



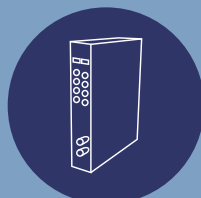
EKSELANS BY ITS

CM HEADEND

FLEXIBLE AND
INTELLIGENT
MODULATION



ENTER THE EK WORLD



CM

HEA

CM HEADEND: FLEXIBLE AND INTELLIGENT MODULATION

Ekselans by ITS introduces the new CM modulation headend based on the latest state of the art digital signal processing technology. Having a large variety of equipment in modular format for easy scalability, the CM headend is having transmodulators enabling to process input signals both standard as well as high definition, and deliver them in the output both in digital modulation as per DVB standards as well as in IP. Likewise, the range has digital encoders to modulate audio/video sources in COFDM, QAM as well as in IP.

TRANSMODULATORS AND DIGITAL ENCODERS

The CM headend has modules for the transmodulation of SD and HD digital signals, modulated according to the DVB Standard. Introducing from among the most noteworthy innovations and additions, are the Quad modules with 4 separate QPSK/8PSK inputs for free channels, with up to 4 multiplex COFDM or QAM (software selectable) outputs. Having also Twin modules with 2 separate QPSK/8PSK inputs, 2 Common Interface (CI) slots, and up to 3 COFDM or QAM multiplex outputs.

The equipment features the intelligent re-multiplexing of services which enables both the location of programmes in any of the multiplex outputs, as well as the manner of flexibly routing the services via the CAM modules connected to the CI slots in order to maximise the processing capacity thereof.

The modules likewise have USB ports so as to connect external memory devices to create local advertising and/or content channels.

Likewise, the CM headend is capped off with two modulators-digital encoders: the first with 4 HDMI inputs for HD audio-video sources and the second with 4 CVBS inputs for A/V sources with standard definition. In both cases the output modulation can be COFDM and QAM, software selectable.



CABECE

ADEND



ERA CM

TRANSMODULATORS-STREAMERS AND ENCODERS WITH IP OUTPUT

The CM headend is complemented with IP output modules for the distribution of television content in the IPTV format. The range has the Quad and Twincon 4 and 2 input models respectively, these inputs being QPSK/8PSK/COFDM/QAM universal. The Twin module likewise has dual Common Interfaces for the decoding of encrypted channels.

The IP equipment enables the transmission of up to 16 streams in the output with RTP or UDP protocol and quality of service (QoS) selection.

The modules likewise have USB ports so as to connect external memory devices and to create local advertising and/or content channels. Likewise, the IP range is capped off with two modulators-digital encoders: the first with 4 HDMI inputs for HD audio-video sources and the second with 4 CVBS inputs for A/V sources with standard definition, in both cases with an IP output.

PROGRAMMING AND REMOTE CONTROL INTEGRATED IN THE POWER SUPPLY

The CM modules are programmed via a user-friendly Windows application, connecting for those purposes the PC or Tablet to the USB port included in the FA 524 power supply unit.

Likewise the FA 524 power supply unit includes an integrated remote control module which enables, once the FA 524 is connected to the Internet, to perform the remote control and programming of the headend. In this fashion, the installer can modify the input and output frequencies, change the modulated programmes and even change the contents of the connected USB memory devices so as to create local programmes, without the need of having to visit the installation.

UNIVERSAL INPUT DVB-T / C OUT PROGRAMMABLE

CM 3STC-TC

Reference		CM 3STC-TC
Code		082032
INPUT		
Number of tuners		3 (A, B, C)
Input connectors		3 SAT + 3 TER/CAB
DVB-S / S2 reception		
Input frequency	MHz	950 - 2150
Entry level	dB μ V	43 - 83
Modulation		QPSK / 8PSK
Symbol rate	MSps	1 - 45
Telefeeding	Vdc / KHz	13 - 18 / 0 - 22
DiSEqC		A / B / C / D
DVB-T/T2 reception		
Input frequency	MHz	110 - 862
Entry level	dB μ V	33 - 88
Constellation - Mode		QPSK, 16, 64, 256QAM 1K, 2K, 4K, 8K, 16K, 32K
DVB-C reception		
Input frequency	MHz	110 - 862
Entry level	dB μ V	46 - 88
Constellation - Mode	-	QPSK, 16, 32, 64, 128, 256QAM 6, 7, 8
Symbol rate	MSps	0,2 - 7,7
COMMON INTERFACE		
Slots		-
OUTPUT		
Number of outputs		1
Mix port attenuation	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		4
Output frequency	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	MSps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	2000
Operating temperature	C	0 - 40

