



EKSELANS BY ITS

# USER MANUAL

## **CM 4T-IP** 082260

### DVB T/T<sub>2</sub>/C TO IP MULTICAST TRANSMODULATOR

V01

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## INTRODUCTION:

### Description:

It is a DVB T/T2/C to IP MULTICAST transmodulator, Single input with 4 independent tuners + LOOP. Only up to 16 IP output streams. 100Mbps IP output. Programming from PC connected to the power supply. Integrated remote control from FA 524 power supply.

### Key features:

- Terrestrial and cable QUAD module (DVB-T/T2/C).
- 1 input / 4 independent tuners + LOOP.
- 100Mbps SPTS/MPTS IP output in UDP/RTP format.
- Up to 16 output streams.
- SAP function
- IGMP Query and IGMP Auto-Join
- Programming via PC Software ("CM Management") for Windows.
- Configuration cloning and report generation.
- On-site (FA 510 / CM PR) or remote (FA 524) management

### Package contents:

- 1x CM 4T-IP module (082260)
- 1x Power supply cable (082123)
- 1x Mounting tab (251008)



## CONNECTIONS AND INTERFACES:

	<p>1.- Status LED. Information on the status of the input tuners.</p> <p>2.- Input connector and LOOP (terrestrial signal path).</p> <p>3.- IP output up to 16 different output streams.</p> <p>DIFFERENT output IPs for each stream are recommended. Ports can be the same, but above 50000.</p> <p>Example:</p> <table><tr><td>A</td><td>239.255.255.1</td><td>50001</td></tr><tr><td>B</td><td>239.255.255.2</td><td>50002</td></tr><tr><td>C</td><td>239.255.255.3</td><td>50003</td></tr><tr><td>D</td><td>239.255.255.4</td><td>50004</td></tr><tr><td>E</td><td>239.255.255.5</td><td>50005</td></tr><tr><td>F</td><td>239.255.255.6</td><td>50006</td></tr><tr><td>G</td><td>239.255.255.7</td><td>50007</td></tr><tr><td>H</td><td>239.255.255.8</td><td>50008</td></tr><tr><td>I</td><td>239.255.255.9</td><td>50009</td></tr><tr><td>J</td><td>239.255.255.10</td><td>50010</td></tr><tr><td>K</td><td>239.255.255.11</td><td>50011</td></tr><tr><td>L</td><td>239.255.255.12</td><td>50012</td></tr><tr><td>M</td><td>239.255.255.13</td><td>50013</td></tr><tr><td>N</td><td>239.255.255.14</td><td>50014</td></tr><tr><td>O</td><td>239.255.255.15</td><td>50015</td></tr><tr><td>P</td><td>239.255.255.16</td><td>50016</td></tr></table>	A	239.255.255.1	50001	B	239.255.255.2	50002	C	239.255.255.3	50003	D	239.255.255.4	50004	E	239.255.255.5	50005	F	239.255.255.6	50006	G	239.255.255.7	50007	H	239.255.255.8	50008	I	239.255.255.9	50009	J	239.255.255.10	50010	K	239.255.255.11	50011	L	239.255.255.12	50012	M	239.255.255.13	50013	N	239.255.255.14	50014	O	239.255.255.15	50015	P	239.255.255.16	50016
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	<p>1.- Ventilation grille.</p> <p>2.- Power supply connector if using a single module with <a href="#">FA 55</a> power supply.</p> <p>3.- Module power supply port and input data bus. (IN)</p> <p>4.- Power supply port to the next module and output data bus (OUT)</p>																																																

## INSTALLATION AND WIRING:

### General installation and wiring:

1.- For installations of several modules (head-end) or a single module, mount the transmodulator module to a wall chassis ([CHM TR](#)) or to a rackmount chassis ([CHR TR](#)).

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



**Important note:** If installing a head-end with several modules, always place 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 particular attention to the input type and port. Follow the instructions on the front panel.

4.- Install the "CM Management" software on the PC. It can be downloaded from the website <http://www.ek.plus> Software / CM Head-ends Section. [Link](#)

5.- To program the module, perform 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 via USB cable.

6.- Run the PC SW programming.



