

# NAGRA LB USER MANUAL



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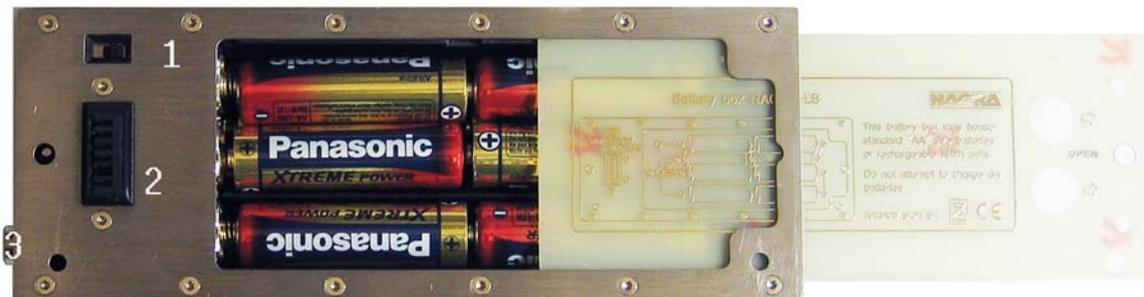
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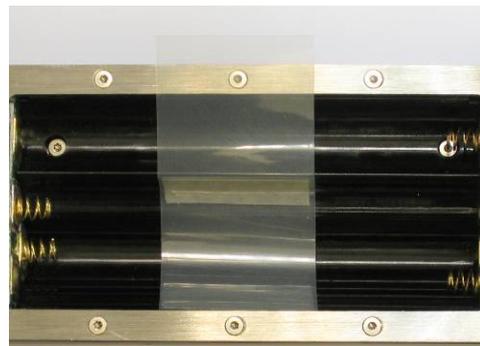
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## QUICK START

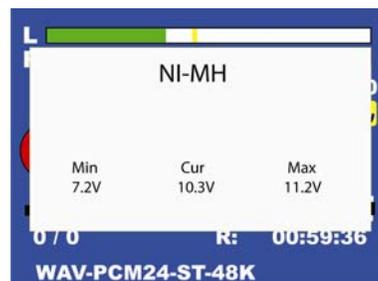
### INSTALLING BATTERIES



The battery box is made to hold 8 dry cells or rechargeable batteries. Beware to correctly set the switch (1) to the corresponding battery type: If the switch is set as shown in the picture (to the right), dry cells are selected. If a power supply is connected to the battery box (connector 3), the Nagra LB will run from the external power without charging the cells. If the switch is set to the left side, rechargeable cells are selected. When external power is connected, the machine will run from the external power and simultaneously, the NiMH cells will be charged. The red LED on the battery box starts blinking indicating that the batteries are in the charge mode. The charge current is approx 715 mA. The charge time for empty NiMH cells is approx 3 to 4 hours for 2500 mA types. The red LED will stay ON once the batteries are fully charged. If the batteries are making a mechanical noise when shaking the machine, glue the additional Millar film inside the compartment. With fresh dry cells, the consumption in record is approx. 215 mA (display brightness max). In power OFF, the consumption is 0.22 mA. To know the status of the batteries, pull the switch (front panel 5) to the left and a sub window appears.

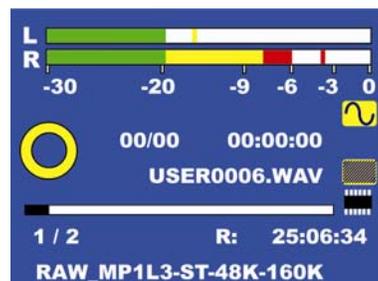


Open the battery box by sliding the cover. Install the 8 "AA" cells as shown on the cover. Close the battery box and verify that the switch is in the correct position. Fix the battery box with the 2 screws to the Nagra LB (observing the correct position of connector 2). Wait a few seconds before turning on the Nagra LB. This permits to charge the super capacitor inside the machine (date & time counter).



### TURNING ON THE FIRST TIME

When turning on the Nagra LB by setting the main selector to TEST, a RTC (Real Time Clock) window will appear for a few seconds. This means that date and time need to be set. To do this, refer to "NAVIGATING THROUGH THE MENUS" and the menu "MISCELLANEOUS" paragraph. Afterwards appears the main test display.



### STORAGE MEMORY

As the Nagra LB has a 2GB internal memory as well as Compact Flash slot, the memory area must be selected once. In the case shown on the picture, the internal memory is selected. If the CF card should be used, it can be selected from the menus on the front panel. Press and hold the multifunction button until the menus appear. If the memory selection is made from the front panel, the default working folder will be /RECORD. Other working folders can only be created from the top panel menus. By pushing down the multifunction button, select Storage and push the multifunction button to the right side. Select CF card and press the center key to confirm.

# INSTRUCTION MANUAL NAGRA LB

To escape from the menus, push several times the multifunction button to the left until the main test display appears.

## COMPACT FLASH CARDS

Not all flash cards on the market can be used. Nagra proposes the following types:

**Kingston technology**  
266X type

**SanDisk**  
Extreme IV type

For other cards, execute first a CF Card test  
(see Miscellaneous)



## INPUT SELECTION

Nagra LB has one digital input (AES) as well as two analog line or mic. inputs. The front display shows the sine icon, meaning that the machine is set to analog input. If the digital input is needed, select again the menus on the front panel, go to Input Device and select digital. The sine icon will be replaced by a square wave indication.

Beware that the LB will not automatically select the incoming digital clock. Select the corresponding sampling rate from the "Record File Set" sub-menu.

In the analog domain, set the switches on the left panel for each channel if the input needs to be line or mic. For the mics, 2 sensitivities are available: 2 mV/Pa for dynamic mics and 15 mV/Pa for condenser mics. If Phantom power (48V) is needed, set the switches to on.

## INPUT SENSITIVITY

Check that the main selector is still in TEST mode. Now the sensitivity can be adjusted with the 2 front potentiometers. Ensure that the switch between the 2 potentiometers is set to the right side (clutch disengaged). Connect a headphone to the machine and adjust the headphone output level with the potentiometer just above the jack connector.

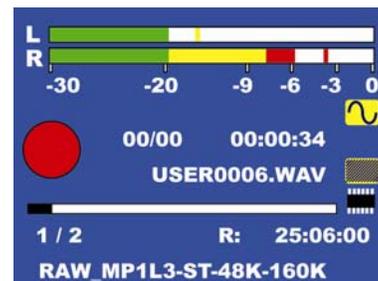
The start of the red area on the display area as well as the red LED's above each input potentiometer can be preset to a certain value via the main menu settings on the top panel.

## FILE SETTINGS

The recorder still needs to be set for the PCM, MP2 or MP3 standard. This can not be done from the front panel except if the settings were previously saved in a template. To change the file type, see paragraph "RECORD FILE SET". If the machine still has its default settings, then the bottom line on the test display should show WAV-PCM24-ST-48K explaining that the Nagra LB will start the record in Broadcast Wave Format, PCM (Linear), 24 bits, Stereo at 48kHz sampling rate.

## RECORD

Now, the machine is ready to record. Turn the main selector to the Record position. The yellow ring icon on the display becomes a full red circle and the record LED turns on. Simultaneously the counter starts incrementing and the remaining time decrementing. As an example, the picture shows that the recording is running since 34 seconds and the remaining time is reduced by 34 seconds.



The marker or cue indicator is still at 00/00. If a cue point is needed during record, activate the Cue switch and the indicator will show 01/01 etc. Afterwards during playback, it's easy to locate by skipping (<, >) a cue position.

# INSTRUCTION MANUAL NAGRA LB

If during record the >> switch is pressed, a new seamless file will be created.

If a reference level is needed at the beginning of the recording, push the Ref Gen switch. A 1 kHz sine wave on both channels will be recorded. This reference signal can also be level adjusted in the top panel menus.

If any additional commentary needs to be added to the recording, push the INT MIC (Internal Mic.). The additional mono sound track will be added to the analog input signals on both channels.

To stop the recording, return the main selector to TEST.

## **PLAYBACK**

Turn the main selector to the PLAY position. It will instantaneously playback the last index. Use the >> or << switches on the front panel to fast forward or fast rewind. Use the < or > to skip backwards or forwards to a cue point or other index.

## **PAUSE**

When during playback the main selector is set to STOP, the playback goes in PAUSE mode. During the PAUSE mode it is possible to increment or decrement the counter by turning the jog wheel.

## ALL PANELS

### FRONT PANEL



### 1 MAIN SELECTOR

- OFF: Power off position. Power off function activates after 3 seconds. All files will be correctly closed prior to power off. Passing quickly over the OFF position from TEST to STOP (or vice versa) will have no effect.
- TEST: Standby prior to record position. The LB is in EE mode (Electronic-Electronic) All electronics are active allowing level adjust, machine set-up and monitoring. When pre-record is activated, the red record led starts blinking.
- REC: Record position according to menu set-up. The LB records with or without pre-record buffer (max 3 seconds in 16 bit PCM stereo).
- PLAY: Playback position. Plays back the last recorded index. Continue to playback from the previous "paused" position playback was interrupted by the STOP position.
- STOP: Pause the playback if the previous position of the switch was in the PLAY.

### 2 REWIND / FORWARD



- Active only in PLAY and STOP and RECORD. In the play mode when held, the rewind or forward search speed starts at 4 times the nominal speed increments to 10 times nominal speed after 3 seconds. Rewind / Forward stops as soon as the switch is released.
- In the stop mode when held, rewind or forward search at 20 times nominal speed. Rewind / Forward stops when the switch is released.
- When pressed (>>) in record, a new seamless file is created.

### 3 SKIP BACK / SKIP FORWARD



- In PLAY mode when moved a single time to the left, it returns to the beginning of the index and play starts over. If markers are present, it jumps to the previous marker position of the current index. Moving the switch to the right will jump to the beginning of the next index, or marker in the current index.
- In the stop mode, the same action as described above should take place but without automatic playback.

## 4 MULTIFUNCTION SWITCH



- This 5 position selector is used to enter into the menu mode and surf through the different displays and menus. Pressing the key is the “EXECUTE” position to validate a selection.

## 5 BACKLIGHT / BATTERY



- Shows the battery status on the display for a few seconds. Simultaneously, the display scrolls through all the present settings of the LB.
- Sets high backlight (contrast) intensity when set to the “sun” icon.
- Sets low backlight (contrast) intensity when set to the “cloud” icon.

## 6 STEREO / MONO



- When the switch is released (Stereo position), the headphones receive the left and right channel (shows ST on the display).
- When the switch is toggled once to mono, both channels are mixed and delivered to the left and right headphone channels (shows MO on the display). Toggling once more brings it back to stereo. At power on, it's always reset to stereo.
- Selecting the mono position has no influence for monophonic recordings.

## 7 HEADPHONE JACK



- 6.3 mm stereo headphone jack connector. When the headphone output is used, the speaker is automatically off.

## 8 HEADPHONE LEVEL



- Headphone level (and speaker if set in the menu) output control.

## 9 INTERNAL MIC.



- Internal Electret mono mic. activated by pressing switch 16. The microphone sensitivity is adjusted in the menu mode. When active it will record on both channels.

## 10 DISPLAY

- Color display 3.5 inch 176 x 117 dots

## 11/12 LED INPUT LEVEL



- Two input level indicators situated above the input level potentiometers.
- The green led turns on from -18 dB, the yellow turns on from -9 dB, the red one can be programmable by menu for 0, +3, +6 or +10 dB. (+10 dB corresponds to FF for the AD converter).

## 13/14 INPUT POTENTIOMETERS



- For adjusting the input levels. Between 0.5 dB and 0 dB, the input is muted.

## 15 REFERENCE GENERATOR



When pressed, generates a sine wave 1 kHz. The level can be adjusted via menu from 0 dB to -30 dB in steps of 2 dB. The signal will be recorded on both channels.

## 16 INTERNAL MIC.



When the internal mic. switch is set to the right, the built-in mic. becomes active and is recorded on both channels in the case of a stereo recording. The sensitivity can be set in the menus.

## 17 CUE



The cue (“Markers”) switch can be used during record to add a cue position. All cue positions are saved in the “chunk” of the file and will be recognized on most of the existing computer based digital editing and playout systems.

## 18 CLUTCH



The clutch locks the 2 input potentiometers together electronically. If an offset was present before the clutch was engaged, the offset will remain in memory. The adjustment of both channels, once the clutch is active, is made using the left potentiometer only, the right potentiometer will have no effect.

## LEFT PANEL



### 1 BUFFER SWITCH



- The buffer push-button permits replacement of the almost full CF card by a **BLANK** formatted CF card without losing any information without stopping the recording. (Within a time of 30 seconds)
- Once pushed and the red led starts blinking, and the card can be replaced. The front display shows the remaining time left in which to replace the card (maximum 30 seconds).
- Once the card is replaced and the green led starts blinking, which means that the card is being accessed. The card starts to record the data seamlessly, continuing from the last recorded index from the previous CF card.

### 2 CF SLOT



- This slot accepts only Compact Flash cards type I and II.

### 3 EJECT BUTTON



- Push the eject button to remove the CF card.

### 4/5 INPUT SENSITIVITY SELECTOR



- Selects the input sensitivity between dynamic, condenser type mikes or line input level for each channel.

### 6/7 PHANTOM POWER



- Turns on the +48 V Phantom power supply.