- CM transmodulation modules. Universal input - Programmable DVB-T / DVB-C output
- 3 independent inputs
- Independent control of each tuner 13 / 18V - 22KHz - DiSEqC (A / B / C / D)
- 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 up to 4 channels COFDM / 4 channels QAM
- High output level
- Excellent output signal quality with a high MER
- LCN / LCN HD insert
- Programming using "CM Management" PC software
- Configuration cloning and reporting
- On-site management (FA 524 / CM PR) or remote (FA 524)



UNIVERSAL INPUT DVB-T / C OUT PROGRAMMABLE

CM 3STC CI TC

- TRIPLE UNIVERSAL module. Management of up to 3 SAT / mux TER & CABLE input transponders and up to 4 adjacent RF output channels
- Control of each tunnel 13V / 18V - 22 KHz - DiSEqC (A / B / C / D)
- Programmable COFDM / QAM output
- Flexible remultiplexing of services on any of the three output MUXs
- Flexible remultiplexing of encrypted services through the two available CI slots
- Transparent passing and suppression of EMM messages and CAT tables
- LCN insertion
- SID Remapping
- Programming through PC software (CM management)
- Remote control integrated in each module and manageable from the FA 524 / CM PR source



Reference		CM 3STC CI-TC
Code		082027
INPUT		
Number of tuners		3 (A, B, C)
Input connectors		3 SAT + 3 TER/CAB
DVB-S / S2 reception		
Input frequency	MHz	950 - 2150
Entry level	dBμV	43 - 83
Modulation		QPSK / 8PSK
Symbol rate	MSps	1 - 45
Telefeeding	Vdc / KHz	13 - 18 / 0 - 22
DiSEqC		A / B / C / D
DVB-T/T2 reception		
Input frequency	MHz	110 - 862
Entry level	dBμV	33 - 88
Constellation - Mode		QPSK, 16, 64, 256QAM 1K, 2K, 4K, 8K, 16K, 32K
DVB-C reception		
Input frequency	MHz	110 - 862
Entry level	dBμV	46 - 88
Constellation - Mode	-	QPSK, 16, 32, 64, 128, 256QAM 6, 7, 8
Symbol rate	MSps	0,2 - 7,7
COMMON INTERFACE		
Slots		2
OUTPUT		
Number of outputs		1
Mix port attenuation	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dBμV	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		4
Output frequency	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	MSps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	2400
Operating temperature	C	0 - 40

UNIVERSAL INPUT DVB-T / C OUT PROGRAMMABLE

CM 6S-TC

Reference	CM 6S-TC
Code	082020
Input	
Number of inputs	6 (A1, B1, A2, B2, A3, B3)
Input frequency	950 – 2150 MHz
Input level	43 – 83 dB μ V
Bandwidth	36 MHz
Modulation	QPSK – 8PSK
Remote power	13V / 18 V / 22 KHz / DiSEqC (A/B/C/D)
Output	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Regulation	20 dB (by software)
Output frequency	45 – 862 MHz
Output MUXES	4 COFDM or 4 QAM (adjacent)
Channel bandwidth	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K
COFDM constellation	QPSK / 16QAM / 64QAM
QAM constellation	16, 32, 64, 128, 256 QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
MER	> 35dB
Various	
Programming system	PC software "CM management" through USB cable connected to power supply FA 524
Working voltage	5 Vdc
Current consumption	2,6 A + LNB
Temperature margin	0 – 40°

- HEXA module. Up to 6 input transponders and up to 4 output muxes (non adjacent)
- Individual control of each tuner 13V/18V – 22 KHz – DiSEqC (A/B/C/D)
- COFDM/QAM programmable output
- Flexible service remultiplexing on each output MUX
- PID remapping
- LCN insertion
- Programming via PC software (CM management)
- Built-in remote control inside each module. Management via power supply FA 524



MODULADORES MULTIENTRADA- SALIDA DVB T/C PROGRAMABLE

CM 4HD-TC

- 4 HDMI inputs (HD)
- Resolution of each input up to 1080p
- COFDM / QAM programmable output
- Programming via PC software (CM management)
- Built-in remote control inside each module.
Management via power supply FA 524



