



EKSELANS BY ITS



EK MODULATORS: THE MOST COMPLETE MARKET RANGE



ENTER THE EK WORLD

ANALOG MODULATORS

REFERENCE		MD A
Code		121001
Inputs	N°	2 x AUDIO + VIDEO
Audio regulation	dB	0-14
RF Outputs	N°	1
Frequency Range	MHz	47-862
Standards		B/G/D/K/H/I/L/M/N
Regulation	dB	15
Output level	dB μ V	90
Insertion losses	MHz/ dB	47-862/2 862-2150/4
Mains voltage	Vac	230 +/-10%
Current consumption	W	2,5

MD A

- √ DBS Modulator
- √ Easy output channel programming through display
- √ Full band (47 - 862 MHz)
- √ Multistandard
- √ High output level
- √ L and R audio inputs
- √ TV mix



HD DIGITAL MODULATORS

MD HD EASY

REFERENCE		MD HD EASY
Code		122008
Input		HDMI
VIDEO		
Video resolution		480p - 576p - 720p - 1080p
Video compression		H.264
Video rate	Kbps	500-15000
AUDIO		
Audio compression		MPEG1-L2, AAC-LC
Audio rate	Kbps	128, 192, 256, 320, 384
MODULATION		
DVB processing		NIT, PID
DVB adjustments		NID, ONID, Network ID, Network name, TS ID, Program ID, Program name, PMT PID, Video PID, Audio PID
Output frequency	MHz	170-230 & 470-862
Output channel	N.	5...12 + 21...69
Output level	dB μ V	>80
Attenuation	dB	0...15
MER	dB	\geq 33
Bandwith	MHz	6, 7, 8
Constellation		QPSK, 16QAM, 64QAM
Mode		2K, 8K
FEC		1/2, 2/3, 3/4, 5/6, 6/7
Guard interval		1/4, 1/8, 1/16, 1/32
LCN		EACEM, ITC, NORDIG
RF loop	dB	-2
GENERAL		
Mains voltage	Vdc	+5Vdc
Power consumption	W	<10
Dimensions	mm	150 x 99 x 46
Weigth	g	215

- ✓ Encoder/modulator COFDM HD
- ✓ Excellent modulation quality. MER \geq 35 dB
- ✓ HD resolution up to 1080p
- ✓ LED indicator of active HDMI source
- ✓ Quick menu. Easy selection with buttons of channel and attenuation
- ✓ Advanced programming via PC software



HD DIGITAL MODULATORS

MD HD EASY LOOP

REFERENCE		MD HD EASY LOOP
Code		122011
Input		HDMI
Output		HDMI LOOP
VIDEO		
Video resolution		480p - 576p - 720p - 1080p
Video compression		H.264
Video rate	Kbps	500-15000
AUDIO		
Audio compression		MPEG1-L2, AAC-LC
Audio rate	Kbps	128, 192, 256, 320
MODULATION		
DVB processing		NIT, PID
DVB adjustments		NID, ONID, Network ID, Network name, TS ID, Program ID, Program name, PMT PID, Video PID, Audio PID
Output frequency	MHz	170-230 & 470-862
Output channel	N.	5...12 + 21...69
Output level	dB μ V	>80
Attenuation	dB	0...15
MER	dB	\geq 33
Bandwidth	MHz	6, 7, 8
Constellation		QPSK, 16QAM, 64QAM
Mode		2K, 8K
FEC		1/2, 2/3, 3/4, 5/6, 6/7
Guard interval		1/4, 1/8, 1/16, 1/32
LCN		EACEM, ITC, NORDIG
RF loop	dB	-2
GENERAL		
Mains voltage	Vdc	+5Vdc
Power consumption	W	<10
Dimensions	mm	150 x 99 x 34
Weight	g	215

- ✓ Encoder/modulator COFDM HD with HDMI LOOP
- ✓ HD resolution up to 1080p
- ✓ LED indicator of active HDMI source
- ✓ LOOP HDMI IN / OUT
- ✓ Excellent modulation quality. MER \geq 33 dB
- ✓ Quick menu. Easy selection by buttons of channel, attenuation and program ID
- ✓ Advanced programming via PC software , MD HD Soft



