

User's handbook  
Digital radio link  
EK-MFR/1

EK-CDC/2 board

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**The socket utilized for the unit supply must have the appropriate ground conductor.**

**The connection of the unit , to a socket without the ground conductor, will make the whole equipment dangerous for people safety.**

**About the repairing of the units please refer to specialized personnel only .**

**Inside the devices there are voltages which could be dangerous to people.**  
**Before opening the cover switch off the unit, disconnect the connection and the supply cables.**

**In case of electrical shock please follow the instructions of first aid listed on page 4**

**Substitute the fuses interrupted with others of the same type and voltage.**



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## ***First aid: artificial breathing(mouth to mouth)***

1	<p>In case of electric shock you have to ensure the first aids to the patient, but to do this you have to consider two very important things:</p> <ul style="list-style-type: none"> <li>- <b>interrupt immediately the electric circuit;</b></li> <li>- <b>if the circuit has not been interrupted, do not touch the patient with bare hands;</b></li> </ul> <p>After doing this, without delay contact the nearest mobile unit of first aid and practice to the patient, in case of loss of consciousness, the breathing mouth to mouth as described below.</p>	
2	<p>Put the patient lying on his back with the arms parallel to the body, ensure that he does not have the breathing tracts obstructed (chewing-gum, dental prosthesis, etc.), otherwise set him free from foreign bodies.</p> <p>Kneel near the patient's head and putting a hand under his neck, incline as possible his/her head backwards.</p>	
3	<p>Going on with keeping the patient's head inclined with one hand, use the other one to occlude the nostrils, if you are going to practise the breathing through the oral cavity, or occlude the mouth if you want to do it through the nasal cavity.</p> <p>While doing this begin the auto-oxygenation, with deep breathing.</p> <p>Then practice the artificial breathing blowing in the chosen cavity beginning with ten expirations each minute to go on them with twelve and fifteen.</p>	
4	<p>During the breathing procedure you have to control that the patient's chest dilates, otherwise change cavity where to blow the air because the previous one could be obstructed.</p>	
5	<p>Do not ever stop the artificial breathing until the patient has recovered or the first aid unit has come.</p>	

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## 1. GENERAL DESCRIPTION

The EK-CDC/2 board allows to codify and decodify a video signal plus two audio channels in digital form according to specific MPEG-2 (Main profile@ Main level 4:2:0).

The encoder section is composed by a video part that allows to switch between a RS170 video input signal and a SDI video input signal; an audio part that allows to obtain an analogue audio signal (analog) or a digital audio signal (AES3); and one digital output on ASI interface (Asynchronous serial interface). Also in the decoder section it is possible to choose the video output signal (RS170 or SDI) and the output audio signal (analogue or AES3). The decoder section has also one input on ASI interface. The main characteristic is the standard availability of an integrated multiplexer circuit (par 1.3 *Internal multiplexer block scheme*). The multiplexer structure allows the user, that must to set up a Transport Stream with more programs, to do this only coupling more EK-CDC/2 boards inside the EK-MFR/1.

The multiplexer system for different video/audio signals runs inside the system avoiding the installation of external connections because the traffic data, which are inside the encoder, are available through inside connection lines to all the slots placed in the EK-MFR/1.

The SI (Service Information) table are loaded inside the EK-CDC/2 board.

Inside the same EK-MFR/1 it is possible to insert a maximum of six EK-CDC/2 board to obtain a different and independent Transport Streams. The internal commutation matrix allows a large interconnection flexibility.

In the decoder section we can choose either to decode the ASI data flow coming from an external connector or the internal flow of the EK-MFR/1, for example the data flow incoming from other encoder MPEG2 boards.

