



EKSELANS BY ITS

USER MANUAL

MD HD EASY TWIN

122013

DIGITAL MODULATOR WITH 2 INPUTS

V04

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INTRODUCTION.

Description.

HD Digital Modulator 2x HDMI inputs to COFDM/QAM. Recorder and .ts files player via USB 3.0. Output frequency: 47-862 MHz Output level >82 dB μ V. RF mixing input.

- The MD HD EASY TWIN is a digital modulator with two independent and simultaneous HDMI inputs, A and B that are modulated in a single COFDM or QAM channel (DVB-T or DVB-C).
- It has a USB input for recording and playback of .ts files linked to input A.
- Modulator adjustments can be fully made using the front buttons. In addition, the SW "MD HD Soft" (available on the web www.ek.plus) is also available for these and other settings related to playback and recording.
- The USB input allows you to interact with files in the following ways:
 - Individual recording and playback in a loop of a file.
 - Automatic playback of the file "Autoplay.ts" contained in the USB stick when connected.
 - Playback of several files Video1.ts, Video2.ts, Video3.ts, sequentially and in a loop.
 - Weekly programming of the files to be played or saved (Using "MD HD Soft").

Main features.

- Excellent modulation quality MER \geq 33 dB in COFDM and MER \geq 36 dB in QAM. Resolution up to 1080p.
- 2 x HDMI inputs.
- USB Recorder / Player.
- Quick menu. Easy adjustment using buttons.
- Modulation in a single output MUX.
- Easy advanced programming using PC program ([MD HD Soft](#)). Link: <https://ek.plus/en/sw/modulators>

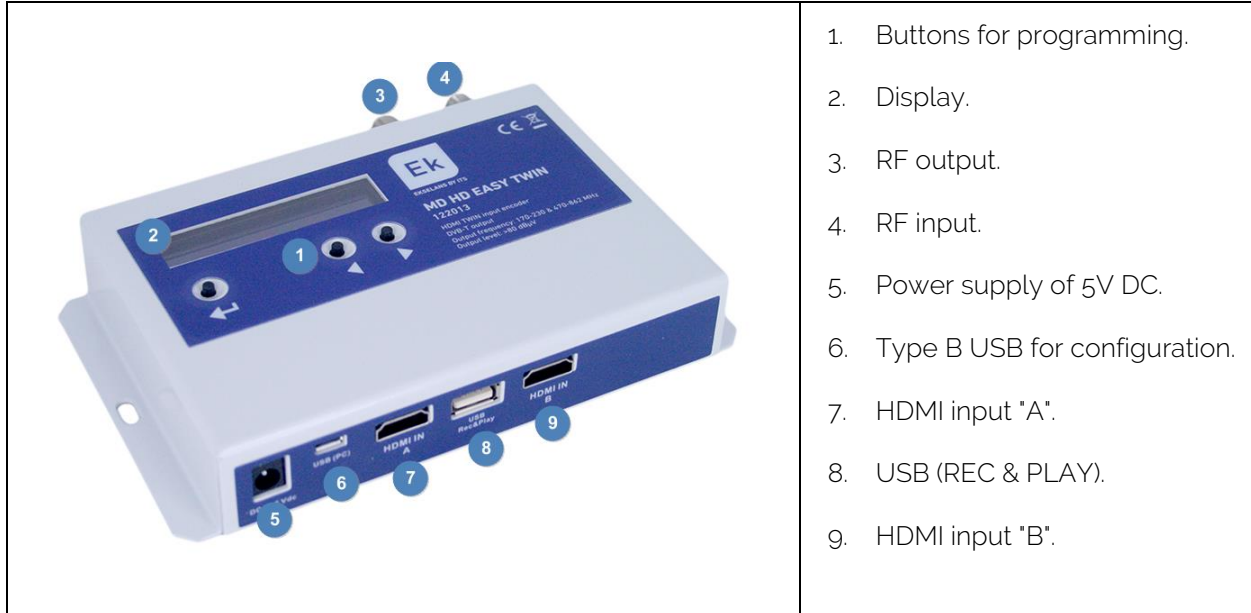
Contents of the packaging.

1x MD HD EASY TWIN.

1x 5V DC power supply 2A.

INTERFACES, DISPLAY INFORMATION AND CONNECTION.

Interfaces.