HD DIGITAL MODULATORS

MD HD EASY RC

REFERENCE		MD HD EASY RC
Code		122014
Input		HDMI
Output		LOOP HDMI
VIDEO		
Video resolution		480p - 576p - 720p - 1080p
Video compression		H.264
Video rate	Kbps	500-15000
AUDIO		
Audio compression		MPEG1-L2, AAC-LC
Audio rate	Kbps	128, 192, 256, 320, 384
HDMI OUTPUT		LOOP
MODULATION		
DVB processing		NIT, PID
DVB adjustments		NID, ONID, Network ID, Network name, TS ID, Program ID, Program name, PMT PID, Video PID, Audio PID
Output frequency	MHz	170-230 & 470-862
Output channel	N.	5...12 + 21...69
Output level	dB μ V	>80
Attenuation	dB	0...15
MER	dB	\geq 33
Bandwith	MHz	6, 7, 8
Constellation		QPSK, 16QAM, 64QAM
Mode		2K, 8K
FEC		1/2, 2/3, 3/4, 5/6, 7/8
Guard interval		1/4, 1/8, 1/16, 1/32
LCN		EACEM, ITC, NORDIG
RF loop	dB	-2
INFRARED EXTENDER		
Cable with IR emitter - Freq		Included 38-46-56
USB		
USB Connector		.ts files Record & Play
GENERAL		
Mains voltage	Vdc	+5 (RF OUT pass optional)
Power consumption	W	<4
Dimensions	mm	170 x 130 x 35
Weigth	kg	0,6

- ✓ Digital COFDM HD modulator-encoder with IR extender
- ✓ Excellent modulation quality. MER \geq 33 dB. HD resolution up to 1080p
- ✓ Universal infrared extender. Allows IR frequency selection
- ✓ LOOP HDMI IN / OUT
- ✓ Recorder / Player USB
- ✓ Quick menu. Easy selection with buttons of channel, attenuation, program identifier and IR frequency
- ✓ Advanced programming via PC software
- ✓ Compatible with universal IR receiver, model TRC
- ✓ High dynamic range > 80dB



HD DIGITAL MODULATORS

MD HD EASY TWIN

REFERENCE	MD HD EASY TWIN	
Code	122013	
Inputs	2 x HDMI	
VIDEO		
Video resolution	480p - 576p - 720p - 1080p	
Video compression	H.264	
Video rate	Kbps	500-15000
AUDIO		
Audio compression	MPEG1-L2, AAC-LC	
Audio rate	Kbps	128, 192, 256, 320, 384
MODULATION		
DVB processing	NIT, PID	
DVB adjustments	NID, ONID, Network ID, Network name, TS ID, Program ID, Program name, PMT PID, Video PID, Audio PID	
Output frequency	MHz	170-230 & 470-862
Output channel	N.	5...12 + 21...69
Output level	dB μ V	>80
Attenuation	dB	0...15
MER	dB	\geq 33
Bandwidth	MHz	6, 7, 8
Constellation	QPSK, 16QAM, 64QAM	
Mode	2K, 8K	
FEC	1/2, 2/3, 3/4, 5/6, 7/8	
Guard interval	1/4, 1/8, 1/16, 1/32	
LCN	EACEM, ITC, NORDIG	
RF loop	dB	-2
USB		
USB Connector	.ts files Record & Play	
USB Connector B type	For PC programming	
GENERAL		
Mains voltage	Vdc	+5 (RF OUT pass optional)
Power consumption	W	<4
Dimensions	mm	170 x 100 x 25
Weigth	kg	0,6

- ✓ Digital COFDM HD modulator-encoder with 2 HDMI inputs
- ✓ Excellent modulation quality. MER \geq 33 dB. HD resolution up to 1080p
- ✓ 2 HDMI inputs
- ✓ Recorder / Player USB
- ✓ Quick menu. Easy selection with buttons
- ✓ Modulation in only one output MUX
- ✓ Advanced programming via PC software



HD MODULATOR 4K COMPATIBLE

MD HD L4K

- ✓ Digital modulator-encoder
- ✓ HD COFDM.
- ✓ LOOP HDMI IN / OUT.
- ✓ Resolution up to 1080p.
- ✓ Excellent MER modulation quality > = 33dB.
- ✓ Quick menu Easy channel setting,
- ✓ attenuation and program identifier by means of buttons on the front.
- ✓ Easy advanced programming via PC program (MDHDSOft).