### 8 DIGITAL INPUT

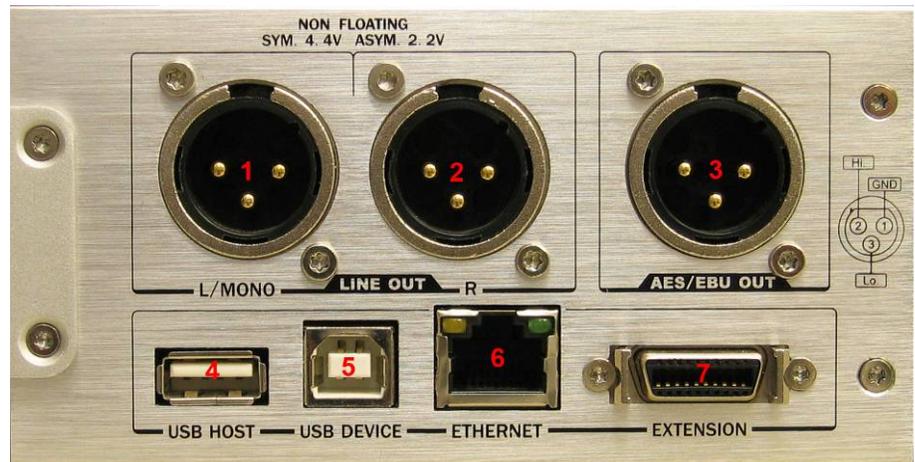
- AES XLR input connector



### 9/10 ANALOG INPUTS

- Analog input XLR connectors for mic. or line level

## RIGHT PANEL



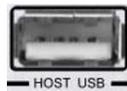
### 1/2 ANALOG OUTPUTS

- Analog line output XLR connectors.

### 3 DIGITAL OUTPUT

- Digital AES XLR output connector.

### 4 USB HOST



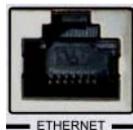
- Used for the Bluetooth USB key as well as for an USB memory stick.

### 5 PC USB



- USB output connector for connection to a PC or Mac for audio transfer. PC or Mac recognizes the item as an external memory device.

### 6 ETHERNET



- Ethernet connection for transferring files etc.

### 7 EXTENSION CONNECTOR



- RS232
- Start / stop remote
- Start / stop monitoring

## TOP PANEL



When the Nagra LB is used to record or to playback from the front panel, the top panel is totally turned off (except the use of the HOLD switch).

To turn on the functions of the top panel, the main selector (1) on the front panel should be set to STOP. On the front panel press the execute key for 3 seconds (front panel, key 4) and the display turns on.

### 1 DISPLAY

- Identical type as the front display.

### 2 SPEAKER

- Can be turned on automatically during playback via menus selected from the front panel.
- Can be turned on automatically if the top panel is active for editing or if the Ethernet connection is running via menus.
- The speaker level can be adjusted via the headphone potentiometer from the front panel.

### 3 FUNCTION KEYS

- To be selected according to the indication on the display above each key.
- Used for editing and for Ethernet connection.

### 4 JOG WHEEL

- Multi function depending on the status of the LB (editing, pause, menus, etc). On the first series of machines, pushing the jog wheel jumps between the editing field and the directory field. **Starting from serial number 91092030218, this push function is not available anymore but it can still be executed with the up and down arrow keys.**

### 5 MULTIFUNCTION KEYS

- Multi function depending on the status of the LB (editing, pause, menus, communication, etc).

### 6 SHIFT KEY

- To add more functions mainly for editing directories etc.

### 7 HOLD KEY

- This switch permits to lock the front panel completely during power off, record or play. In the case that the switch is in the lock position and the main switch is turned to test or play, a message appears on the front display indicating that the machine is locked and will turn off in 3 seconds.
- If the hold key is turned on when front panel is active, the "HOLD" will be shown in the lower left area of the screen.

## DISPLAY

When turning on the machine in test mode:

1 Indicates the file type that will be recorded. In this example it shows that the recording will be in MP3, Stereo, 48 kHz sampling and at a bit rate of 160 kb/s.

2 The first number indicates the index that could be played back if the machine was set to play and not to test. The second number is the total quantity of files in the working folder.

3 Gives a virtual status of the total memory available versus the used memory.

4 In test mode, indicates the name of the next index that will be recorded.

5 Status icon.

	TEST mode
	RECORD mode
	STOP mode
	PLAY mode
	FORWARD mode
	REWIND mode
	PAUSE mode after the first playback, coming back to the stop mode

6 Cue counter: the first 2 digits show how many cue points (Markers) are already played back. The last 2 digits show the total quantity of cue points in the index.

7 Modulometer for left (top) and right (bottom) channel.

8 Icon indicating if the input is analog (sine wave icon) or digital (square wave icon).

9 Record counter in hours, minutes and seconds.

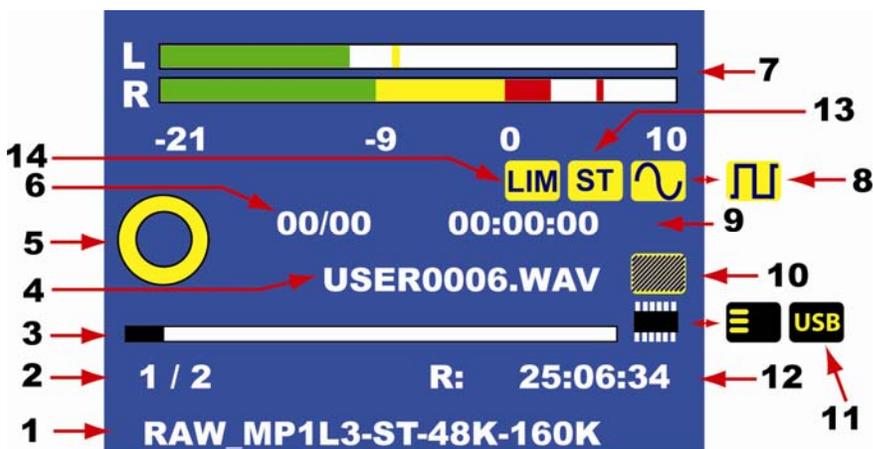
10 Internal mic icon appearing when the internal microphone is active.

11 Memory icon indicating if the working drive is internal (IC icon), Compact Flash (CF icon) or a USB device. If a red cross appears on the CF icon, it means that the CF card was selected but the card is not inserted. If a USB device was selected as the target for recording but no device is connected, the icon will be shown with red characters (USB).

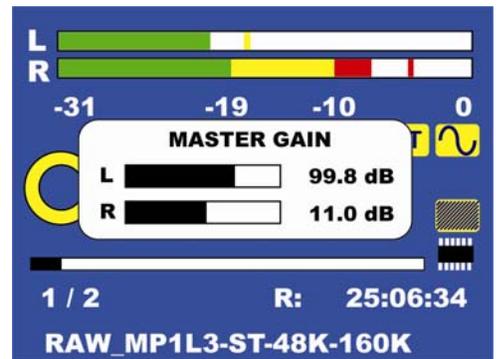
12 Memory remaining counter. Indicates in hours, minutes and seconds how much recording time is left on the working drive.

13 Shows ST (stereo) or M (mono) for the headphone output

14 Appears if the limiters are turned on



When turning one of the sensitivity potentiometers, a sub-window appears, for a few seconds, showing the actual gain. In this example, the left channel is set to 2mV/Pa and the right channel to line input.



## ACTUAL SETTINGS

To view the current settings of the Nagra LB, in the TEST mode, press the multifunction switch (4) briefly, and the following display will appear: The status window will disappear after a few seconds.

**File: WAV-PCM24b-ST-48K**  
**Template: Empty**  
**Input matrix: ST one file**  
**Low cut filter: OFF**  
**Limiter: OFF**  
**MS decoder: OFF**  
**Output level: Always on 6 dBu**  
**Speaker: OFF**

## SETTING UP THE LB

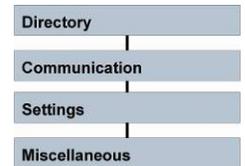
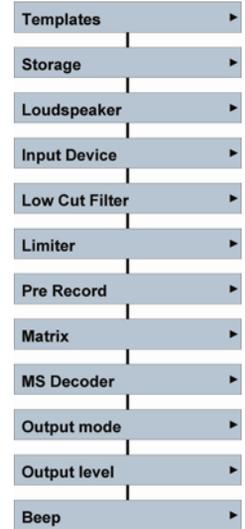
The setup of the machine is made via the menus. Two menus can be found on the NAGRA LB: The complete setup menus can only be found on the top panel display. The simplified setup can be accessed from the front panel. The simplified setup tree is extracted from the full tree and concerns mainly the settings for recording.

**To access the simplified setup**, the NAGRA LB must be in the TEST mode. By pressing the center key for at least one second, the menus will appear on the front display.

The simplified setup gives access to the menus shown in the picture. To set the time, date or formatting or program templates the full menus on the top panel must be accessed.

**To access the full setup**, the NAGRA LB must be in the STOP mode. By pressing the center key on the front panel for at least one second, the menus will appear on the top display.

The full setup menu gives access to all the settings, including those from the front panel.



## NAVIGATING THROUGH THE FULL SETUP (TOP PANEL)

This can be made with the up / down keys or the jog wheel for a vertical movement and with the left / right keys for a horizontal movement.

If after a selection the indicator “>” on the right side of the display disappears, the EXE (center) key can be pressed to execute this selection.

In other cases, a text will appear at the bottom line of the display just above the 5 function keys (F1 to F5).

In the case that characters need to be entered, the up / down keys or jog wheel is used to make the character selection. The right key is used to jump to the next character position. Once all characters entered, press the center key to confirm.

A horizontal or vertical black connection line between two blocks in the associated diagrams, means that the next block can be reached using the up / down / left / right key. A horizontal or vertical red connection line means that the center key needs to be pressed to jump to the next position.

To escape from the menus and to turn off the top panel, press several times the < key.

## NAVIGATING THROUGH THE SIMPLIFIED SETUP (FRONT PANEL)

This is made using up / down and left / right movements of the multi-function switch.

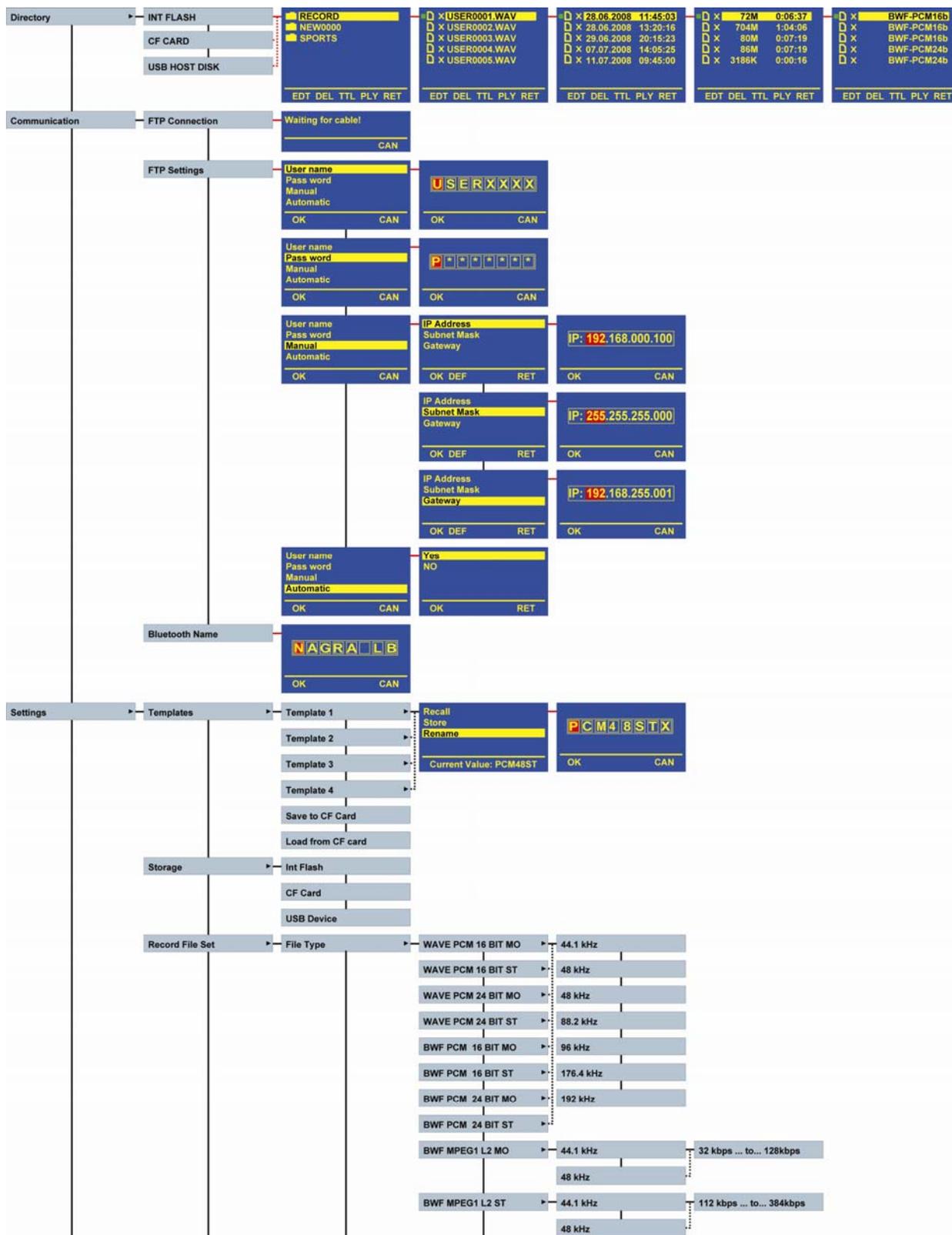
If after a selection the indicator “>” on the right side of the display disappears, the EXE (center) key can be pressed to execute this selection.