Reference		CM 4HD-TC
Code		082004
INPUT		
Number of inputs		4 (A1, B1, A2, B2)
A/V		
HDMI		
Video / Bitrate	- / Mbps	H.264 / 5 - 15
Audio / Bitrate	- / Kbps	AAC-LC, MPEG1-L2 / 128 - 384
Maximum resolution		1080p
OUTPUT		
Number of outputs		1
Mixing port	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		2
Output frequencies	MHz	170 - 862
Constellation - Modo		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		2
Output frequencies	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		Por cable USB / RJ45 (LAN)
Remote programming		Por RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	3000
Working temperature	°C	0 - 40

MODULADORES MULTIENTRADA- SALIDA DVB T/C PROGRAMABLE

CM 8HD-TC

Reference		CM 8HD-TC
Code		082035
INPUT		
Number of inputs		8 (A1, B1, A2, B2, C1, C2, D1, D2)
A/V		
HDMI		
Video / Bitrate	- / Mbps	H.264 / 5 - 15
Audio / Bitrate	- / Kbps	AAC-LC, MPEG1-L2 / 128 - 384
Maximum resolution		1080p
OUTPUT		
Number of outputs		1
Mixing port	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		4
Output frequencies	MHz	170 - 862
Constellation - Modo		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequencies	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		Por cable USB / RJ45 (LAN)
Remote programming		Por RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	3000
Working temperature	°C	0 - 40

- 8 HDMI inputs (HD)
- Resolution of each input up to 1080p
- COFDM / QAM programmable output
- Programming via PC software (CM management)
- Built-in remote control inside each module.
Management via power supply FA 524



MULTIFUNCTION INPUT DVBT / C OUTPUT PROGRAMMABLE

CM 2SH-TC

- CM multifunction transmodulation module. Satellite, HDMI or USB input - Programmable DVB-T / DVB-C output
- TWIN satellite input module (DVB-S / S2)
- 1 additional HDMI / USB input (.TS file player - Priority over HDMI)
- Independent control of each tuner 13 / 18V - 22KHz - DiSEqC (A / B / C / D)
- Flexible remultiplexing of services on any output channel
- Editing NIT tables, SID remapping and passing or deleting EMM messages and CAT tables
- LCN / LCN HD insert
- Programmable QAM / COFDM output
- Excellent output signal quality with a high MER
- High output level
- Programming using "CM Management" PC software
- Configuration cloning and reporting
- Remote control built into the FA 524 source using CM KEY



Reference		CM 2SH-TC
Code		082028
ENTRADA		
Number of satellite tuners		2 (B, C)
Input and LOOP connectors		2 / 2
Input frequency	MHz	950 - 2150
Input level	dBµV	43 - 83
Channel bandwidth	MHz	36
Modulation type		QPSK / 8PSK
Telefeeding	V / KHz	13 / 18 - 0/22
DiSEqC		A/B/C/D
Number of multimedia inputs (Not simultaneous)		1 (A)
USB		
Priority		1
Version		3.0
File System		FAT32 / NTFS
Reproduction		Autoplay, Lista, Programación horaria
File format		.TS (Transport Stream)
HDMI		
Priority		2
Video / Bitrate	- / Mbps	H.264 / 5 - 15
Audio / Bitrate	- / Kbps	AAC-LC, MPEG1-L2 / 128 - 384
Maximum resolution		1080p
OUTPUT		
Number of outputs		1
Mix port attenuation	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dBµV	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		3
Output frequency	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Programación local		Por cable USB / RJ45 (LAN)
Programación remota		Por RJ45 (Internet) (CM Key)
Alimentación	Vdc	5
Consumption (without LNB)	mA	1600
Operating temperature	°C	0 - 40

SATELLITE INPUT MULTISTREAM-DVB T / C OUTPUT

CM 4SM-TC

Reference		CM 4SM-TC
Code		082029
INPUT		
Number of satellite tuners		4 (A, B, C, D)
Input and LOOP connectors		4 / 0
Input frequency	MHz	950 - 2150
Input level	dBμV	40 - 79
Channel bandwidth	MHz	36
Velocidad de símbolo	MSps	1 - 45
Tipo de modulación		QPSK / 8PSK / 16APSK / 32APSK
Telealimentación	V / KHz	13/18 - 0/22
DiSEqC		A / B / C / D
OUTPUT		
Number of outputs		1
Mixing port	dB	<1,5
Output frequencies	MHz	170 - 862
Maximum output level	dBμV	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		4
Output frequencies	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Programación local		Por cable USB / RJ45 (LAN)
Programación remota		Por RJ45 (Internet) (CM Key)
Alimentación	Vdc	5
Consumption (without LNB)	mA	2000
Operating temperature	°C	0 - 40