REFERENCE	MD HD L4K	
Code	122015	
IN	HDMI 2.0, fully compliant HDCP 2.2 backwards compliant HDMI 1.4	
OUT	loop HDMI	
VIDEO		
Input video resolution supported	480i@60Hz, 480p@60Hz, 576i@50Hz, 720p@50/60Hz, 1080p@50/60Hz, 1080i@50/60Hz, 4Kx2K@24/30/50Hz	
Data rate	6Gbps per channel	
Video encoding	H.264	
Video rate	15 Mbps	
AUDIO		
Audio encoding	MPEG1-L2, AAC-LC	
Audio rate	Kbps	128, 192, 256, 320, 384
MODULATION		
Output video resolution	1080p maximum	
DVB processing	NIT, PID	
DVB configuration	NID, ONID, Network name, TSID, PID, Program name, PMT PID, Video PID, Audio PID	
Output frequency	MHz	170-230 & 470-862
Channel output	5-12 & 21-69	
Output level	dBuV	>80
Attenuation	dB	0..15
MER	dB	>33
Bandwidth	MHz	6,7,8
Constellation	QPSK, 16QAM, 64QAM	
Mode	2K, 8K	
FEC	1/2, 2/3, 3/4, 5/6, 7/8	
Guard interval	1/4, 1/8, 1/16, 1/32	
LCN	EACEM, ITC, NORDIG	
Loop RF	dB	-2
GENERAL		
Power supply	Vdc	5
Power consumption	W	<5
Size	mm	170x130x35
Weight	Kg	0,6



HD MODULATOR

4K COMPATIBLE

MD HD L4K RC

REFERENCE	MD HD L4K RC	
Code	122016	
IN	HDMI 2.0, fully compliant HDCP 2.2 backwards compliant HDMI 1.4	
OUT	loop HDMI	
VIDEO		
Input video resolution supported	480i@60Hz, 480p@60Hz, 576i@50Hz, 720p@50/60Hz, 1080p@50/60Hz, 1080i@50/60Hz, 4Kx2K@24/30/50Hz	
Data rate	6Gbps per channel	
Video encoding	H.264	
Video rate	15 Mbps	
AUDIO		
Audio encoding	MPEG1-L2, AAC-LC	
Audio rate	Kbps	128, 192, 256, 320, 384
MODULATION		
Output video resolution	1080p maximum	
DVB processing	NIT, PID	
DVB configuration	NID, ONID, Network name, TSID, PID, Program name, PMT PID, Video PID, Audio PID	
Output frequency	MHz	170-230 & 470-862
Channel output	5-12 & 21-69	
Output level	dBuV	>80
Attenuation	dB	0..15
MER	dB	>33
Bandwidth	MHz	6,7,8
Constellation	QPSK, 16QAM, 64QAM	
Mode	2K, 8K	
FEC	1/2, 2/3, 3/4, 5/6, 7/8	
Guard interval	1/4, 1/8, 1/16, 1/32	
LCN	EACEM, ITC, NORDIG	
Loop RF	dB	-2
INFRARED EXTENDER		
Cable with IR emitter-Freq.	KHz	38-46-56
USB		
USB connector	H.264 *.ts files Record & Play	
GENERAL		
Power supply	Vdc	5 (RF OUT pass optional)
Power consumption	W	<5
Size	mm	170x130x35
Weight	Kg	0,6

- ✓ COFDM HD digital encoder modulator with IR extender.
- ✓ LOOP HDMI IN / OUT 4K.
- ✓ Resolution up to 1080p in modulator.
- ✓ Excellent MER modulation quality >= 33dB.
- ✓ Quick menu Easy adjustment of channel, attenuation, program identifier and IR frequency using buttons on the front.
- ✓ Easy advanced programming via PC program (MDHDSof).
 (MDHDSof).
- ✓ Universal infrared extender Allows selection of infrared frequency 30-60KHz.
- ✓ High dynamic range IR reception (80dB).
- ✓ USB recorder / player.



