EKSELANS BY ITS

USER MANUAL

CM 8SH TC/IP
082257

DVB S/S2 TRANSMODULATOR TO TC/IP MULTICAST

V01

ITS Partner O.B.S S.L. Av. Cerdanyola 79-81 Local C
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INTRODUCTION:

Description:

Transmodulator 4 inputs - 8 DVB S/S2 tuners. 13/18V, 22KHz, DiSEqC. USB file player and HDMI IN. IP output + 4 channels flexible programmable COFDM/QAM output. Output level 95 dBuV. MER >35dB. Intelligent service remultiplexing. Up to 64 SPTS/MPTS IP STREAMS output. 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

√ 1 HDMI input

√ 1 x USB 2.0 input

√ Independent control of each input 13/18V - 22KHz - DiSEqC (A/B/C/D)

√ Programming via SW PC ("CM Management")

√ Configuration cloning and reporting

√ On-site (FA 510 / CM PR) or remote (FA 524) management TC output

√ Flexible service remultiplexing 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 4 COFDM channels / 4 flexible QAM channels

√ High level of output

√ Excellent output signal quality with a high MER

√ LCN/LCN HD Insertion IP Output

√ 1Gbps IP output SPTS/MPTS in UDP/RTP format

√ Up to 64 streams output

√ SAP Function

√ IGMP Query and IGMP Auto-Joint

Packaging Contents:

- 1x CM 8SH-IP Module (082262)
- 1x Power cable (082123)
- 1x Mounting tab (251008)

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CONNECTIONS AND INTERFACES:

1. USB input
2. IP Output
3. HDMI input
4. Status LED. Input tuner status information.
5. Input connectors to each tuner.
6. Status LED. Reports the status of the modulated output in COFDM/QAM. The output will be working properly when the LED flashes green
7. RF mix input.
8. RF output.

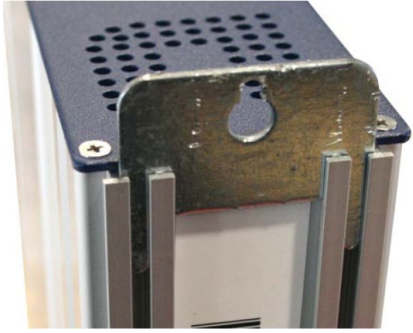**DIFFERENT output IPs are recommended for each Stream. The ports can be the same, but above 50000.**
Example:

To	239.255.255.10:50010
B	239.255.255.11:50011
C	239.255.255.12:50012
	Etc.

1.- Ventilation board.

2.- Power connector for the case of using a single module with FA55 power supply.

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

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

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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 piece (Code: 251008) on the upper rear of the module as indicated in the image. To install the equipment without chassis and mount on the wall, order another metal fastening part separately with the product. (Code: 251008)	

⚠️	**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.

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| **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 made up of 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 to place IC modules next to the power supply.

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

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

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.

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<u>In the case of LAN</u>, 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:

Icon	Description
USB	Connect to the modules via the power supply using the USB connector.
LAN	Connect to the modules via the power supply using the LAN interface.
(refresh)	Button to <u>update Firmware</u> 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. <u>It is recommended to update one by one by doing a power RESET at the end.</u>
(reset)	Reset selected card. This feature is not available for all cards.
(load)	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.
(save)	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.**
(log)	Data-logger. It allows you to save the data of the different modules of the header in a single *.html file.
T→C	Allows you to change the output of DVB-T (COFDM) modules to DVB-C (QAM).