In the case that characters need to be entered, the up / down keys or jog wheel is used to make the character selection. The right key is used to jump to the next character position. Once all characters entered, press the center key to confirm.

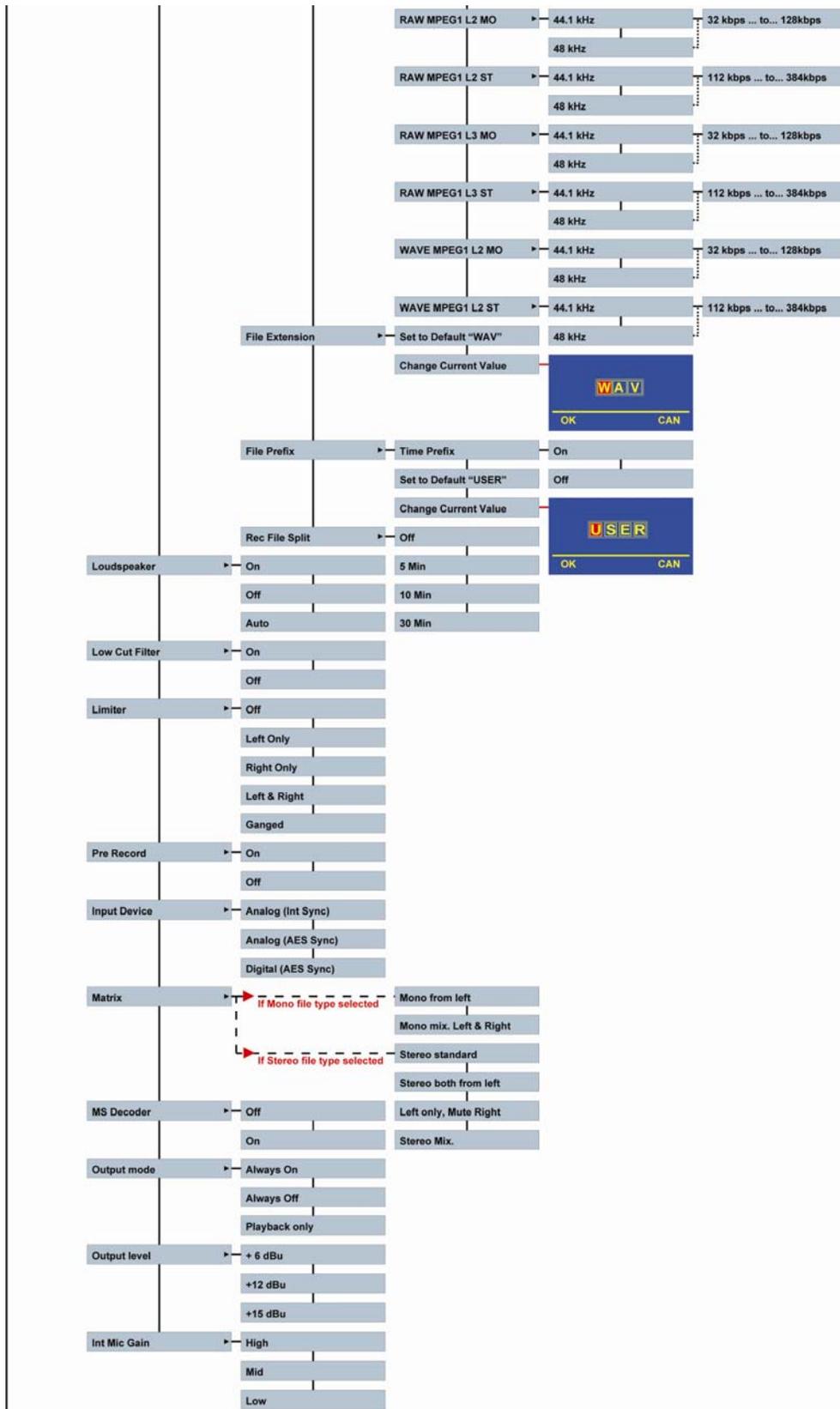
A horizontal or vertical black connection line between two blocks, means that the next block can be reached using the up / down / left / right key. A horizontal or vertical red connection line means that the center key needs to be pressed to jump to the next position.

To escape from the menus, pull several times the multi-function selector to the left side.

FULL SETUP TREE



# INSTRUCTION MANUAL NAGRA LB

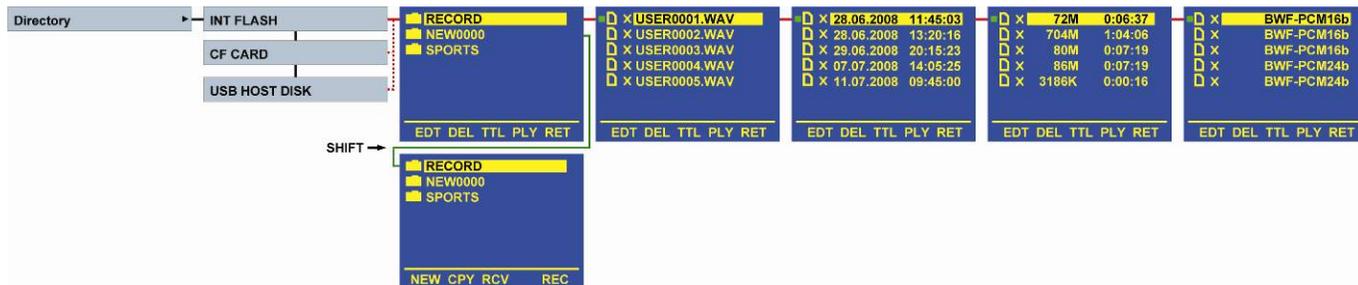


# INSTRUCTION MANUAL NAGRA LB

Miscellaneous	Format	CF Card	Erase All Informations on Disk. Format Now? Yes <input type="radio"/> No <input checked="" type="radio"/>
		Int Flash	
Return		USB Host Disk	
	Database Sync		Database Sync can take a long time. Please connect DC adapter. Sync now? Yes <input type="radio"/> No <input type="radio"/>
	Power Down	Disable	
		2 min ... to ... 30 min	
	Night Mode	On	
		Off	
	<del>Language</del>	<del>Language-1</del>	
		<del>Language-2 to ...</del>	
	Version	Version APP Ver: 1.XXX Build: 2009.XX.XX Serial: 910810015 MAC: 00-60-6e-2f-ae-9d	Version MCU: T04.F06.A02.P07 Board ID: T10.P11.A10.P24 CPLD Ver: M01.S01 Firmware ID: 01 Boot Mode: Normal
		OK >	OK <
	Date & Time	Date Time	2008.07.21 2008-XX-XX
		OK CAN	OK CAN
		Date Time	21:09:25 XX:XX:XX
		OK CAN	OK CAN
	Remote	Rec / New Index	
		Rec / Stop	
		Rec / Cue	
		Cue / Play	
		Start / Stop Play	
		Fader Start Play	
	Auto skip	On	
		Index loop	
	Red LED Level	-2 dB... to ... -18 dB	
	Beep	On	
		Off	
	Beep Vol	Max	
		High	
		Mid	
		Low	
	Ref. Generator	0 dBFS... to ... -20 dBFS	
	File Counter	Reset to 0	
	Power On Counter	Reset to 0	
	System Update	Update now? Yes <input type="radio"/> No <input type="radio"/>	
	System Reset	Reset all the settings to the default values. Reset now? Yes <input type="radio"/> No <input type="radio"/>	
	System Info	Handflash Total: 1790 M Free: 1780 M	CF card Total: 1991M Free: 952 M
		OK	
	CF Speed Test	CF speed test need to format the card, press Yes to confirm. Yes <input type="radio"/> No <input type="radio"/>	

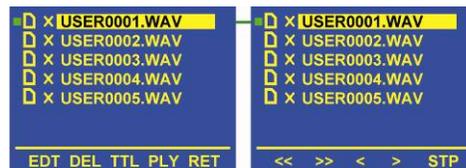
## DIRECTORIES

The directory is the first menu that can be selected from the full setup tree.



From this position, the internal memory, the present CF card and even the USB memory stick or external HDD can be selected to show the folders and indexes stored. Scrolling to the right side, by using the right arrow key shows the date and time the recording was made, the size and the duration of the index as well as the file format. Several functions become available: EDT, DEL, TTL, PLY, RET, <<, >>, <, >, STP, NEW, CPY, RCV, REC and will be explained below. The last 4 functions appear when the shift key is pressed. Scrolling through the directories is made by using the up, down, left, right keys or with the jog wheel.

## PLAYING AN INDEX



**PLY** From this point, any index can be selected and played back (F4 = PLY). During playback, at the end of the index, the directory automatically plays the next index. At the moment that an index is selected, a small square icon will appear in front of it: If the icon is green, it means that it is corresponding to the actual settings of the NAGRA LB. If the square icon is red, it means that it is not corresponding to the actual settings of the machine but when pressing the PLY (F4) key it can be played back. If the square icon in front of the selection is green, the machine starts playing the index immediately until the end except if during the playback process the STP (F5) is pressed. During the playback, 5 other classic functions are available: <<, >>, <, >, STP permitting fast rewind, fast forward, skip backwards, skip forwards and STOP playback. The consecutive playback depends also on the setting of the Auto skip sub menu. If the square icon is red, the NAGRA LB will change momentarily the internal settings to the settings of the index and starts the playback. If a "X" is pressed just before the index name, it means that the index contains the waveform for editing.

## EDITING AN INDEX

**EDT** Starts editing. Green icons, in front of each index can be selected to start editing immediately. Red icons can not. The NAGRA LB must first be set to the settings of this index before editing can be started. Editing is explained in a separate chapter.

**Important note:** Indexes recorded on the USB host device must first be imported, on the internal memory or CF card, before editing can become available.

## DELETING AN INDEX

**DEL** Delete the selected index. When pressing F2, the NAGRA LB shows a sub menu asking if you are sure to delete the file from the memory and still gives the possibility to escape (RET) or to accept the action. RET returns to the previous step, YES erases the index.



## WORKING DIRECTORY

The working directory is the folder that will be used to store the recordings. If no working directory was created, by default the directory "RECORD" will be selected.

If the working directory was made inside one memory type and the other memory is suddenly selected, the same working folder will be selected. If the folder doesn't exist, it will be automatically created.

To make a new working directory, create a new folder in the root (first level only):

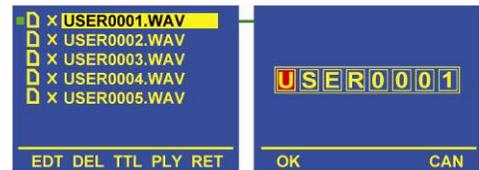
Select the memory device, press the SHIFT key once and the functions NEW, CPY & RCV are shown. Press NEW and a folder NEW0000 is created. Press the SHIFT key once more, highlight the NEW0000 folder and press TTL for changing the name. Enter the folder name. Press execute (center key). Press the SHIFT key once more and the function REC (F5) appears. Press REC and the folder becomes the working folder (a message appears on the screen. When selecting again the folder, the yellow icon in front of the folder name became red.



## RENAMING A FOLDER OR AN INDEX

**TTL** Modify the index or folder name (Title). When pressing F3, A sub window appears permitting to enter maximum 8 characters.

By turning the jog wheel or the up / down keys, the first character can be selected. Press the right key to jump to the next character or the left key to return to the previous position. Once all characters are entered, press F1 OK. This example shows an index renaming. The same renaming can be made for a folder.



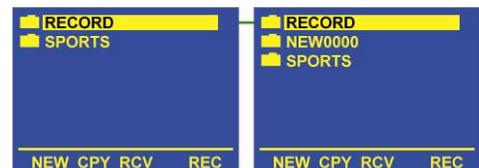
## ESCAPE FROM DIRECTORIES

**RET** RETURN escapes from the directory menu (1 step backwards).

## CREATING A NEW FOLDER

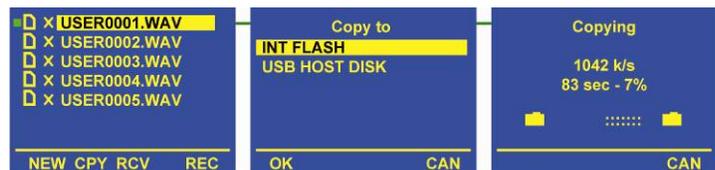
By pressing the SHIFT key in the directory, 4 other functions become available: NEW, CPY, RCV, and REC.

**NEW** To create a new folder, select the internal or CF card and eventually the next folder. Press the NEW function key to create a new folder. A new folder called NEW0000 is created. Afterwards it can be renamed as explained above with TTL.



## COPYING AN INDEX BETWEEN THE CF CARD, INT. MEMORY

**CPY** Permits to copy an index from one memory to another memory. To do so, select the index that needs to be copied and press F2 CPY. A new window appears. Select the desired memory support and press F1 OK. The copying starts and indicates the transfer speed as well as the copy remaining time. If the folder doesn't exist on the target memory, it will be automatically created. Folders can not be copied.