MD HD
L4K RC

DIGITAL MODULATORS CM FORMAT

CM 2AV-T

REFERENCE		CM 2AV-T
Code		082025
Input		
Number of inputs		2 (A, B)
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
Audio bitrate	Kbps	128 - 384
HDMI		
Resolution		576p
Output		
Number of outputs		1
MIX Port	dB	<1,5
Output frequencies	MHz	170-230 + 470-862
Maximum output level	dB μ V	95
Output regulation	dB	20
RF Output channels		1
Channel bandwidth	MHz	7 (VHF) / 8 (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	dB	>32
GENERAL		
Local Programming		Cable USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) (CM Key)
Feeding	Vdc	5
Consumption	mA	1260
Operating temperature	$^{\circ}$ C	0 - 40

- ✓ Modules TWIN and QUAD to DVB-T
- ✓ FLEX output. Modulation of each output channel at any frequency
- ✓ Adjustment of coding parameters
- ✓ Flexible service remultiplexing on each output MUX
- ✓ SID remapping
- ✓ LCN / LCN HD Insertion
- ✓ High output level
- ✓ Programming via Software PC "CM Management"
- ✓ Configuration cloning and reports
- ✓ Remote control integrated in the FA 524 source using CM KEY



DIGITAL MODULATORS CM FORMAT

CM 4AV-TC

REFERENCE		CM 4AV-TC
Code		082003
INPUT		
Number of 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
Audio bitrate	Kbps	128 - 384
HDMI Maximum		-
OUTPUT		
Number of outputs		1
MIX Port	dB	<1,5
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T Modulation		
Number of MUX		1
Output frequency	MHz	170 - 230/ 470 - 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 MUX		-
Output frequency	MHz	-
Constellation		-
Symbol rate	Mbps	-
MER	dB	-
GENERAL		
Local Programming		Cable USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) (CM Key)
Feeding	Vdc	5
Consumption	mA	2060
Operating temperature	$^{\circ}$ C	0 - 40

- ✓ 4 independent inputs
- ✓ Adjustment of coding parameters
- ✓ Flexible service remultiplexing on each output MUX
- ✓ SID remapping
- ✓ LCN / LCN HD Insertion
- ✓ High output level
- ✓ COFDM / QAM programmable output (depending on the module)
- ✓ Excellent quality output signal. High MER
- ✓ Programming via Software PC "CM Management"
- ✓ Configuration cloning and reports
- ✓ Remote control integrated in the FA 524 source using CM KEY



DIGITAL MODULATORS CM FORMAT

CM 4HD-TC

REFERENCE		CM 4HD-TC
Code		082004
INPUT		
Number of inputs		4 (A, B, C, D)
A/V		
Video		-
Input level	Vpp	-
Impedance	Ω	-
Video compression		H.264
Video bitrate	Mbps	5 - 15
Audio compression		AAC-LC, MPEG1-L2
Audio bitrate	Kbps	128 - 384
HDMI Maximum		1080p
OUTPUT		
Number of outputs		1
MIX Port	dB	<1,5
Maximum output level	dB μ V	95
Output regulation	dB	20
DVB-T Modulation		
Number of MUX		2
Output frequency	MHz	170 - 230/ 470 - 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 MUX		2
Output frequency	MHz	50 - 862
Constellation		16, 32, 64, 128, 256QAM
Symbol rate	Mbps	4 ... 6,96
MER	dB	>40
GENERAL		
Local Programming		Cable USB / RJ45 (LAN)
Remote programming		RJ45 (Internet) (CM Key)
Feeding	Vdc	5
Consumption	mA	3000
Operating temperature	$^{\circ}$ C	0 - 40

- ✓ 4 independent inputs
- ✓ Adjustment of coding parameters
- ✓ Flexible service remultiplexing on each output MUX
- ✓ SID remapping
- ✓ LCN / LCN HD Insertion
- ✓ High output level
- ✓ COFDM / QAM programmable output (depending on the module)
- ✓ Excellent quality output signal. High MER
- ✓ Programming via Software PC "CM Management"
- ✓ Configuration cloning and reports
- ✓ Remote control integrated in the FA 524 source using CM KEY



