

ART. 55/21305-00

CM 4HD-IP

082008

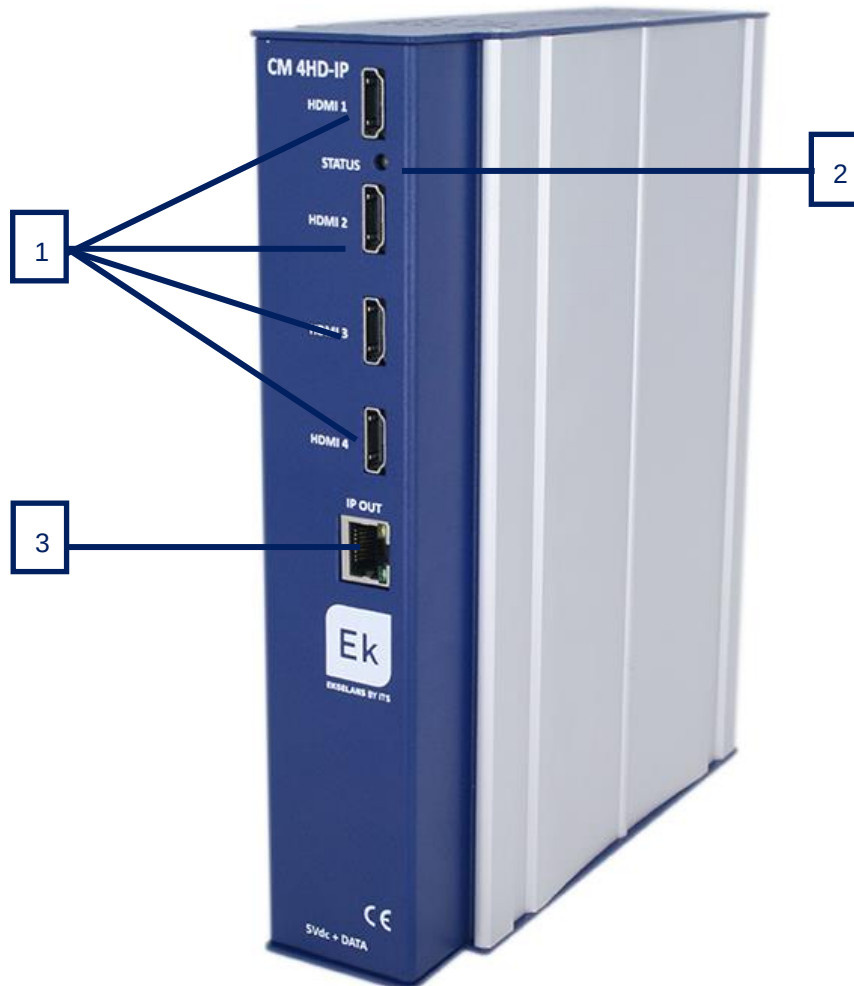
**HD digital modulator-IP
streamer 4 HDMI-IP**

User's Manual



1 CM 4HD-IP – USER’S MANUAL

1.1 General Description



Number	Description
1	HDMI Inputs. Connection to the audio/video power supply
2	LED status of the inputs. Shall blink in green when the HDMI are connected
3	RJ45 Connector. IP output

2. Installation and wiring

1. Fasten the digital encoder-modulator module to a wall frame (CHM TR) or a rack chassis (CHR TR). To this end assemble on the upper rear part of the module the supplied metal part, as is shown in the picture



2. Connect the power supply (FA 524) to the module or either connect same to the previous module using the supplied power cable
3. Connect the HD audio/video power supply to the HDMI connectors
4. So as to program the module, connect the FA 524 power supply to a PC via a USB-USB cable as follows:

Connect this part to the power supply



Connect this part to the PC

5. Install the "CMManagement" software on the PC or the or the "EK Pro" software package which is also included. Both programmes can be downloaded from the website www.ekselansbyits.com, Documentation >> Software section.
6. Run the programming software on the PC (**Important:** connect the FA 524 power supply to the PC before running the software so that the driver of the PC can correctly detect the software).

