EKSELANS BY ITS

USER MANUAL

MD HD EASY TWIN

122013

DIGITAL MODULATOR WITH 2 INPUTS

V02

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Introduction:

Description:

Double HD digital modulator 2x HDMI to COFDM. 2 HDMI input. USB 3.0 input PLAY & REC. Output frequency: 170-230 MHz + 470-862 MHz. Output level (DIN 45004B): >85dB μ V. RF mix input.

- The MD HD EASY TWIN is a 2-HDMI input to 1-channel DVB-T modulator
- It has one USB input for recording and playing .ts files using a memory stick. This USB input is linked to HDMI input A.
- The programming and adjustments of the modulator can be done completely by using the front buttons. Moreover, through MD HD Soft, software (available at www.ek.plus), these settings and further video playing & recording options can be performed.
- The USB input allows interaction in the following ways:
  - Sequential single file recording and playing
  - Automatic play of the file "Autoplay.ts" stored on the USB memory stick when it is connected.
  - Playing of several files "video1.ts", "video2.ts", "video3.ts sequentially and in bucle.
  - Weekly scheduling of the files to be played or recorded (By using "MD HD Soft").

Key features:

- Excellent modulation quality. MER ≥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

Packaging content:

1. 1 x MD HD EASY TWIN.
2. 1 x power supply 5V DC.

INTERFACES, DISPLAY INFORMATION AND CONNECTION:

Interfaces:

1 -Buttons.

2 -Display.

3.-RF output.

4.-RF input.

5.-Power adapter input (5Vdc).

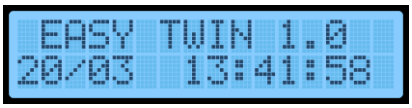
6.-A-Type USB input for programming.

7.-HDMI "A" Input.

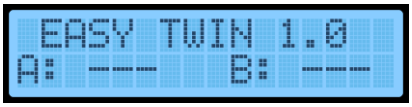
8.-B-Type USB input for memory stick.

9.-HDMI "B" Input.

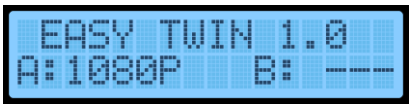
Display information.



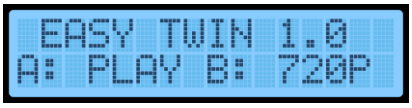
Firmware version, date and time in main screen. Screen 1/2.



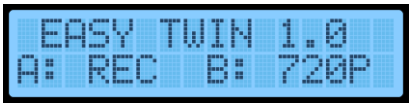
A & B Inputs not connected. Screen 2/2.



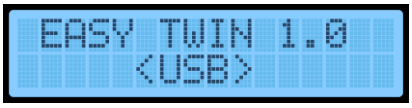
1080p signal detected at input A. Screen 2/2.



USB file being played and 720p signal detected at input B. Screen 2/2.



USB file being recorded and 720p signal detected at input B. Screen 2/2.



Modulator connected to PC. Front buttons are disabled. Screen 2/2.

Installation diagram:

1 -Keys for configuring.

2 –Display.

3.-RF out.

4.-RF in for combining signal.