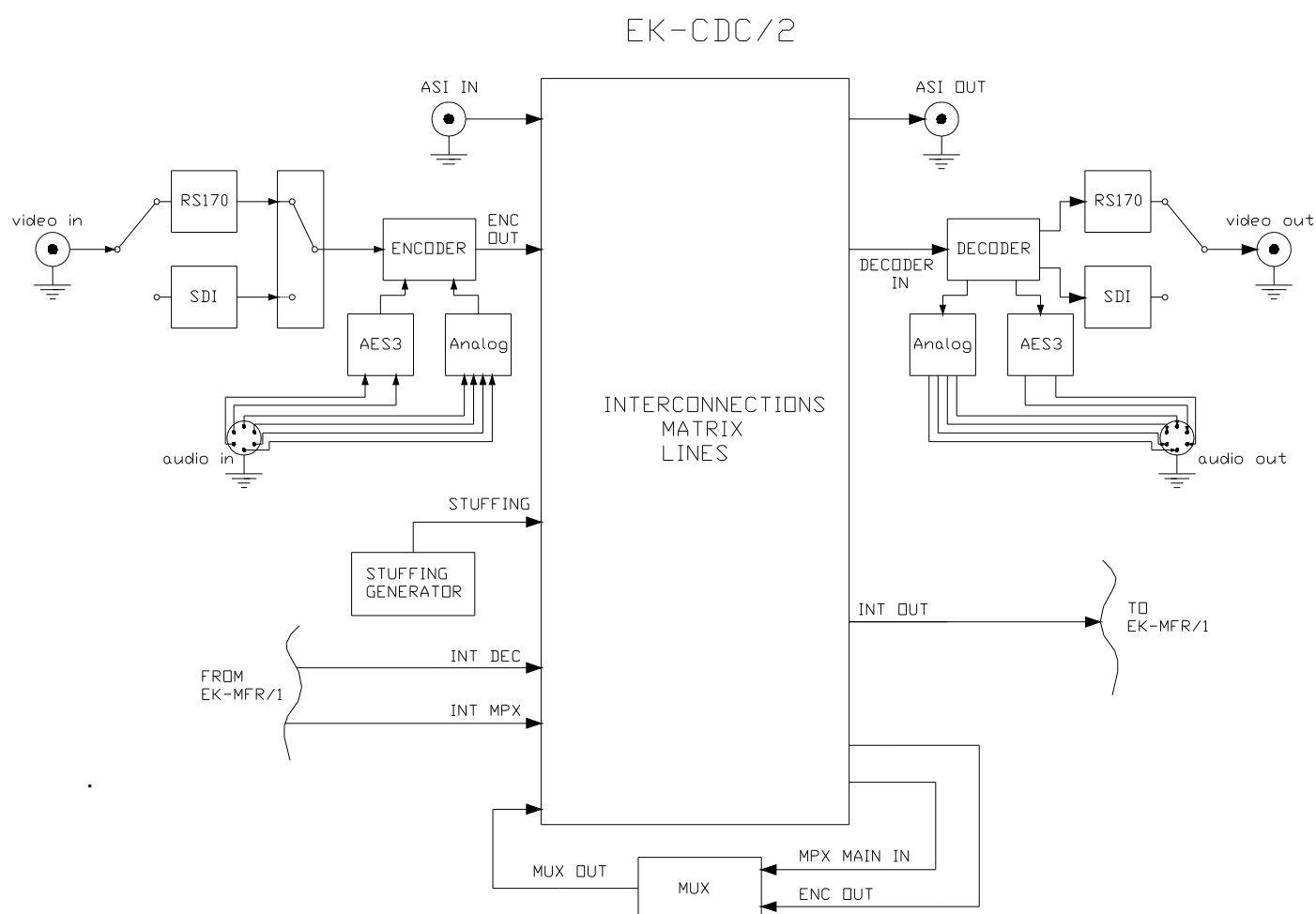
The EK-CDC/2 board, thanks to the interconnection matrix lines of EK-MFR/1 can be connected with the other EK-MFR/1 board and with the EK-MFR/1 system.

When the EK-MFR/1 is turn on a period of 60 seconds is necessary to configure the EK-CDC/2 board.

## 1.1 Technical features

Video input	
Video input format	Analogue: Composite PAL / NTSC
Composite video input	1 Vpp 75 Ohm with BNC socket
Digital video input	SDI
Video encoding	
Standard	ISO / IEC 13818-2 <a href="#">MP@ML</a> ( MPEG-2 4:2:0 )
Bit-Rate	0.800 ÷ 13.408 Mb/s
Supported resolution	Full D1, 3/4 D1, 2/3 D1, HD1, SIF
Audio input and encoding	
Analogue Audio input format	Two channels
Digital Audio input format	AES - EBU
Analogue Audio input level	Selectable between -6 dB ÷ 0.5 dB
Analogue Audio input impedance	Selectable between 600 Ohm ÷ 10000 Ohm
Analogue Audio output level	Selectable between -6 dB ÷ 0.5 dB
Sampling frequency	32 KHz, 44.1 KHz, 48 KHz
Encoding Standard	ISO / IEC 11172-3 ( MPEG-1 audio ) layer 1/2 - compliant
Bit-Rate	32 Kb/s, 48 Kb/s, 56 Kb/s, 64 Kb/s, 80 Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s, 224 Kb/s, 256 Kb/s, 320 Kb/s, 384 Kb/s
Stream and interfaces	
Stream type	Transport stream on ASI interface
Stream multiplexing	ISO / IEC 13818-1 ( MPEG-2 )
System Bit-Rate	up to 45 Mb/s on 100 Kbit step
Multiplexing	
Tables	Add / modify (NIT, SDT, PAT, PMT)
Settings	Fixed or by software via Ethernet 10/100 base T
Output digital interface	DVB - ASI