REMOTE CONTROL REPEATERS

REFERENCE		IR RC
Code		124010
Infrared receiver (TRC)		
Infrared frequencies	KHz	30 - 60
RF frequencies	MHz	11
Commands reception indication		LED
Feeding	Vdc	5
Voltage feeding ports		DC Jack 3,5mm / ANT
Consumption	mA	<50
Infrared transmitter (RRC)		
Feeding	Vdc	5
Voltage feeding ports		DC Jack 3,5mm
Consumption	mA	<50

REFERENCE		IR W2
Code		124008
Infrared frequencies	KHz	33 - 60
Modulation		FSK
RF frequency	MHz	433,92
Maximum distance*	m	50
Voltage	Vdc	5
Feeding	Vac / Hz	100~240 / 50~60
Total consumption	W	0,5

IR RC

- ✓ Universal remote control transmitter with coaxial cable
- ✓ Universal IR frequency receiver
- ✓ Possibility of extending the installation with other TRC
- ✓ Power supply by external source (FA 505)
- ✓ Confirmation by LED reception of the remote control
- ✓ Dynamic margin > 80dB
- ✓ Compatible with MD HD EASY RC



IR-W2 / IR-W2 EXT

- ✓ A/V accessories
- ✓ Wireless universal IR frequency repeater
- ✓ Supports other IR W2 EXT in the same installation



REMOTE CONTROL REPEATERS

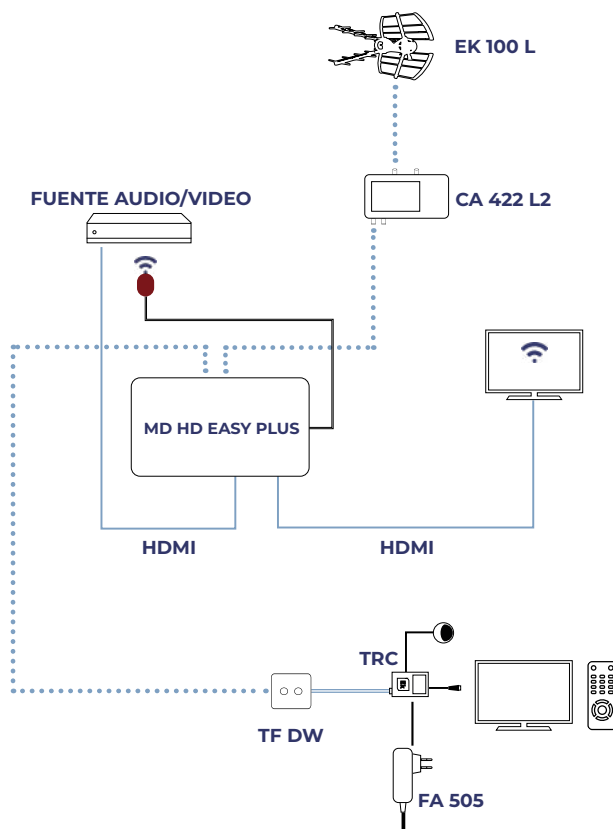
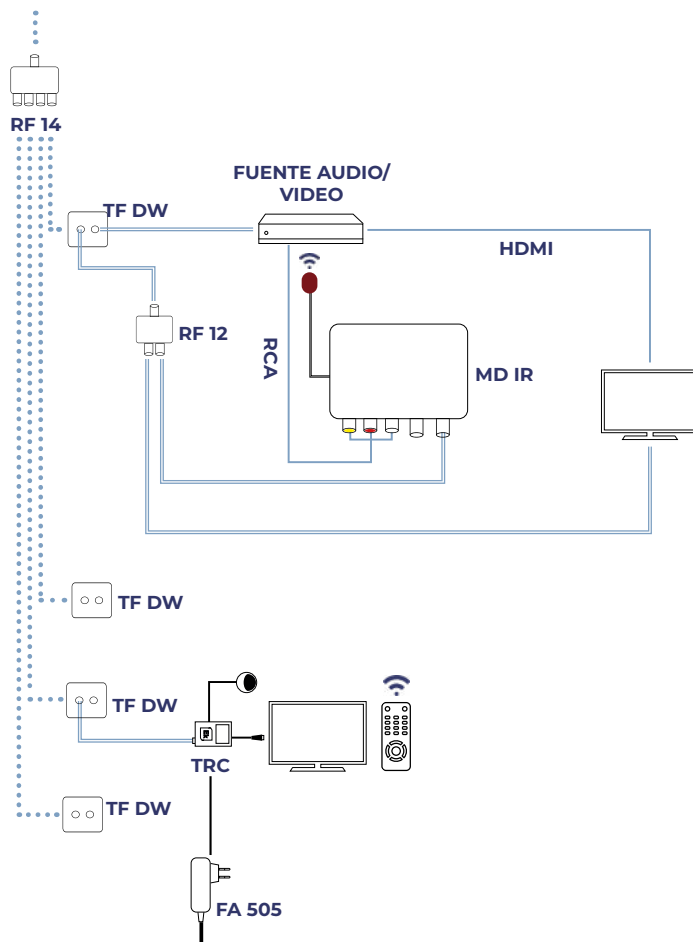
REFERENCE		TRC
Code		125002
Infrared receiver (TRC)		
Infrared frequencies	KHz	30 - 60
RF frequencies	MHz	11
Commands reception indication		LED
Feeding	Vdc	5
Voltage feeding ports		DC Jack 3,5mm / ANT
Consumption	mA	<50