1. Buttons for programming.
2. Display.
3. RF output.
4. RF input.
5. Power supply of 5V DC.
6. Type B USB for configuration.
7. HDMI input "A".
8. USB (REC & PLAY).
9. HDMI input "B".

Display information



Information of version, date and time. Screen 1/2.



No connections on inputs A and B. Screen 2/2.



Input A connected with a 1080p signal detected. Screen 2/2.



Input A playing a .ts file and a 720p signal detected in input B. Screen 2/2.



Input A recording a .ts file and a 720p signal detected in input B. Screen 2/2.

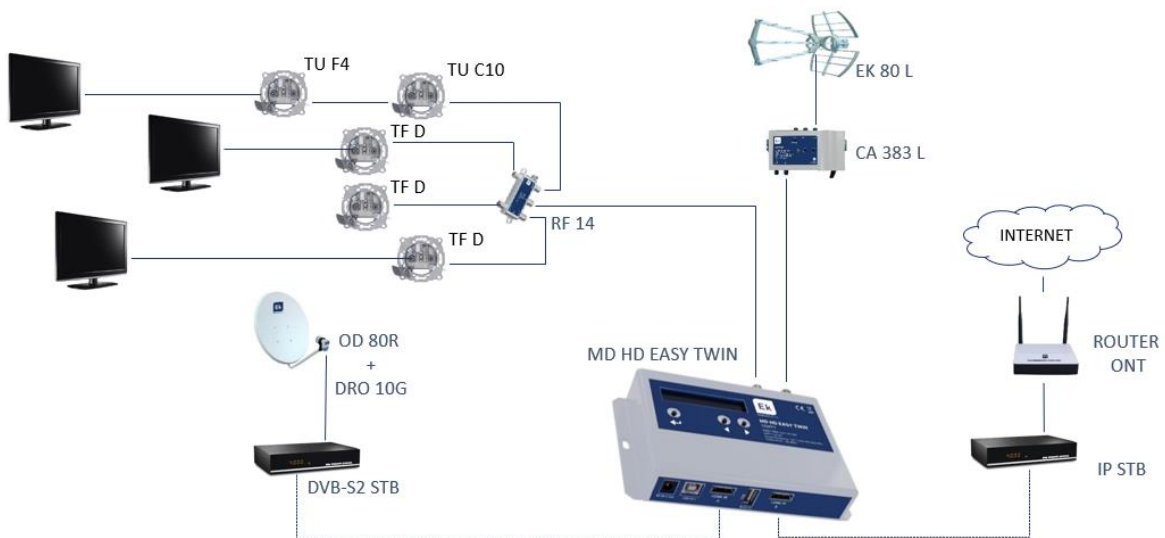


Modulator connected to the PC. Buttons programming disabled. Screen 2/2.

Installation diagram:

	<ol style="list-style-type: none"> 1. Left/Right buttons used to configure. 2. Display screen. 3. RF signal output (to the receivers). 4. RF signal input. 5. Power supply input 6. USB input for PC programming (MD HD SOFT application). 7. HDMI input A 8. USB input for record and play. 9. HDMI input B
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Example:



In installations with more than one MD HD EASY TWIN it is important to put different values of "TS Id" in each modulator.

Basic programming using buttons.

There are two menus to make adjustments on the modulator.

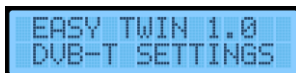
- Quick menu: Access the basic options. Press in the following order 

Quick menu

EASY TWIN 1.0 MODULATION	It allows us to select the type of output modulation. DVB-T (DTT1) or DVBC (Cable TV). "Only available in compatible models" .
EASY TWIN 1.0 CHANNEL	Select the output modulated signal from 5 to 12 and from 21 to 69 (for example, configured with country Spain).
EASY TWIN 1.0 ATTENUATION	Regulate the attenuation level of the modulated signal from 0 to 15dB .
EASY TWIN 1.0 COUNTRY	Select the country we want for the channel's frequency
EASY TWIN 1.0 TS ID.	Modify the TS ID. It must be modified in case of having 2 modulators to differentiate them in the installation.
EASY TWIN 1.0 LANGUAGE	Modify display's language. ENGLISH, ITALIANO, DEUTSCH, ESPAÑOL, POLSKI, FRANCAIS.
EASY TWIN 1.0 DEFAULT CONFIG.	Reset. Option to return to factory settings.