## 1.2 Codec block scheme

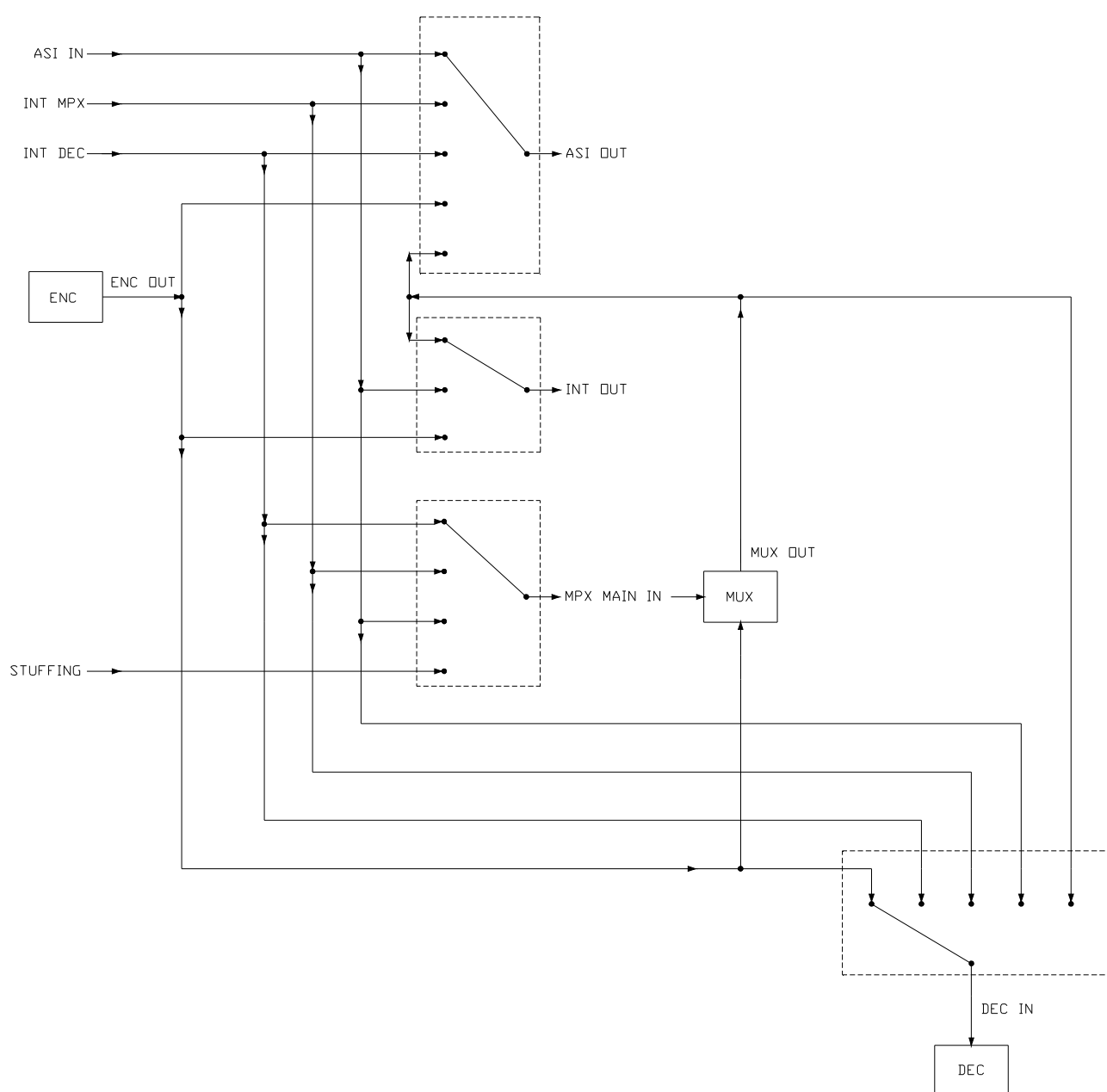




### 1.3 Internal multiplexer block scheme

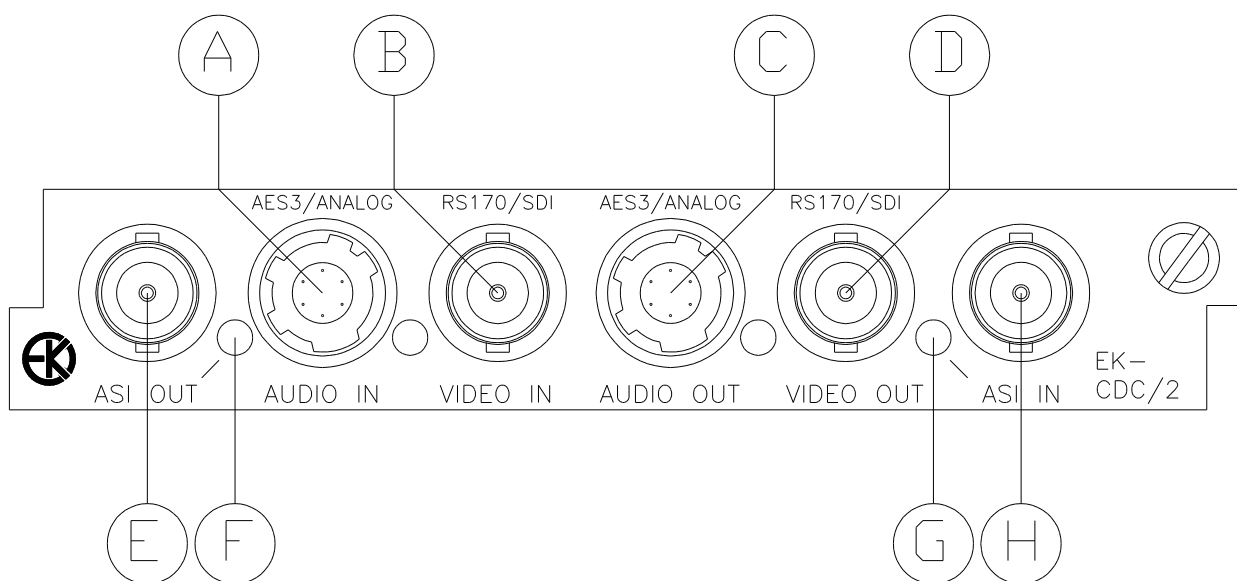
The internal EK-CDC/2 multiplexer structure is reported below. The figure shows all the possible routing of every signal that are described in the Port Set menu.

For example it is possible to send on the ASI output connector (par 2.1 *board panel representation*) one of the following signals: ASI IN (ASI input signal present on ASI input connector), INT MPX or INT DEC (signals coming from the EK-MFR/1 unit), ENC OUT (encoder output signal), MUX OUT (multiplexed signal). The MUX OUT signal is a multiplexed signal derived by the multiplexer operation between the encoder output signal and the MPX MAIN IN signal.