- QUAD satellite input module (DVB-S / S2 / S2X). Supports multistream
- 4x Input frequencies (Transponders)
- Independent control of each tuner 13 / 18V - 22KHz - DiSEqC (A / B / C / D)
- 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 up to 4 channels COFDM / 4 channels QAM
- High output level
- Excellent output signal quality with a high MER
- LCN / LCN HD insert
- Programming via SW PC ("CM Management")
- Configuration cloning and reporting
- On-site management (FA 524 / CM PR) or remote (FA 524)



SATELLITE INPUT FLEXIBLE DVB-T OUT

CM 2S-T

- TWIN module. Up to 2 input transponders and up to 2 output muxes (non adjacent)
- Individual control of each tuner 13V/18V – 22 KHz – DiSEqC (A/B/C/D)
- COFDM output
- Flexible output. The 2 muxes can be placed in independent not-adjacent frequencies
- Flexible service remultiplexing on each output MUX
- PID remapping
- LCN insertion
- Programming via PC software (CM management)
- Built-in remote control inside each module. Management via power supply FA 524



Reference	CM 2S-T
Code	082023
INPUTS	
Number of inputs	2 (A1, B1) + 2 x LOOP
Input frequency	950 – 2150 MHz
Input level	43 – 83 dB μ V
Bandwidth	36 MHz
Modulation type	QPSK – 8PSK
Telefeeding	13V / 18 V / 22 KHz / DiSEqC (A/B/C/D)
OUTPUT	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Output regulation	20 dB (por software)
Output frequencies	45 – 862 MHz
Output MUXES	2 COFDM (no adyacentes)
Channel width	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K
COFDM Constellation	QPSK / 16QAM / 64QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
MER	> 35dB
Various	
Programming	PC software "CM management" via USB or Ethernet cable connected to the FA 524 source or to CM PR
Power supply	5 Vdc
Consumption	2 A + LNB
Working temperature	0 – 40°

SATELLITE TICKET FLEXIBLE DVB-T OUT

CM 3S-T

Reference	CM 3S-T
Code	082021
INPUTS	
Number of inputs	3 (A, B, C) + 3 x LOOP
Input frequency	950 – 2150 MHz
Input level	43 – 83 dB μ V
Bandwidth	36 MHz
Modulation type	QPSK – 8PSK
Telefeeding	13V / 18 V / 22 KHz / DiSEqC (A/B/C/D)
OUTPUT	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Output regulation	20 dB (por software)
Output frequencies	45 – 862 MHz
Output MUXES	3 COFDM flexibles
Channel width	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K
COFDM Constellation	QPSK / 16QAM / 64QAM
FEC	16, 32, 64, 128, 256 QAM
Guard interval	1/2, 2/3, 3/4, 5/6, 7/8
MER	1/4, 1/8, 1/16, 1/32
MER	> 35dB
VARIOUS	
Programming	PC software "CM management" via USB or Ethernet cable connected to the FA 524 source or to CM PR
Power supply	5 Vdc
Consumption	2,2 A + LNB
Working temperature	0 – 40°

- TRIPLE module. Up to 3 input transponders and up to 3 output muxes (non adjacent)
- Individual control of each tuner 13V/18V – 22 KHz – DiSEqC (A/B/C/D)
- COFDM output
- Flexible output. The 2 muxes can be placed in independent not-adjacent frequencies
- Flexible service remultiplexing on each output MUX
- PID remapping
- LCN insertion
- Programming via PC software (CM management)
- Built-in remote control inside each module. Management via power supply FA 524



ENTRADA SATELITE SALIDA DVB-T FLEXIBLE

CM 3S CI-T

- Triple module. Up to 3 input transponders and up to 3 output COFDM (non adjacent)
- Individual control of each tuner 13V/18V – 22 KHz – DiSEqC (A/B/C/D)
- COFDM output
- Flexible output. The 3 muxes can be placed in independent not-adjacent frequencies
- Flexible service remultiplexing on each output MUX
- Flexible encrypted service remultiplexing through each CI slot
- Transparent processing and cancelling of EMM messages and CAT tables
- PID remapping
- LCN insertion
- Programming via PC software (CM management)
- Built-in remote control inside each module. Management via power supply FA 524