**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 it is correctly detected by the PC driver.

### Installation of a multi-module head-end:

In the event of wishing to install the module as a further element of a head-end consisting of other CM series modules it is very important to follow the instructions below:

- Connect the different modules in series using the supplied power cable and then the power supply, which must always be to the left of the head-end.
- Check the consumption of the modules. In general, up to 5 modules can be connected with an FA 524 power supply. However, it is recommended to check the consumptions of the modules to be installed.
- It is recommended to install the modules with CIs downstream of the power supply.

### “CM Management” PROGRAMMING SOFTWARE:


The “CM Management” programming software enables programming and controlling all the CM head-end modules. The program is only available for Windows operating systems (version XP, 7 and higher). Once downloaded from the website [www.ek.plus](http://www.ek.plus), Software / CM Head-ends section, run the program after connecting 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 main screen of the “CM Management” software is displayed as follows:











Always check that the latest [WEB](#) software version is installed.  
It can be directly connected via USB or LAN.





For the LAN, select the equipment and for connection press: 

- **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 via LAN from the same network.
- **DESCRIPTION:** description.

Using the "CM Management" software, all modules connected to the power supply can be controlled and programmed. 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.
	<u>Firmware update</u> 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 the button will change the color to orange and the icon will change from gray to blue. Clicking the icon will update the FW of all selected cards. <u>It is recommended to update each button one at a time via a RESET of the power supply at the end.</u>
	Reset selected card. This function is not available for all cards.
	This option enables loading a programming configuration previously saved in the PC to the head-end. The configuration file will have a *.dte extension.
	This option enables the programming configuration of a head-end to be saved on the PC, to be subsequently loaded following the steps of the preceding point. <b>THE DISTRIBUTION OF THE MODULES MUST BE IDENTICAL TO THAT OF THE *.dte FILE.</b>
	Data-logger. Enables saving the data of the different head-end modules in a single *.html file.
	Enables changing the output of the DVB-T (COFDM) modules to DVB-C (QAM). After the changing the output, a <b>power RESET</b> must be performed. <u>Not activated for this model.</u>







The main "CM Management" screen enables easy identification of the different modules connected to the power supply, as can be seen in the following screen:

	Power supply and head-end manager (red).
	Identification of a module with an input card (green) and an output card (blue).
	Identification of a module with only one input card (green), two CIs (orange) and one 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-IP module configuration:

					
1	2	3	4	5	

Standard: Freq(kHz) Bw: Power:

DVB-T 554000 8MHz 69 dBuV

Const.: PLP ID: S.R.: C/N:

QAM64 0 6960 35.00 dB

Flujo: 100 Mbit/s

S.I.D.	Nombre Servicio	DECODIFIC.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A 490	La 1																	
A 491	La 2																	
A 492	24h																	
A 493	24h HD																	
A 494	La 1 HD																	
A 495	RNE Catalua																	
A 496	Radio 5 RNE																	
A 497	Rdio 4 RNE																	
A 498	La 2 HD																	
B 40001	Clan HD																	
B 40002	tdp																	
B 40003	tdp HD																	

Mac Address: [ ] [ ] [ ] [ ] [ ] [ ]

IP Address: 172 16 4 198

Mask: 255 255 254 0

Gateway: 172 16 5 5

Protocol: UDP

QoS: VIDEO HIGH

TTL: 128

IGMP Query: [x] IGMP Auto-join: [ ]

B.W.: 81480 kb/s

- Selected module
- Selected module configuration
- Input card. Select between DVB-T / DVB-T2 and DVB-C
- IP output card.
- Program pool available on the configured inputs.



### Input card:

In this part of the menu the input card will be configured. Selecting A, B, C or D in order to choose the input tuner that is to be configured:

**ON:** Enable or disable the selected input.

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

**Freq. (KZ):** CENTRAL frequency of the MUX to be tuned. Channel 23 → 490000

**Bw.:** Bandwidth. Selected 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 customer can choose the identifier that is wished to be seen.