Advanced menu

- Advanced menu: Allows you to make advanced adjustments on the modulator. Press in the following order 



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

EASY TWIN 1.0 FREQUENCY	Set output frequency in KHz. Allows you to modify the frequency of the selected channel.
EASY TWIN 1.0 BANDWIDTH	Modifies the channel bandwidth to 6, 7 or 8MHz .
EASY TWIN 1.0 CONSTELLATION	Select different constellation modes QPSK, QAM16 and QAM64 .
EASY TWIN 1.0 F.E.C.	Select different FECs "Forward error correction", 1/2, 2/3, 3/4, 5/6, 7/8 .
EASY TWIN 1.0 GUARD INTERVAL	Select different guard intervals 1/4, 1/8, 1/16, 1/32 .
EASY TWIN 1.0 MODE	Select 2K or 8K mode .
EASY TWIN 1.0 EXIT	YES (go to the main menu).

EASY TWIN 1.0
DVB-C SETTINGS

"ONLY AVAILABLE IN COMPATIBLE MODELS"

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

- EASY TWIN 1.0
FREQUENCY
- EASY TWIN 1.0
BANDWIDTH
- EASY TWIN 1.0
CONSTELLATION
- EASY TWIN 1.0
SYMBOL RATE
- EASY TWIN 1.0
EXIT

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

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

Select different constellation modes, **QAM16, QAM32, QAM64, QAM128, QAM256**

We can define the symbol rate with which we want to work.

YES (go to the main menu).

EASY TWIN 1.0
TS SETTINGS

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

- EASY TWIN 1.0
NIT RELEASE
- EASY TWIN 1.0
NET ID.
- EASY TWIN 1.0
ORIG. NET ID.
- EASY TWIN 1.0
LCN ID.
- EASY TWIN 1.0
NETWORK NAME
- EASY TWIN 1.0
EXIT

Set the NIT version from **0** up to **31**.

Set the network ID.

Set the original network ID.

"Logical Channel Number" makes an automatic classification of all our channels, reordering them at the same time as we search. **NORDIG, EACEM, ITC modes.**

Modify the network name.

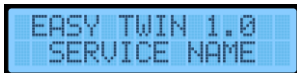
YES (go to the main menu).



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



Set program ID for input A. Keep in mind that the PROGRAM IDs within the same modulator must be different.



Program name of input A.



Logical Channel Number. It makes an automatic classification of all our channels, reordering them at the same time as we search.



Set video rates.



Set audio rate.



Set audio compression - AAC-LC, MPEG1-L2, AAC-LC.



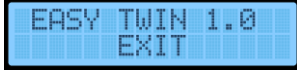
Set PMT PID.



Set video PID.



Set audio PID.



YES (go to the main menu).

EASY TWIN 1.0
INPUT B

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

EASY TWIN 1.0
PROGRAM ID.

Set program ID for input B. Keep in mind that the PROGRAM IDs within the same modulator must be different.

EASY TWIN 1.0
SERVICE NAME

Program name of input B.

EASY TWIN 1.0
L.C.N.

Logical Channel Number. It makes an automatic classification of all our channels, reordering them at the same time as we search.

EASY TWIN 1.0
VIDEO RATE

Set video rates.

EASY TWIN 1.0
AUDIO RATE

Set audio rate.

EASY TWIN 1.0
AUD. COMPRESSION

Set audio compression - AAC-LC, MPEG1-L2, AAC-LC.

EASY TWIN 1.0
PMT PID

Set PMT PID.

EASY TWIN 1.0
VIDEO PID

Set video PID.

EASY TWIN 1.0
AUDIO PID

Set audio PID.

EASY TWIN 1.0
EXIT

YES (go to the main menu).

EASY TWIN 1.0
USB

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

EASY TWIN 1.0
PLAY

Allows you to play a video from the USB 3.0. Explained in his section.

EASY TWIN 1.0
RECORD

Allows you to record a video on the USB 3.0. Explained in his section.

EASY TWIN 1.0
STOP

You have to stop using a .ts file (from the USB) before starting any other file or being able to use the HDMI A input.

EASY TWIN 1.0
EXIT

YES (we go to the main menu).