## 2. BOARD PANEL

### 2.1 Board panel representation

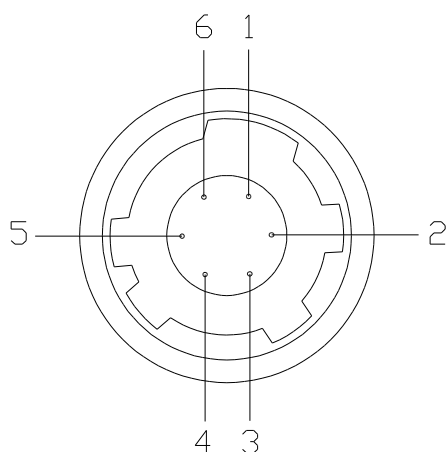


### 2.2 Board panel description

- A) Audio input connector (AES3 or Analog).
- B) Video input connector. (RS170 or SDI)
- C) Audio output connector (AES3 or Analog).
- D) Video output connector. (RS170 or SDI).
- E) Data output connector (ASI).
- F) Green led: indicates, if it is on, a transport stream in output.
- G) Green led: indicates, if it is on, a valid transport stream input.
- H) Data input connector (ASI).

## 2.3 Panel connectors description

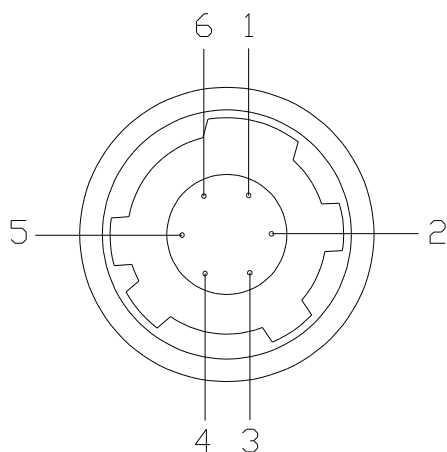
### 2.3.1 Audio input connector



PIN	FUNCTION
1	LEFT AUDIO INPUT
2	BALANCED
3	RIGHT AUDIO INPUT
4	BALANCED
5	DIGITAL AUDIO INPUT (-)
6	DIGITAL AUDIO INPUT (+)

NOTE: the audio ground is the cable shield.

### 2.3.2 Audio output connector



PIN	FUNCTION
1	LEFT AUDIO OUTPUT
2	BALANCED
3	RIGHT AUDIO OUTPUT
4	BALANCED
5	DIGITAL AUDIO OUTPUT (-)
6	DIGITAL AUDIO OUTPUT (+)

NOTE: the audio ground is the cable shield.

### 3. BOARD MENU

#### 3.1 Menu representation

The complete menu of the EK-CDC/2 board is reported below:

<u>Variable name</u>	<u>Variable number</u>
<i>EK-CDC/2</i>	1
> <i>Standard</i>	
>> <i>Std</i>	2
> <i>Encoder Set</i>	
>> <i>Service</i>	3
>> <i>Bit rate</i> .....(see APPENDIX B)	
>>> <i>Video</i>	4
>>> <i>Ts</i>	5
>> <i>Resolution</i>	6
>> <i>Table</i>	7
>> <i>Enc Video PID</i>	8
>> <i>Enc Audio PID</i>	9
>> <i>Enc PCR PID</i>	10
>> <i>Enc TTx PID</i>	11
>> <i>GOP Structure</i>	12
>> <i>Audio</i>	
>> <i>SR</i>	13
>> <i>BR</i>	14
>> <i>Mode</i>	15
>> <i>In Lev</i>	16
>> <i>Imp</i>	17
> <i>Decoder Set</i>	
>> <i>Video PID</i>	18
>> <i>Audio PID</i>	19
>> <i>PCR PID</i>	20
>> <i>TTx PID</i>	21
>> <i>Audio Out Lev</i>	22
> <i>Port Set</i>	
>> <i>Video In</i>	23
>> <i>Video Out</i>	24
>> <i>Audio In</i>	25
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## 3.2 Menu description and keyboard guide

To set the different values of the variables, it is necessary to use the modifying variable keys (EK-MFR/1 manual, *front panel description*), while to confirm the change, the enter key must be pressed.

### >Standard

#### >>Std

The Std variable allows to select the standard modality for the video. It is possible to enable the PAL standard or the NTSC standard.

### >Encoder Set

#### >>Service

The Service menu can be switched between the Radio value and the TV value. When the TV parameter is enabled, every PID (audio, video, PCR) are present on the encoder output transport stream. If the Radio value is on the PID video is filtered by the encoder section and it is not present on the output encoder transport stream.

#### >>Bit rate (*see APPENDIX B*)

##### >>>Video

The bit rate video of the board can be set between a minimum value of 0.800Mb/s and a maximum value of 13.408Mb/s with a step of 0.016Mb/s.

**The value of this parameter is the sum of the Video bit rate and Audio bit rate.**

##### >>>TS

The bit rate of the board transport stream can be set between a minimum value of 1Mb/s and a maximum value of 45.000Mb/s with a step of 0.016Mb/s.