If DVB-C is selected, the following checkboxes are activated:

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

**S.R.:** Enter the required value.

Once the parameters have been correctly configured, the signal will be acquired, an approximate value of these parameters will be specified in **Level** and **Quality**, and the level in dBuV and the quality in dB CANNOT BE CONSIDERED AS A PROFESSIONAL MEASUREMENT.

### Program pool:

In this table all channels, services, which correspond to the selected inputs will be listed. From here the services that are wished to be assigned to each output IP can be selected. 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. Next, a symbol appears indicating whether the service is TV or Radio, and whether it is encrypted or open.

**DECODEFIC.:** This module does not have a CI card.

**IP OUT:** Once the corresponding inputs are connected, a "Program Pool" will appear at the bottom of the screen. From here, each of the IP streams available at the output (up to 16) can be assigned. As can be seen in the following image, the red section displays the 16 available streams (from A to P).

S.I.D.	Nombre Servicio	DECODEFIC.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A 490	La 1																	
A 491	La 2																	
A 492	24h																	
A 493	24h HD																	
A 494	La 1 HD																	
A 495	RNE Catalua																	
A 496	Radio 5 RNE																	
A 497	Rdio 4 RNE																	
A 498	La 2 HD																	
B 40001	Clan HD																	
B 40002	tdp																	
B 40003	tdp HD																	

Depending on which column is selected, the service  will appear in one or another output stream.

In the upper right part of the window the IP output parameters can be set:

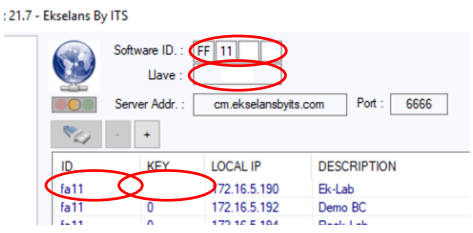
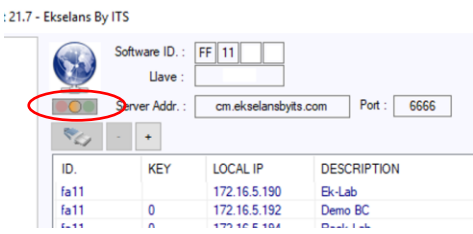
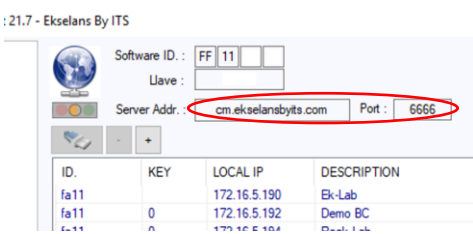
<div><div><div>IP OUT</div><div><input checked="" type="checkbox"/> DHCP</div></div><div><div>Mac Address :</div><div><div>00</div><div>18</div><div></div><div></div><div></div><div></div></div><div>IP Address :</div><div><div>172</div><div>16</div><div>4</div><div>68</div></div><div>Mask :</div><div><div>255</div><div>255</div><div>254</div><div>0</div></div><div>Gateway :</div><div><div>172</div><div>16</div><div>5</div><div>5</div></div></div></div>	<div>MAC Address: MAC address of the module - IP Address, mask and gateway: IP address, subnet mask and gateway which can be set for the module. DHCP: If the protocol for automatic acquisition of network parameters is enabled, the rest of the IP values will be disabled</div>																																																
<div><div>Protocol : UDP</div><div>QoS : VIDEO HIGH</div><div>TTL : 128</div><div><input checked="" type="checkbox"/> SAP</div></div>	<div>Protocol: It is possible to select the desired internet protocol for stream transmission:<ul style="list-style-type: none"><li>•UDP is the recommended protocol for streaming as it occupies less bandwidth.</li><li>•RTP offers additional signaling and is more convenient for real-time transmissions.</li></ul>QoS: . Enables selecting the treatment that the IP packets will receive as these pass through different routers in the network. TTL: Time To Live: Numerical value which indicates the maximum number of routers that an IP packet can pass through. By default it is set to 128 SAP: Service Announcement Protocol. Enable this option if requiring that the network devices find the services available on the network.</div>																																																
<table><tr><td>A</td><td>239.255.255.1</td><td>50001</td></tr><tr><td>B</td><td>239.255.255.2</td><td>50002</td></tr><tr><td>C</td><td>239.255.255.3</td><td>50003</td></tr><tr><td>D</td><td>239.255.255.4</td><td>50004</td></tr><tr><td>E</td><td>239.255.255.5</td><td>50005</td></tr><tr><td>F</td><td>239.255.255.6</td><td>50006</td></tr><tr><td>G</td><td>239.255.255.7</td><td>50007</td></tr><tr><td>H</td><td>239.255.255.8</td><td>50008</td></tr><tr><td>I</td><td>239.255.255.9</td><td>50009</td></tr><tr><td>J</td><td>239.255.255.10</td><td>50010</td></tr><tr><td>K</td><td>239.255.255.11</td><td>50011</td></tr><tr><td>L</td><td>239.255.255.12</td><td>50012</td></tr><tr><td>M</td><td>239.255.255.13</td><td>50013</td></tr><tr><td>N</td><td>239.255.255.14</td><td>50014</td></tr><tr><td>O</td><td>239.255.255.15</td><td>50015</td></tr><tr><td>P</td><td>239.255.255.16</td><td>50016</td></tr></table>	A	239.255.255.1	50001	B	239.255.255.2	50002	C	239.255.255.3	50003	D	239.255.255.4	50004	E	239.255.255.5	50005	F	239.255.255.6	50006	G	239.255.255.7	50007	H	239.255.255.8	50008	I	239.255.255.9	50009	J	239.255.255.10	50010	K	239.255.255.11	50011	L	239.255.255.12	50012	M	239.255.255.13	50013	N	239.255.255.14	50014	O	239.255.255.15	50015	P	239.255.255.16	50016	<div>A – P: Each letter corresponds to each of the sockets with which the outgoing IP multicast addresses is to be identified.  An IP address and a port can be associated to each letter. <b>It is recommended</b>, for example: <b>239.255.255.1</b> and the different ports, for example: <b>50001</b> etc.  It is recommended that the IPs be different for each stream, and the port above 50000, but these can be the same.</div>
A	239.255.255.1	50001																																															
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O	239.255.255.15	50015																																															
P	239.255.255.16	50016																																															
<div><div><div><input checked="" type="checkbox"/> IGMP Query</div><div><input type="checkbox"/> IGMP Auto-join</div></div><div><div>B.W.</div><div><div></div><div>67869 kb/s</div></div></div></div>	<div>IGMP Query: Enables or disables the Query. Enable only if there is no Query in the network. The Query interval is set to 3 seconds. IGMP Auto-Join: Enables or disables the AUTO JOIN. B.W. : The image shows the total output bit rate. The maximum output withstood is 100 Mbps.</div>																																																
<div><div>Flujo :</div><div><div></div><div>100</div><div><input type="checkbox"/> CAT Mix</div><div>+ 0 EMM</div></div></div>	<div>The stream must also be 100 Mbps. Although it can be set higher. If changed to a higher value, the module may pixelate and the stream output may be poor.</div>																																																

## Remote head-end management:

The CM head-end 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.