## COPYING AN INDEX FROM AN ARES-M, ARES-MII or ARES-ML

The Ares-M, Ares-MII or Ares-ML can be directly connected to the Nagra LB USB host. When copying files from those machines into the LB, they can be played back for as long as the format is PCM, MPEG 1-LII or MPEG 1-LIII. Beware that editing on imported files from those machines is not possible. If the folder that contains the file to be copied doesn't exist on the Nagra-LB, it will be automatically created.

When copying a file from the Nagra-LB to the Ares-M, Ares-MII, Ares-ML and the folder containing this file doesn't exist, it will be automatically created.

Beware that the Ares-ML can not select this folder. Only the folder "ARESM" can be accessed. If any files need to be copied to the Ares-ML, they must already be created or stored on the LB in a folder called "ARESM".

## COPYING AN INDEX BETWEEN THE NAGRA LB AND A MEMORY STICK / HDD

The USB host can also receive a memory stick or external HDD and the indexes can be copied in both directions combined with the internal memory and the CF card. If the folder containing the file to be copied doesn't exist, it will be automatically created.

## RECEIVING AN INDEX

RCV Receiving an index via Bluetooth is explained in the paragraph Bluetooth & Ethernet communications.

## USB TRANSFER TO PC / MAC

To connect a PC or MAC to the Nagra LB, set the machine to the STOP position and the top panel must be disabled. Connect the USB cable between the 2 items and after a while, the Nagra LB front display will show that it is in USB transfer mode. The PC or MAC will show the 2 available memories from the Nagra LB.

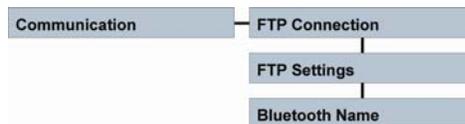
Do not forget after transferring to safely remove the Nagra LB from the PC using the PCMCIA icon in the right lower corner of your screen (for both memories) or eject the memories on a MAC.

## COMMUNICATION

The communication menu allows an FTP (File Transport Protocol) connection on a local or Internet network. The different memories and corresponding folders as well as the indexes will be seen via Ethernet FTP and can be downloaded.

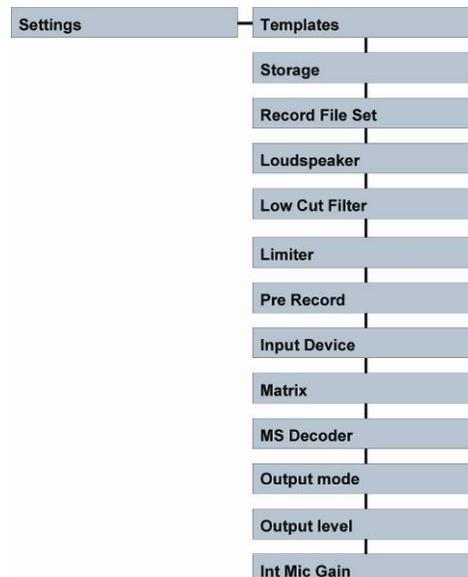
It's also the area where the Bluetooth name of the LB can be changed.

A separate paragraph explains how to setup and to connect to Ethernet.

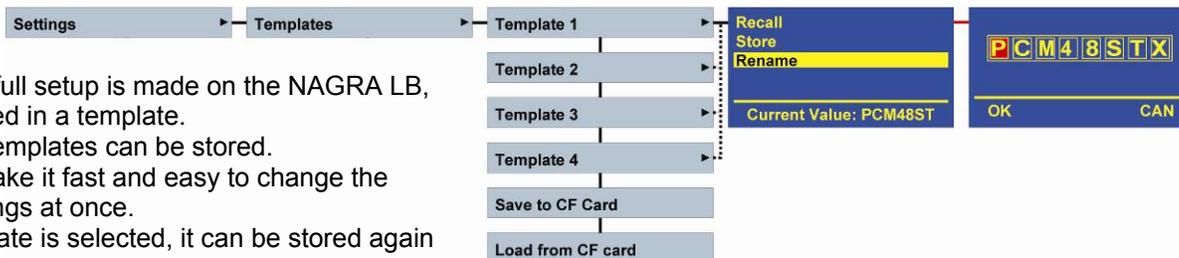


## SETTINGS

As shown in the picture, several sub menus can be accessed.



## TEMPLATES



When a new full setup is made on the NAGRA LB, it can be stored in a template. Maximum 4 templates can be stored. Templates make it fast and easy to change the different settings at once. Once a template is selected, it can be stored again if any changes took place, it can be recalled and it can be renamed.

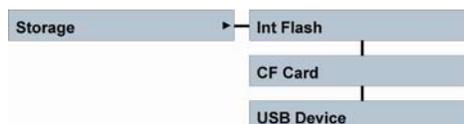
The following functions and settings are saved in a template:

Template Name	File Type	MS Decoder Mode
File Prefix Name	Pre Record Buffer	Red Led Level
Wave Extension Name	Record File Split Mode	Internal Mike Gain
MP2 Extension Name	File Time Prefix Mode	Beep
MP3 Extension Name	Matrix Mode	Output Level
Bit Rate	Filter	Output Mode
Channels (1 or 2)	Input Selection (Ana. Or Dig)	Speaker
Sample Rate	Limiter	

The templates can also be saved on the CF card. To do this, select "Save to CF card". Afterwards, they can be restored on any Nagra LB by selecting "Load from CF card". Beware that after a system reset, all templates will be named "Empty" and will take the settings as shown in the "Default Settings" table. See DEFAULT SETTINGS.

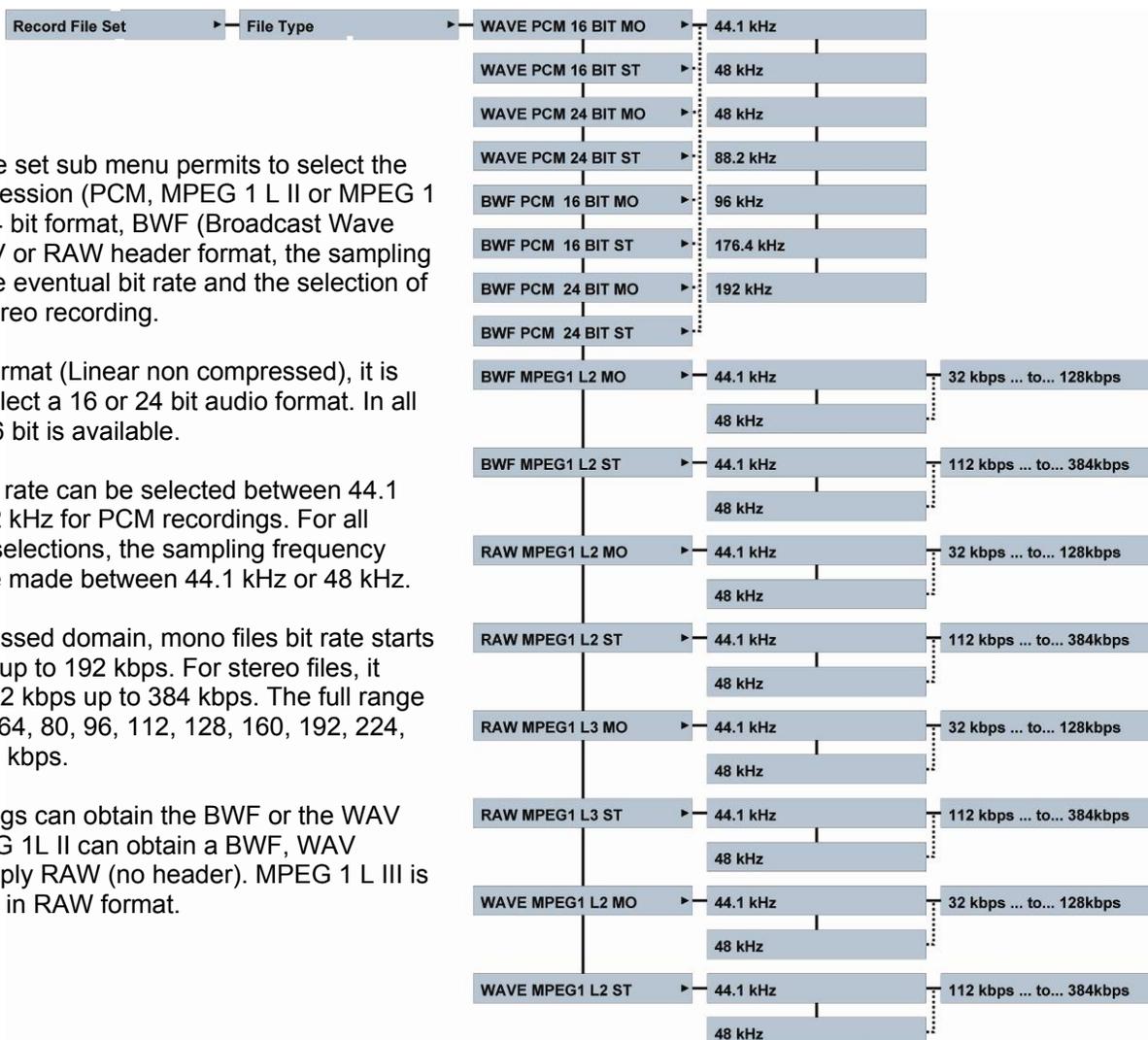
## STORAGE

The storage sub menu permits to select the working memory on the NAGRA LB. Internal memory (Nand flash 2 GB) or compact flash cards. Once the selection made, the main display will show the IC icon , the CF icon  or the USB icon . If the CF card is selected but the card is not inserted, a red cross will appear on the CF icon .



If USB is selected but nothing is connected, the USB icon becomes red.

## RECORD FILE SET



### FILE TYPE

The record file set sub menu permits to select the type of compression (PCM, MPEG 1 L II or MPEG 1 L III), 16 or 24 bit format, BWF (Broadcast Wave Format), WAV or RAW header format, the sampling frequency, the eventual bit rate and the selection of a mono or stereo recording.

In the PCM format (Linear non compressed), it is possible to select a 16 or 24 bit audio format. In all others only 16 bit is available.

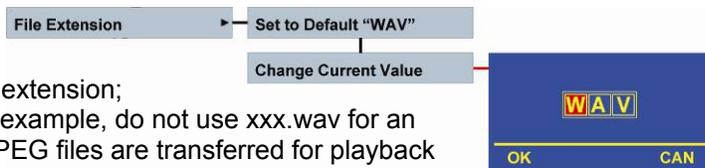
The sampling rate can be selected between 44.1 kHz up to 192 kHz for PCM recordings. For all compressed selections, the sampling frequency choice can be made between 44.1 kHz or 48 kHz.

In the compressed domain, mono files bit rate starts from 32 kbps up to 192 kbps. For stereo files, it starts from 112 kbps up to 384 kbps. The full range is 32, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384 kbps.

PCM recordings can obtain the BWF or the WAV header. MPEG 1L II can obtain a BWF, WAV header or simply RAW (no header). MPEG 1 L III is only available in RAW format.

### FILE EXTENSION NAME

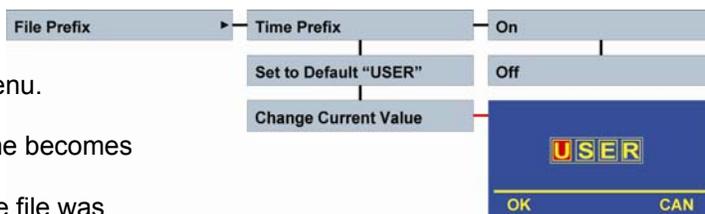
Normally the extension name of an index should not be changed. Most of the editors will accept the default extension; however in some cases it's a must to change it. As an example, do not use xxx.wav for an MPEG file if it needs to be played back on a Mac. If MPEG files are transferred for playback to a portable phone via Bluetooth, keep the MP2 or MP3 extension.



### FILE PREFIX

As default the first 4 characters of the index name are "USER" but it can be personalized with this sub menu.

If "Time Prefix" is turned on, the next recorded file name becomes YYMMDD\_HHMMSS\_USER0001.  
Example: 090527\_074512\_USER0002, means that the file was



recorded on the 27<sup>th</sup> of May, 2009 at 7h45 and 12 seconds. This kind of file naming is recognized by the NAGRA CBR independent PC player that will indicate the real time instead of a relative time.

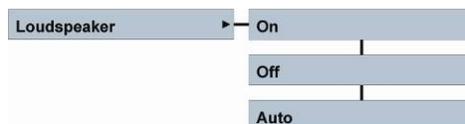
## REC FILE SPLIT

This menu gives the possibility to reduce long recordings into several seamless recorded files of max. 5, 10 or 30 minutes. In the case of a default file prefix, only the file counter number will increase: Example USER0001.wav, USER0002.wav etc. In the case that Time Prefix was selected and the max length was set to 5 minutes, the file counter number will not increase. Only time and date in the file name will increase. Example 090527\_065006\_USER0003.wav as the first 5 minutes file, 090527\_065506\_USER0003.wav as the second file, 090527\_065700\_USER0003.wav as the next one etc.