#### >>Resolution

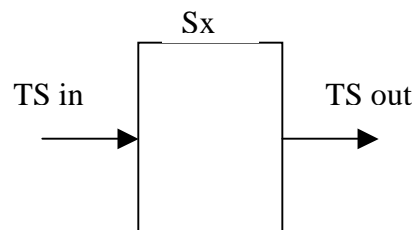
The Resolution menu gives the possibility to set the resolution value, between: D1, 2/3D1, 3/4D1, HD1 e SIF. It is possible to read the actual value of the resolution just entering the menu.

>>Table

The Table Insert menu allows to insert the service information (SI) table automatically. We suppose to have a slot (Sx) with a transport stream input (TS in) and a transport stream output (TS out). When the Yes parameter is settled, the following SI table : NIT, PAT and SDT present at the input transport stream (TS in) of the slot (Sx) are filtered and the user can insert the internal SI table of the slot. The

SI\_TABLE insertion procedure are reported in the *Read\_me\_SI\_TABLE.pdf* file included in the “EK-CDC/2 software tools” CD.

If the No variable is selected from the menu, the SI table loaded in the TS in are not filtered; the same SI table are loaded on the transport stream output. The Auto option works in this modality: if there are the SI table on the transport stream input of the slot, the table are not filtered and are present on the transport stream output. If there are not SI table on the input , the board loaded on the TS out the internal SI table.



>>Enc Video PID

The PID to associate to the video signal, can be settled between a minimum value of 35 and a maximum value of 8190 with a step by 1.

>>Enc Audio PID

The PID to associate to the audio signal, can be settled between a minimum value of 35 and a maximum value of 8190 with a step by 1

>>Enc PCR PID

The PID to associate to the PCR, can be settled between a minimum value of 35 and a maximum value of 8190 with a step by 1

>>Enc TTx PID

The Teletext function is available for EK-CDC/1T and EK-CDC/2T only.

The PID for the EK-CDC/2 board is settled to the 8191 value, so the teletext is disabled.

>>Gop Structure

The Gop Structure value can be settled between four different value:

I I I I I I I, I P P P P P P, I B P B P B P, I B B P B B P.

Every Gop value is associated to a number as follow:

I I I I I I I	0
I P P P P P P	1
I B P B P B P	2
I B B P B B P	3

So the user can set on the menu the number associated to the desired Gop.

>>Audio

>>>SR

There are three values of Audio sample rate that is possible to set: 32 KHz, 44.1 KHz and 48KHz. It is possible to read the actual value of the audio sample rate just entering the menu.

>>>BR

It is possible to choose the Audio BR value for the board between 32Kb/s, 48Kb/s, 56Kb/s, 64 Kb/s, 80Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s, 224 Kb/s, 256 Kb/s, 320 Kb/s and 384 Kb/s. It is possible to read the actual value of the audio BR just entering the menu. In according to the audio procedure selected, it is possible to set different values of the Audio BR.

>>>Mode

The audio procedure values that the user can set are four: Stereo, J-Stereo, Dual Ch, Single Ch. It is possible to read the actual value for the Audio parameter just entering the menu. Every audio procedure allow to set different values of the Audio BR parameter.

- Stereo: 64 Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s, 224 Kb/s, 256 Kb/s, 320 Kb/s, 384 Kb/s.
- J-Stereo: 64 Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s, 224 Kb/s, 256 Kb/s, 320 Kb/s, 384 Kb/s.
- DualCh: 64 Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s, 224 Kb/s, 256 Kb/s, 320 Kb/s, 384 Kb/s.
- Single Ch: 32 Kb/s, 48 Kb/s, 56 Kb/s, 64 Kb/s, 80 Kb/s, 96 Kb/s, 112 Kb/s, 128 Kb/s, 160 Kb/s, 192 Kb/s.

>>>In Lev

It is possible to adjust the audio input level. The user can select the audio input level between a minimum value of -6 dB and a maximum value of 0.5dB.

>>>Imp

The Imp menu allows to control the audio impedance. This value can be settled to 600 Ohm or to 10000 Ohm.

>Decoder Set

>>Video PID

The PID Video value must be included between a minimum of 0 and a maximum of 8190 with a step by 1. When the menu is selected, the user can see the actual value of the PID video on the display (decimal format) .

>>Audio PID

The PID audio value must be included between a minimum of 0 and a maximum of 8190 with a step by 1. When the menu is selected, the user can see the actual value of the PID audio on the display (decimal format).

>>PCR PID

The PID PCR value must be included between a minimum of 0 and a maximum of 8190 with a step by 1. When the menu is selected, the user can see the actual value of the PID PCR on the display (decimal format).

>>TTx PID

The PID PCR value must be included between a minimum of 0 and a maximum of 8190 with a step by 1. When the menu is selected, the user can see the actual value of the PID PCR on the display (decimal format).

>>Audio Out Lev

The decoder audio level can be adjust to obtain the appropriate audio level for the user application. The level can be settled between -6dB and 0.5dB.

>Port Set

The Port set menu allows the implementation of a interconnection matrix lines between the input and the output signals of the board.( par.1.2 *Codec block scheme*).

>>Video In

The EK-CDC/2 board allows to select the video encode between the SDI interface or the RS170 interface. The video input signal present on the video input connector can switched on the SDI converter or on the RS170 converter. The output signal, on the selected converter, is send to the encoder section.

>>Video Out

In the decoder section the user can selects the output video signal to send on the video output connector. It is possible to choose between the digital video (SDI) or the analogue video (RS170).

>>Audio In

The user can select the audio type to send to the encoder section. It is possible to choose between an analog audio signal (the Analog parameter must be selected) or a digital audio signal (the AES3 parameter must be selected).

