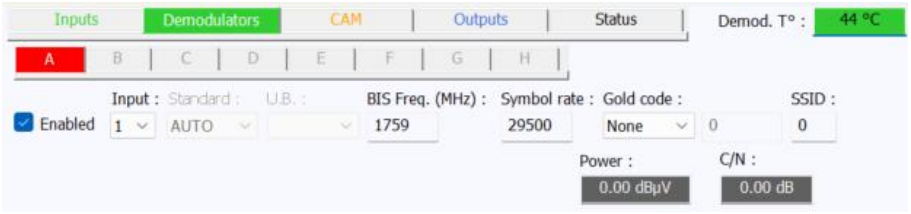
This part of the menu will set up the input card. To configure this card we will have to program two parts:

1. Inputs:



- Entry number: Each number symbolizes an entry from 1 to 4.
- Mode: This is the type of LNB, we usually set up LEGACY. The parameter is only modified if the LNB is dCSS or SatCR.
    - User BAND: This option is only enabled in dCSS/ SatCR mode. It allows you to select the specific user band to be used for communication with the LNB (Low Noise Block) in systems that support multiple users or devices connected to the same antenna.
    - USB Freq: This option is only enabled in dCSS/ SatCR mode. It allows you to configure the specific USB frequency to be used for communication with the LNB in these advanced systems. This is crucial to ensure that each user or device receives the correct signal without interference.
- 22Khz: ON for high frequencies OFF for low frequencies.
- Polarity: HOR. - SEE. Select the horizontal or vertical polarity.
- Switch: in case we have a DiSEqC multiswitch we will select between A, B, C, or D. If there is no DiSEqC multiswitch, the selected value will not influence

2. Demodulators:

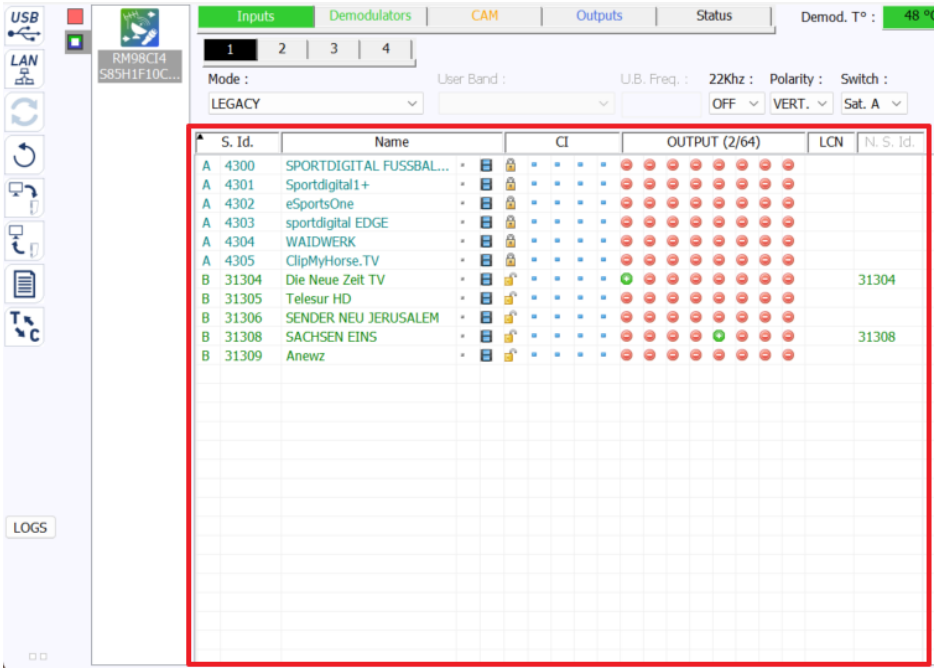


- Enable: We enable or disable the filter. If it is not used or the services have problems, it is advisable to disable it.
- Input: Input that the filter uses to tune the service.
- U.B: This option is only enabled in dCSS/ SatCR mode. It allows you to select the specific user band to be used for communication with the LNB (Low Noise Block) in systems that support multiple users or devices connected to the same antenna.
- BIS Freq. (MHz): CENTRAL frequency of the MUX to be tuned in MHz.
- Symbol rate: Symbol rate of the MUX we want to tune into.
- Gold code (PLS): Gold code of the MUX we want to tune into. We only modify if we use in Multistream. It can be GOLD or ROOT.

- Gold / Root code: The space to enter the code is enabled once the type of service has been selected.
- SSID: SSID of the MUX we want to tune into. Multistream only.

- Power: Input power at the selected frequency. (dBuV)
- C/N: Input quality at the selected frequency. (dB).