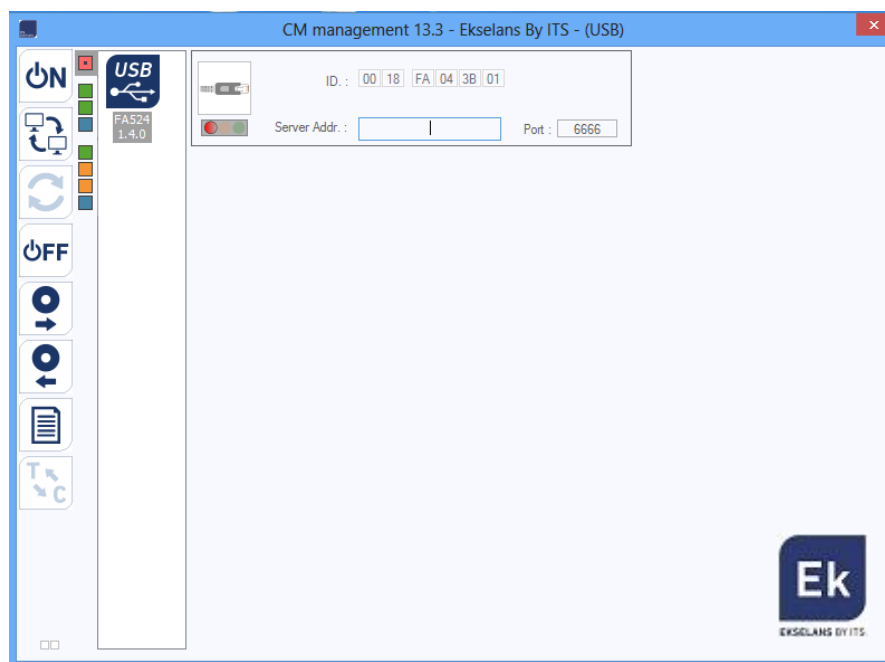
3. Software Programming: CM management

The "CM management" programming software enables the programming and running of all modules of the CM headend. The program is available only for Windows operating system (XP version 7 and above).

Once downloaded from the website www.ekselansbyits.com, Documentation >> Software section, having previously run the program with the PC connected to the USB port of the FA 524 power supply. In this fashion, it is ensured that the driver detects the core.

3.1.Main screen

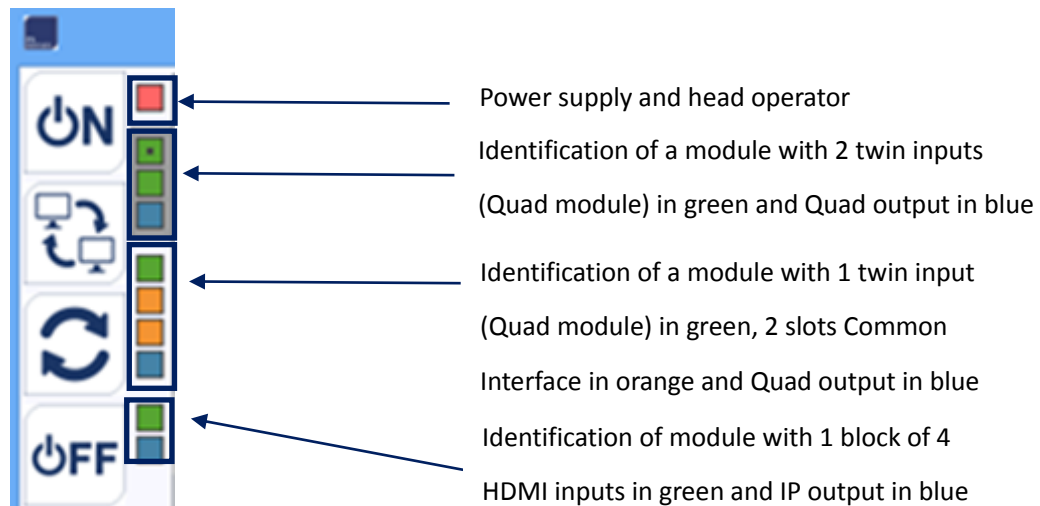
The main screen of the "CM Management" software is as follows:



Through this function one can run and program all modules connected to the power supply. Explained below is the function of each of the options:

Number	Button	Function
1		Once connected the PC to the FA 524 power supply through the USB-USB cable, press this button in order for the power supply to identify the modules connected to it. Once activated, the blue logo is displayed
2		This icon will be displayed in blue with white lettering once the connection is established with the headend. If not, it will be otherwise the white logo with blue lettering which will be displayed, making it then necessary to press button 1 again.
3		Through the FA 524 it is possible to carry out a remote connection with a headend and to that end this button is used. The remote connection is explained below. If displayed in blue the remote connection is activated, and if white it is not activated.
4		Firmware updating. Press this button to load a file to update the firmware of the modules.
5		Press this button to switch off the FA 524 power supply of the operation of the various modules of the headend. If it is disconnected, the logo will be displayed in white and blue lettering.
6		This option enables one to load a configuration program previously saved on the PC. The configuration file will have the .dtc extension
7		This option enables saving on the PC a programming configuration of a module to be subsequently loaded using button 6. A .dtc format file will be created.
8		Enables changing the output of the DVB-T (COFDM) modules to DVB-C (QAM).
9		Data-logger. Enables saving the data of the different modules of the headend.