>>Asi Out

The Asi Out menu allows to connect in according to the selected variable, one of the following signal to the ASI out connector (par 1.3 *board panel description*)

- Asi In: ASI input signal
- Enc Out: Encoder output signal
- Mux Out: internal multiplexer output



- Int Mpx: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1
- Int Dec: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1

#### >>Decoder In

The user can choose, setting a particular variable, which signal to send to the decoder. The variables that can be selected are:

- Asi In: ASI input signal
- Enc Out: Encoder output signal
- Mux Out: internal multiplexer output
- Int Mpx: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1
- Int Dec: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1

#### >>Mpx Main In

The user can select the signal to send to the main internal multiplexer input. This signal is featured by a particular variable:

- Asi In: ASI input signal
- Stuffing: Stuffing internal signal with a variable bit rate (to see *Encoder set menu*,)
- Int Mpx: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1
- Int Dec: internal signal of the re-configurable connection lines (matrix) of the EK-MFR/1

When one of these signal is active on the multiplexer input, a green led on the rear panel is on (to see *board panel description*). The led is off when there are not active signal on the multiplexer input and the stuffing signal is automatically connect to the multiplexer input.

#### >>Int Out

This menu gives the possibility, setting a particular variable, to send a signal to the re-configurable connection lines (matrix) of the EK-MFR/1. The signal that the user can choose to send to the matrix are:

- Asi In : ASI input signal
- Enc Out: Encoder output signal
- Mux Out: internal multiplexer output

The next table shows the possible connections between the input and the output signals that are described in the Port Set menu (see par. 1.3 *Internal multiplexer block scheme*).

<i>ASI OUT</i>	ASI IN	NOT AVAILABLE	ENC OUT	MUX OUT	INT MPX	INT DEC
<i>DECODER IN</i>	ASI IN	NOT AVAILABLE	ENC OUT	MUX OUT	INT MPX	INT DEC
<i>MPX MAIN IN</i>	ASI IN	STUFFING	NOT AVAILABLE	NOT AVAILABLE	INT MPX	INT DEC
<i>INT OUT</i>	ASI IN	NOT AVAILABLE	ENC OUT	MUX OUT	NOT AVAILABLE	NOT AVAILABLE

#### >>Pid Filter

The Pid Filter menu gives the possibilities to filter any PID (audio, video ...) present on the input transport stream of the board. When the Yes parameter is active, the user can choose which PID to filter. The PID FILTER insertion procedure is reported in the *Read\_me\_DVB\_PACKET\_FILTER.pdf* file included in the “EK-CDC/2 software tools” CD.

If the No parameter is selected, the PID filter is disabled.

#### >Display Set

##### >>Show Video

The show video menu allows to display either the encoder input (Enc In), or the decoder output (Dec Out) of the board. The variable Off allows to disable the Show Video of the board. If the EK-MFR/1 contains more EK-CDC/2 boards and the user selects the show video of one of them, automatically the show video in the other EK-CDC/2 boards, are disabled.

>*Status*

>>*Board Temp*

When this menu is on, the user can read the board temperature.

>>*State*

The State parameter supplies information about the operating system in real time.  
The variable that can be read when this menu is on, are the following:

- Start: The start command procedure is running
- Start Ok: The start command procedure is finished
- File: The Encoder/Decoder setting procedure is running
- MuxSel: The mux setting procedure is running
- SetReg: The register setting procedure is running
- AudSwh: The Audio setting procedure is running
- InSet: The video input setting procedure (PAL or NTSC) is running
- Enc Par: the encoder parameter setting procedure is running
- Reboot: reboot the encoder and the decoder section.
- Free: the board is ready to operate

>*Revision*

This menu allows to read the software revision implemented on the programmable devices of the board. The software configuration of the board is realized to obtain the software release of the following programmable devices (DSP,FPGA,CPLD,RamDisk).

>>*DSP*

It is possible to read the software release implemented on the DSP device, on the EK-MFR/1 display.

>>*FPGA*

It is possible to read the software release implemented on the FPGA device, on the EK-MFR/1 display.

>>*CPLD*

It is possible to read the software release implemented on the CPLD device, on the EK-MFR/1 display.

>>*RamDisk*

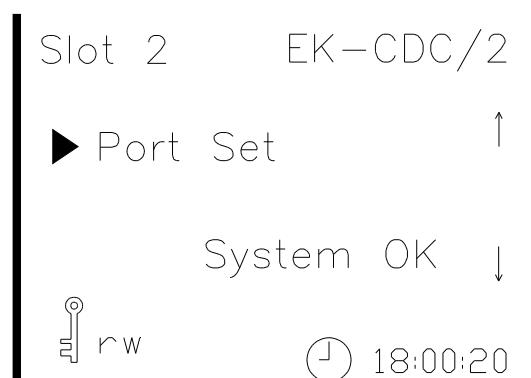
It is possible to read the software release implemented on the RamDisk device, on the EK-MFR/1 display.

The example below explains how to set a variable board value.