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:
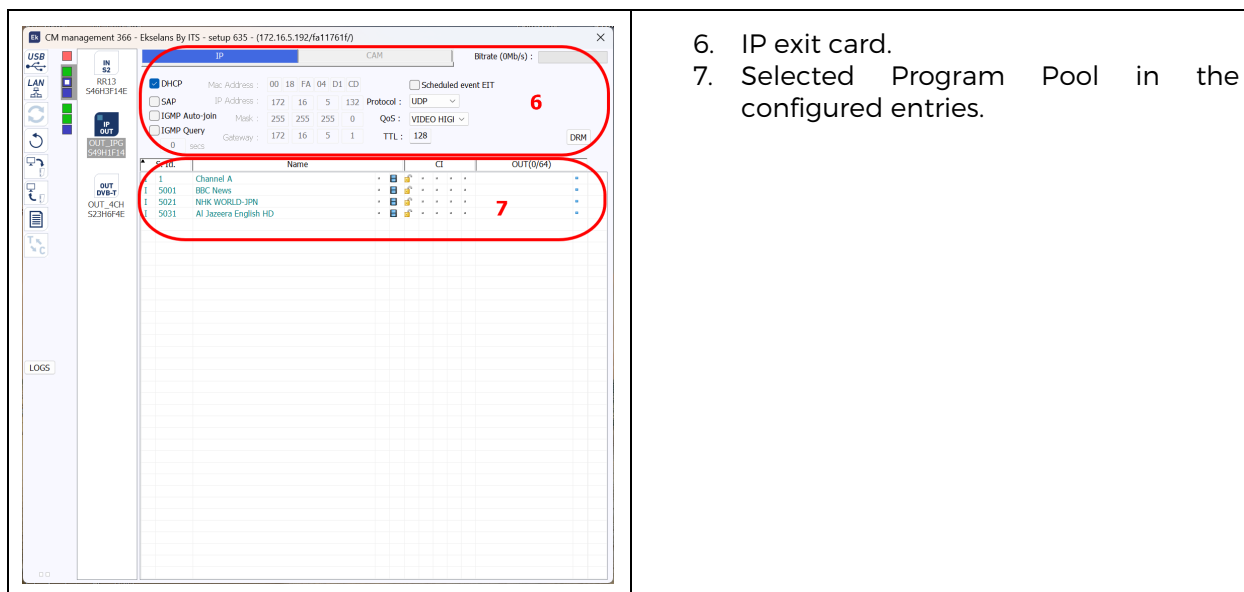
	Power supply and header manager (red).
	Identification of a module with an input card (green) and an output card (blue).
	Identification of a module with one input card (green), two ICs (orange), and one output card (blue).
	Identification of a module with two input cards (green) and one exit card (blue).
	In this case we would have a power supply and three modules, each with its different internal cards.

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 8SH-IP module configuration:
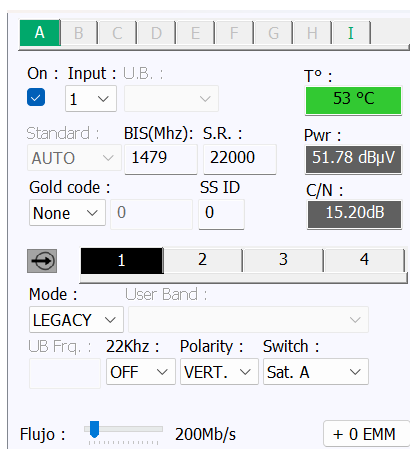
| | 1. Selected Module
2. Selected module configuration
3. Entry card. Select from DVB-S DVB-S2.
4. TC exit card.
5. Pool of programs available in the configured entries. |

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6. IP exit card.
7. Selected Program Pool in the configured entries.

Input Card:

This part of the menu will set up the input card. By selecting A, B, C, D, E, F, G or H we will select the demodulator we want to configure:

On: Click on the "Check" button to activate the selected demodulator.

Input: Select one of the physical inputs, 1, 2, 3 or 4.

U.B.: In the case of using a dCSS LNB we would choose here the package used for the selected MUX.

ENCORE. (MHz): Tuner frequency. It does the conversion automatically.

Example: 11229 MHz. – 9750 = 1479MHz.**Polarity:** HOR. - SEE. Select the horizontal or vertical polarity.

S.R.: Symbol Rate of the selected MUX.

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

Gold mode and SSID: parameters to be configured in case you are tuning a multistream MUX.

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The four inputs are then configured. For each of them:

Mode: the LNB type will be chosen between Legacy, SatCR, dCSS.

User Band: Choose if you are configuring a Unicable LNB.
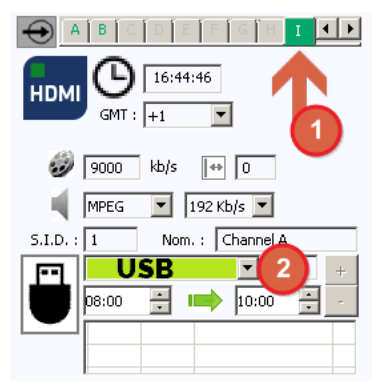
LNB Frq.: configure 22KHz ON/OFF, Polarity VERT/HOR and DiSEqC A/B/C/D Switch.

At last:

Flow: maximum throughput in Mbps that will enter the modulator board. For this model, the maximum possible is 200Mbps. If this is not reached, that number could be reduced.

+0 EMM: in the case of coded services in which some of the PIDs of the EMMs are marked as private, you will have to enter here manually for the CI modules to work correctly.

Input I: HDMI – USB 2.0

	By selecting input I **(1)**, we can configure the HDMI - USB 2.0 input. The HDMI input is automatic, it will always work with a maximum resolution of 1080p. Check the Technical Data Sheet of the equipment. The USB input can be set to activate at an interval of hours, and at the end of the time, it will automatically return to the HDMI input. The USB input works with videos in TS output format. Click on the drop-down menu **(2)** to select the video. Download the EK CONVERTER software, and you can generate the video with TS extension. Link: https://ek.plus/sw/ek-converter

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 or RF MUX.