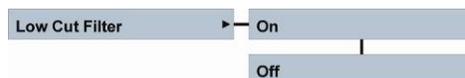
## LOUDSPEAKER

The NAGRA LB has a built-in speaker for audio monitoring. The speaker can be turned On always, Off always or set to Auto. In the Auto mode the speaker is active during playback or editing only. During record or test (EE) mode, the speaker is turned off. The speaker turns off if a headphone is connected.



## LOW CUT FILTER

A filter can be selected for the mic. inputs. Two possibilities are available: Flat (20-20kHz) or Low cut (100-20kHz).



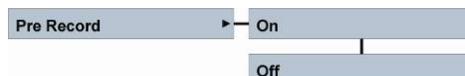
## LIMITER

When using the limiter, the high input levels will be smoothly reduced so that no clipping appears. The limiter can be turned on for a single channel or for both channels. When set to ganged, the limiter acts on both channels if one channel receives a high signal level.



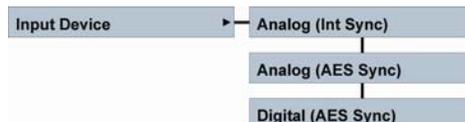
## PRE-RECORD

The pre-record buffer permits to start the recording 3 seconds before the machine was set from TEST to RECORD mode.



## INPUT DEVICE

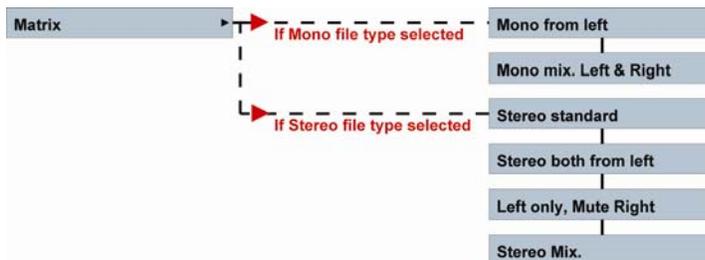
Permits the selection between digital or analog input. This selection is also permanently shown on the main display by an icon.



Analog (Int Sync) means that the machine is locked on his internal master clock  
 Analog (AES Sync) means that the machine is locked for analog inputs on the incoming AES bus (digital input).  
 Digital (AES Sync) means that the machine is locked for a digital input on the incoming AES bus.

### MATRIX

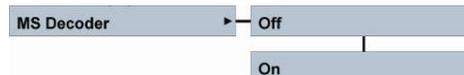
The input matrix permits the selection to deliver the analog input signal to the left and or right recording channel. As an example: After having selected Stereo both from left, making a stereo recording with only one microphone connected to the left input will record the same signal on the left and right channels.



Matrix mode	Record file set	Output L	Output R
Mono from left	Mono	Input L	No signal
Mono Mix. Left & Right	Mono	Input L &R	No signal
Stereo standard	Stereo	Input L	Input R
Stereo both from left	Stereo	Input L	Input L
Left only, Mute Right	Stereo	Input L	No signal
Stereo mix.	Stereo	Input L&R	Input L & R

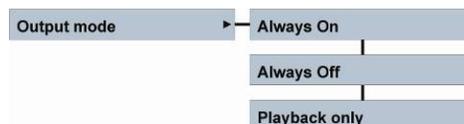
### MS DECODER

Permits to turn off or on the MS decoder on the headphones output only.



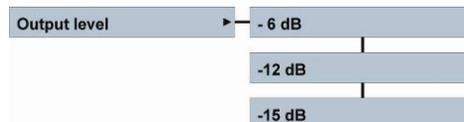
### OUTPUT MODE

The digital & analog output signals can be always available or only during playback or not at all.



### OUTPUT LEVEL

The analog output can be set to 3 different levels.



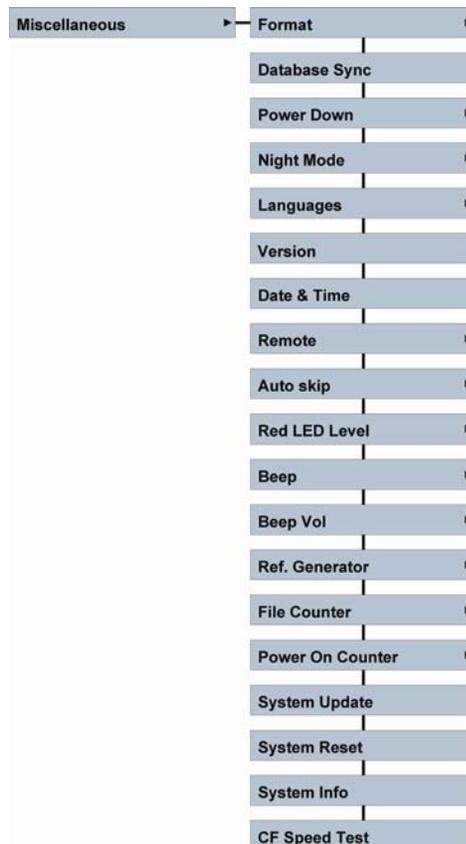
### INT. MIC GAIN

Permits to adjust the sensitivity of the built-in microphone.



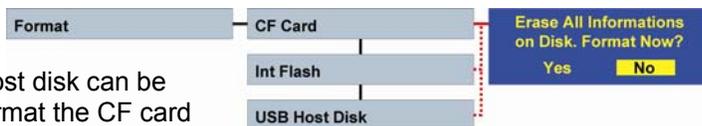
## MISCELLANEOUS

Each sub menu is described below.



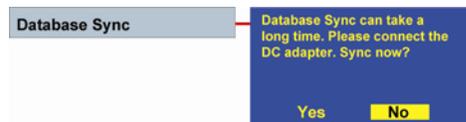
### FORMAT

The internal memory as well as the CF card or USB host disk can be formatted directly via this sub menu. It is advised to format the CF card and a USB HDD device via the NAGRA LB and not via a PC or Mac. The format is based FAT32.



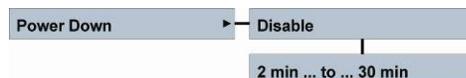
### DATABASE SYNC

If files are eventually lost on the NAGRA LB due to a power fall (Damaged FAT info) or if files are added to the CF card, the USB stick or USB HDD via a PC, it can happen that not all files are detected in the directories of the NAGRA LB. In this case, to recover them, a Database Sync can be executed on the selected working memory, meaning the memory that includes the working directory for new index recordings. In the worse case if indexes are not recovered, then via PC, a CHKDSK needs to be executed on the memory having the problems.



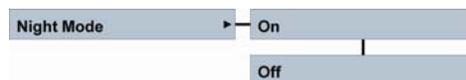
### POWER DOWN

The power down menu permits to shut down automatically the NAGRA LB in the case that the machine stays in an EE mode or a pause mode for a certain time. If the top cover display was activated, then the auto power down function is disabled. The power down function can be totally disabled or enabled. When enabled, it can be set from 2, 5, 10 or 30 minutes before power off.



### NIGHT MODE

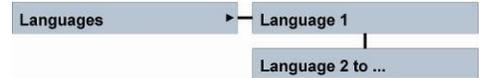
When "Night Mode" is switched on, the led's above the 2 potentiometers as well as the recording led will be turned off immediately once the



machine is set to record. 5 seconds later, the display will turn off. Touching any button or potentiometers on the front display will turn on the display for 5 more seconds.

## LANGUAGES

Not yet implemented.



## VERSION

This sub menu shows the software version of the machine. Use F3 to obtain the status of the different firmware versions.

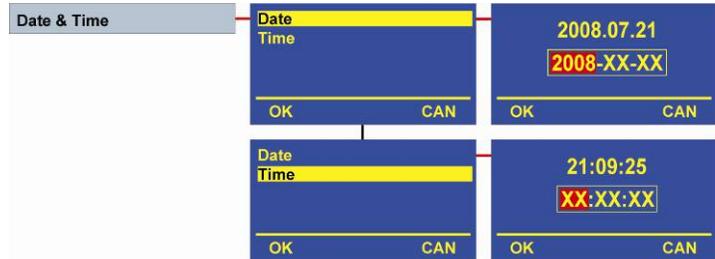


## DATE & TIME

Permits to adjust the RTC (Real Time Clock), concerning date and time.

The date is inscribed as YYYY-MM-DD (Year, Month Day). The time is based on a 24hour clock as HH-MM-SS.

If the power for the Nagra LB is removed for a long period, the correct date and time will be lost. When turning on the Nagra LB, a sub-window appears automatically showing "RTC Error!". This reminds to select the date & time menu for entering the correct info.



## REMOTE

The remote control is accessed via the extension connector and permits the following possibilities.



In TEST mode:

- Rec / New index: First impulse starts the recording, the following impulses will create new indexes.
- Rec / Stop: First impulse starts the recording, second impulse stops the recording, third impulse starts the recording etc.
- Rec / Cue: First impulse starts the recording, second impulse creates a first marker (Cue 1), third impulse creates a second marker (Cue 2) etc. Stop recording can only be made by turning the main selector to the STOP position.

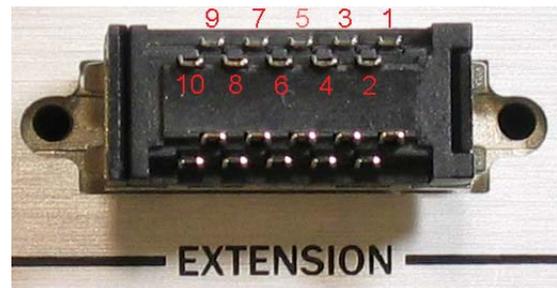
In STOP mode:

- Cue / Play: First impulse starts the playback. Second impulse creates a first marker (Cue 1), third impulse creates a second marker (Cue 2) etc. Stop playing can only be made by turning the main selector to the TEST position.
- Start / Stop play: First impulse starts the playback. Second impulse stops the playback. Third impulse starts the playback from previous position etc.
- Fader Start Play: Contact closed starts the playback, contact open stops the playback.

## WIRING OF THE EXTENSION CONNECTOR

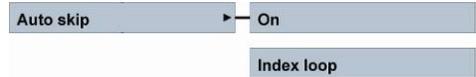
1. Vcc: 3.3V
2. Tx: Transmit data
3. Rx: Receive data
4. Gnd: Ground
5. Remote: Multi application
6. Vcc: 3.3V
7. Gnd: Ground
8. Remote in
9. Remote return
10. NC: Not connected

Pins 11 to 20 are not used



## AUTO SKIP

When playing back using the front panel, the NAGRA LB only plays the indexes that have the same format as the actual settings of the machine. The playback of the indexes can be made in 2 different ways: At the end of the index starts over the same index (Index Loop) or jumps to the next index with the same settings as the machine (On).



## RED LED LEVEL

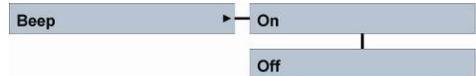
The red LED as well as the red area on the modulometer can start lighting from -2 dB up to -18 dB. Sometimes people prefer to use the red led as an alarm (-2 dB close to clipping) or prefer to set it to their reference level.



## BEEP

This sub menu permits to turn on or off the beep signal on the speaker and the headphone. Beware that 2 kinds of beeps are existing:

- The kind of a Windows beep indicating an action like pressing the execute key.
- The “Burp” sound indicating that the machine falls on an error. In this case a sub window will be shown except when the machine is turned off.



## BEEP VOLUME

This sub menu permits to select the volume level for the beeps on the speaker and the headphone.



## REFERENCE GENERATOR

The built-in 1 kHz reference generator level can be set from 0 dB down to -20 dB in steps of 2 dB.



## FILE COUNTER

The file counter resets the auto incrementing (0001 to 9999) counter to 0001. Older indexes can not be overwritten. Example: if index USER0001 was existing and the counter is reset, the next recording will be called USER0001-1. Once inside this menu, press the center key (EXE) to reset.



## POWER ON COUNTER

The power on counter starts incrementing at the moment that the machine is switched on and can be used to verify how long the machine runs on a battery pack.

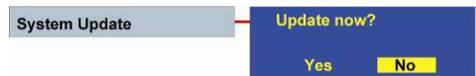


## SYSTEM UPDATE

Verify on a regular basis our [www.nagraaudio.com](http://www.nagraaudio.com) site for new firmware. To install the new firmware on the NAGRA LB, copy the file LBAPP.COE in the root of the compact flash card.

**Attention:** the card must have a minimum size of 512 MB and must be formatted FAT 32, otherwise, the update will fail.

Insert the card in the machine, turn on in STOP mode, activate the top panel, select “Miscellaneous” followed by “System update”. Press “Yes” to update the NAGRA LB. Afterwards, turn off and on again the NAGRA LB for activating the new version. It’s important, after a system update, to save the templates on a CF card and to execute a system reset.



In the case that the update failed and the machine can not be powered on, follow the next steps:

Set the main selector to OFF.

Press and hold the SHIFT key on the top panel, together with the Ref Gen switch on the front panel and put the main selector to STOP. Release the SHIFT key as well as the Ref Gen



# INSTRUCTION MANUAL NAGRA LB

switch once a special display will appear on the top panel.

Pressing F1 will start again an update from the Flashcard. The LBAPP.COE software must be stored in the root. Once pressed, select F1 for Update or F2 for Canceling. Once Update is pressed, the update starts and the machine will power off after a few seconds. Put the main selector back to OFF and turn on again for verifying.

