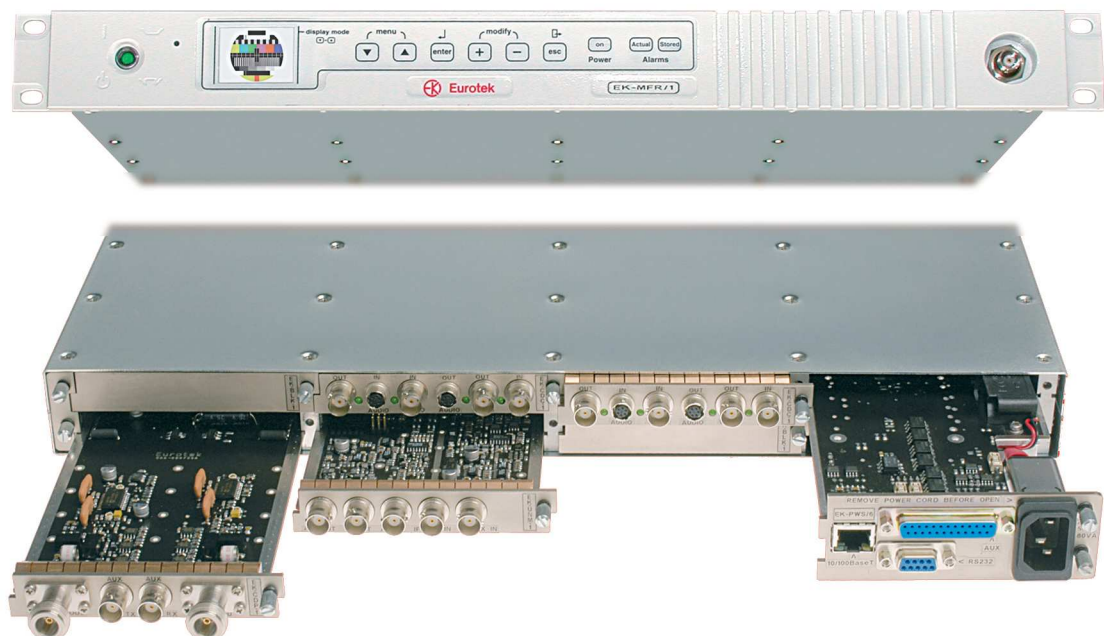


User's handbook

Digital radio Link

EK-MFR/1



REGULATORY COMPLIANCE (USA)

This equipment requires licensing for operation under FCC Title 47 part 101

This equipment generates, uses and radiates electromagnetic fields that could cause interference to radio communications, is more important that it is installed and used in accordance with the instruction that are explained in this manual.

It is in conformity with the limits for a Class A computing device pursuant to Subpart B of Part 15 of the FCC Rules, that fixed and guarantee the reasonable protection against such interference when it is used in a commercial environment.

When this equipment is installed in a residential area it could cause interference, in which case the user must provide itself to avoid the interference.

The test results show compliance with the Class A limits for radiated emissions.

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Its reproduction, distribution and disclosure to third-parties without written authorisation is forbidden
Every reproduction, re-distribution or disclosure without prior written authorisation
is expressly forbidden by the law and can lead to serious civil and penal sanctions.



Warning!

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.



The waste disposal of the devices must be executed in the respect of the enforced laws in the country uses.

Eurotek not assumed responsibility for waste disposal in contrast with enforced laws.

LIFE SUPPORT APPLICATIONS.

Eurotek's products are not designed for use as critical components in life support devices or system without the express written approval of the Eurotek S.r.l. As used herein.




- *Life support devices or system are devices or system which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.*
- *A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.*

The information given in this documentation could have variations without forewarning.

The firm Eurotek S.r.l. does not give any guaranty about this documentation.

The firm Eurotek S.r.l. does not consider itself responsible for possible mistakes which could be found in this documentation.

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"> - interrupt immediately the electric circuit; - if the circuit has not been interrupted, do not touch the patient with bare hands; <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

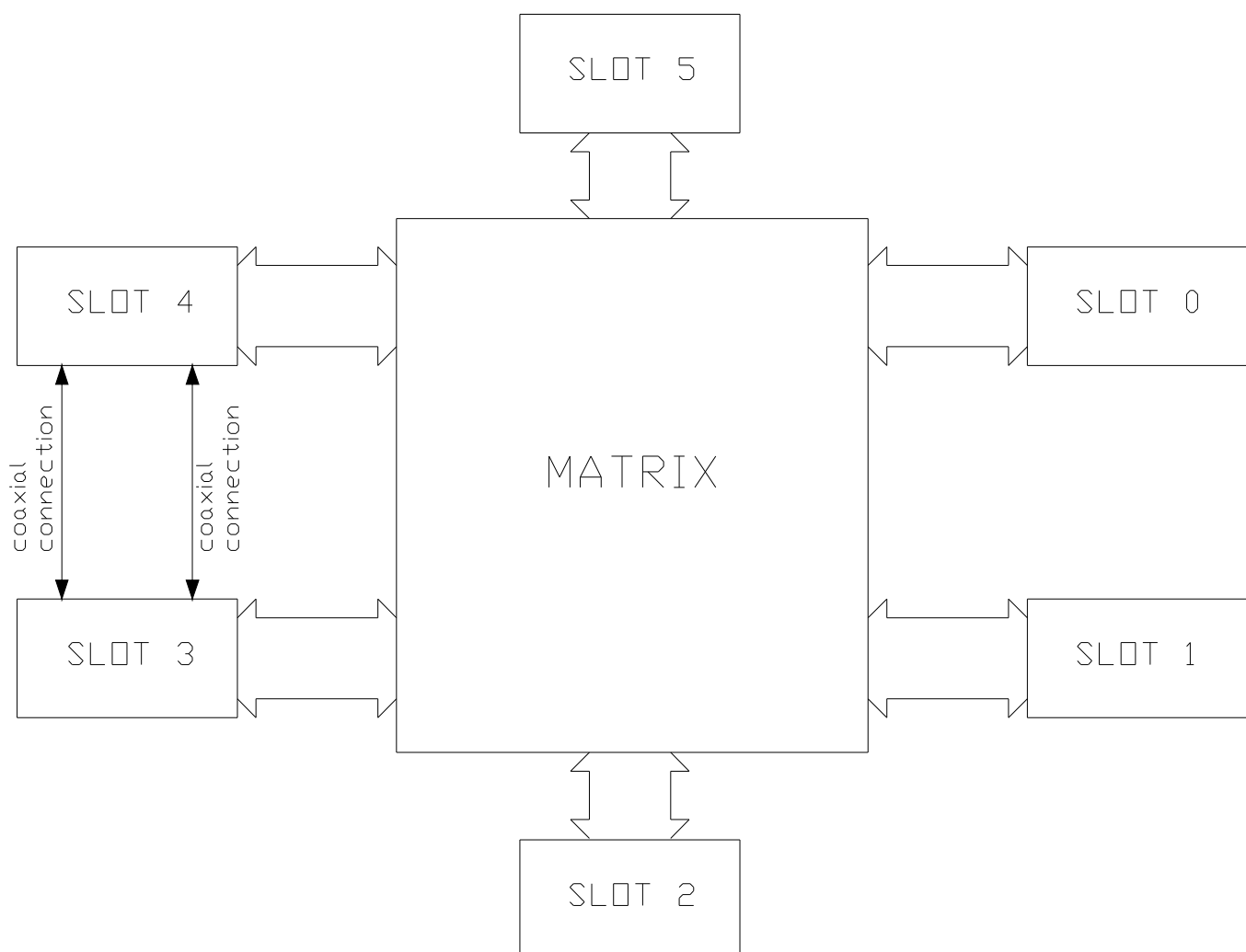
EK-MFR/1 works as a new flexible and modular platform that allows the simultaneous use of different kind of boards inserted in its inner part in completely reconfiguration way. All the inserted boards, in the device, are automatically identified by the integrated operating system, that fits the functions of the keys and the visual information available on the color display placed in the frontal panel. Inside the EK-MFR/1, a RTC (real time clock) works as a temporal reference for the memorization of the alarms that have been verified in the system. Any relative board alarms are signaled on the display sequential: a red LED (ACTUAL), on the frontal panel of the EK-MFR/1, indicates that an actual alarm is in progress; a yellow LED (STORED), will indicate the memorization of previously happened alarms. Thanks to this function the user will be able to examine a log file stored inside the EK-MFR/1 and verify the type of alarm, the time and date in which the alarm occurred as well as the time and date in which the alarm stopped. The setting operation of every single board can be done locally on the keyboard, or by remote sites thanks to the placement of Ethernet 10/100 Base T interface located in the power supply section (EK-PWS/X).