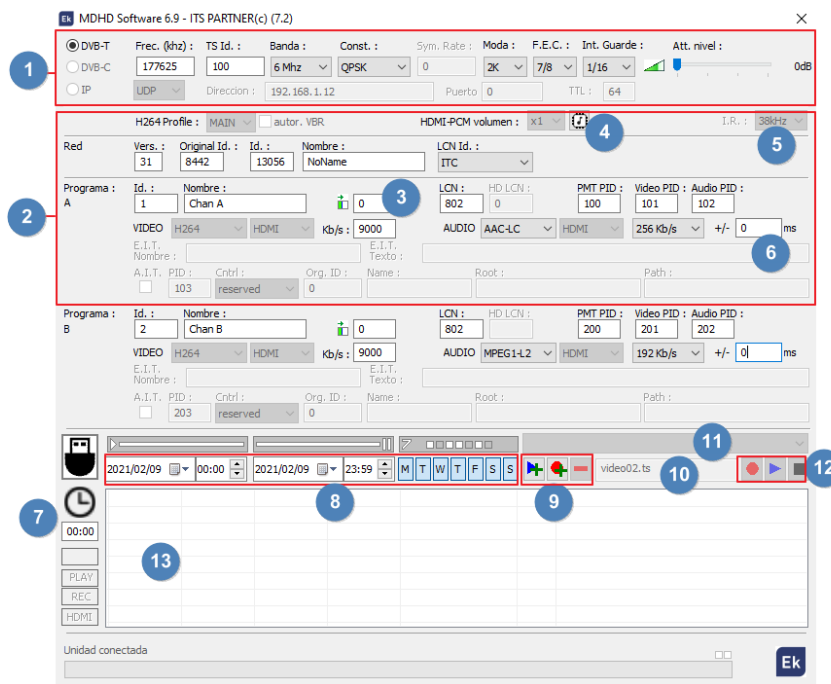
EASY TWIN 1.0
EXIT

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

Advanced programming using MD HD Soft.

Configurable parameters and options.

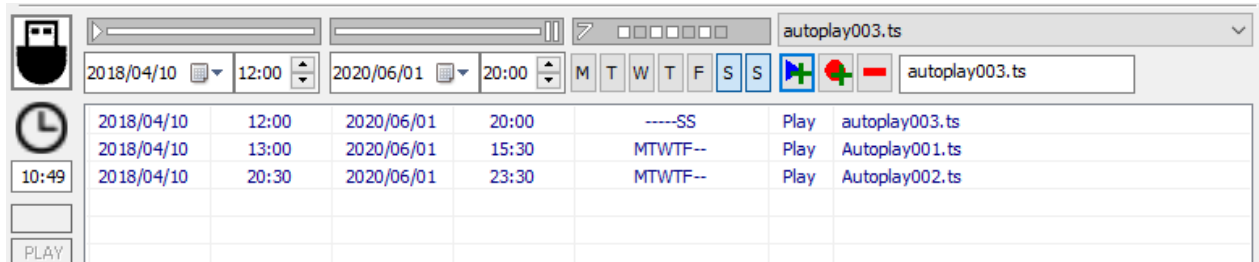
- For advanced programming, download the Software "[MD HD Soft](https://ek.plus/en/sw/modulators)" from the website <https://ek.plus/en/sw/modulators>
- Connect modulator and computer using a USB cable (Type A / Type B).






1. RF settings.
2. Video and TS settings of input A. Input B is set in Program B.
3. This option will be used to adjust some deviation in the video input signal. With some sources (very rare cases), a green band appears to the left of the image. This option will allow you to move this band until it disappears.
4. Use in case of not listening to Dolby Digital by RF output. Clicking this button will write the EDID table.
5. Infrared frequency of the remote control pointing to the TRC.
6. Time lapse between RF-modulated audio and video. **-999ms**, indicates that the audio is almost 1 second ahead of the video.
7. Current time and setting.
8. Schedule by date, time and weekdays.
9. USB files recording and playback events scheduling.
10. Name of the USB file that the modulator waits to be played by buttons.
11. USB file selector (.ts file format)
12. **RECORD, PLAY or STOP** functions to control USB files.
13. Playlist or Record list.

Create a PlayList or RecordList

By having a USB memory and clock it is possible to schedule playback and recording events.



1. Select start and end date and time.
2. Select weekdays.
3. Select the file to play or write the name of the file to save.
4. Indicate if we want to play it  or save it on the USB stick with .
5. In case of error, select the item and delete it. .

RECORDING AND PLAYBACK OF FILES WITH DISPLAY.