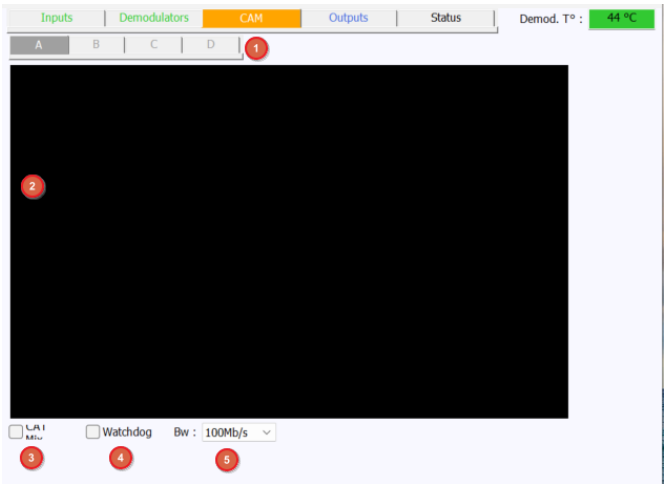
Program Pool:



In this table will be listed all the channels, services, that correspond to the selected inputs. From here, you select the services you want to assign to each outbound IP. 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 origin to said service.
- Name: Name assigned to the service at source. A symbol then appears indicating whether the service is TV or Radio, and whether it is encrypted or free-to-air. The name of the service is not editable/modifiable.
  - Type of service:
    - Video: .
    - Radio: .
- CI: We select the CI with which we want to open the service.
  - Service Type : Indicates whether the service is blocked or open.
- OUTPUT: each circle corresponds to an output MUX: 1-8 (this number may vary depending on the model). Clicking on it changes from red to green, assigning this service to an output MUX.

CAM Card:



1. CAM selected.

2. CAM interface: We can access the different options of the CAM.

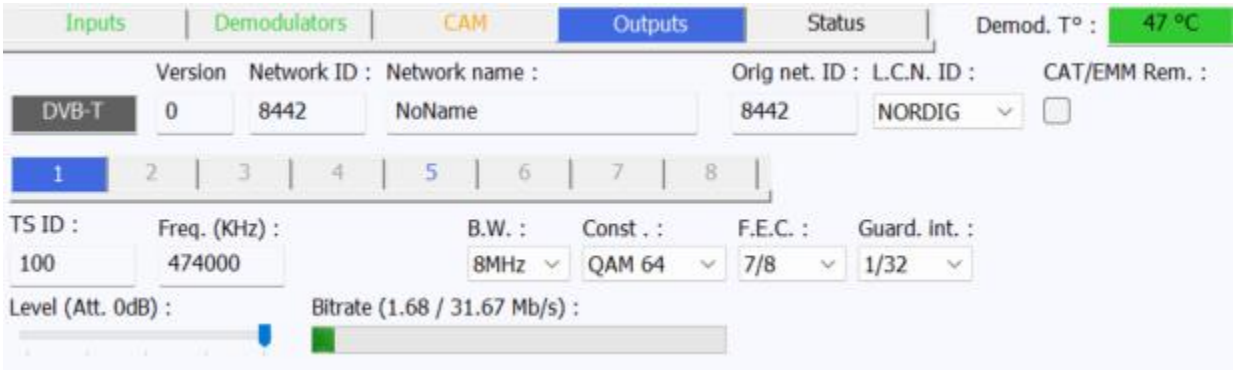
3. CAT Mix: The CAT Mix option is used when the equipment generates an output TS (RF or IP) that includes services from different input TS/MUXs (e.g., from different tuners/transponders). In that case, CAT Mix allows you to merge the information from the CAT table to properly maintain the EMM signaling required for rights management on the CAM/card. On certain Conditional Access platforms, the CAT mix may not retain all system-specific information. If you see symptoms that the service won't open or renew, it's recommended that you disable this feature.

CAT Mix OFF: This option should be disabled when all services assigned to a CAM come from the same input MUX or when the services come from different MUX, but merging the CAT tables from the different MUXs is conflicting.
CAT Mix ON: This option can be enabled when the services assigned to a CAM come from different input MUXs and merging the CAT tables from the different MUXs is conflict-free. In this way, a new CAT is created that carries the information of the CATs of the different MUXs, avoiding the loss of Conditional Access information necessary for the correct decryption in the CAMs of encrypted channels.

4. Watchdog: Automatic monitoring feature that restarts the system in case of failures or crashes. It ensures continuous operation of the transmodulator without manual intervention, improving the stability of the system. We recommend that you enable this option.

	5. BW: Bandwidth allocated for transmodulator output. It determines the maximum capacity of data that can be transmitted, directly affecting the quality and quantity of distributed services.