Inside the EK-MFR/1 a re-configurable connection lines are inserted (matrix); they allow the connection among all the slots inserted in the system leading therefore to an interconnection of the signals that transit from one board to another one, without the necessity to use an uncomfortable external connection. If the position of the inserted boards is changed by the user, is necessary to ask information to the Eurotek about the software configuration system.

In order to set the operating functions of the system there are two different password levels: one in reading mode only and the other one in reading/writing mode. Operating in this system it will be possible to deny the access in writing mode to unqualified users meanwhile the configuration settled will appear on the screen giving at the same time the chance of checking how the system works.

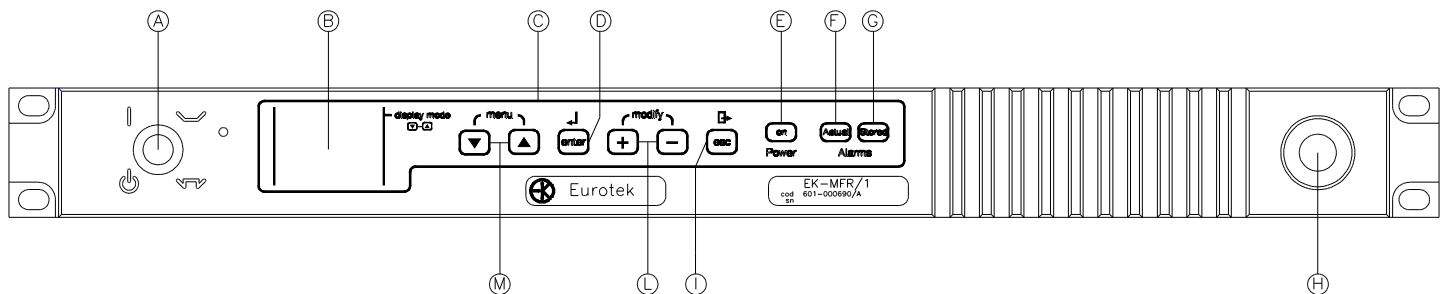
The background of the keyboard on the frontal panel is lighted in order to obtain a rapid setting identification, also in critical visibility (e.g. OB – Van, mobile production, etc.). It is also possible to set the switch off time of the display to reduce consumption.

1.1 EK-MFR/1 block scheme



2. FRONT PANEL

2.1 Front panel view

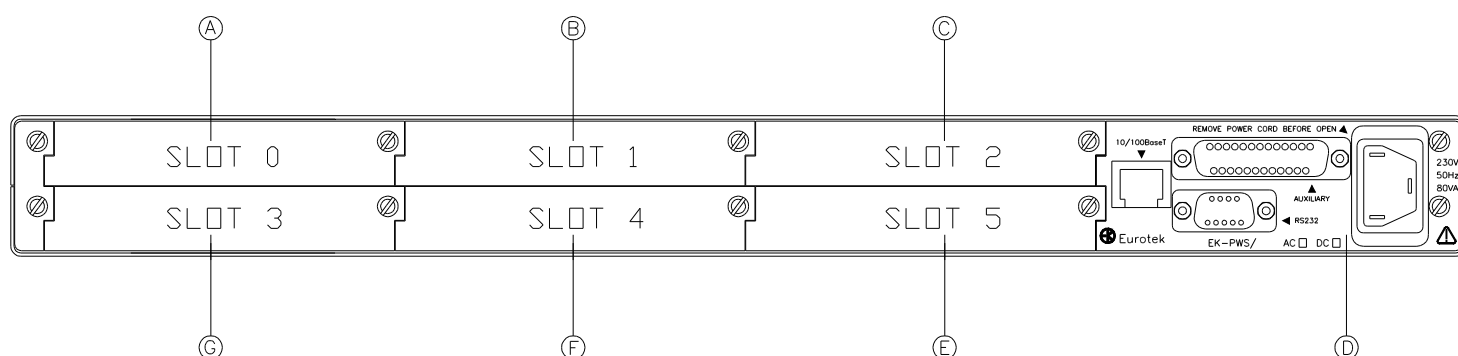


2.2 Front panel description

- A) General switch.
- B) Display. *(chapter 4, Display and Keyboard)*
- C) Keyboard. *(chapter 4, Display and Keyboard)*
- D) Enter key.
- E) Green LED (ON), for power on indication. *(chapter 6, LEDs and ALARMS)*
- F) Red LED (ACTUAL), for alarm indication. *(chapter 6, LEDs and ALARMS)*
- G) Yellow LED (STORED), for alarms stored indication. *(chapter 6, LEDs and ALARMS)*
- H) Monitory connector.
- I) Escape key.
- L) Modifying variable keys.
- M) Explorer menu and display mode keys.