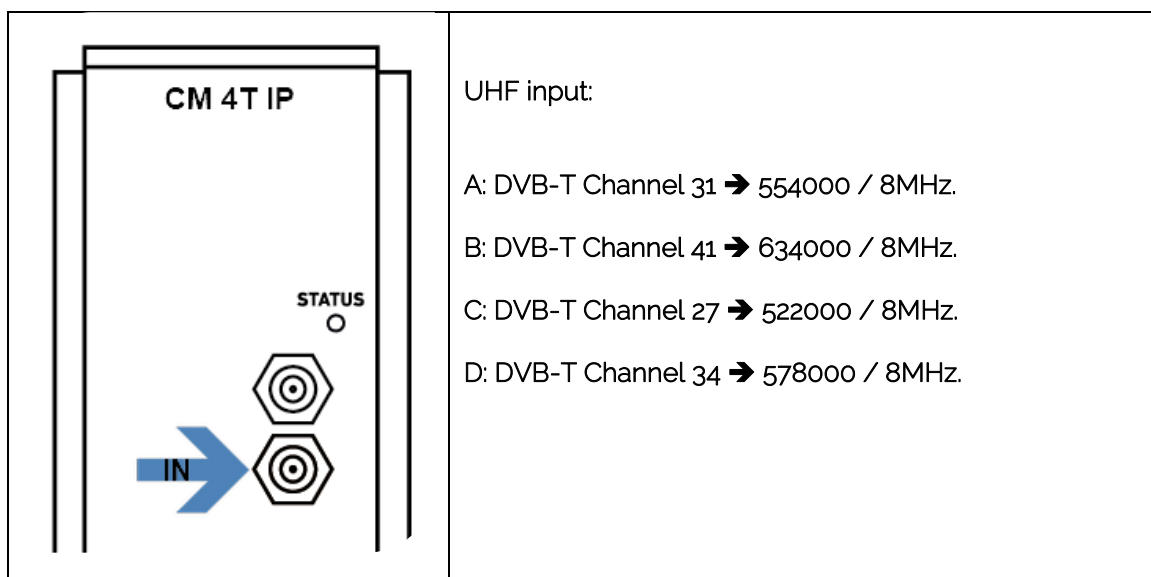
Each CM KEY is associated with **a single power supply** and will only enable remote management of that power supply. The installer will provide the Power Supply identifier to ITS Partner when requesting the CM KEY.

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

	<p><b>Software ID:</b> Installer/Installer Company Identifier.  <b>Key:</b> Installer/Installer Company Identifier.  <b>ID:</b> Power Supply Identifier (MAC).  <b>KEY:</b> CM KEY supplied.</p>
	<p><b>Red:</b> No Internet connection.  <b>Orange:</b> Connection to the Internet and server.  <b>Green:</b> Connection established against head-end modules.</p>
	<p>Address and port of the data server which facilitates the remote connection.  It is configured by default. DO NOT CHANGE.</p>

## FAQS

- What loads can be used for the module?  
Not required.
- Why is the head-end module not detected?  
Set the FA 524 to the left. Connect the head-end module to the right. Plug the power to 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 "F" OUT connector output.
- Can I see a configuration example?



## Configuration Example

**Ek CM management** Ekselans By ITS

**USB** **LAN** **IP OUT**

RR14 S23H1F7  
IP\_OUT S41H1F16

On : ☒

Standard : Freq(KHz) Bw : Power :  
DVB-T 554000 8MHz 69 dBuV

Const. : PLP ID : S.R. : C/N :  
QAM64 0 6960 35.00 dB

Mac Address :  
IP Address : 172 16 4 198  
Mask : 255 255 254 0  
Gateway : 172 16 5 5

☒ DHCP

Protocol : UDP  
QoS : VIDEO HIGH  
TTL : 128 ☒ SAF

Watchdog ☐

☒ IGMP Query ☐ IGMP Auto-join  
B.W. 81480 kb/s

Flujo : 100 ☐ CAT/EMM

S.I.D.	Nombre Servicio	DECODIFIC.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A 494	La 1 HD																	
A 498	La 2 HD																	
C 149	antena3 HD																	
D 191	Cuatro HD																	
D 190	Telecinco HD																	
C 151	laSexta HD																	
A 493	24h HD																	
B 40003	tdp HD																	
B 40001	Clan HD																	
D 188	FDF																	
D 189	Divinity																	
B 41001	DKISS																	
A 490	La 1																	
A 491	La 2																	
B 40002	tdp																	
A 492	24h																	
A 495	RNE Catalua																	
A 496	Radio 5 RNE																	
A 497	Rdio 4 RNE																	
B 40004	Clan																	
B 40005	Radio Clasica HQ RNE																	
B 40006	Radio3 HQ RNE																	
B 40007	Radio Exterior RNE																	
B 41002	Kiss FM																	
B 41003	HIT FM																	
B 41004	esRadio																	
B 41005	SER																	
B 41006	LOS40																	
B 41007	DIAL																	
C 150	antena3																	
C 152	laSexta																	
C 153	neox																	
C 154	nova																	
D 186	Telecinco																	
D 187	Cuatro																	

## Technical specifications

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

<https://ek.plus/en/search/082260>

## CE Certificate

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

<https://ek.plus/en/search/082260>