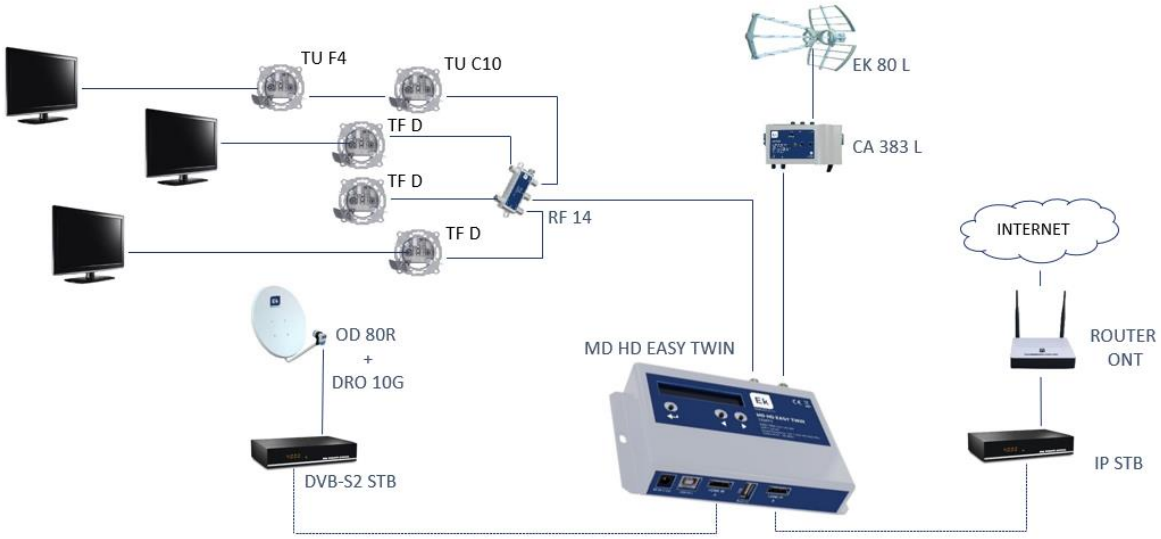
5.-Connect external power supply.

6.-Connect to the PC if necessary to configure with the MD HD SOFT application.

7.-Connect signal to be modulated as "A".

8.-Connect USB containing TS file for video play.

9.-Connect signal to be modulated as "B".



It is necessary to set different TS Id values in facilities with more than one modulator.

Basic programming using buttons:

There are two menus for the settings of the modulator.

- Quick menu: It allows a fast set up of the modulator ↵,↵,◀◀.
- Advanced menu: It allows to perform advances settings. Press ↵,↵,▶▶.

Quick menu

We select the channel with which the modulated signal comes out **from 5** to **12** and from **21** to **69** (for example, configured with country Spain).

We can regulate the level of attenuation of the modulated signal **from 0** to **15dB.**

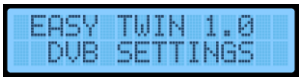
We select the country we want for channel frequencies.

Modify the TS ID. **It must be modified if you have 2 modulators to differentiate them in the installation**.

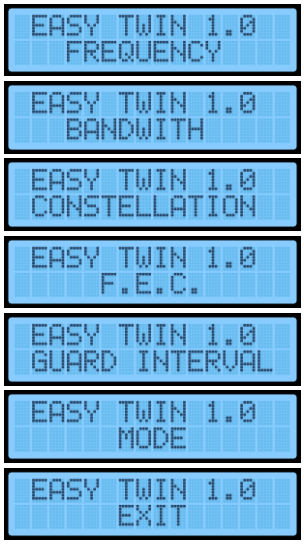
Change the language for the display.

Option to return to your factory settings.

Advanced menu



YES (access the following submenus) **NO** (we do not access the menus)



Set frequency in KHz. Allows you to modify the frequency of the selected channel.

Modifies the bandwidth of channel **6**, **7** or **8MHz**.

We can select different modes of constellation **QPSK**, **QAM16** or **QAM64.**

We select different FEC **1/2, 2/3, 3/4, 5/6, 7/8**.

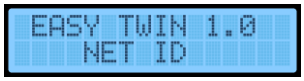
We can select different guard intervals **1/4, 1/8, 1/16, 1/32.**

We can select **2K or 8K** mode.

YES (we go out to the main menu).

YES (access the following submenus) NO (we do not access the menus)

Value from 0 to 31.

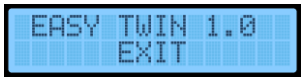


Modify the network ID.

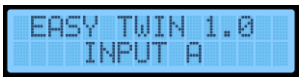
Modify the original NET ID.

"Logic Channel Number" is used to automatically sort all channels by TV set, reordering them at the same time as we search. NORDIG, EACEM, ITC modes,

Change the network name.