3. REAR PANEL

3.1 Rear panel view



3.2 Rear panel description

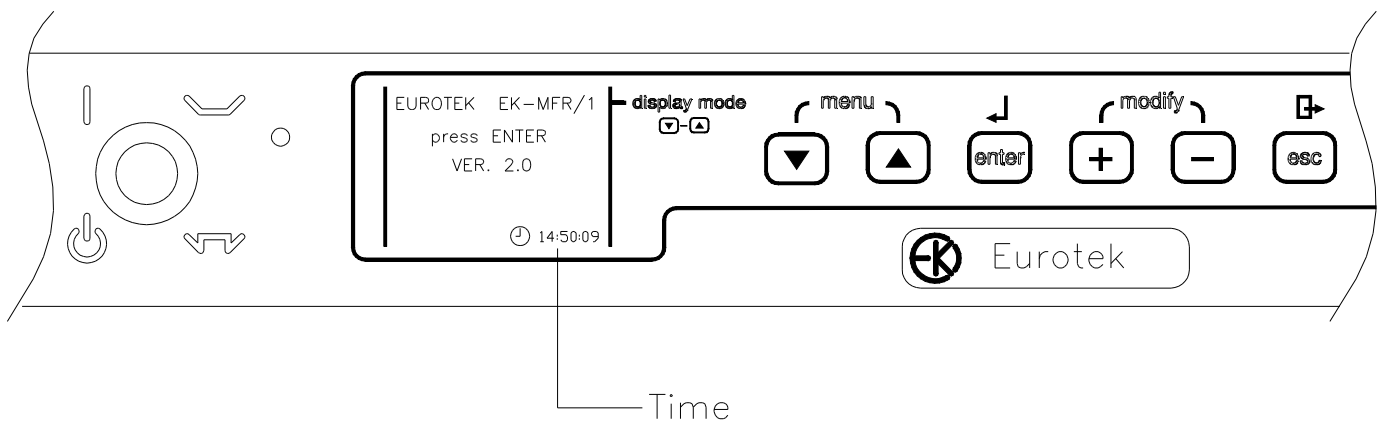
- A) Slot 0.
- B) Slot 1.
- C) Slot 2.
- D) EK-PWS/X* panel.
- E) Slot 5.
- F) Slot 4 < here it is possible to install the modem (EK-UNM/1).
- G) Slot 3 < here it is possible to install the coaxial adapter (EK-CDP/1).

* The different power supplies solutions are described in the EK-PWS/X manual.

4. DISPLAY AND KEYBOARD

4.1 Display and keyboard description

When the general switch (*par. 2.2, front panel description*) is turned on, the booting of the system is running. At the end of the booting the EK-MFR/1 is in stand-by modality (the display shows a black view) and after the user has pushed any of the keys, the display shows, the following configuration:



Pressing the “enter” key (*par. 2.2, front panel description*), it is possible to start the insertion password operations (if the user, after the booting, press the “enter” key, the password insertion procedure immediately started).

A flashing cursor indicates that a special password, of five number, must be inserted. The procedure for the insertion of the password is explained below:

- Press the “modifying variable” keys (*par. 2.2, front panel description*) to visualize the number from 0 to 9.
- Choose the first value to insert, and confirm it with the “enter” key.
- Insert the second value, confirm it, and repeat the procedure until the last number.

If an error occurs, the user must press the “escape” key (*par. 2.2, front panel description*), the cursor returns to the previous position and the new value can be inserted. The password value must be included from 00000 to 99999.

There are two types of password that the user can digit: reading only or reading/writing.

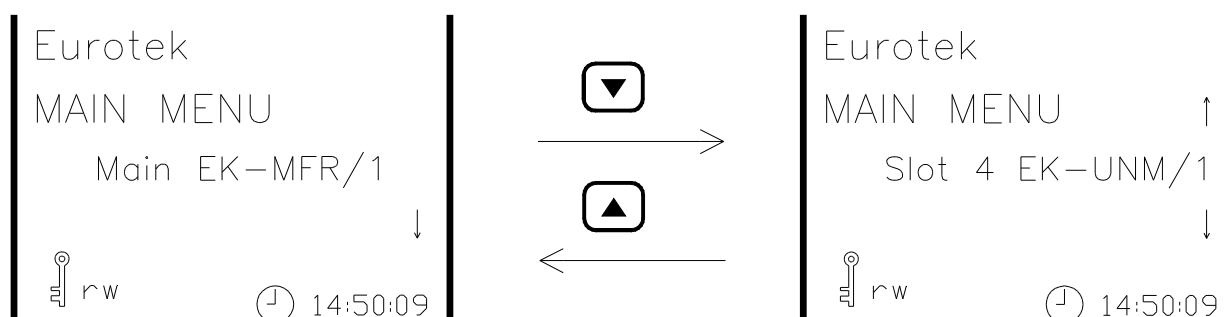
When a password is inserted, in the left down corner on the display it is possible to see the key symbol with the RO letter if the password is read only type, or RW letter is the password is read/write type.

When a type of password is inserted, the user can explore the following main menu:

MAIN MENU

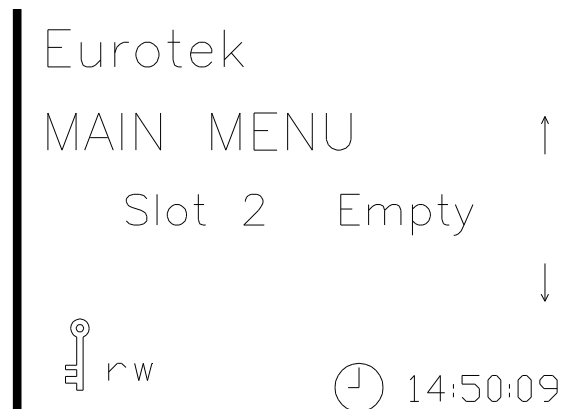
- >Main EK-MFR/1
- >Slot 0
- >Slot 1
- >Slot 2
- >Slot 3
- >Slot 4
- >Slot 5

Using the “explorer menu” keys (*par. 2.2, front panel description*), it is possible to see, on the display, the boards that the EK-MFR/1 contains and the relative slot associated to the board. The example below shows the EK-UNM/1 board that is inserted in the slot number 4. Pushing the “enter” key, it is possible to enter in the selected board menu.



The RW letters appear, in the figure above, near the key symbol; this indicates that the actual active password allows to read and modify the value of the variables in every board inserted in EK-MFR/1.

If any of the boards is not inserted in a particular slot of the EK-MFR/1, the display shows the following situation:



4.2 Display mode

A possible video signal of the inserted boards, are visible on the display that moreover supplies the output interface of the EK-MFR/1 processor.

Every slot has the interconnections for two video signals, that can be showed on the TFT colour monitor if the board is enabled for this function. There are three different modalities: either only the text is showed, or the text and the video are showed or only the video is showed.

Every different modality can be settled pushing the “explorer menu” keys simultaneously (*display mode* function).

5. BOARD MENU

5.1 Menu representation

The complete EK-MFR/1 menu is described below.