The main screen of the "CM management" enables to easily identify the different modules connected to the power supply, as can be seen in the following screen:



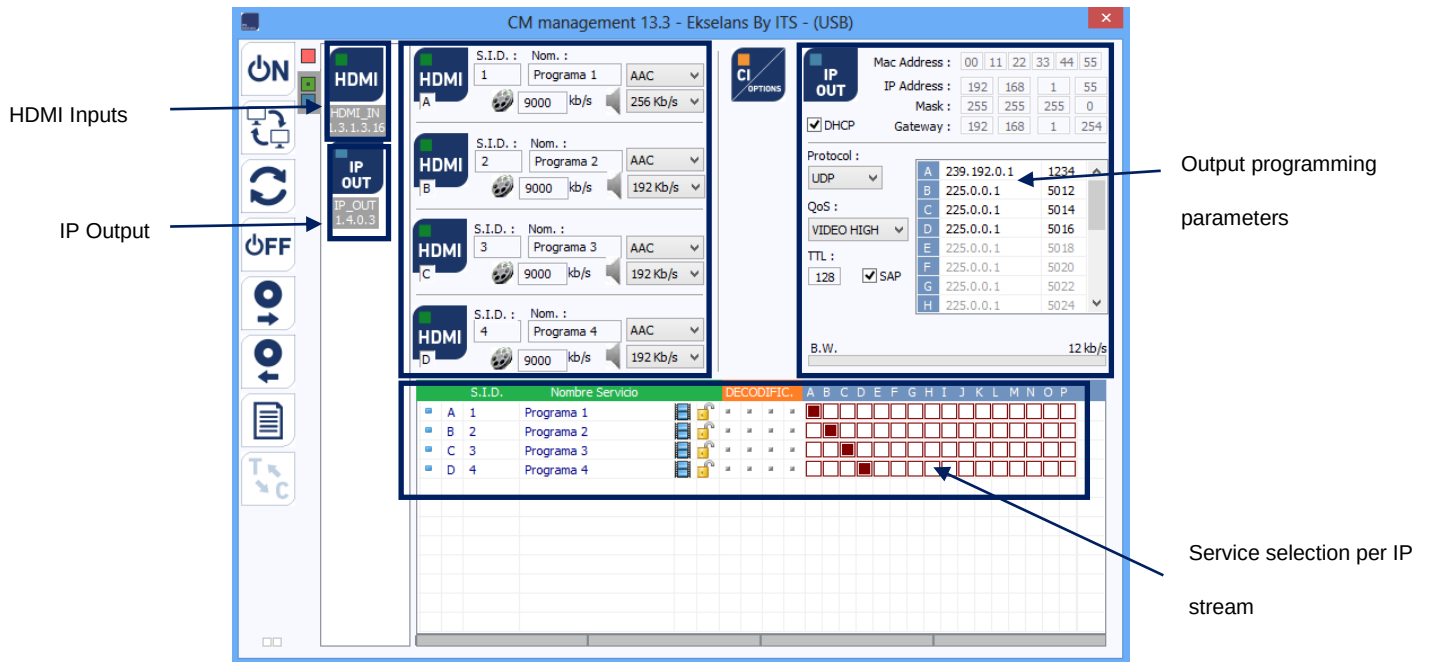
Each module is identified by means of a series of different coloured boxes. Depending on the module, this will be represented by 2, 3 or 4 boxes where the green represents the inputs, the blue the output and the orange the Common Interface slots.