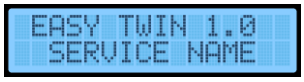


YES (we go out to the main menu).



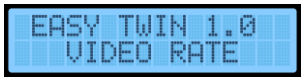
YES (access the following submenus) NO (we do not access the menus)

Input channel identifier A. Note that PROGRAM IDs within the same installation must be different.



Program name of entry A.

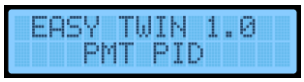
Logical Channel Number is used to set an specific order when an automatic sort of all channels in TV sets is required.



Modify video rates.

Modify audio rates.

Modifies different compression values. AAC-LC, MPEG1-L2, AAC-LC.

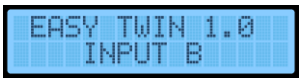


Modify PMT PID.

Modify VIEDO PID.

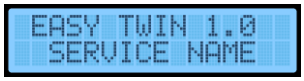
Modify the AUDIO PID.

YES (we go out to the main menu).

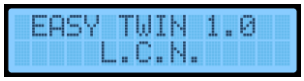


YES (access the following submenus) NO (we do not access the menus)

Input channel identifier B. Note that THE PROGRAM IDs within the same modulator must be different.



Input program name B.



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Modify video rates.

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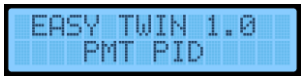
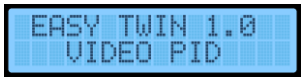
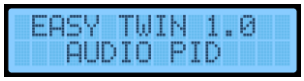


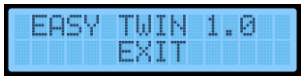
Modify PMT PID.



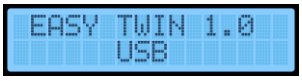
Modify VIEDO PID.



Modify the AUDIO PID.



YES (we go out to the main menu).

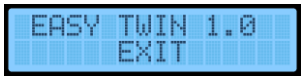


YES (access the following submenus) NO (we do not access the menus)

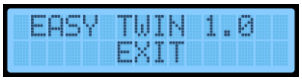
Allows you to play a video from the USB. Explained in its section.

Allows you to record a video from the USB. Explained in its section.

The use of a .ts (USB) file must be tended before starting any other file or being able to use the HDMI A input.



YES (we go out to the main menu).

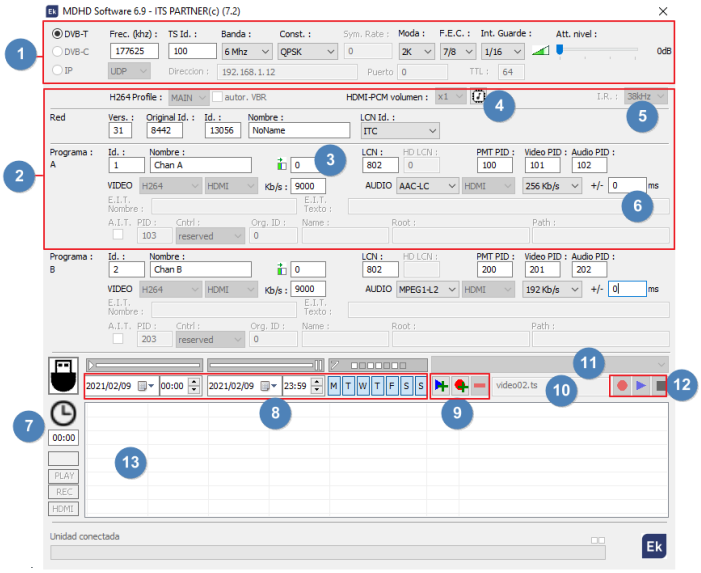


YES (we leave the menu) NO (we stay in the advanced menu)

Advanced programming using MD HD Soft

Configurable parameters and options

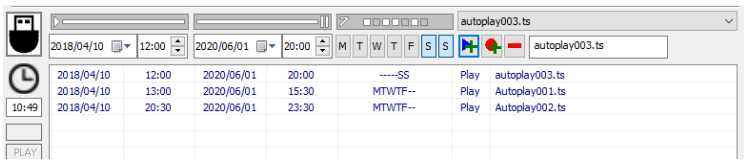
- For advanced programming, download the "MD HD Soft" Software from the website www.ek.plus.
- Connect modulator and computer using a USB cable (Type A/ Type B).