<u>Variable name</u>	<u>Variable number</u>
<i>MAIN-EK-MFR/1</i>	1
> <i>Passwords</i>	
>> <i>r/o PWD</i>	2
>> <i>r/w PWD</i>	3
> <i>Power Loops</i>	
>> <i>Loop 1</i>	
>>> <i>Enable 1</i>	4
>>> <i>Source 1</i>	5
>>> <i>Target 1</i>	6
>>> <i>P Goal 1</i>	7
>>> <i>P Source 1</i>	8
>> <i>Loop 2</i>	
>>> <i>Enable 2</i>	9
>>> <i>Source 2</i>	10
>>> <i>Target 2</i>	11
>>> <i>P Goal 2</i>	12
>>> <i>P Source 2</i>	13
>> <i>Loop 3</i>	
>>> <i>Enable 3</i>	14
>>> <i>Source 3</i>	15
>>> <i>Target 3</i>	16
>>> <i>P Goal 3</i>	17
>>> <i>P Source 3</i>	18
> <i>Get Config</i>	
>> <i>Get from</i>	19
> <i>Save Config</i>	
>> <i>Save to</i>	20
> <i>Miscellaneous</i>	
>> <i>Volt in 0</i>	21
>> <i>Volt in 1</i>	22
>> <i>Volt out 0</i>	23
>> <i>Volt out 1</i>	24
>> <i>Board Temp</i>	25
>> <i>12V rail</i>	26
>> <i>3.3V rail</i>	27
>> <i>DC rail in</i>	28
>> <i>Time to exit</i>	29
>> <i>SCI 2</i>	30
>> <i>Ext Power</i>	31

<u>Variable name</u>	<u>Variable number</u>
> <i>Relay</i>	
>> <i>Relay 0</i>	32
>> <i>Relay 1</i>	33
>> <i>Relay 2</i>	34
>> <i>Relay 3</i>	35
>> <i>Relay 4</i>	36
> <i>Clock Set</i>	
>> <i>Year</i>	37
>> <i>Month</i>	38
>> <i>Day</i>	39
>> <i>Hour</i>	40
>> <i>Minute</i>	41
> <i>Network</i>	
>> <i>IP address</i>	42
>> <i>IP netmask</i>	43
>> <i>GW address</i>	44

5.2 Menu description and keyboard guide

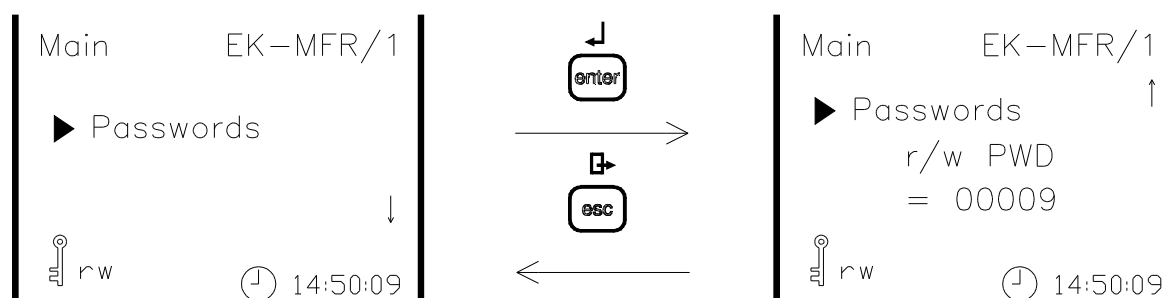
The description of every single menu of the EK-MFR/1 is as follow:

>Passwords

The Passwords menu allows to modify the reading only and the reading/writing password. To do this, the user must digit the password provided by the Eurotek, when the general switch (*par. 2.2, front panel description*) is turned on and the booting of the system is complete (*par 4.1 display and keyboard description*).

The next example shows how to change the reading/writing password.

When inside the EK-MFR/1 menu, the “enter” key (*par. 2.2, front panel description*) is pushed, the display will show the passwords menu configuration:



Pushing again the “enter” key, the user can enter the two internal menus for the setting of the passwords value, (in this example the menu is RW/PWD), while pushing the “escape” key (*par. 2.2, front panel description*) the display returns to the passwords menu configuration (like is showed in the figure above).

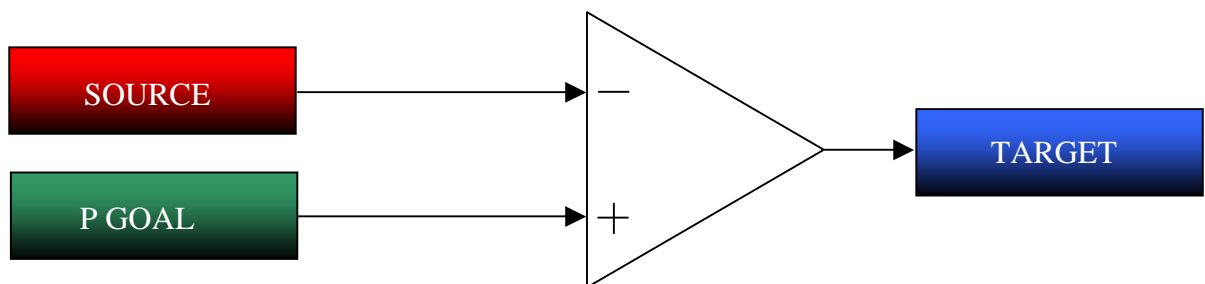
When the R/W PWD menu is on, the user must digit the “enter” key to start the insertion password operations (*par 4.1 display and keyboard description*).

>Power loops

The Power Loops menu allows to control automatically the output level of one board inserted in a slot in according to the output level of a board inserted in another slot of the EK-MFR/1. This functionality it used in order to keep constant the output power of a transmitter to adjusting the modulator output power.

The three loops are therefore in a position to adjust three different transmitters connected to the same EK-MFR/1; to simplify the process we are analyzing the relative function to LOOP1, which is identical to the other two. The Loop 1 menu is composed by five sub-menus: Enable 1, Source 1, Target 1, P Goal 1, P Source 1.

BLOCK SCHEME OF THE POWER LOOP SYSTEM



In the sub-menu SOURCE we define in which slot of the EK-MFR/1 the EK-CDP/1 board is inserted, or otherwise which is the signal that the program will read in order to set the slot TARGET in function of the P-GOAL power that we want to keep during the operation.

The next example explains how to set the Power Loops modality.

We suppose to have loaded the EK-MFR/1 with the boards represented in the following figure



- Slot 0: Empty
- Slot 1: EK-CDC/1 (MPEG2 codec)
- Slot 2: Empty
- Slot 3: EK-CDP/1 (coaxial adapter)
- Slot 4: EK-UNM/1 (modem)
- Slot 5: Empty

We analyze the setting of every single menu of the Power Loops supposing of working with the QPSK modulations to obtain a back-off of 4 db relating the saturate power (0 db) of the transmitter SHF connected to EK-MFR/1 by the EK-CDP/1 board.

1. >>>Source1 = slot3: indicates where reading the saturate power
2. >>>Target1 = slot4: indicates where setting the IF power level in order to obtain the back-off planned (EK-UNM/1)
3. >>>P Goal1 = -4db : indicates the back-off level to be obtained
4. >>>Enable1 = yes : the loop 1 function is enabled

Now an independent program of EK-MFR/1 will try to keep the power of the transmitter (EK-CDP/1) constant in according to the power of the modulator (EK-UNM/1).

>Save Config

EK-MFR/1 allows to store four configurations system. To save a personal configuration, it is necessary to enter in the Save Config menu; it is possible to choose on which configuration to store the personal system settings pressing the “enter” key and using the “modifying variable” keys (*par. 2.2, front panel description*). The four possible configurations to be used are: Config 0, Config 1, Config2 and Config3.

>Get Config

The Get Config menu allows to recall one of the four possible configurations stored in the Save Config menu using the Get from function.