We suppose to load the EK-CDC/2 board on the slot number two of the EK-MFR/1; so when the EK-MFR/1 is configured, the user can see the following situation on the display:



Pushing the enter key (EK-MFR/1 manual, *board panel description*) it is possible to explore the EK-CDC/2 menu. We suppose to set the Video in variable. To do this it is necessary to run (using the Explorer menu and display mode keys (EK-MFR/1 manual, *front panel description*) until the Port Set menu as the next figure shows:



Now, pushing the enter key, the user can see:

```
Slot 2      EK-CDC/2
▶ Port Set      ↑
  Video In
=RS170
      System OK ↓
⌚ rw          ⌚ 18:00:20
```

The figure shows the default variable value for the Video In parameter. To change this value it is necessary to push the enter key, so the variable value is flashing, with the modify variable key (EK-MFR/1 manual, *front panel description*) it is possible to select the new variable for the video input. The available value for this parameter are RS170 (actual value) and SDI. To set the SDI value the user must press the enter key when the SDI variable is flashing on the display. If the user press the escape key (EK-MFR/1 manual, *front panel description*), the display return the default value (in this case RS170). When the operation is complete and the new value is settled the user can see the following situation on the display.

```
Slot 2      EK-CDC/2
▶ Port Set      ↑
  Video In
= SDI
      System OK ↓
⌚ rw          ⌚ 18:00:20
```

## 4. WEB PAGE

The EK-CDC/2 board is supplied of a web page that allows to obtain a complete view of the status of the board variables. When the EK-MFR/1 system is connected to a terminal unit (PC) and the web pages of the system are loaded (*EK-MFR/1 user 's handbook, web interface chapter*), the user can see the following EK-MFR/1 main web page:

**Eurotek** **All4Digit Software Tool** v1.1

**EK-MFR/1**

Password Read Only   
 Password Read/Write

Refresh Time [sec] ☒ 1 ☐ 10 ☐ 30  
 Time to new Refresh

Set Parameter 
 Output Console 
 Status ☒

*be better connected ....*



The EK-CDC/2 board is loaded in the slot number zero; to visualize the web page of the board is necessary to move, using a mouse, the cursor on the slot associated to the board (slot 0) and then, to click the left mouse button on its. So we obtain the following image:

**Eurotek All4Digit Software Tool v1.4**

Slot 1 ==> EK-CDC/2

Encoder Set	Decoder Set	Port Set	Display Set	Status	Revision
Video Bit Rate [Mbit/sec]	4.096	Audio	Stereo	Service	TV
Transport Stream Bit Rate [Mbit/sec]	23.128	Audio Sample Rate [KHz]	44.1	Mode	PAL
Encoder Video PID	512	Audio Bit Rate [Kbit/sec]	192	Table Insert	No
Encoder Audio PID	650	Audio In Level [dB]	0.0	Resolution	D1
Encoder PCR PID	128	Audio Impedance [Ohm]	10000	Gop Structure	IBBP...
Encoder TeleText Pid (8191 = OFF)	8191				

Refresh Time [sec] ☒ 1 ☐ 10 ☐ 30

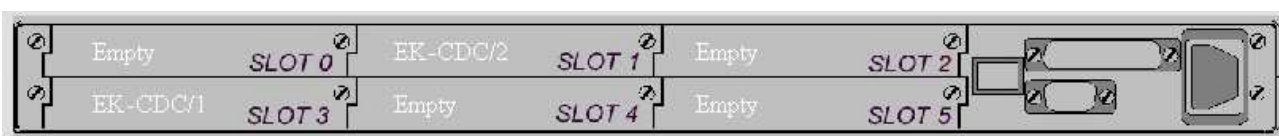
Time to new Refresh

Set Parameter

Output Console

Status ☒

*be better connected ....*



The web page of the EK-CDC/2 board is showed above. In the top section, are reported the version of the software tool (v 1.4) and the name of the board with the associated slot number (Slot 1 ==> EK-CDC/2). Under the name, of the board, are indicated every menu in dark colour, while the selected menu is in light colour and its variables are displayed on the centre of the page. The down side of the page is featured by the following parameter: the *refresh time* variable allows to set the useful time to confirm the setting of a menu variable. The *time to new refresh* windows gives information about the countdown of the refresh time. The *Set* parameter box allows to confirm the setting of a menu variable. The *output console* line with the *status* square are used to obtain a view of the alarm conditions of the entire system. During the normal working conditions, the output console line returns the No Alarm value; if an alarm is in progress, the following message appears: <<Alarm Active. “n” variables in alarm>>, where n is the number of the variables in alarm. When a menu variable is affected by an alarm, the value of the variable, in the related window, is showed in red colour and also the name of the board became red.

The next example shows how to change a menu variable. The procedure to set every variable value is similar to this.

We suppose to send the Asi In signal to the Asi Out connector (*Port set menu, Asi Out*). The Asi Out parameter, is located in the Port Set menu, so when the Port Set menu is selected we can see:

**Eurotek All4Digit Software Tool v1.3**

Slot 0 ==> EK-CDC/2

Encoder Set	Decoder Set	Port Set	Display Set	Status	Revision
Asi Out	Mux Out	Video In	RS170		
Decoder In	Asi In	Video Out	RS170		
Mpx Main In	Asi In	Audio In	Analog		
Int Out	Mux Out	Pid Filter	No		


Refresh Time [sec] ☒ 1 ☐ 10 ☐ 30  
Time to new Refresh  Set Parameter  Output Console  Status ☒

*be better connected .....*



Moving the cursor, using a mouse, on the Asi Out box and pushing the left mouse button on the black indicator, the user can see the available value for the Asi Out variable setting:



 **All4Digit Software Tool** v1.3

Slot 0 ==> EK-CDC/2

Encoder Set

Decoder Set

Port Set

Display Set

Status

Revision

Asi Out

Decoder In

Mpx Main In

Int Out

Mux Out ▼

Asi In  
Encoder Out  
Mux Out  
Int Mpx  
Int Dec

Mux Out ▼

Video In

Video Out

Audio In

Pid Filter

RS170 ▼

RS170 ▼

Analog ▼

No ▼

Refresh Time [sec] ☒ 1 ☐ 10 ☐ 30  
 Time to new Refresh

Set Parameter


Output Console

Status ■

be better connected .....