Pressing F2 will start an update via the USB connection to a PC. On the PC, select the new USB memory and open the folder. Copy the LBAPP.COE software in the root of this memory and remove the USB cable. Follow the description on the LB display to continue. Once the machine is powered off automatically, set the main selector back to OFF and turn on again for verifying.

Pressing F3 has no action (disabled)

## SYSTEM RESET

The system reset sub menu permits to reset the NAGRA LB to its factory default settings. If any templates are stored on the machine, before executing a system reset, save them on a CF card and restore afterwards.

System Reset

Reset all the settings to the default values. Reset now?

Yes

No

**Beware that, after a system reset, the record counter is reset to 0001. If any file is still present on the internal memory or CF card, they risk to be overwritten by new recordings.**

## DEFAULT SETTINGS

### Templates:

Item Description	Default Value
Template Name	EMPTY
File Prefix	USER
WAVE Ext	WAV
MP2 Ext	MP2
MP3 Ext	MP3
Bit rate	2304 KB/s
Channels	2
Sampling rate	48K
File type	PCM WAVE 24 bit
Pre record buffer	OFF
Record file split	OFF
Prefix recording time	OFF
Matrix mode	Stereo one file
Filter	OFF
Input	Analog
Limiter	OFF
MS decoder	OFF
Red led level	-10 dB
Internal mike gain	Mid
Beep	ON
Output level	+6 dBu
Output mode	Always on
Speaker	OFF

### Miscellaneous:

Remote	REC_NEWINDEX
Auto power down	OFF
Dhcp	On
Netmask	255.255.255.0
Gateway	192.168.0.1

# INSTRUCTION MANUAL NAGRA LB

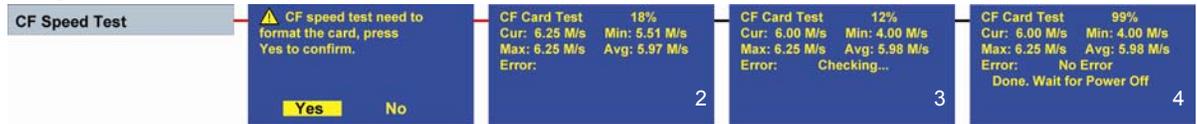
Local IP	192.168.0.100
FTP username	USER
FTP password	pass
Auto skip	ON
Storage	Internal flash
Working directory	/RECORD
Reference generator	-4 dB
Language	Eng
Bluetooth name	Nagra LB
Record file counter	1
Night mode	OFF

## SYSTEM INFO

Gives information about the memory use of the internal NAND flash as well as the CF card, if it was previously inserted.

System Info	<table border="1"> <tr> <td>Nandflash Total: 1790 M Free: 1780 M</td> <td>CF card Total: 1991M Free: 952 M</td> </tr> </table>	Nandflash Total: 1790 M Free: 1780 M	CF card Total: 1991M Free: 952 M
Nandflash Total: 1790 M Free: 1780 M	CF card Total: 1991M Free: 952 M		

## CF CARD TEST



This sub menu permits to test any CF card concerning the read and write speed that it can reach. During the test, 256 MB will be written and read on the inserted CF card.

ATTENTION: **Beware that the CF card will be formatted before the test starts.**

Once YES is selected and executed, the card is formatted and the write test starts, indicating the current speed, the minimum detected speed, the maximum speed as well as the average speed (picture 2). Afterwards it starts to test the read speed and indicates the same information as for the write window (picture 3). At the end of the test, it will create an Excel file on the CF card.

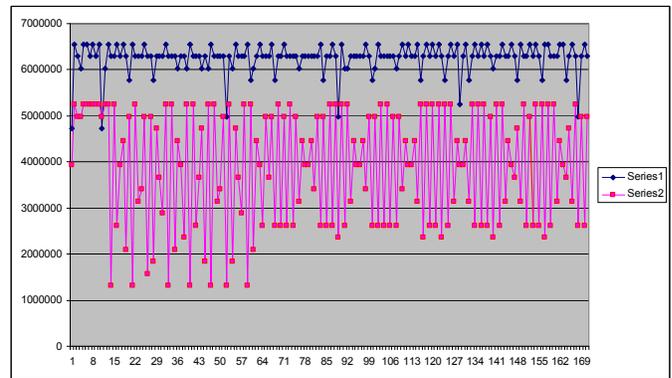
The test runs for about 2.5 minutes and at the end the machine will be turned OFF automatically.

Chart example from a Sandisk Extreme IV (series1) and an old Pretec 80x (series 2):

This chart was made from maximum 256 data info saved in the Excel file after a CF test.

Vertical scale:

For the Sandisk, it shows that the average W/R is about 6.3 MB/s with 2 drops below 5 MB. For the Pretec, the average is close to 4 MB/s but a lot of drops touching 1.3 MB



Horizontal scale: Measurements are made at a rate of 250 ms.

Below is a table showing, in the yellow area, the bytes per second created depending on the sample rate:

Sampling	16 bit	16 bit	B/s	B/s	kB/s	kB/s	MB/s	MB/s	MB/h	MB/h	GB/h	GB/h
	1 CH	2 CH	1 CH	2 CH	1 CH	2 CH	1 CH	2 CH	1 CH	2 CH	1 CH	2 CH
192000	3072000	6144000	384000	768000	384	768	0.38	0.77	1382.40	2764.80	1.38	2.76
96000	1536000	3072000	192000	384000	192	384	0.19	0.38	691.20	1382.40	0.69	1.38
88200	1411200	2822400	176400	352800	176	353	0.18	0.35	635.04	1270.08	0.64	1.27
48000	768000	1536000	96000	192000	96	192	0.10	0.19	345.60	691.20	0.35	0.69

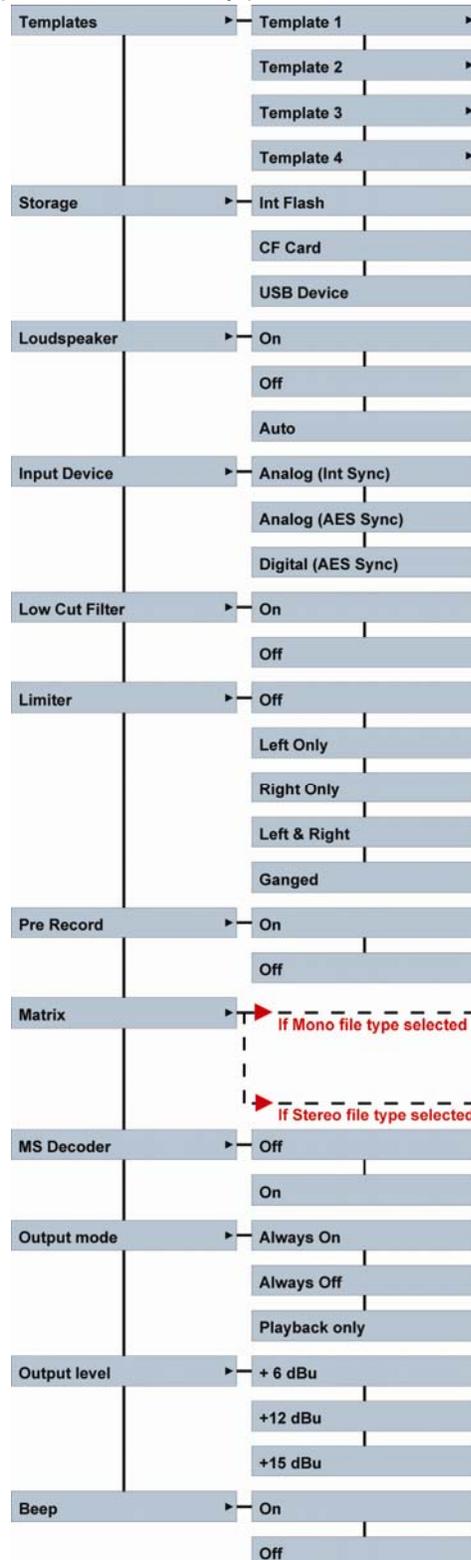
# INSTRUCTION MANUAL NAGRA LB

44100	705600	1411200	88200	176400	88	176	0.09	0.18	317.52	635.04	0.32	0.64
32000	512000	1024000	64000	128000	64	128	0.06	0.13	230.40	460.80	0.23	0.46
<b>Sampling</b>	<b>24 bit</b>	<b>24 bit</b>	<b>B/s</b>	<b>B/s</b>	<b>kB/s</b>	<b>kB/s</b>	<b>MB/s</b>	<b>MB/s</b>	<b>MB/h</b>	<b>MB/h</b>	<b>GB/h</b>	<b>GB/h</b>
192000	4608000	9216000	576000	1152000	576	1152	0.58	1.15	2073.60	4147.20	2.07	4.15
96000	2304000	4608000	288000	576000	288	576	0.29	0.58	1036.80	2073.60	1.04	2.07
88200	2116800	4233600	264600	529200	265	529	0.26	0.53	952.56	1905.12	0.95	1.91
48000	1152000	2304000	144000	288000	144	288	0.14	0.29	518.40	1036.80	0.52	1.04
44100	1058400	2116800	132300	264600	132	265	0.13	0.26	476.28	952.56	0.48	0.95
32000	768000	1536000	96000	192000	96	192	0.10	0.19	345.60	691.20	0.35	0.69

As an example, a stereo recording 16 bits at 48 kHz sampling frequency will use 192000 Bytes/s. To guarantee the recording on a flash card, the min speed after the CF test should be 2.2 times higher (min. 422400 Bytes/s). In the case that a 24 bit, 192 kHz would be recorded with the Pretec card (1152000 x 2.2 = 2534400), it becomes critical.

## SIMPLIFIED SETUP TREE (FRONT PANEL)

All available sub menus are identical to those in the full tree except for templates were it is only possible to recall a template.



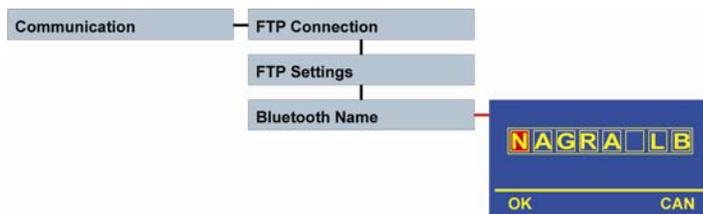
## BLUETOOTH & ETHERNET COMMUNICATIONS

### BLUETOOTH

Indexes can be transferred via Bluetooth to your mobile phone. To do so, the Bluetooth USB dongle (delivered with the machine) must be inserted. The Nagra LB Bluetooth name is "CSR-bc4" (default) and is recognized as a telephone. Don't forget to check the MAC in the version display: Some PC's or GSM's will first show this number as the identification number. Example: 00-60-6e-5f-a0-ab shown in the bottom line of the version window.

### BLUETOOTH NAME

As default, the Bluetooth name is "2CSR-bc4". Via the Bluetooth menu in communications, this name can be changed (max. 8 characters).



### SENDING

Set the NAGRA LB to the STOP mode and activate the top panel (center key on the front panel).



Select in the directory the index that needs to be transferred.

Press the SHIFT key once and the text in the lower line will change to NEW, CPY, RCV.

Press the CPY function key.

Select Bluetooth and press OK.

The Bluetooth device starts scanning and a list will be created of all Bluetooth items in the area. Select the corresponding phone and press OK. If in the list, unused available connections are present, they can be selected one by one and by pressing DEL, they will be deleted.

Once the first connection is made the password needs to be entered in the phone as well as in the NAGRA LB and the transfer starts.

To escape from Bluetooth, press CAN (Cancel) to return to the directory sub-menu. Press the SHIFT key followed by the RET (Return) key.

### RECEIVING

To receive an index, act for the first part in the same way as for sending until the selected memory and folder is obtained where into the new index needs to be saved.

Press the SHIFT key followed by RCV (Receiving).

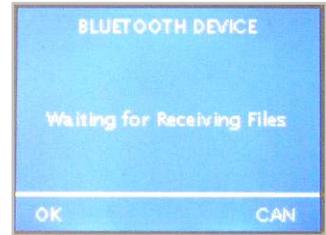
Select the memory in which the incoming index needs to be saved and press OK.

During pairing, the common password between the machine and the other Bluetooth equipment needs to be entered and press OK.

The file transfer starts.

**BLACKBERRY 9000 BLUETOOTH PAIRING EXAMPLE**

The easiest (or the least difficult...) way to pair with a BlackBerry telephone is to simulate the delivery of a file to the Nagra LB. Enable the Bluetooth option on the telephone and set the LB (with the Bluetooth dongle inserted) to RCV (Receive from...). This is done from the directory window once the destination folder is entered followed by pressing the SHIFT key and pressing RCV. The destination folder needs to be re-confirmed and the message “Waiting for Receiving Files” is shown.