The modulator allows you to record and play .ts files stored on a USB stick. The selection of the files can be done both by front buttons and by "MD HD Soft" software. USB files playback has priority over input A HDMI.

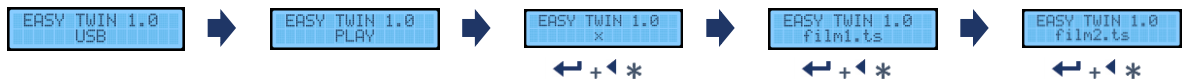
When the USB port is connected, the MD HD EASY TWIN will be detected and the following screen will appear, leaving the display with the indication <USB> and the buttons disabled:



Recording and playback using buttons.

Connect a **USB 3.0 stick** and plug the modulator into the power.

- Playback (PLAY)
Select the file available in memory, using the advanced menu:

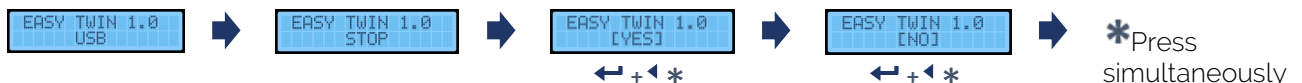


- In case the USB stick contains a file called "Autoplay001.ts", it will play automatically when you connect the USB.
- To play a list of files, name them with a numeric suffix. For example, "Autoplay001.ts", "Autoplay002.ts", "Autoplay003.ts". At the end of the reproduction of one of them, it will continue through the next one and if there is no other, it will start again from first file.

- Recording (REC)
Access the record function and enter the desired name of the file, character by character, for example:

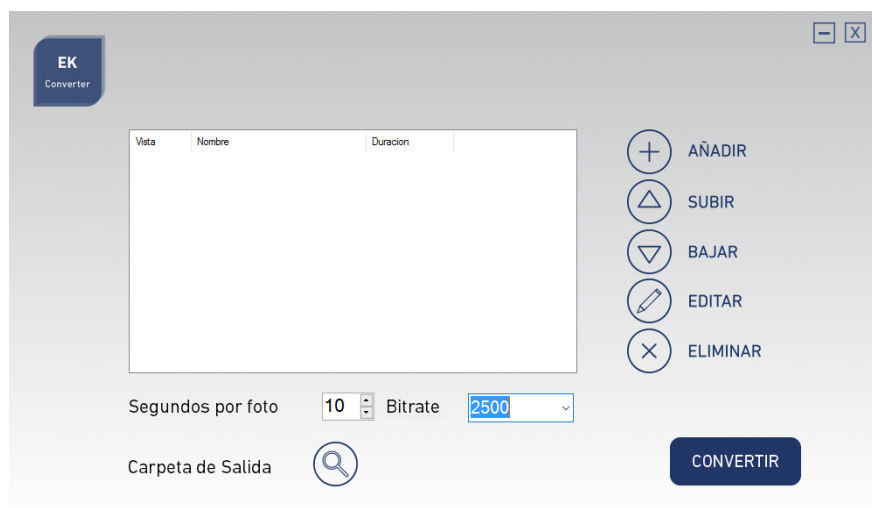


- Stop Playback/Recording (STOP)
Stop using a .ts file before starting any other file or be able to use the HDMI A input.



USE OF THE USB STICK.

- The modulator allows you to store and play back .TS files.
- The .TS files must be stored on a **USB 3.0** memory stick with **FAT32** file system.
- On the website you can find the software "[EK Converter](https://ek.plus/en/sw/ek-converter-en)". It converts the most common video and image formats to .TS format. Link: <https://ek.plus/en/sw/ek-converter-en>
- Use MD HD Soft software to schedule playback/recording time slots.
- When you insert the USB memory stick, the "Autoplay001.ts" file will be played automatically and continuously (unless previously modified by means of MD HD Soft) hosted on the USB memory.
- If there are other files "Autoplay001.ts", "Autoplay002.ts"... shall be reproduced consecutively.



Ek Converter



The recording and playback of files is done primarily over the HDMI A input. Make sure that your TV is tuned on this service to view these files.

Table of channels and frequencies (Standard B/G).

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

BAND	Channel	Initial frequency	Final frequency	Central frequency
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	Initial frequency	Final frequency	Central frequency
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	Initial frequency	Final frequency	Central frequency	
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

Technical specifications

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

<https://ek.plus/en/search/122013>

CE Certificate

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

<https://ek.plus/en/search/122013>