Empty	SLOT 0	EK-CDC/2	SLOT 1	Empty	SLOT 2
EK-CDC/1	SLOT 3	Empty	SLOT 4	Empty	SLOT 5

To select the Asi In parameter, to move the cursor on the Asi In label, and to push the left mouse button. The Asi In value appears in the Asi Out box like the following image shows:


All4Digit Software Tool
v 1.3

Slot 0 ==> EK-CDC/2

Encoder Set
Decoder Set
Port Set
Display Set
Status
Revision

Asi Out Asi In

Decoder In Asi In

Mpx Main In Asi In

Int Out Mux Out

Video In RS170

Video Out RS170

Audio In Analog

Pid Filter No

Refresh Time [sec] ☐ 1 ☐ 10 ☒ 30

Time to new Refresh 27

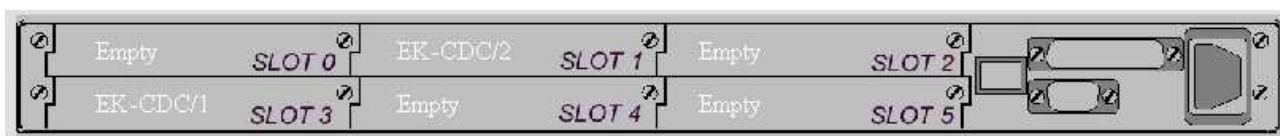
Set Parameter Set

Output Console

You have 8 seconds for press "Set"

Status

be better connected .....



We have settled, for example, the refresh time parameter on the 30 seconds indicator, so every thirty seconds the system variables are refreshed. When the refresh countdown is complete the refresh label is flashing. When a new value is loaded in the variable window (in the example Asi Out = Asi In) the user has then seconds for to confirm the value pushing, using the left mouse button, the Set box (a message is showed on the output console line). At the end of the then seconds, if the refresh time is not finished, it is again possible pushing the set box (*you can still press set (until new refresh occurs)* message is showed on the output console line); if also the refresh time is at the end, the system reloaded the previous variable value.

When the settings operations are complete, the new loaded value is visible on the EK-MFR/1 display.

## APPENDIX A

### HIGH\_SPEED\_DATA table

Matrix Ref	PIN	DESCRIPTION	DIRECTION
D0	HIGH_SPEED_DATA_0	Int Mpx clock	in
D1	HIGH_SPEED_DATA_1	Int Mpx data	in
D2	HIGH_SPEED_DATA_2	Not used	-
D3	HIGH_SPEED_DATA_3	Clock	out
D4	HIGH_SPEED_DATA_4	Data	out
D5	HIGH_SPEED_DATA_5	Not used	-
D6	HIGH_SPEED_DATA_6	Int Dec data	in
D7	HIGH_SPEED_DATA_7	Int Dec clock	in
CK	HIGH_SPEED_CLK	Not used	-
RF	10 MHZ_REF	Not used	-

The table reported above shows the description of the high\_speed\_data signals of the board. The high\_speed\_data connections are implemented in the matrix file loaded in the EK-MFR/1 unit. So the board is interfaced with the EK-MFR/1 (*EK-MFR/1 user's handbook, appendix A*) and thanks to the matrix file, it is possible to obtain a complete routing of the electrical high\_speed signals. So with the EK-MFR/1 matrix configuration it is possible to obtain the transit of a signal from a board to another one.

## APPENDIX B

### Output Transport Stream bit rate setting

The output transport stream bit rate must be settled in according with the following formula:

$$\text{TS out bit rate [Mbps]} \geq (1.1)^1 * \left[ \begin{aligned} &(\text{TS Input bit rate})^2 \\ &+ (\text{Bit rate} \Rightarrow \text{Video})^3 \\ &+ (0.04)^4 \\ &+ (0.5)^5 \\ &+ (\text{Table number} * 1504 / 90000)^6 \end{aligned} \right]$$

note : all values are expressed in Mbps

<sup>1</sup> Factor to avoid Memory overflow.

If you filter some multiplexer input PIDs (i.e. by using the PID FILTER, see page 18), this factor should be greater than 1.1, depending on the input packet spread.

<sup>2</sup> Transport stream input bit rate excluding stuffing.

It must be the maximum bit rate in the case of TS input from a statistical multiplexer.

<sup>3</sup> Bit rate  $\Rightarrow$  Video = (Video Bit Rate + Audio Bit Rate) . (See page 13).

<sup>4</sup> PCR bit rate.

<sup>5</sup> Teletext bit rate (if it is present)

<sup>6</sup> SI Table bit rate, where TableNumber is the number of the tables:

TableNumber = PAT + SDT + NIT (if it is present) + (n° of PMT).

This value is 0 when the table insertion is disable. (see page 14).:

The above setting procedure is valid for the boards with the following software revision (see page 19) :

DSP 6.6 or more

FPGA 3.0 or more

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