1. On the BlackBerry, select in the applications “Manage Connections” (lower left corner on picture 1) and enter.
2. A sub window appears: Select “Set Up Bluetooth” and enter.
3. In the next sub window, select “Search” and enter.
4. The BlackBerry starts the scanning and will shown phone.
5. Wait until the scanning is terminated and the BlackBerry will show the found items. One will be called “CSR-bc4. Select it and enter.
6. Enter a numeric code on the BlackBerry (Example: 999) and enter.
7. The BlackBerry shows “Waiting for CSR-bc4...”
8. On the Nagra LB, a new sub window appears asking to enter the same password and press OK.
9. For a short moment, the BlackBerry shows that the pairing is completed.
10. The last window shows the list of paired items on the BlackBerry

## BLACKBERRY BLUETOOTH TRANSFER EXAMPLE

1. With the Bluetooth dongle inserted on the LB, select a file in the directory for transferring.
2. Press the SHIFT key followed by CPY. A new window appears.
3. Select in this window Bluetooth and the Nagra LB starts scanning.
4. On the BlackBerry, select Applications and enter.
5. Select Media and enter.
6. Select Music and enter.
7. Press the first left button from the roller.
8. Select in this sub-menu "Receive Using Bluetooth" and enter. A new sub-window appears "Waiting for connection".
9. On the LB, select the BlackBerry and press OK.
10. On the BlackBerry, enter the numeric passkey for "CSR-bc4" (example: type 999 and press enter).
11. On the LB, once the password window appears, enter the same numeric passkey and press OK.
12. On the BlackBerry, accept the connection requested by selecting "Yes" and enter.
13. On the BlackBerry, select the memory area where the file needs to be saved.
14. Once selected and confirmed, the file transfer starts. On the LB as well as on the BlackBerry, the transfer window appears.

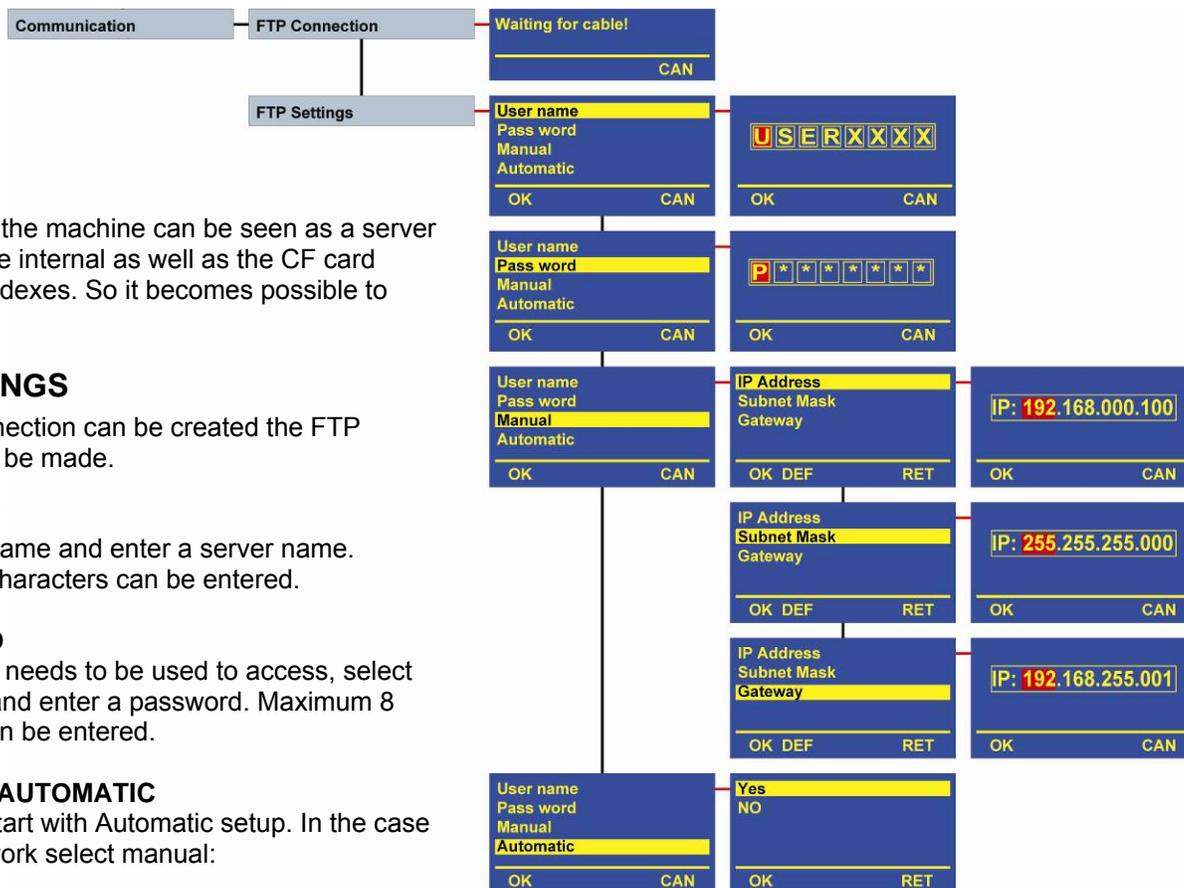
If afterwards the file needs to be delivered to the end user, via an attachment on an email, select the media application, highlight the file that needs to be attached, press the first left key and select "Send As Email" followed by enter. Automatically the mailbox opens and the file is already attached.

Beware that there is no size limitation to transfer from the Nagra LB to the BlackBerry except for the free memory space available, but the problem rises when an email with attachment needs to be delivered from the BlackBerry to an end user.

Verify with the IT department what maximum size is accepted by the BlackBerry server. At NagraVision, the limitation is 3 MB (BlackBerry to Server, 10 MB from Server to BlackBerry). 3MB corresponds to approx. 6 minutes of mono recording MP2 or MP3 at 64 kb/s or 3 minutes of stereo recording at 128 kb/s. In the case that a file needs to be sent from a GSM to an end-user, before transferring files to the GSM, verify the size of the selected file in the directory of the LB.

If a Bluetooth transferred file needs to be played back on a GSM, the recording must be in MP3 and the extension name must be xxx.MP3.

## ETHERNET



Via Ethernet, the machine can be seen as a server and shows the internal as well as the CF card folders and indexes. So it becomes possible to copy them.

### FTP SETTINGS

Before a connection can be created the FTP settings must be made.

#### USER NAME

Select User name and enter a server name. Maximum 8 characters can be entered.

#### PASS WORD

If a password needs to be used to access, select this position and enter a password. Maximum 8 characters can be entered.

#### MANUAL or AUTOMATIC

To simplify, start with Automatic setup. In the case this doesn't work select manual:

#### IP ADDRESS, SUBNET MASK, GATEWAY

Enter each of them ("Gateway" is not always needed). 4 times 3 numbers can be entered for each of them.

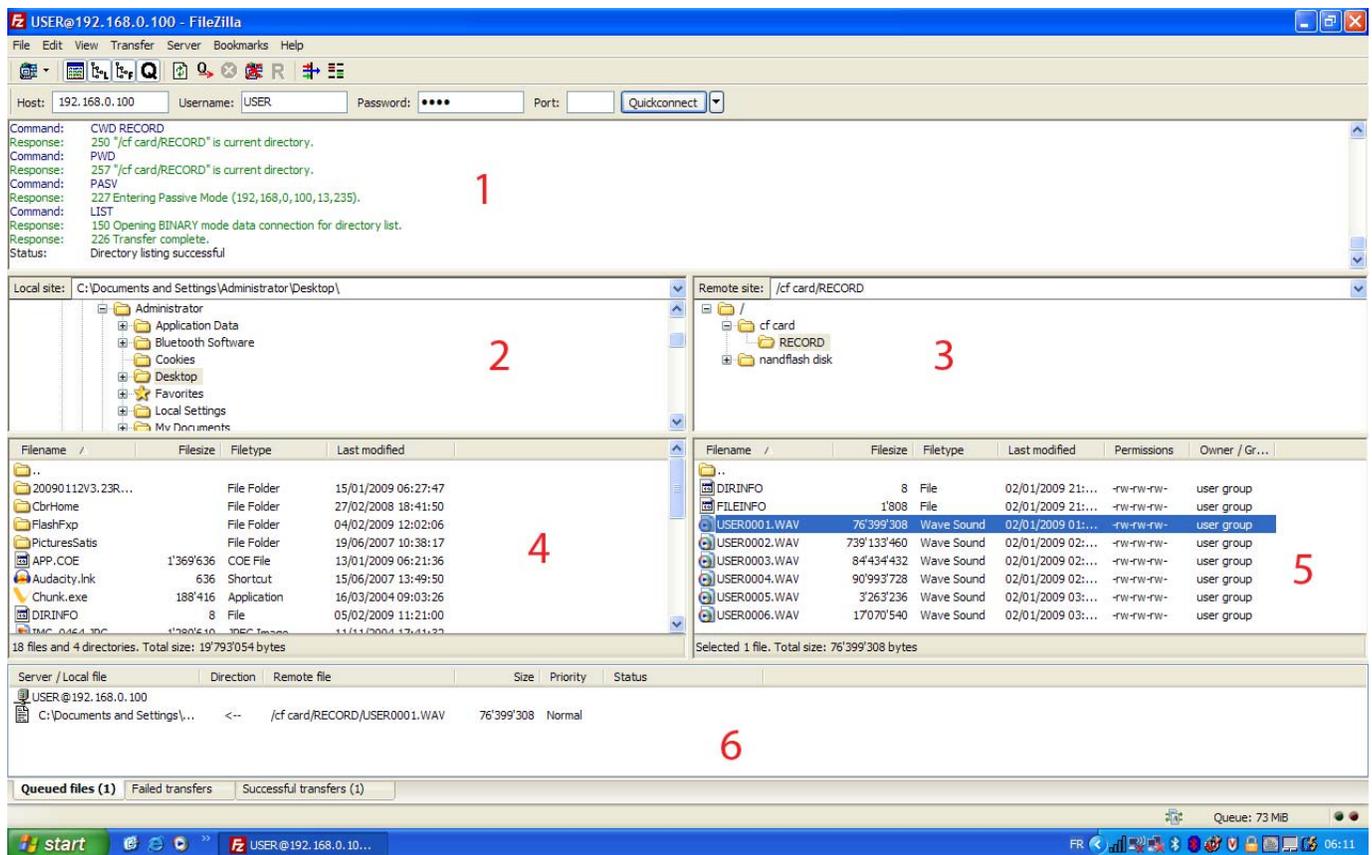
Once all this done, select and execute **FTP CONNECTION**. A message "Cable is plugged!", "IP xxx.xxx.xxx.xxx", "FTP server started". Check that the yellow LED turns on above the Ethernet connector. The green LED above the same connector confirms communication. The maximum transfer speed is 2.5 MB / sec. If the cable is not connected, an error message will appear.

**Important:** Only one user can be connected (point-to-point). Multi user is not implemented.

### DEFAULT ETHERNET SETTINGS

User name: USER  
 User pass: pass  
 IP Address: 192.168.000.100  
 Subnet mask: 255.255.255.000  
 Gateway: 192.168.000.001  
 Manual / Automatic: Automatic

## ETHERNET CONNECTION EXAMPLE



The PC software used is called FileZilla. It's a free software package that can be downloaded from their web site.

Area 1 shows the communication between the Nagra LB and the PC.

Area 2 shows the destination folder for downloading the files.

Area 3 shows the CF card folder as well as the Nandflash folder (internal LB memory).

Area 4 shows the destination folder items on the PC.

Area 5 shows the files inside the selected RECORD folder of the CF card inside the Nagra LB.

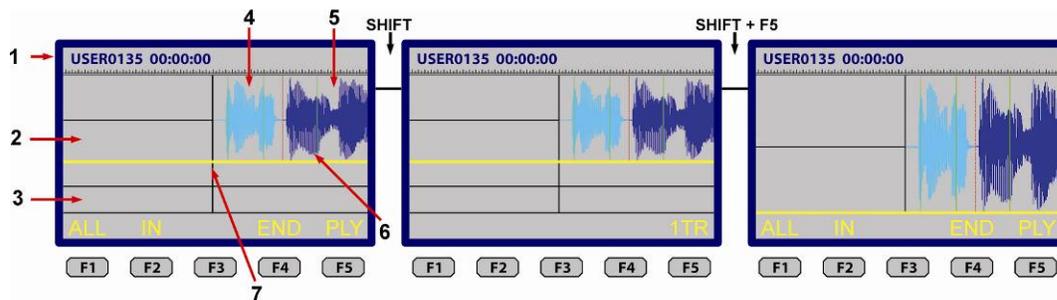
Area 6 shows the file(s) ready for transfer. This is simply done by drag & drop from area 5.

Once all this configured, it's time to press "Transfer" and the files will be transferred to the destination folder on the PC.

The picture above shows that a transfer has been made to "C:\Documents and Settings\..." (See lower left corner).

**EDITING**

To start editing, turn on the top panel and select in directories the desired folder and index. Beware that if the small icon in front of the selected index is red, the editing can not be started. The machine must first be set to the same settings as for the selected index. If the icon is green, press F1 EDT.



Important: Beware that editing is only possible on files that were recorded on the Nagra-LB if the record format was PCM 16 bit or MPEG 1-LII up to 48 kHz (44.1 kHz excluded). 24 bit as well as sampling rates above 48 kHz can not be edited. MPEG 1-LIII can not be edited for the moment. RAW files can be edited but without the waveform (replaced by a large tape).

The first display appearing is the directory: the middle of the screen corresponds to the start position of the selected index (vertical black line).

The vertical red lines show the end of the previous index.

1. Index name and playback position.
2. Directory area (above the yellow line).
3. Editing area
4. Selected index
5. Next available index having the same settings as the first one
6. Green line: Marker created during record or playback
7. Playback position

The display is divided into 3 parts:

The upper part (almost 2/3 of the total vertical display size) shows the selected index graphically as well as all other indexes having the same settings as for the selected index.