S.I.D.: S.I.D. (Service Information Descriptor) assigned at origin to said service.

Service Name: Name assigned to the service at source. IT IS NOT EDITABLE. A symbol then appears indicating whether the service is TV or Radio, and whether it is encrypted or open.

DECODE: This module does not have a PC.

OUT: Once the corresponding inputs are connected, a "Program Pool" will appear at the bottom of the screen. From here, each one can be assigned to an output MUX and IP streams (up to 64 or maximum bitrate).

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		S.I.D.	Nombre Servicio	DECODIFIC.	OUT(4)	LCN	N.SID
▫	A	5001	BBC News		● ○ ○ ○		5001
▫	A	5021	NHK WORLD-JPN		○ ● ○ ○		5021
▫	A	5031	Al Jazeera English HD		○ ○ ● ○		5031
▷	I	1	Channel A		○ ○ ○ ●		1

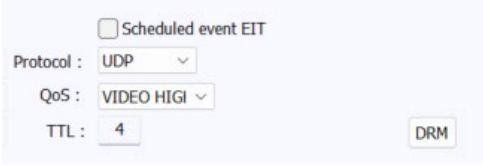Depending on which column you select the service in, it will appear in one or the other output MUX.

RF Output Card:

Once the services in the pool have been selected and assigned to an output MUX, we will be able to configure:

1.- We will configure, if necessary, the different parameters of the NIT (Network Information Table).

2.- We will configure the output RF channels in DVB-T or DVB-C according to selection. The modulator is flexible so you can configure the output MUX separately by moving from 1 to 4 using the arrows above the box.

3.- It is a graphical representation of each output MUX where we will see the flow we are occupying with respect to the maximum flow product of the configuration we have made in (2). It is recommended not to exceed 85% of the total.

IP Output Card:

This part of the menu will set up the exit card.

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	MAC Address: MAC address of the module. **IP Address, mask and gateway:** IP address, subnet mask, and gateway that can be set for the module. **DHCP:** In case the protocol for automatic obtaining of network parameters is activated, the rest of the IP values will be disabled. **SAP:** Service Anouncement Protocol. Activate this option if we want the network devices to find the services available on the network. **IGMP Query:** Enables or disables the Querier. Activate only in the event that there is no Querier on the network. The range of the Queries can be configured in seconds. **IGMP Auto-Join:** Enables or disables AUTO JOIN.
	Protocol: It is possible to choose the desired internet protocol for streaming the streams: • **UDP** is the recommended protocol for streaming as it takes up less bandwidth. • **RTP** offers additional signaling and is more convenient for real-time transmissions. **QoS:** Quality of service. It allows you to choose the treatment that IP packets will receive when passing through different routers on the network. **TTL:** Time To Live: A numerical value that indicates the maximum number of routers that an IP packet can traverse. By default it is set at 128. **DRM:** In the event that DRM is required, you can select one of the available ones: Samsung Link or LG Pro-Idiom. **Scheduled event EIT:** If the check is not selected, only pass the *EPG present/following*. If selected, the scheduled EPG will pass.
	All the selected services are listed on the entry cards. Each one will be associated with an IP address and a port. **We recommend**, for example: **239.255.255.1** and the different ports, for example: **50001, etc.**

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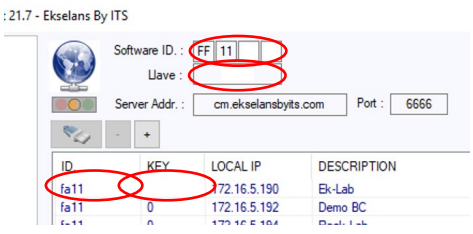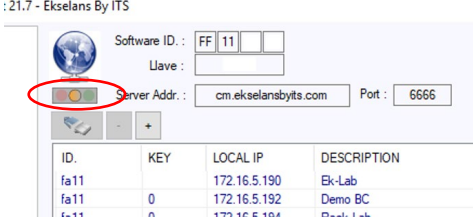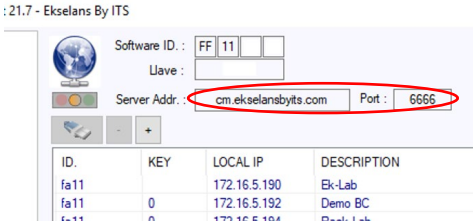|	
	It is recommended that the IPs be different for each stream, and the port above 50000, but they can be the same.
Bitrate (34Mb/s) :	**B.W.:** The image shows the total output bit rate of all the services added.

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:

https://ek.plus/search/082257

CE Certificate

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

https://ek.plus/search/082257

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