>Miscellaneous

The Miscellaneous menu allows to monitor and control many EK-MFR/1 functions, by the variables listed below:

- >>Volt in 0: Allows to read a DC voltage (0÷12 VDC) eventually present on the pin 4 of the auxiliary connector of the EK-PWS/X board.
- >> Volt in 1: Allows to read a DC voltage (0÷12 VDC) eventually present on the pin 17 of the auxiliary connector of the EK-PWS/X board.
- >> Volt out 0: Allows to set a DC voltage (0÷12 VDC, 10 mA max) at the output of the auxiliary connector (pin 5) of the EK-PWS/X board.
- >>Volt out 1: Allows to set a DC voltage (0÷12 VDC 10 mA max) at the output of the auxiliary connector (pin 18) of the EK-PWS/X board.
- >>Board Temp: Allows to read the EK-PWS/X board temperature.
- >>12V rail: Allows to monitor the DC voltage (12VDC) generated from the EK-PWS/X board and supplied to all EK-MFR/1 slots.
- >>3.3V rail: Allows to monitor the DC voltage (3.3VDC) generated from the EK-PWS/X board, used by the processor and supplied to all EK-MFR/1 slots.
- >>Dc rail in Allows to monitor the eventual external DC voltage that is present on the auxiliary connector of the EK-PWS/X board.
- >>Time to exit: Allows to set the time when the display is on, afterward the display will go in stand-by modality, in order to limit the consumption of the entire machine. It is possible to set the time to exit parameter between 1,10,20 or 30 minute.
- >>SCI 2: Allows to switch on and off the secondary serial interface present on the auxiliary connector of the EK-PWS/X board.

>>*Ext Power* Allows to read the value of the power of the external analog Eurotek unit connected to the EK-MFR/1 by the auxiliary connector of the EK-PWS/X board.

>*Relay*

The Relay menu allows to control five solid state relays situated in the EK-PWS/X board; they are interfaced outside with the auxiliary connector. To set each relay the user must enter one of the following menus:

>>*Relay 0*
>>*Relay 1*
>>*Relay 2*
>>*Relay 3*
>>*Relay 4*

Every Relay is enabled with the <ON> function and disabled with the <OFF> function.

>*Clock Set*

The Clock Set menu allows to set the parameters of the internal time system. Through the “explorer menu” keys (*par. 2.2, front panel description*) it is possible to set the five sub-menus below.

>>*Year*
>>*Month*
>>*Day*
>>*Hour*
>>*Minute*

It is not available the automatic setting of the summer time .

>*Network*

The Network menu allows to set, using the “modifying variable” keys, the following network configuration parameters, for the system:

>> *IP address*
>> *IP netmask*
>> *GW address.*

When the network configuration are changed by the user, the EK-MFR/1 must be rebooted.

5.3 Temperature control

EK-MFR/1 allows a reliable control of the temperature. To minimize the use and the maintenance of the two fans, EK-MFR/1 controls the rate of the same fans. The highest temperature registered on the inserted boards is used to control the fans. The monitoring of the board temperature can be done in the sub-menus and the memorization and settling of the limits can generate possible alarms.

6. LEDs AND ALARMS

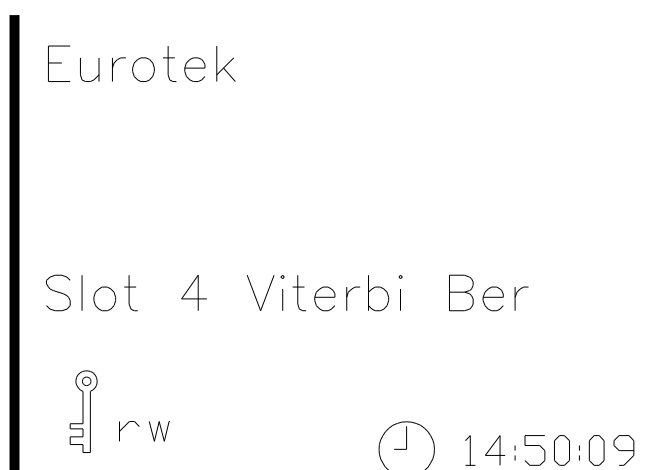
6.1 LEDs description

- On (green light) : indicates that the EK-MFR/1 is active. The light is always on also if the display and the keys are off (if the user has to set the time to exit in the *Miscellaneous* menu of the EK-MFR/1).
- Actual (red light) : indicates that an alarm is present, a variable of any of the boards does not respect the limit. The light turns off when the variable returns inside the limit.
- Stored (yellow light) : indicates that an alarm is present, the light turns off when any of the keys is pushed.

The LEDs position is reported in the *front panel* chapter.

6.2 Alarms description

The next example explains how the display shows when an alarm occurs.



The *Slot 4 Viterbi Ber* row, indicates that the Viterbi ber variable is out of the limits and an alarm is present (*LED Actual, par. 6.1, LEDs description*). *Slot 4 Viterbi Ber* row is flashing until the variable is out of the limits.

It is possible that more alarms are simultaneously present; in this case the alarms are showed on the same row on the display every two seconds. This function allows to have a general information of the alarms without to explore the menu of every used slot.


7. ABOUT OPERATING SYSTEM


7.1 Operating system connection.

It is possible to connect the EK-MFR/1 with a terminal unit to use the RS232 interface (to see the *rs232 interface settings* in the *Appendix C*) or the Ethernet 10/100 Base T interface. The connectors, of these interfaces, are visible in the *chapter 3 "rear panel"*. The description of the connectors, with the pins indication, is reported in the EK-PWS/X user's handbook.


When the EK-MFR/1 is connected and the general switch is turned on (*par. 2.2, front panel description*), the insertion of the EK-MFR/1 login is required:

EK-MFR/1 login:

The user must enter in the system using the *super_user* login, and digits it as follow: (after the insertion of the login is necessary to push the return key () to execute the command).

EK-MFR/1 login: *super_user* 

Now, it is necessary to insert the password value: *pollon*

Password: ----- 

When the password is correctly inserted, the prompt of the operating system appears, on the screen of the terminal unit, as follow:

\$


The user is connected to the system now.

7.2 Operating system commands

When the login operations are executed, it is possible to digit the operating system commands. To execute them, the return key on the terminal unit keyboard must be pressed.

7.2.1 *Read_log*

The *read_log* command allows to examine the status of the alarms of the entire system. When this command is launched, the situation below appears on the screen of the terminal unit:

\$ *read_log* 

M25P80 1024KB SPI flash found

Go to last event ...

Thu Apr 27 12:32:28 2005	[000166]: Slot 4	IF Rx Lev	R	-18.3
Thu Apr 27 12:32:28 2005	[000165]: Slot 4	IF Tx Lev	R	-12.2
Thu Apr 27 12:32:28 2005	[000164]: Slot 4	IF Rx Lev	A	-44.5
Thu Apr 27 12:32:28 2005	[000163]: Slot 4	IF Tx Lev	A	-30.1

Every line of the log file is featured by:

- The date and the time in which the alarm is revealed
- The progressive alarm number (from the last to the first).
- The slot in which is located the board with the variables out of the limits .
- The variable name that is affected by the alarm.
- The letter (A or R) that indicates the status of the alarm. The A letter indicates that an alarm is happened, while the R letter indicates that the alarm is stopped
- The variable value.