1. RF Parameters.
2. Video and TS parameters.
3. This box can be used to adjust a horizontal shift on the input video. With some sources (rare cases), customers were facing a green part on the left of the picture. With this setting, the picture can be moved to the left to make this green bar disappear.
4. Click the button on to write the EDID table in the modulator.
5. Frequency of the remote controller that points to the TRC.
6. Delay between audio and video of the output modulated signal. A delay of -999ms means that the video is almost 1s in front of the video
7. Current time and adjustment.
8. Schedule by date, time and days of the week.
9. Programming of scheduled events of recording and playing files to/from the USB memory stick
10. Name of the file that the modulator expects in the connected USB memory stick for playing or overwriting
11. Selection of the .ts file stored inside the connected USB memory stick
12. Control with MDHDSoft of the stored files in the USB memory stick. PLAY, STOP or Record.
13. Panel where uploaded videos will be displayed.

Creating a Playlist or Recordlist.

As the device can be connected to an external USB memory stick and keeps the time, events of recording and playing can be programmed:



1. Select initial and final date and time
2. Select the days of the week.
3. Select the file to be played or write the name of the file to be recorded
4. Press  or  depending on if we want to play or record.
5. In case of error, select the element and delete it  .

Recording and playing by front buttons

The modulator allows recording and playing .ts files with the support of a USB memory stick. The selection of the files can be done both by using the front buttons or by "MD HD Soft" software. The use of the USB port is priority over the HDMI A input.

The modulator allows recording and playing .ts files with the support of a USB memory stick. The selection of the files can be done both by using the front buttons or by "MD HD Soft" software. The use of the USB port is priority over the HDMI A input:

Recording and playing by front buttons

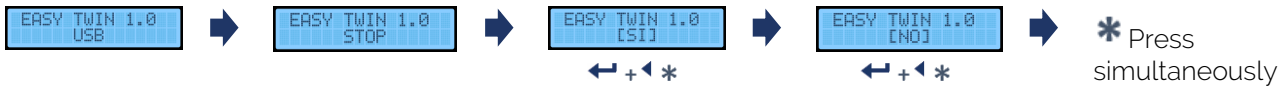
Connect a 3.0 USB memory stick and feed the module with the power adapter.

- PLAY
  Select the target file in the memory by using the advanced menu:

- Select the target file in the memory by using the advanced menu "Autoplay001.ts", it will be played automatically when connecting the USB.
- In order to play a selection of files, name them with a numerical suffix. For example, "Autoplay001.ts", "Autoplay002.ts", "Autoplay003.ts". When the playing of the selected file is ended, it will keep playing the following videos sorted by number. Once finished, will continue from the lowest suffix file,

- REC
  Insert the name of the file to be stored character by character:

- STOP PLAYING / RECORDING
  When using a .ts file stop it before using another file or using the HDMI A input.



✱ Press simultaneously

USING THE USB MEMORY

- The modulator allows recording and playing .TS files.
- TS files must be stored on a USB 3.0 memory with FAT32 files system.
- The "EK Converter" software can be found on the website https://ek.plus/software/. This converts the most common video and image formats to .TS format.
- Use the MD HD Soft software to program play / record time slots.
- The file "Video01.ts" hosted in the root of the memory will be played cyclically.
- If there are other files "Autoplay001.ts", "Autoplay002.ts"… will be played consecutively.

Ek Converter

The recording and playing of files is priority over the HDMI input A.
Make sure the TV is tuned over this program if want to view such files.