TRC

- √ Universal remote control transmitter with coaxial cable
- √ Universal IR frequency receiver
- √ Possibility of extending the installation with other TRC
- √ Power supply by external source (FA 505)
- √ Confirmation by LED reception of the remote control
- √ Compatible with MD HD EASY RC

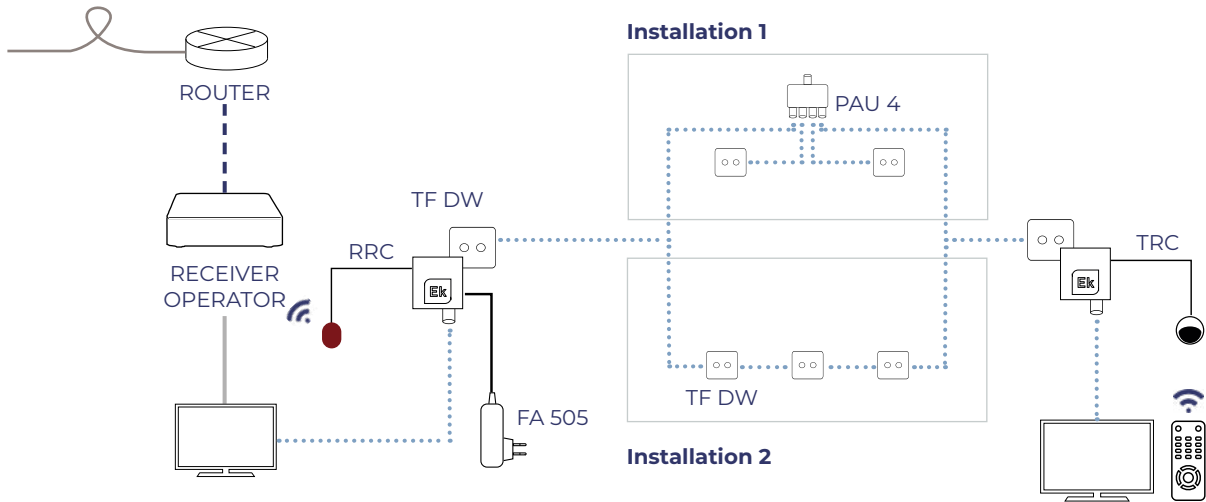


EXAMPLES OF MODULATORS APPLICATIONS + TMD



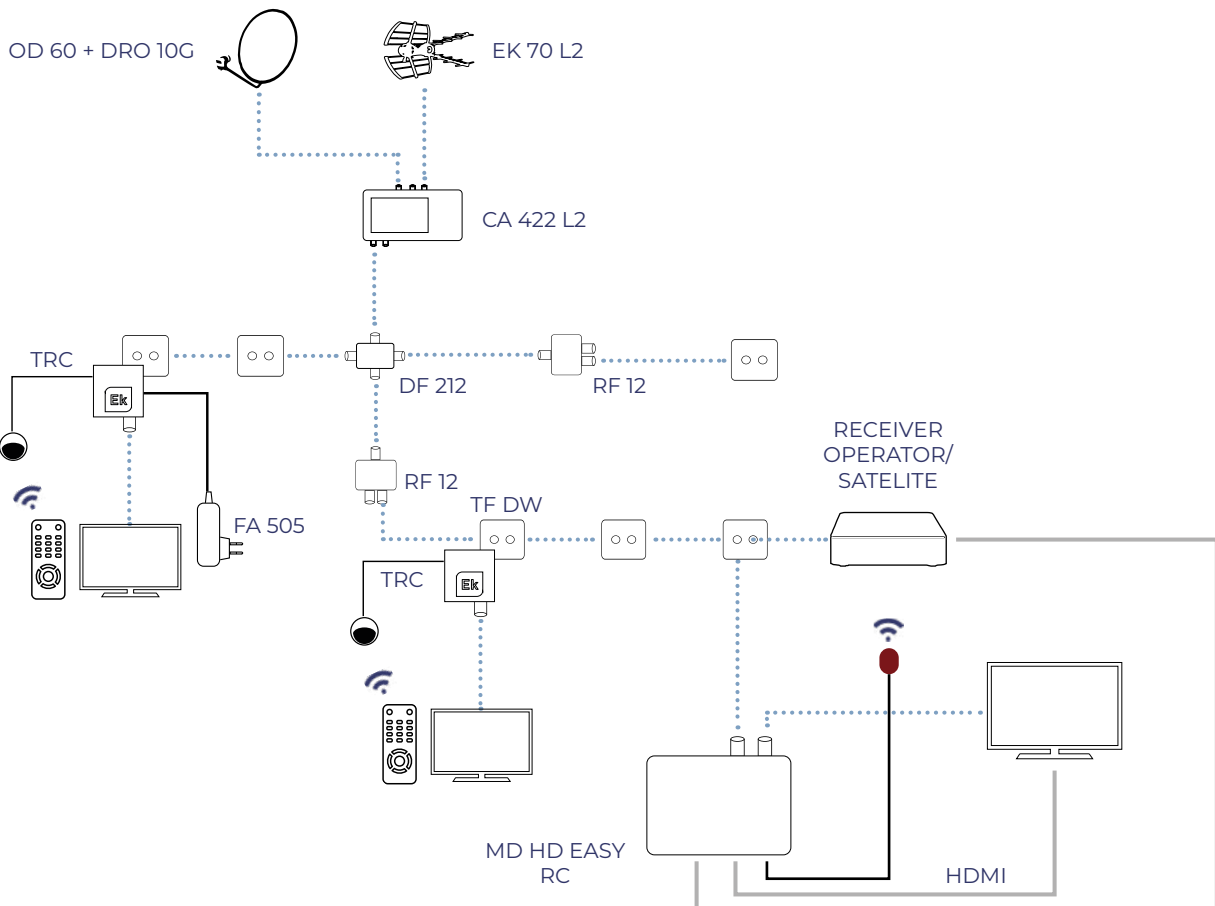
IR-RC INSTALLATION EXAMPLE

With the IR-RC kit you can transmit the remote control signal between two rooms. With the high dynamic range between transmitter and receiver, it is possible to cover coaxial cable installations with high losses. A second power supply (included in the kit) is necessary if the coaxial installation does not allow current to flow.



MD HD EASY RC WITH TRC INSTALLATION EXAMPLE

With the Modulator + TRC set it is possible to distribute the signal of the satellite receiver (or IP) to the entire coaxial network and control the receiver from other rooms. The CRT can be powered from the MD HD EASY RC. With its high dynamic range it is possible to cover installations with high losses.





EKSELANS BY ITS

EKSELANS by ITS
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