7.2.2 *Erase_log*

The *erase_log* command allows to erase the log file. When the command is launched, the below view is showed on the screen of the terminal unit:

```
$ erase_log ↵
M25P80 1024KB SPI flash found
Log event bulk erase ... log_event_erase ... OK
No item found
log_add_event pbuf=0
log_add_event write Log erased
page_program return 40
```

The first line of the new log file, after that the *erase_log* command is executed, is:

```
Thu Apr 27 12:33:10 2005 [000000]: Slot 4      Log erased
```

The progressive alarm number is deleted ([000000]) and the Log erased label is showed.

7.2.3 *Passwd*

The *passwd* command allows to change the password value for the super_user login. When the command is executed, the next page is visible on the screen of the terminal unit

```
$ passwd ↵
Changing password for super_user
Old password: ----- ↵
Enter the new password (minimum of 5, maximum of 8 characters)
Please use a combination of upper and lower case letters and numbers.
Enter new password:hello12 ↵
```

Bad password: too simple.
passwd: The password for super_user is unchanged.

The first operation to execute is the insertion of the old password value, subsequently is required to enter the new password value.

WARNING: the password value must be a combination of upper and lower case letters and number (minimum of 5 and maximum of 8 characters).

In the example above, the “hello12” password value is not available because it is too simple, so the password is unchanged.

The next example shows a correct password value insertion:

```
$ passwd ↵
Changing password for super_user
Old password:----- ↵
Enter the new password (minimum of 5, maximum of 8 characters)
Please use a combination of upper and lower case letters and numbers.
Enter new password:qwel23r ↵
Re-enter new password:qwel23r ↵
Password changed.
```

The “qwel23r” combination is an example of available password, the re-insertion value operation is required, and then the password is changed.

7.2.4 *Exit*

The *exit* command is used to exit from the super_user login. When the command is executed the user is disconnected from the system.

```
$ exit ↵
```

The following message appears when the user is log out:
<Connection closed by foreign host>

7.3 Operating system SNMP commands

The SNMP commands are based on the SNMP protocol. To execute these commands is not necessary to enter in the system with a special login, the EK-MFR/1 must be connected with a terminal unit by the Ethernet 10/100 Base T interface only. The SNMP commands allow to obtain a complete view of the variable of the entire system so in every user’s handbook board, in the *board menu* section, is reported the entire text file of the board. Near every variable is indicated the number associated to the same variable.

7.3.1 Snmpwalk

The *snmpwalk* command allows to obtain the text file of the entire boards system or the text file of a single board inserted in the EK-MFR/1 unit. It is possible to obtain also the EK-MFR/1 text file. To launch the command, it is necessary to insert the next string:

```
snmpwalk -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.(slot+2) ↵
```

The syntax of the command line is explained below:

- `snmpwalk` : command name
- `-v1 -c public` : fixed string
- `192.168.1.7` : IP address of EK-MFR/1 (*chapter 5, board menu, network*)
- `1.3.6.1.4.1.19222.1.` : fixed string
- `(slot+2)` : the number of the slot (plus 2) with the text file to obtain.
For example, to obtain a text file of the slot number 4 the label `(slot+2)` will be set to the 6 value.

We suppose to obtain the text file of the EK-UNM/1 board inserted in the slot number 4 of the EK-MFR/1.

The complete command string to launch will be:

```
snmpwalk -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.6 ↵
```

and after have pushed the return key, the user can see the following view:

```
SNMPv2-SMI::enterprises.19222.1.6.1.0 = STRING: "Slot4 EK-UNM/1"
SNMPv2-SMI::enterprises.19222.1.6.2.0 = STRING: "10.5"
SNMPv2-SMI::enterprises.19222.1.6.3.0 = STRING: "29.0"
SNMPv2-SMI::enterprises.19222.1.6.4.0 = STRING: "3/4"
SNMPv2-SMI::enterprises.19222.1.6.5.0 = STRING: "16QAM"
SNMPv2-SMI::enterprises.19222.1.6.6.0 = STRING: "0.35"
SNMPv2-SMI::enterprises.19222.1.6.7.0 = STRING: "int"
SNMPv2-SMI::enterprises.19222.1.6.8.0 = STRING: "yes"
SNMPv2-SMI::enterprises.19222.1.6.9.0 = STRING: " -5.50"
SNMPv2-SMI::enterprises.19222.1.6.10.0 = STRING: "Off"
SNMPv2-SMI::enterprises.19222.1.6.11.0 = STRING: "8190"
SNMPv2-SMI::enterprises.19222.1.6.12.0 = STRING: "IFLL"
SNMPv2-SMI::enterprises.19222.1.6.13.0 = STRING: "Mod"
SNMPv2-SMI::enterprises.19222.1.6.14.0 = STRING: " -5.3"
SNMPv2-SMI::enterprises.19222.1.6.15.0 = STRING: " -8.0"
SNMPv2-SMI::enterprises.19222.1.6.16.0 = STRING: "LT4e-8"
SNMPv2-SMI::enterprises.19222.1.6.17.0 = STRING: "LT4e-8"
SNMPv2-SMI::enterprises.19222.1.6.18.0 = STRING: " Locked"
SNMPv2-SMI::enterprises.19222.1.6.19.0 = STRING: " 48.1"
SNMPv2-SMI::enterprises.19222.1.6.20.0 = STRING: " 4.7"
SNMPv2-SMI::enterprises.19222.1.6.21.0 = STRING: " 3.5"
SNMPv2-SMI::enterprises.19222.1.6.22.0 = STRING: " F"
SNMPv2-SMI::enterprises.19222.1.6.23.0 = STRING: " 1.5"
```

The complete text file of the EK-UNM/1 board is showed with the number and the value of every variable like the next line showed. In the EK-UNM/1 user's handbook the user can see the complete menu of the board with every variable name and number (*chapter 5, board menu*).

```
SNMPv2-SMI::enterprises.19222.1.6.5.0 = STRING: "16QAM"
```

↑
↑
variable number
variable value

NOTE: To obtain the text files of the entire slots inserted in the EK-MFR/1, to digit:

```
snmpwalk -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1
```

7.3.2 Snmpset

Allows to set the variable value of a board inserted in the EK-MFR/1 unit.
To launch this command the user must enter the following command line:

```
snmpset -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.(slot+2).(variable number.) s "variable value"
```

The syntax of the command line is explained below:

- `snmpset` : command name
- `-v1 -c public` : fixed string
- `192.168.1.7` : IP address of EK-MFR/1
- `1.3.6.1.4.1.19222.1.` : fixed string
- `(slot+2)` : the number of the slot (plus 2) with the variable to set.
For example, to set a variable value of the slot number 4 the label (slot+2) will be set to the 6 value.
- `(variable number)` : the number of the variable to set
- `s` : fixed label
- `"variable value"` : the value of the variable to set.