Technical specifications

REFERENCE		MD HD EASY RC
Code		122013
Inputs		2x HDMI (A /B)
VÍDEO		
Video resolution		480p - 576p - 720p - 1080p
Video compression		H.264
Vídeo rate	Kbps	500-15000
AUDIO		
Audio compression		MPEG1-L2, AAC-LC
Audio rate	Kbps	128, 192, 256, 320
MODULATION		
DVB processing		NIT, PID
DVB adjustment		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	dBµV	>80
Attenuation	dB	0…15
MER	dB	≥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
Loop RF	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	<5
Dimensions	mm	170 x 100 x 25
Weigth	kg	0,6

Frequency and channels table (Standard B/G)

- Band III. 7MHz Bandwidth
- Band IV - V. 8MHz Bandwidth

BAND	Channel	Start Freq.	End Freq	Central Freq
III	5	174 MHz	181 MHz	177,5 MHz
	6	181 MHz	188 MHz	184,5 MHz
	7	188 MHz	195 MHz	191,5 MHz
	8	195 MHz	202 MHz	198,5 MHz
	9	202 MHz	209 MHz	205,5 MHz
	10	209 MHz	216 MHz	212,5 MHz
	11	216 MHz	223 MHz	219,5 MHz
	12	223 MHz	230 MHz	226,5 MHz

BAND	Channel	Start Freq.	End Freq	Central Freq
IV	21	470 MHz	478 MHz	474 MHz
	22	478 MHz	486 MHz	482 MHz
	23	486 MHz	494 MHz	490 MHz
	24	494 MHz	502 MHz	498 MHz
	25	502 MHz	510 MHz	506 MHz
	26	510 MHz	518 MHz	514 MHz
	27	518 MHz	526 MHz	522 MHz
	28	526 MHz	534 MHz	530 MHz
	29	534 MHz	542 MHz	538 MHz
	30	542 MHz	550 MHz	546 MHz
	31	550 MHz	558 MHz	554 MHz
	32	558 MHz	566 MHz	562 MHz
	33	566 MHz	574 MHz	570 MHz
	34	574 MHz	582 MHz	578 MHz
	35	582 MHz	590 MHz	586 MHz
	36	590 MHz	598 MHz	594 MHz
	37	598 MHz	606 MHz	602 MHz

BAND	LTE	Channel	Start Freq.	End Freq	Central Freq
V		38	606 MHz	614 MHz	610 MHz
		39	614 MHz	622 MHz	618 MHz
		40	622 MHz	630 MHz	626 MHz
		41	630 MHz	638 MHz	634 MHz
		42	638 MHz	646 MHz	642 MHz
		43	646 MHz	654 MHz	650 MHz
		44	654 MHz	662 MHz	658 MHz
		45	662 MHz	670 MHz	666 MHz
		46	670 MHz	678 MHz	674 MHz
		47	678 MHz	686 MHz	682 MHz
		48	686 MHz	694 MHz	690 MHz
	2	49	694 MHz	702 MHz	698 MHz
	2	50	702 MHz	710 MHz	706 MHz
	2	51	710 MHz	718 MHz	714 MHz
	2	52	718 MHz	726 MHz	722 MHz
	2	53	726 MHz	734 MHz	730 MHz
	2	54	734 MHz	742 MHz	738 MHz
	2	55	742 MHz	750 MHz	746 MHz
	2	56	750 MHz	758 MHz	754 MHz
	2	57	758 MHz	766 MHz	762 MHz
	2	58	766 MHz	774 MHz	770 MHz
	2	59	774 MHz	782 MHz	778 MHz
	2	60	782 MHz	790 MHz	786 MHz
	1	61	790 MHz	798 MHz	794 MHz
	1	62	798 MHz	806 MHz	802 MHz
	1	63	806 MHz	814 MHz	810 MHz
	1	64	814 MHz	822 MHz	818 MHz
	1	65	822 MHz	830 MHz	826 MHz
	1	66	830 MHz	838 MHz	834 MHz
	1	67	838 MHz	846 MHz	842 MHz
	1	68	846 MHz	854 MHz	850 MHz
	1	69	854 MHz	862 MHz	858 MHz