Exit card:



- **Version:** N.I.T. Version
- **Network ID:** Original Network Identification Descriptor.
- **Network name**: identifies the name of the local DTT network.
- **Orig net. ID:** Network Identification Descriptor.
- **L.C.N. ID:** Logical Channel Number. LCN type selection (EACEM for Europe, ITC for the UK, Nordig for Nordics, or Australia)
- **CAT/EMM Rem.**: Pass or delete EMM messages and CAT tables.
- **T.S ID:** Identifier of the T.S. In general, it does not need to be modified.
- **Freq. (MHz):** Center frequency of the first desired output channel.

  Ex. CH21=474000

The first one is selected and the next three are adjacent. CH22-CH23-CH24

The second channel block works the same, you select the first one and the next three are adjacent. E.g. CH30=546000 > CH31-CH32-CH33

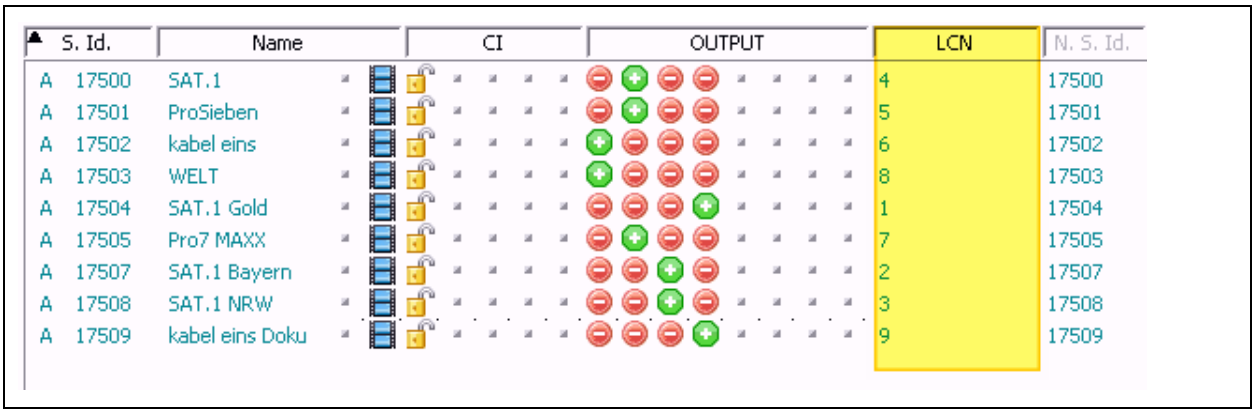
In total 8 channels in two adjacent channel groups. (4+4). This number may vary depending on the model.

- **B.W.**: Output channel bandwidth: 7MHz or 8MHz.
- **Const.:** Constellation. Select the desired output constellation: 64QAM, 16QAM, QPSK.
- **F.E.C.:** (Forward Error Correction). Select the error correction level: 7/8, 5/6, 3/4, 2/3, 1/2.
- **Int. Guard:** Guard Interval: Guard Interval Selection: 1/32, 1/16, 1/8, 1/4.
- **Level:** The output level of the modulator is >95dBuV; through this attenuator you can regulate 20dB.
- **Bitrate:** Indicates the total flow that is being transmitted. It must not exceed 200Mb/s. It should not exceed 80% of the flow, unless it is a service with a constant flow.

Advanced LCN and NSSID configurations:

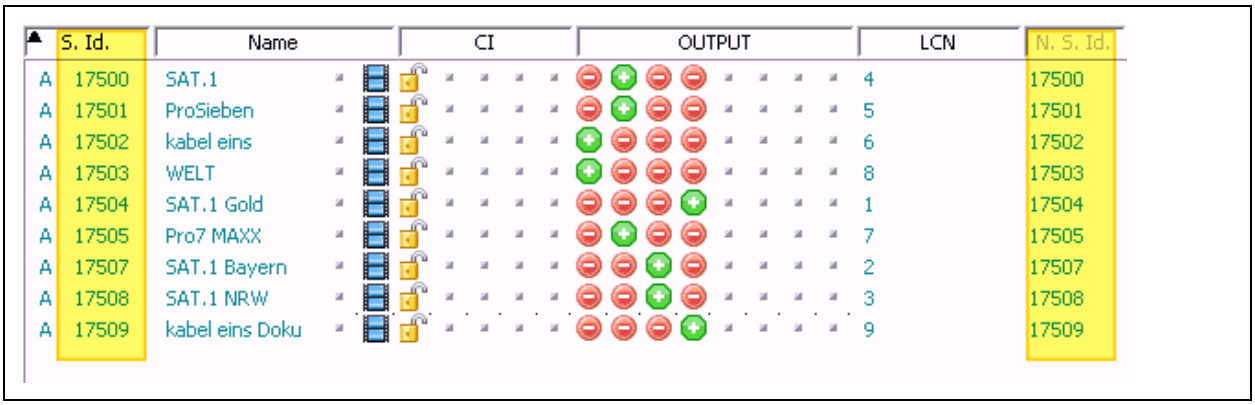
LCN Function:

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



SID and NSID parameter configuration:

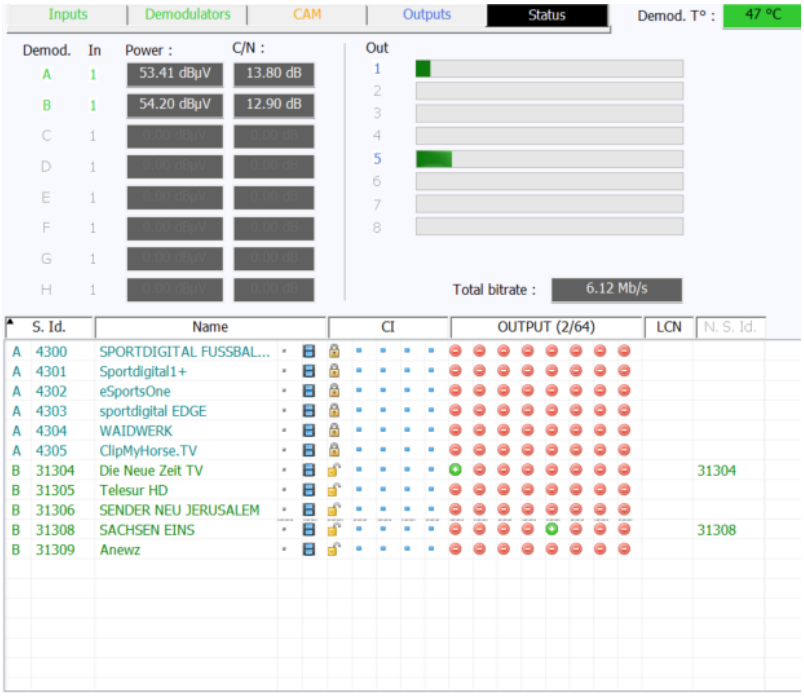
Transmodulators allow SID fields to be "remapped". This functionality will allow you to change the content of a program on the TV leaving it on the same output channel of the headend module, without the need to retune the TV. To do this, it is necessary to activate the new program to be transmitted in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



Status:

Once the parameters have been configured correctly, the signal will be acquired, indicating in **Power** and **C/N** an approximate value of these parameters, the power in dBm and the quality in dB.

IT CANNOT BE CONSIDERED AS A PROFESSIONAL MEASURE.

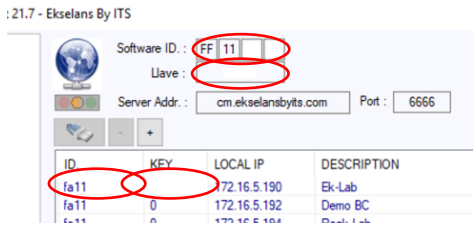
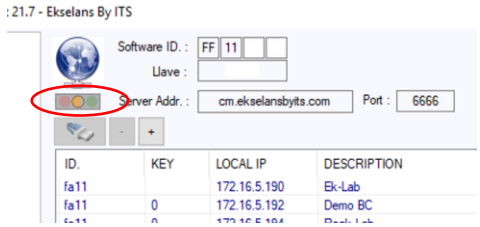
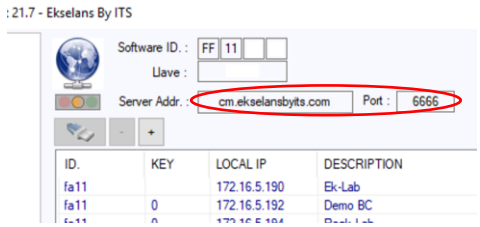


Remote management of the headend:

The CM header can be managed remotely. This function is integrated into the FA 524 power supply and each of the headend modules. To do this, you must have a CM KEY (code 082015).

Each CM KEY is associated with **a single power supply** and will only allow you to remotely manage that source. The installer will provide the Power Supply identifier to ITS Partner when requesting the CM KEY.

Each installation company, in any case, will have a unique Software ID and a Key that will be supplied together with the CM KEY.

	**Software ID:** Identifier of the Installer/Installation Company. **Key:** Identifier of the Installer/Installation Company. **ID:** Power Supply Identifier (MAC). **KEY:** CM KEY supplied.
	**Red:** No internet connection. **Orange:** Internet and server connection. **Green:** Connection established against the headend modules.
	Address and port of the data server that makes remote connection possible. **It comes configured by default. DO NOT MODIFY.**

Specifications

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

CM 8S 2CI-8TC - Ekselans by ITS

CE Certificate

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

CM 8S 2CI-8TC - Ekselans by ITS