We suppose to set the read/write password value (*chapter 5, board menu, password*) of the EK-MFR/1, to the 7 value. The number of the password variable is 3 (*chapter 5, board menu*). To do this, will digit the following command line:

```
snmpset -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.1.3 s " 7"
```

WARNING: the password value of the EK-MFR/1 is composed by five number, so to insert the value of 7 is necessary, before to digit the value, to insert 4 empty values.

When the command is launched, the following message appears on the screen of the terminal unit:

```
SNMPv2-SMI::enterprises.19222.1.1.3 = STRING: " 7"
```

This message line indicates that the variable number 3 of the EK-MFR/1 (slot+2=1) is set to the 7 value.

In the *snmpset* command, the option *-rl* is available. This parameter is used in the unidirectional PPP protocol. When the *-rl* option is implemented, the SNMP command tries to set the variable one time only.

7.3.3 *Snmppget*

Allows to read the variable value of a board inserted in the EK-MFR/1. To execute this command the following string must be inserted:

```
snmppget -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.(slot+2).(variable number.)
```

The syntax of the command line is reported below:

- `snmppget` : command name
- `-v1 -c public` : fixed string
- `192.168.1.7` : IP address of EK-MFR/1
- `1.3.6.1.4.1.19222.1.` : fixed string
- `(slot+2)` : the number of the slot (plus 2) with the variable to read.
For example, to read a variable value of the slot number 4 the label (slot+2) will be set to 6 value.
- `(variable number)` : the number of the variable to read

We suppose to read the constellation variable value of the EK-UNM/1 board, inserted in the slot number 4 of the EK-MFR/1. The number of the constellation variable is 5 (*EK-UNM/1 user's handbook, chapter 5, board menu*), so the command to digit will be:

```
snmppget -v1 -c public 192.168.1.7 1.3.6.1.4.1.19222.1.6 5
```


When the command is launched, the screen of the terminal unit returns this message:

```
SNMPv2-SMI::enterprises.19222.1.1.6.3 = STRING: "16QAM"
```

8. WEB INTERFACE

The EK-MFR/1 system supplies a web interface software tool (*All4Digit Software Tool*), that allows to obtain a complete view of the system characteristics through the use of the web pages. The web pages allows to read and modify the variables of every slot inserted in the EK-MFR/1 unit. To do this, it is necessary to connect the EK-MFR/1 with a terminal unit (PC), by the Ethernet 10/100 Base T interface. When the connection is executed and the general switch (*front panel description*) is turned on, it is necessary to launch any internet browser (*internet explore* for example) and to digit the following command line:

http://192.168.1.7

EK-MFR/1 IP address 
(*Network menu*)

When the command is executed, the password dialog box appears on the screen:



To enter in the system it is necessary to insert a user name and a password. The user name available for the user is : *super_user*
The password value is : *pollon*.



When the user name and the password values are inserted, pushing on the OK window it is possible to enter in the EK-MFR/1 main web page like the next image shows:

Eurotek All4Digit Software Tool v1.0

EK-MFR/1

☒ Password
 ☐ Power Loop
 ☐ Get Config
 ☐ Save Config
 ☐ Miscellaneous
 ☐ Relay
 ☐ Clock Set
 ☐ Network

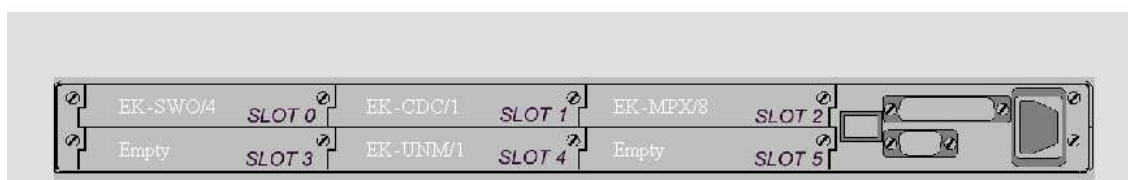
Password Read Only:
 Password Read/Write:

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

Set Parameter:
 Output Console:

Status: ■

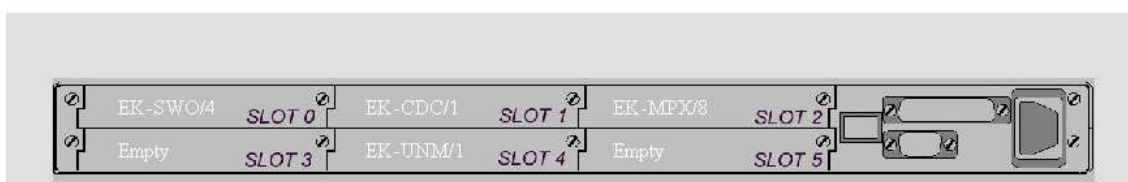
be better connected



The web page reported above, is the main page of the EK-MFR/1. The figure shows, in the down section, the rear panel of the unit (*rear panel description* paragraph) with the board that are inserted in the system. Using a mouse, it is possible to move the cursor on the rear panel. To examine the content of any board it is necessary to move the cursor on the board name and to click the left mouse button to enter in the board menu. In the centre of the page is reported the web page of the EK-MFR/1 explained in the next paragraph.

8.1 EK-MFR/1 web pages

When the All4Digit Software Tool is running, the EK-MFR/1 web page is automatically loaded on the screen of the terminal unit and the following image is showed.



The page shows, in the central section, the complete menu of the EK-MFR/1 unit (*board menu chapter*). The selected menu is in light colour and its variables are reported in the centre of the page. The other menu that, are not temporarily selected, are visible in dark colour. In the figure, the Password menu is active and the read only and read write password value are reported on the screen. In the top section of the page is reported the name of the selected unit (in this case EK-MFR/1) under the software tool name.

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* window 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 explains how to set a parameter of the EK-MFR/1 menu.

We suppose to change the value of the time to exit parameter for the system; the procedure to set this variable is similar for the other parameter of the EK-MFR/1 unit.

The time to exit parameter, is located in the Miscellaneous menu (*board menu chapter*); so when this menu is selected, the next web page appears on the screen:

Eurotek All4Digit Software Tool v1.0

EK-MFR/1

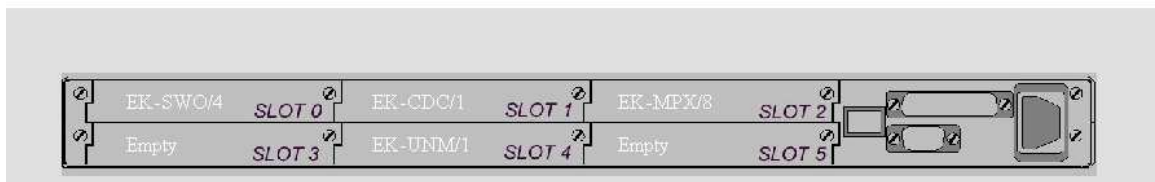
Password Power Loop Get Config Save Config **Miscellaneous** Relay Clock Set Network

Volt In 0	0.0	Rail 12 V	12.1
Volt In 1	0.0	Rail 3 V	3.3
Volt Out 0	5.0	Rail DC	Not Available
Volt Out 1	2.0	Time to Exit [min]	---
		SCI2	Disabled
Board Temperature [°C]	34.0		
External Power	-99.0		