3.2. Programming of the CM 4HD-IP module

Once the CM 4HD-IP module is connected to the FA 524 power supply, this in turn to the PC and the "CM management" programme open, select the CM 4HD-IP which is represented as follows:



Select the upper green box, the programming interface of the first two HDMI inputs will appear as is shown below:



In order to program the module, connect in the first place the audio/video sources which are wished to be connected to the HDMI connectors of the CM 4HD-IP module. Each HDMI input can be assigned a set of values, such as:

- SSID: Unique identifier of the program
- Nam.: Software name
- Audio type: to be selected between AAC and MPEG
- Video rate: defined as the default at 9000 Kbps, which can be changed specifying the value
- Audio rate: defined set as the default at 192 Kbps, which can be selected from a predefined list

3.2.1 Conversion of the IP input services

Once the audio/video power supply is connected to the corresponding HDMI input jacks, all these will appear at the bottom of the screen. From here one can make his/her assignation to each of the two IP streams available in the output (up to 16). As shown in the figure below, in the section shown in red the 16 available streams (from A to P) are displayed.

S.I.D.	Nombre Service	DECODEUR	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A 1	Programa 1																	
B 2	Programa 2																	
C 3	Programa 3																	
D 4	Programa 4																	

Depending on which column is selected the service  will appear in either output stream.

At the top right of the window one can set the IP output parameters:

IP
OUT

Mac Address : 00 11 22 33 44 55
IP Address : 192 168 1 55
Mask : 255 255 255 0
☐ DHCP Gateway : 192 168 1 254

Protocol :
UDP

QoS :
VIDEO HIGH

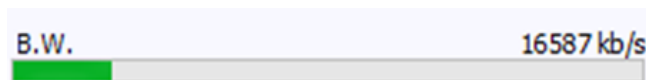
TTL :
128
☒ SAP

A	239.192.0.1	1234
B	239.192.0.2	5012
C	225.0.0.1	5014
D	225.0.0.1	5016
E	225.0.0.1	5018
F	225.0.0.1	5020
G	225.0.0.1	5022
H	225.0.0.1	5024

B.W. 16587 kb/s

- MAC Address: MAC (media access control address) address of the module
- IP Address, mask and gateway: IP address, subnet mask and gateway which can be assigned for the CM 2STC-IP module
- DHCP (Dynamic Host Configuration Protocol): if the protocol for automatically obtaining the network parameters is activated, the remaining IP value settings are disabled
- Protocol: can select between UDP (User Datagram Protocol) and RTP (Real-time Transport Protocol). The UDP (User Datagram Protocol) protocol is recommended for streaming as it occupies less bandwidth.
- QoS (Quality of Service): enables the selection of the video quality of transmitted services
- TTL (Time to live or hop limit): a numeric value which specifies the maximum number of routers that an IP packet can pass through. The default value is set at 128.
- A – P: each letter corresponds to each of the possible streams which may exist in the output. Each letter can be associated with an IP address and a port, for example 239.192.0.1 and 1234 respectively

In this output parameter selection section there also appears information on the bit rate of each one of the mux outputs:



As shown above the overall bit rate of the output is displayed. The maximum carried is 100 Mbps.

3.2.2 Saving and loading a configuration

The "CM management" software enables saving on the PC the transmodulator for subsequently uploading to another CM 4HD-IP module. Its running is carried out using the following two buttons, available in the vertical menu on the right:

	Save on the PC a programming configuration of a module to be subsequently loaded. A .dtc format file will be created.
	Load a configuration program previously saved on the PC. The configuration file will have the .dtc extension

It is important to load the CM4HD-IP in a .dtc file previously created with another similar module. Otherwise, the "CM management" software will display that it is not possible to load it.

3.2.3 Data-logger

The "CM management" software, through the Data-logger option enables one to generate and save to the PC a report containing the data of the various modules connected to a head core.

To that end, click on the icon  and specify the file name. A document with the html format which can be opened with a browser, similar to the following will be created.

CM management 13.3 - Ekselans By ITS - (USB)									
FA524 V1.4									
ID:		IP din:		Identificación:		version:			
0018F36A(0%)		0.0.0.0				cm.dorlandbyits.com:8088			
IN V11.1									
A	FREQ.	S.R.	F.L.C.	configuration SWITCH	LEVEL	Calidad	ESTADO		
	12189.5Hz	27500	8	A	92 %	64 %	OK		
B	FREQ.	S.R.	F.L.C.	configuration SWITCH	LEVEL	Calidad	ESTADO		
	12454.5Hz	22500	8	A	64 %	0 %	UNLOCKED		
RATE					200.50%				
Streaming S.I.D. 8088 (NOABRE : Canal EK)									
DE	HASTA	PICKA							
18:30	12:00	Draque Ball Super 1x21.502TV20calh3p2V							
10:01	12:00	NET_VBO_340X_14-43 m							
Lista Trans.									
	NID	NOABRE	Type	Código	Utilizado				
D	6905	Canal EK	TV		X				
A	12065	RTL Television	TV		X				
A	12064	RTL Passion/VOX	TV		X				
A	12065	RTL HD 12G	TV		X				
A	12066	RTL PS	TV		X				
A	12067	RTL 2	TV		X				
A	12040	RTL Living	TV	X	X				
A	12040	SUPER RTL	TV		X				

Important: in order to generate this report it is necessary that the "CM Management" program be run as the administrator.