The middle part (almost 1/3 of the total vertical display size) shows the editing area. All selected indexes or portions selected from the directory will be shown in this area.

The bottom line of the display shows the available functions.

To jump from the directory area to the editing area, press the down key once. The directory becomes 1/3 of the screen and the editing area becomes 2/3 of the screen and the yellow line becomes red. To return to the directory area, press the up key once.

If there is a preference to work on a full display instead of a 2/3 – 1/3 display, the shift key can be pressed and hold showing other functions. If at that moment 1TR (F5) is pressed, the directory or editing area takes the display height. 1TR means 1 track, 2TR means 2 tracks. Jumping from the directory to the editing area in this case is still made by using the down and up keys.

**BASIC EDITING PRINCIPLES**

The editing on the Nagra LB permits to cut, copy, insert indexes or selected audio portions.

Two ways can be applied:

To cleanup long indexes, it's preferable to select the full index and drop it in the editing field. Afterwards the different cuts can be made.

In the case that only short audio portions are needed from one or more indexes, it's preferable to select the portions straight from the directory and drop them in the editing field.

Watching the picture, the audio was played back via the jog wheel and afterwards ALL (F1) was pressed. Automatically the whole index is copied to the editing field.

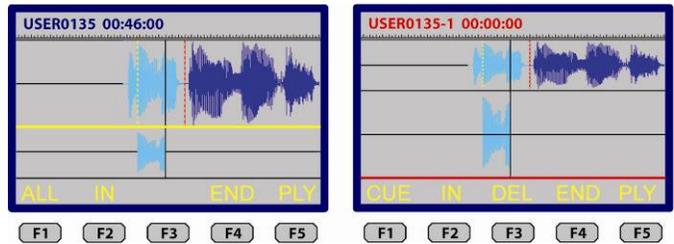


# INSTRUCTION MANUAL NAGRA LB

Referring to the picture below, the IN (F2) was pressed after 23 seconds and OUT (F2) was pressed after playing back 46 seconds. Automatically the audio portion between 23 and 46 seconds is copied to the editing field. The vertical yellow dotted line shows the position where the IN was first pressed.

Once the first portion selected, the index takes the EDL name USER0135-1.

Observe that the yellow horizontal line becomes red when in the editing field and that the functions change.



## FUNCTIONS IN THE DIRECTORY FIELD

- ALL Selects the index that is in front of the play position and copy it into the editing area.
- IN Marks the cue in point (yellow dot line).
- OUT Marks the cue out point and copy the portion between the 2 markers into the editing area.
- END Stops the directory window for Export, Save, Exit or Return.
- PLY Starts the playback from the current position.

## FUNCTIONS DURING PLAYBACK IN BOTH FIELDS

- << Fast rewind
- >> Fast forward
- < Skip backwards to previous index or cue point
- > Skip forwards to next index or cue point
- STP Stops the playback

## FUNCTIONS IN THE EDITING FIELD

- CUE Inserts a cue point (full vertical yellow line)
- IN Marks the cue in point (full vertical red line)
- OUT Marks the cue out point (full vertical red line)
- DEL Deletes the portion between to IN points
- END Leave the editing for exporting, saving, Exit or returning back to editing
- PLY Starts the playback from the current position

## FUNCTIONS IN THE DIRECTORY FIELD WITH SHIFT

- 1TR Toggles between full screen or 1/3 – 2/3 screen

## FUNCTIONS IN THE EDITING FIELD WITH SHIFT

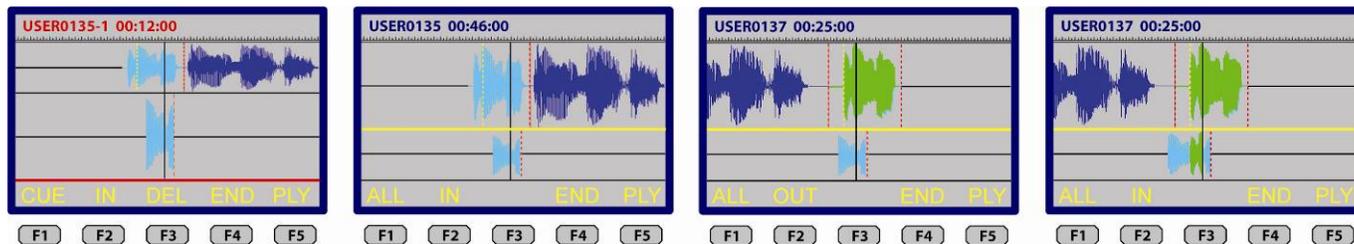
- ► Moves the original directory marker for the audio portion on the right side (only shown when pointing on a marker). Turning the jog wheel will increase or decrease the size of the selected portion.
- ◀ Moves the original directory marker for the audio portion on the left side (only shown when pointing on a marker). Turning the jog wheel will increase or decrease the size of the selected portion.
- OK When F1 is pressed, the new size will be confirmed.
- 1TR Toggles between full screen or 1/3 – 2/3 screen (1TR or 2TR).

## ZOOM FUNCTIONS

- SHIFT & UP or DOWN key: Increments or decrements the graphic amplitude.
- SHIFT & LEFT or RIGHT key: Increments or decrements the timeline.

## INSERTING AN AUDIO PORTION OR FULL INDEX.

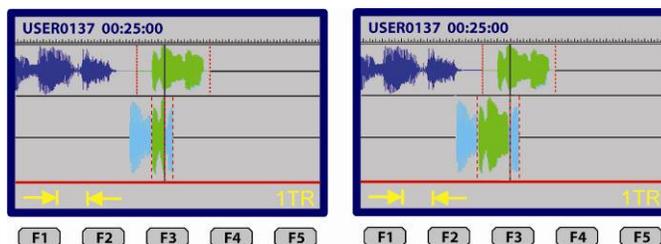
To insert in the editing field a full index or a portion from it, trim in the editing field by using the jog wheel to the position where the insert should start, jump back to the directory field and select the index or the portion.



The first picture shows that in the edit field, the sound track is trimmed to 12 seconds. This is the position to start the insert. Pressing the up key returns the display to the directory field (picture 2). In picture 3, via the jog wheel or the PLAY function key, the index USER137 is selected and a first IN marker is placed at approx. 12 seconds (yellow dotted line), the second position is trimmed to 25 seconds. At the moment that the OUT key is pressed, the portion from USER137 between 12 and 25 seconds is inserted at the edit start position of index USER135 (figure 4). If the full index USER0137 was supposed to be inserted, select the index from the directory field and press ALL.

## MODIFYING THE LENGTH OF AN IMPORTED PORTION IN THE EDITING FIELD

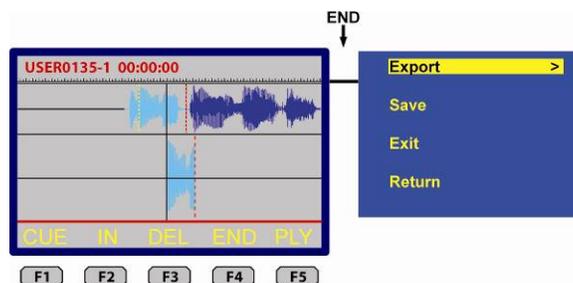
If one of the inserted portions in the editing field is just too short or too long, it is possible to make the corrections without cutting the existing one. To do this by using the left or right arrow key, jump to the closest marker where the portion needs to be modified. The red dotted line must be on top of the play head position. Press and hold the SHIFT key and F1 or F2 and turn the jog wheel to increase or decrease the length of the portion. In the above shown example, the right side of the green portion was too small. The closest marker was selected. In the second picture, the SHIFT key and the F2 key (left side) were pressed and hold and the jog wheel was turned to increase the length of this portion.



## EXPORT, SAVE, EXIT FUNCTIONS

When during editing the END (F4) function key is pressed, exporting, saving or exit becomes available. If the Return is selected, the display returns to editing.

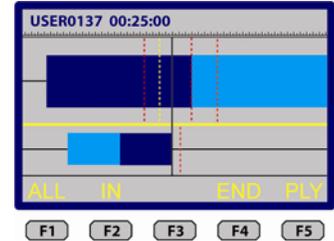
- **EXPORT**      The full editing is saved as a new index ready to be transferred. The name of the exported index is based on the name of the index of the first selection made in the editing. In the case as shown on the picture above the, the exported index will be called "USER0135-1.WAV". Beware that an exported file can not be edited anymore.
- **SAVE**        Saves the editing as an EDL (Edit Decision List). In the case of the above picture, the saved project name would be "USER0135-1.EDL". This index will be seen in the directory and can be re-called for editing.
- **EXIT**         Leaves the editing. If not previously saved, the editing will be lost.
- **RETURN**      Turns back to the editing.



## EDITING OF NAGRA LB RECORDED RAW FILES

Raw Files recorded on the Nagra LB do not contain the envelop information. For this reason the envelop in the editing is simulated by a tape.

All editing possibilities as shown above can be applied in the same way.



## EDITING OF IMPORTED FILES

Importing files from Ares P, PII, PII+, Ares BB, Ares BB+, Ares M, MII, ML

BWF MPEG, Wav MPEG, RAW MPEG & BWF PCM 16, Wav PCM 16 bit files can be imported to the internal memory or CF card and can be edited in the same way as shown in the previous paragraph (tape simulation).

## ALARMS

Low battery	A beep is given in the headphones and a message "low batt." appears on the screen. If this happens during record, the machine will after a moment (depending on the type of batteries) stop the recording, save the recording and turn off. The same happens during editing. The project will be automatically saved.
Low memory	A beep is heard in the headphones and a message "xxxxx" appears on the screen 1 minute before the end.
Too slow	A beep is heard in the headphones and a message "Media is too slow. Part of the recording may be lost" appears on the screen. The CF card does not accept the data stream speed.
Unknown CF	A beep is heard in the headphones and a message "Unknown CF card" appears on the screen. This means that the card is not recognized or not formatted.
Input clock un.	The record led starts blinking quickly. A message "Input clock unsynchronized" appears on the screen. This means that the digital input is selected and no AES input is present or the clock is out of range.
Disk full	A beep is heard in the headphones and a message "Disk full. Record is stopped" appears on the screen.
Record start err.	Problems with the memory.
No CF card	This message appears when the Nagra LB is set to record on the CF card but the card is not present.
USB Host disk not found.	Appears if the USB disk is selected as recording media but the USB connector is not inserted or has the wrong formatting (NTFS).
Open playback file error.	Apply a database sync to recover.

## **LOOSING POWER DURING RECORD**

If suddenly the power falls away (mainly in the case if external power was used) the recording in process can only loose maximum 30 seconds of the recording. A FAT update (on the internal memory, the CF card or the USB device) takes place every 30 seconds.

It's also possible that the file is not shown anymore on the machine. If this happens, proceed with a database sync to find back the lost file. The waveform will be lost but it is still possible to edit the file.

## TECHNICAL SPECIFICATIONS

Recording	Internal storage 2 GB NAND Flash memory
Removable media	Compact Flash type II / III (Hot Swappable)
Disk format	FAT 16 / 32
Recording Method	Linear digital PCM, MPEG 1 layer 2 or MP-3
File type	16 / 24 bit Broadcast Wave File BWF (WAV)
A/D & D/A conversion	24 Bit Sigma-Delta
Bit rates	32 kbits/s up to 384 kbits/sec
Tracks	2 individual
Sampling Rate	44.1, 48 kHz, 88.2, 96 and 192 kHz
Recording capacity	1hr 24 bit 48 kHz per GB of disk / memory
Pre-recording buffer	Programmable (Maximum 3 seconds)
Display	2 x Colour LCD
Level meters	On colour display AND by LED
<b>Inputs</b>	
Digital input	XLR 3-pole
Analogue inputs	2 XLR Microphone (Dynamic, +48V Phantom) / line
Microphone input sensitivity	2 and 15 mV/Pa selectable
Limiters	On microphone inputs
Line input sensitivity	Adjustable from -6 dBm up to +24 dBm for 0 dBFS recording
THD at 1 kHz	<0.1% Mic, <0.01% line (measured on AES out)
Frequency response	Mic, 10Hz - 48 kHz $\pm$ 0.5 dB, Line $\pm$ 0.2 dB (measured on AES out)
Signal-to-noise ratio	>100 dB
Input level adjustment range	44 dB Mic and from -6 to +24 dB Line
Input filters	LFA (with vortex filtering)
Internal microphone	Electret on the front panel
<b>Outputs</b>	
Analogue line output	XLR 4.4V max (+15 dBm)
Digital output	XLR AES-3 (24 bit or 16 bit)
Headphones	Stereo 6.3mm (1/4") Jack 50 $\Omega$
Internal speaker	0.2W
<b>Other</b>	
USB Host	USB 2.0 connector type "A"
USB Device	USB 2.0 connector type "B"
M/S Decoder	Switchable
Ethernet	RJ 45 connector max. 2MB/s
Bluetooth	External dongle on USB Host
<b>General</b>	
Dimensions	175 x 65 x 185mm (W x H x D) (Incl. battery box)
Weight	1.4 kg (3 lbs) (Incl. batteries)
Power supply	External 9 - 15V
Power Consumption	Approximately 2W (160mA on 12V)
Charge time	Approximately 3 hours (with NimH cells)
Battery life	> 7 hours (8 "AA" Alkaline cells)
Relative humidity	From 10% to 99% (non condensing)

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