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

Time to new Refresh 0 Set No Alarm

be better connected



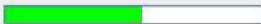

The miscellaneous variable value are showed, so it is possible to select the Time to Exit box pushing the left mouse button on the black indicator. The following situation appears:



All4Digit Software Tool v 1.0

EK-MFR/1

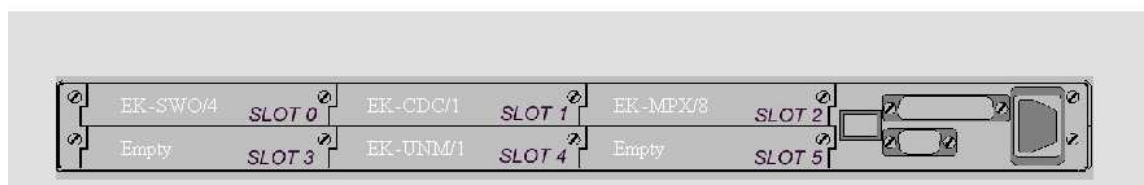
Password Power Loop Get Config Save Config **Miscellaneous** Relay Clock Set Network

Volt In 0	0.0	Rail 12 V	12.1
Volt In 1	0.0	Rail 3 V	3.3
Volt Out 0	5.0	Rail DC	Not Available
Volt Out 1	2.0	Time to Exit [min]	---
		SCI 2	1
			10
			20
			30

Board Temperature [°C]	34.0		
External Power	-99.0		

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

be better connected



We suppose to choose the “10” minute value for the Time to Exit variable, so the screen shows:

Eurotek All4Digit Software Tool v1.0

EK-MFR/1

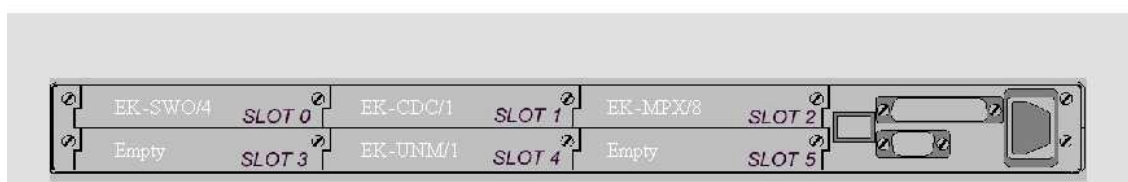
Navigation tabs: Password, Power Loop, Get Config, Save Config, **Miscellaneous**, Relay, Clock Set, Network

Volt In 0	0.0	Rail 12 V	12.1
Volt In 1	0.0	Rail 3 V	3.3
Volt Out 0	5.0	Rail DC	Not Available
Volt Out 1	2.0	Time to Exit [min]	10
		SCI 2	Disabled
Board Temperature [°C]	34.3		
External Power	-99.0		

Refresh Time [sec]: ☐ 1 ☐ 10 ☒ 30

Time to new Refresh: Set Parameter: 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 time to exit = 10) 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

EK-MFR/1 electrical interface

The following table shows the electrical connections of the EK-MFR/1. Every slot is electrically interfaced with the EK-MFR/1 signal present in the table below. The matrix configuration software allows to set the the high speed data signals (A column), so it is possible to obtain the transit of a signal from a board to another one.

	C	B	A
1	GND EARTH	GND EARTH	GND EARTH
2	GND EARTH	Coaxial connection	GND EARTH
3	GND EARTH	GND EARTH	GND EARTH
4	GND EARTH	GND EARTH	GND EARTH
5	GND EARTH	Coaxial connection	GND EARTH
6	GND EARTH	GND EARTH	GND EARTH
7	GND EARTH	GND EARTH	GND EARTH
8	-5V	-5V	-5V
9	+12V	+12V	+12V
10	GND EARTH	GND EARTH	GND EARTH
11	Common Audio (out)	GND EARTH	Common Video pal (out)
12	GND EARTH	GND EARTH	GND EARTH
13	+5V	+5V	+5V
14	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
15	QSPI_BOARD_EN (in)	QSPI_DIN (in)	HIGH_SPEED_DATA0
16	QSPI_DOUT (out)	QSPI_CLK (in)	HIGH_SPEED_DATA1
17	IRQ_REQ (out)	RESET	HIGH_SPEED_DATA2
18	NOT CONNECTED	HIGH_SPEED_WE	HIGH_SPEED_DATA3
19	10 MHz REF	HIGH_SPEED_OE	HIGH_SPEED_DATA4
20	+3V3	GND EARTH	HIGH_SPEED_DATA5
21	NOT CONNECTED	NOT CONNECTED	HIGH_SPEED_DATA6
22	NOT CONNECTED	NOT CONNECTED	HIGH_SPEED_DATA7
23	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
24	+2V5	+2V5	+2V5
25	NOT CONNECTED	NOT CONNECTED	NOT CONNECTED
26	GND EARTH	NOT CONNECTED	HIGH_SPEED_CLK
27	GND EARTH	GND EARTH	GND EARTH
28	GND EARTH	Coaxial connection	GND EARTH
29	GND EARTH	GND EARTH	GND EARTH
30	GND EARTH	GND EARTH	GND EARTH
31	GND EARTH	Coaxial connection	GND EARTH
32	GND EARTH	GND EARTH	GND EARTH

The signal direction, when is indicated (for example QSPI_DIN (in)), is related to the board inserted in the EK-MFR/1 slot.

The label ~~RESET~~ indicates that the RESET signal is active low.

The maximum speed of the internal signal (High_speed_data 0 to 7 and high_speed_clk) is 53.9 Mb/sec.

APPENDIX B

EK-MFR/1 peripheral addresses

Addresses Bus :

Range	CS		
0x00000000-0x003FFFFFFF	CS0	Flash (Boot)	4 MByte
0x30000000-0x3FFFFFFF	CS1	FPGA (-CSFPGA_0)	
0x30000000-0x3000001F	"	Matrix	
0x30000360-0x3000037F	"	Keyboard	
0x20000000-0x203FFFFFFF	CS7	SDRAM	16 Mbyte
0x10000000-0x1FFFFFFF	MBAR	Module Base Address Register	

QSPI BUS :

CS	
0	
1	
2	
3	
4	Slot 0
5	PWS 0 (Relay & SCI enable on PWS/6)
6	PWS 1 (AD & DA converter on PWS/6)
7	Serial EEprom
8	On Screen Display
9	Real Time Clock
A	Slot 5
B	Slot 4
C	Slot 3
D	Slot 2
E	Slot 1
F	

SLOT PERIPHERAL COMMON ADDRESSES :

addr	
0	
1	Flash seriale driver mainframe
2	Flash seriale configurazione FPGA
3	Richiesta Slave
4	Reset Slot
5	
6	PPP protocol (EK-UNM/1 board)
7	
8	
9	
A	
B	
C	
D	
E	
F	

APPENDIX C

RS232 interface settings

To connect the EK-MFR/1 to a terminal unit by the RS232 interface, is necessary to set the following value of the COM port parameter:

115200	bauds
8	data bits
NO	parity bit
1	STOP bit
NO	flow control

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