3.3 Remote management of the headend

The headend CM can be run and managed remotely. This function is integrated in the FA 524 power supply and in each of the head modules.

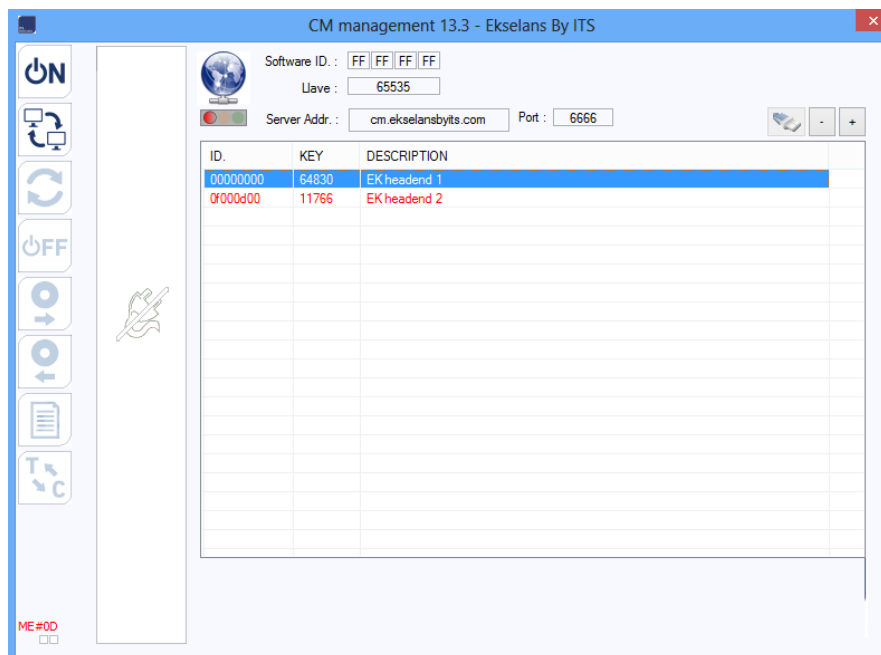
3.3.1 Access and remote programming of the CM 4HD-IP module

It is possible to remotely access a CM 4HD-IP module. To do so it must be connected to the FA 524 power supply and this in turn to the Internet.

In order to remotely access a head in which the CM 4HD-IP module which is wished to be run is connected, press the menu icon on the left.



The following screen is then displayed:



Upon the first connection the software's ID and a password must be specified. These are personal and non-transferable. In order to make use of same, please contact your Ekselans distributor so that it may be supplied. Once available, enter the password on the top part of the previous screen (Software ID and Password).

If all parameters are entered correctly, a connection with the cm.ekselansbyits.com server, dedicated to the remote running of the CM cores can be performed.

On this list all cores connected to the central server can be viewed. Remember that each 524 power supply includes FA the remote control manager, so that each power supply specifies a head. These are identified by an ID. Furthermore in order to access a password must be entered in the corresponding field.

If all data are correct, the connection to the server and the corresponding head shall be performed. When carried out, the head can be accessed as if it were in situ.

4 Technical specifications

Reference	CM 4HD-IP
Code	082008
Inputs	
Number of inputs	4 x HDMI
Video resolution mode	720 p - 1080p
Video compression	H.264 - BIRATE 5-15 Mb/s
Sample rate audio	HDMI (32 kHz/ 44.1 kHz/48 kHz)
Audio compression	AAC-LC - bitrate 128-384 Kb/s
DVB processing	PAT, PMT, SDT, NIT, EIT
Configuration	Program/network name , SID, LCN, TSID, ONID, NID, EIT, versions, audio, video PIDs...
Output	
Number of outputs	1
Protocol	Multicast IP UDP/RTP
Number of streams	Up to 16 simultaneous streams (100 Mbps)
Miscellaneous	
Programming	Software PC "CM management" PC Software via USB connected to a FA 524 power supply
Power Supply	5 Vdc
Consumption	1,6 A
Temperature range	0 – 40°



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