Reference	CM 3S CI-T
Code	082024
Inputs	
Number of inputs	3 (A1, B1,C1)
Input frequency	950 – 2150 MHz
Input level	43 – 83 dB μ V
Bandwidth	36 MHz
Modulation	QPSK – 8PSK
Remote power	13V / 18 V / 22 KHz / DiSEqC (A/B/C/D)
Common Interface	2 x CI
Output	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Regulation	20 dB (por software)
Output frequency	45 – 862 MHz
Output MUXES	3 COFDM (non adjacent)
Channel bandwidth	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K
COFDM constellation	QPSK / 16QAM / 64QAM
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
MER	> 35dB
Various	
Programming system	PC software "CM management" through USB cable connected to power supply FA 524
Working voltage	5 Vdc
Current consumption	2,3 A + LNB + CAMs
Temperature margin	0 – 40°

MODULATORS

MULTI-INPUT- FLEXIBLE DVB T OUTPUT

CM 2AV-T

Reference	CM 2AV-T
Code	082025
INPUT	
Number of video inputs	2 x CVBS
Video resolution mode	PAL (720x576) / NTSC (720x480)
Video compression	MPEG 2
Number of audio inputs	2 x audio stereo / 0.5-2.5 Vpp
Sample rate	48 KHz
Compression audio	MPEG1, LAYER II
DVB processing	Table insertion PAT, PNT, SDT, NIT
Configuration	NOMBRE DE PROGRAMA, SID, LCN, NETWORK NAME, TSD, ONID, NID, VERSION NIT, LCN, PMT
OUTPUT	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Output regulation	20 dB (por software)
Output frequency	170-230 MHz + 470-862 MHz
Output MUXES	1 COFDM
Channel width	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K / 8K
Constellation - FEC COFDM	QPSK/16QAM/64QAM 1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
MER	> 32dB
VARIOS	
Programming	PC software "CM management" via USB connected to the FA 524 / CM PR source
Power supply	5 Vdc
Consumption	1,2 A
Working temperature	0 – 40°

- Multifunction headers series CM Encoder 2 A / V to COFDM / DTT
- 2 audio / video inputs (CVBS)
- Flexible COFDM output
- Programming through PC software (CM management)
- Remote control integrated in each module and manageable from the FA 524 source



MODULATORS

MULTI-INPUT- FLEXIBLE

DVB T OUTPUT

CM 4AV-TC

- 4 audio/video inputs (CVBS)
- COFDM / QAM programmable output
- Programming via PC software (CM management)
- Built-in remote control inside each module.
Management via power supply FA 524



CM 4AV-TC

Reference	CM 4AV-TC
Code	082003
Inputs	
Number of video inputs	4 x CVBS
Video resolution mode	PAL (720x576) / NTSC (720x480)
Video compression	MPEG 2
Number of audio inputs	4 x audio stereo / 0.5-2.5 Vpp
Sample rate	48 KHz
Audio compression	MPEG1, LAYER II
DVB processing	Insertion of table PAT, PNT, SDT, NIT
Configuration	Program name, SID, LCN, NETWORK NAME, TSD, ONID, NID, VERSION NIT, LCN, PID, PMT, PID VIDEO, PID AUDIO
Output	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Output regulation	20 dB (by software)
Output frequency	170-230 MHz + 470-862 MHz
Output MUXES	1 COFDM or 1 QAM
Channel bandwidth	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K / 8K
Constellation - FEC COFDM	QPSK/16QAM/64QAM - 1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
Constellation- S/R QAM	16, 32, 64, 128, 256 QAM (EN 300 429) - 4,00 - 6,96 Msps
MER	> 35dB
Various	
Programming system	PC software "CM management" through USB cable connected to power supply FA 524
Working voltage	5 Vdc
Current consumption	2 A
Temperature margin	0 - 40°

MODULATORS MULTI- INPUT- PROGRAMMABLE DVB T / C OUTPUT

CM 4HD-T

Reference	CM 4HD-T
Code	082022
Input	
Number of inputs	4 x HDMI
Video resolution mode	720 p - 1080p
Video compression	H.264 - BIRATE 5-15 Mb/s
Audio sample rate	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	NOMBRE DE PROGRAMA Y RED , SID, LCN, TSID, ONID, NID, EIT, versiones, audio, video PIDs...
Output	
Number of outputs	1 + loop-through (-1,5 dB)
Maximum output level	95 dB μ V
Output regulation	20 dB (por software)
Output frequency	170-230 MHz + 470-862 MHz
Output MUXES	2 COFDM
Channel width	7 MHz (VHF) / 8 MHz (UHF)
COFDM modulation mode	2K / 8K
Constellation - FEC COFDM	QPSK/16QAM/64QAM - 1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
MER	> 32dB
Various	
Programming	PC software "CM management" via USB connected to the FA 524 / CM PR source
Power supply	5 Vdc
Consumption	3 A
Working temperature	0 - 40°

- 4 HDMI (HD) inputs
- Resolution of each input up to 1080p
- Programmable COFDM / QAM output
- Programming via PC software
- (CM management)
- Remote control integrated in each module and manageable from the FA 524 or CM PR source



UNIVERSAL INPUT IP OUTPUT

CM 3STC-IP

- TRIPLE Universal input module (DVB-S / S2, T / T2, C)
- Independent control of each tuner 13 / 18V - 22KHz - DiSEqC (A / B / C / D)
- Passing or deleting EMM messages and CAT tables
- 100Mbps SPTS / MPTS IP output in UDP / RTP format
- Flexible remultiplexing of services on IP output
- SAP function
- Up to 16 output streams
- Programming using "CM Management" PC software
- Configuration cloning and configuration report
- Remote control built into the FA 524 source using CM KEY



Reference		CM 3STC-IP
Code		082033
ENTRADA		
Number of tuners		3 (A, B, C)
Input connectors		3 SAT + 3 TER/ CAB
DVB-S/S2 reception		
Input frequency	MHz	950 - 2150
Input level	dBμV	43-83
Modulation		QPSK / 8PSK
Symbol rate	MSps	1 - 45
Telefeeding	Vdc / KHz	13-18 / 0-22
DiSEqC		A / B / C / D
DVB-T/T2 reception		
Input frequency	MHz	110 - 862
Input level	dBμV	33-88
Constellation - Mode		QPSK, 16, 64, 256QAM 1K, 2K, 4K, 8K, 16K, 32K
DVB-C reception		
Input frequency	MHz	110 - 862
Nivel de entrada	dBμV	46 - 88
Constellation - Mode	-	QPSK, 16, 32, 64, 128, 256QAM 6, 7, 8
Symbol rate	MSps	0,2 - 7.7
COMMON INTERFACE		
Slots		-
OUTPUT		
Connector		RJ45 - Fast Ethernet
Routing scheme		Unicast / Multicast
Maximum services		16 (SPTS / MPTS)
Protocols		UDP / RTP / QoS / SAP
GENERAL		
Local programming		USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) + CM Key
Power supply	Vdc	5
Consumption (Without LNB / CAM)	mA	1000
Working temperature	°C	0 - 40

UNIVERSAL INPUT IP OUTPUT

CM 3STC-CI IP

Reference		CM 3STC CI-IP
Code		082005
INPUT		
Number of tuners		3 (A, B, C)
Input connectors		3 SAT + 3 TER/CAB
DVB-S/S2 Reception		
Input frequency	MHz	950 - 2150
Input level	dB μ V	43-83
Modulation		QPSK / 8PSK
Symbol rate	MSps	1 - 45
Telefeeding	Vdc / KHz	13-18 / 0-22
DiSEqC		A / B / C / D
DVB-T/T2 reception		
Input frequency	MHz	110 - 862
Input level	dB μ V	33-88
Constellation - Mode		QPSK, 16, 64, 256QAM 1K, 2K, 4K, 8K, 16K, 32K
DVB-C reception		
Input frequency	MHz	110 - 862
Input level	dB μ V	46 - 88
Constellation - Mode	- / MHz	QPSK, 16, 32, 64, 128, 256QAM 6, 7, 8
Symbol rate	MSps	0,2 - 7.7
Puertos USB		-
COMMON INTERFACE		
Slots		1
OUTPUT		
Connector		RJ45 - Fast Ethernet
Routing scheme		Unicast / Multicast
Maximum services		16 (SPTS / MPTS)
Protocols		UDP / RTP / QoS / SAP
GENERAL		
Local programming		By USB / RJ45 (LAN) cable
Remote programming		By RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption (Without LNB / CAM)	mA	1100
Working temperature	°C	0 - 40

- Independent TRIPLE universal DVB-T / T2 / S / S2 / C module
- Independent control of each tuner 13 / 18V - 22KHz - DiSEqC (A / B / C / D)
- USB .TS file player (Depending on model)
- Passing or deleting EMM messages and CAT tables
- 100Mbps SPTS / MPTS IP output in UDP / RTP format
- Flexible remultiplexing of services on IP output
- SAP function
- Up to 16 output streams
- Programming using "CM Management" PC software
- Configuration cloning and reporting
- Remote control built into the FA 524 source using CM KEY



MODULATORS MULTI-ENTRY IP OUTPUT

CM 4AV-IP

- QUAD to IP multicast modulator
- 4 audio/video inputs (CVBS)
- IP output
- RTP / UDP Protocol
- Quality of service selection (QoS)
- Up to 16 output streams
- Programming via PC software (CM management)
- Built-in remote control inside each module.
Management via power supply FA 524



Reference		CM 4AV-IP
Code		082007
INPUT		
Number of video inputs		4 (A1, B1, A2, B2)
A/V		
Video		CVBS
Input level	Vpp	0,7 - 1,4
Impedance	Ω	75
Video compression		MPEG2
Video Bitrate	Mbps	4 - 12
Audio compression		MPEG1 Layer 2
Bitrate de audio	Kbps	128 - 384
HDMI		
Video / Bitrate	- / Mbps	-
Audio / Bitrate	- / Kbps	-
Maximum resolution		-
OUTPUT		
Connector		RJ45 - Fast Ethernet
Routing scheme		Unicast / Multicast
Maximum services		16 (SPTS / MPTS)
Protocols		UDP / RTP / QoS / SAP
GENERAL		
Local programming		By USB / RJ45 (LAN) cable
Remote programming		By RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	2000
Working temperature	$^{\circ}\text{C}$	0 - 40

MODULATORS MULTI-ENTRY IP OUTPUT

CM 4HD-IP

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)
Various	
Programming system	PC software "CM management" through USB cable connected to power supply FA 524
Working voltage	5 Vdc
Current consumption	2 A
Temperature margin	0 – 40°

- QUAD to IP multicast modulators
- 4 HDMI inputs (HD)
- Resolution of each input up to 1080p
- IP output
- RTP / UDP Protocol
- Quality of service selection (QoS)
- Up to 16 output streams
- Programming via PC software (CM management)
- Built-in remote control inside each module. Management via power supply FA 524



CM 4HD-IP

MODULATORS MULTI-ENTRY IP OUTPUT

CM 8HD-IP

- OCTO to IP multicast modulators
- 8 HDMI inputs (HD)
- Resolution of each input up to 1080p
- IP output
- RTP / UDP Protocol
- Quality of service selection (QoS)
- Up to 16 output streams
- Programming via PC software (CM management)
- Built-in remote control inside each module.
Management via power supply FA 524



CM 8HD-IP

Reference		CM 8 HD-IP
Code		082034
INPUT		
Number of inputs		8 (A1, B1, C1, D1, A2, B2, C2, D2)
Video / Bitrate	- / Mbps	H.264 / 5 - 15
Audio / Bitrate	- / Kbps	AAC-LC, MPEG1-L2 / 128 - 384
Maximum resolution		1080p
OUTPUT		
Connector		RJ45 - Fast Ethernet - 10/100Mbps
Routing scheme		Unicast / Multicast
Maximum services		16 (SPTS / MPTS)
Protocols		UDP / RTP / QoS / SAP
GENERAL		
Local programming		By USB / RJ45 (LAN) cable
Remote programming		By RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption	mA	4400
Working temperature	°C	0 - 40

IP INPUT DVB T / C OUT PROGRAMMABLE

CM IP-TC

Reference		CM IP-TC
Code		082018
INPUT		
Connector		RJ45 - Fast Ethernet
Routing scheme		Unicast / Multicast
Maximum services		15 (SPTS / MPTS)
Supported protocols		IEEE 802.3, SPTS/ MPTS, UDP, RTP, QoS
Local IP assignment		DHCP / Estática
PCR (Program Clock Reference)		According to ETSI TR 101 290
COMMON INTERFACE		
Slots		-
OUTPUT		
Number of outputs		1
Mixing port	dB	<1,5
Output frequency	MHz	170 - 862
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		3
Output frequency	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		Por cable USB / RJ45 (LAN)
Remote programming		Por RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption (without CAM)	mA	1800
Working temperature	°C	0 - 40

- Input up to 15 IP Unicast / Multicast services
- Supported protocols: SPTS / MPTS, UDP / RTP, SIP, QoS
- Support services with different input bit rates
- Programmable QAM / COFDM output
- Flexible remultiplexing of services on IP output
- Editing NIT tables, SID remapping and passing or deleting EMM messages and CAT tables
- LCN / LCN HD insert
- RF output connector for mixing
- High output level
- Excellent output signal quality with a high MER
- Programming using "CM Management" PC software
- Configuration cloning and reporting
- Remote control built into the FA 524 source using CM KEY



IP INPUT DVB T / C OUT PROGRAMMABLE

CM IP CI-TC

- Input up to 15 IP Unicast / Multicast services
- Supported protocols: SPTS / MPTS, UDP / RTP, SIP, QoS
- Support services with different input bit rates
- Programmable QAM / COFDM output
- Flexible remultiplexing of services on IP output
- Editing NIT tables, SID remapping and passing or deleting EMM messages and CAT tables
- LCN / LCN HD insert
- RF output connector for mixing
- High output level
- Excellent output signal quality with a high MER
- Programming using "CM Management" PC software
- Configuration cloning and reporting
- Remote control built into the FA 524 source using CM KEY



Reference		CM IP CI-TC
Code		082019
INPUT		
Connector		RJ45 - Fast Ethernet
Routing scheme		Unicast / Multicast
Maximum services		15 (SPTS / MPTS)
Supported protocols		IEEE 802.3, SPTS/MPTS, UDP, RTP, QoS
Local IP assignment		DHCP / Estática
PCR (Program Clock Reference)		According to ETSI TR 101 290
COMMON INTERFACE		
Slots		2
OUTPUT		
Number of outputs		1
Mixing port	dB	<1,5
Output frequency	MHz	170 - 862
Maximum output level	dBμV	95
Output regulation	dB	20
DVB-T modulation		
Number of channels		4
Output frequency	MHz	170 - 862
Constellation - Mode		QPSK, 16QAM, 64QAM - 2K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
MER	dB	>35
DVB-C modulation		
Number of channels		4
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Local programming		Por cable USB / RJ45 (LAN)
Remote programming		Por RJ45 (Internet) (CM Key)
Power supply	Vdc	5
Consumption (without CAM)	mA	1500
Working temperature	°C	0 - 40

IP INPUT IP OUTPUT

CM IP CI-IP

Reference	CM IP CI-IP
Code	082037
INPUT	
Connector	RJ45 - Fast Ethernet
Routing scheme	Unicast / Multicast
Maximum services	15 (SPTS / MPTS)
Supported protocols	IEEE 802.3, SPTS/ MPTS, UDP, RTP, QoS
Local IP assignment	DHCP / Estática
PCR (Program Clock Reference)	According to ETSI TR 101 290
COMMON INTERFACE	
Slots	2
OUTPUT	
Connector	RJ45 - Fast Ethernet
Routing scheme	Unicast / Multicast
Maximum services	16 (SPTS / MPTS)
Local IP assignment	DHCP / Estática
Supported protocols	UDP / RTP / QoS / SAP
GENERAL	
Local programming	USB / RJ45 (LAN)
Remote programming	RJ45 (Internet) + CM Key
Power supply	Vdc 5
Consumption (without CAM)	mA 1000
Working temperature	°C 0 - 40

- Input up to 15 IP Unicast / Multicast services
- Supports services with different input bit rates
- Passing or deleting EMM messages and CAT tables
- 100Mbps SPTS / MPTS IP output in UDP / RTP format
- Flexible remultiplexing of services on IP output
- SAP function
- Up to 16 output streams
- Programming using "CM Management" PC software
- Configuration cloning and configuration report
- Remote control built into the FA 524 source using CM KEY



ACCESSORIES



FA 524

- High-efficiency power supply
- With protection fuses against mains overload
- It allows the programming and remote control of the full headend

REFERENCE	FA 524
Code	080003
Input voltage	90-253 Vcc
Input frequency	50-60 Hz
Output voltage	24 Vdc
Maximum power	5A
Potencia máxima	120W
Type	Modular
Working temperature	0-45°
Programming mode	USB Connector
Programación	Via PC
Módulo de telecontrol	RJ45 Connector



CM PR / FA 55

- It allows the programming of CM Headend modules.
- Programming via CM Management (USB port).
- Programming via CM Management in remote (LAN / Internet).
- Feeding from CM module already fed via FA 55 PSU.

REFERENCE		CM PR
Code	-	082014
Ports	-	Ethernet, USB (Tipo B)
Feeding	-	14 PIN HE bus.
Dimensions	mm	115x28x48

REFERENCE		FA 55
Code	-	082010
Feeding	Vac / Hz	100-240 / 46-63
Output voltage	Vdc	5
Max. output current	mA	5000



ACCESSORIES

CM KEY

- CM Key allows the remote connection to the power supply FA 524 through the CM Management software (PC Software that allows the programming of the CM Headend via USB cable or remotely). As it is linked to the power supply, it's possible to have access to all the modules connected to the power supply only if connected to the internet. It's needed a user key and a password to identify it on the remote server.



CM HEADEND

CM KEY

Remote
management
key



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