



EMT 986

Professional Audio Harddisk CD Player

User Manual

Soft V2.0/13-04-2007





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2 Mounting

The EMT 986 Audio Hard disc CD Player is built to be used as table top unit as well as 19" rack mount unit. Self adhesive feet are delivered with the unit for usage as table top unit.

Mounting as 19" rack unit is to be done by means of the unit's front angles. Due to the large weight of the unit, additional shelf angles are recommended.

In every case enough space for ventilation (at least 2cm on top and bottom side) has to be provided on top and bottom as well as at the rear side. EMT 986 shall not be mounted near to heat sources.

2.1 Environment

Storage temperature:	-20°C ... +60°C
Operating temperature:	+10°C ... +35°C
Storage humidity:	5% ... 90%rh, non condensing
Operating humidity:	30% ... 80%rh, non condensing

3 Safety precautions

- ☑ Never open the unit's cabinet. Opening or removing covers may expose you to dangerous voltage potential and risk of electric shock! No user serviceable parts inside the unit. Refer opening of the unit to qualified service personnel. The unit is supplied with mains voltage as long as the mains switch at the rear side is in position "I".
- ☑ The optical drive corresponds to laser class 1, as far as the cabinet of the optical drive is not taken off. Don't remove the drive cover as invisible laser radiation may radiate.
- ☑ In no case the unit is allowed to be used on a soft base like pillows or clothes, as air circulation may be obstructed. Never put the unit near to heat sources.
- ☑ Make sure, that all units are disconnected from mains (pull mains connector) until cabling is terminated. Otherwise the units may be damaged.
- ☑ Always switch off the unit with the **On** switch on the front before disconnecting from mains by means of the mains switch at the rear or disconnecting the mains cable. Otherwise data may get lost.
- ☑ Never cover ventilation openings of the unit. This may damage the unit with the risk of fire!
- ☑ Never stick anything in the unit's openings.
- ☑ Do not use the unit in an environment with high humidity.
- ☑ Do not use the unit in the open air.
- ☑ Never expose the unit to magnetic fields, like unshielded speakers, as data may get lost!
- ☑ Only use mains wall sockets with connected protective ground.
- ☑ For cleaning only use a soft damp cloth. Aggressive cleansing agents may damage the unit's surface.

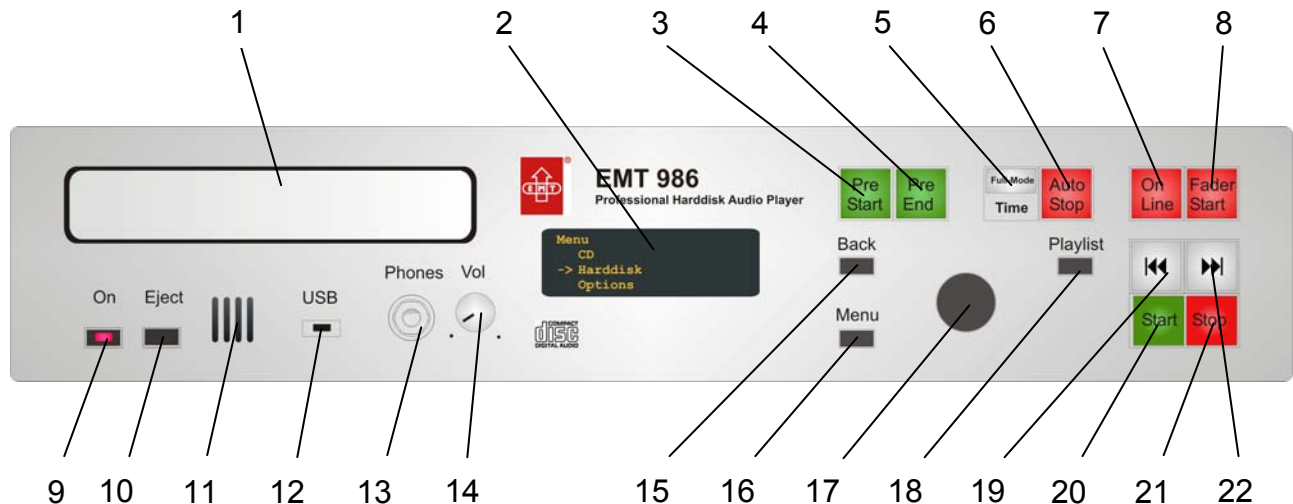


4 Styles and Symbols

In this documentation the styles and symbols have the following meaning:

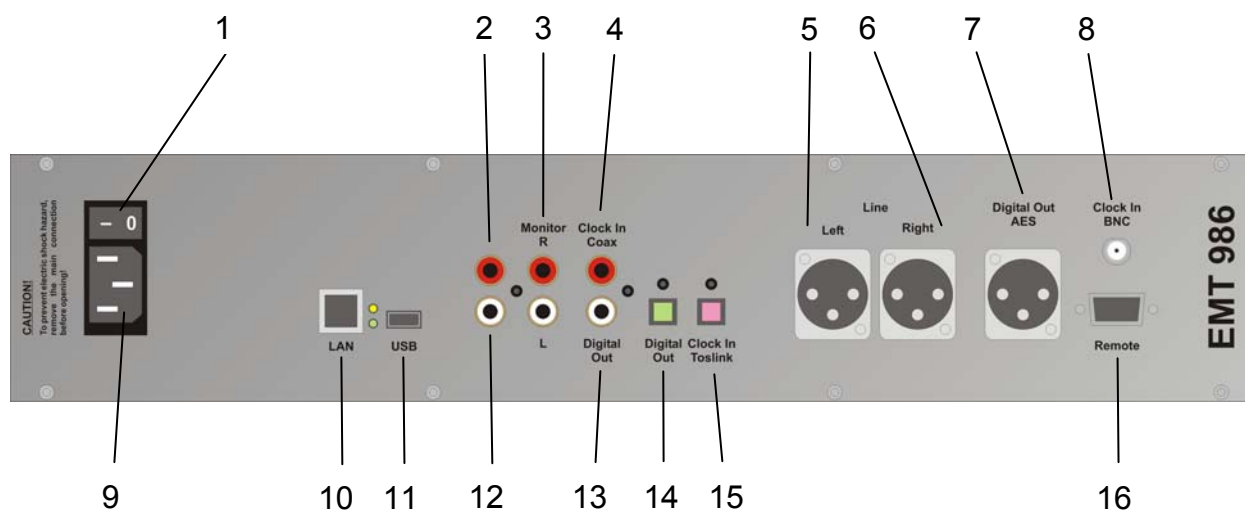
Start	Pushbuttons and menus are printed in bold
Link	Links to other chapters or internet sites are printed <i>condensed and teal</i>
<i>Input</i>	Inputs and signal names are printed in <i>italic</i>
●	in front of a line means an item in a menu or context menu
○	in front of a line means an item in a menu or context menu
◆	in front of a line means an information to the display reading
➤	in front of a line means an alternative way of control
⇌	in front of a line means an alternative way of control
➡	in front of a line means control steps in a function description

5 Nomenclature front



1	CD tray, may be pushed gently for closing
2	Display for tracklist, menus, settings, ...
3	Pushbutton Pre (listen) Start , illuminated when active
4	Pushbutton Pre (listen) End , illuminated when active
5	Pushbutton FullMode / Time , pushing short toggles times display between track and CD; pushing longer than 1 second toggles between Direct mode and Full mode
6	Pushbutton Auto Stop , to activate stop at the end of a track
7	Pushbutton On Line , to switch to OnLine mode
8	Pushbutton Fader Start , activates fader input
9	Pushbutton On , to switch unit on/off when mains switch at the rear is in position "I"; to switch off, push longer than 1 second
10	Pushbutton Eject , to open and close the CD tray
11	Speaker for prelisten functions
12	USB socket, for upload and download of audio data to and from the hard disk
13	Phones socket, 6.3mm for standard headphones, for technical data see 12.8 Headphones
14	Volume, rotation knob for headphone and speaker volume
15	Pushbutton Back , depends on mode
16	Pushbutton Menu , switches focus of the control dial to the displayed menu
17	Control Dial , for selection of tracks, time, menu items, settings, ... by rotating and pushing
18	Pushbutton Playlist , sets focus on the playlist in the display
19	Pushbutton backwards , depends on mode
20	Pushbutton Start , to start playback
21	Pushbutton Stop , to terminate playback / closes an eventually open tray
22	Pushbutton forward , depends on mode

6 Nomenclature rear



1	Mains switch, must be set to position "I" for switching on with the front switch
2	Not used at the moment
3	Monitor outputs, left / right (for prelistening)
4	Clock input, RCA socket
5	Line output left, XLR male socket
6	Line output right, XLR male socket
7	Digital AES output, XLR male socket
8	Clock input, BNC socket
9	Mains input according to IEC-320-C13 with protective ground
10	LAN connection, RJ45 Socket with LED's
11	USB socket, for upload and download of audio data to and from the hard disk
12	Not used at the moment
13	Digital output, RCA socket
14	Digital output
15	Clock input, Toslink
16	Remote connector, Sub-Min-D, 9 pole, male



7 CD Direct Mode

7.1 Features of CD Direct Mode

- Playback of Audio CD's
- Inserted CD is scanned automatically
- Indication of actual track and number of entire tracks
- Indication of **Elapsed Time**, **Remaining Time** for track and entire CD
- Next and previous track with pushbuttons **⏮** and **⏭**; actual track position gets lost
- Jump back to last playback position with pushbutton **⏮**
- Indexes are not supported
- Changing play position is possible per frame and dynamically (depending on turning velocity) with the control dial
- Playback Start/Stop with pushbutton **Start Stop**
- Changing play position by means of **Cue** function:
 - Playback of a loop with 1 second duration, starting at current position
 - **Cue** function is activated/deactivated by pushing (indicated as "Click" in the following description) the control dial
- Selected start position is stored and used again, when CD is inserted again (once scanned CD's are recognized)
- **AutoCue** function:
 - In case **AutoCue** is active, begin of the modulation of each track is searched and established. If a track is selected, the start point will be automatically the begin of the modulation. If **AutoStop** is active too and the next track is selected due to reaching the end of the current track, it will jump to the begin of modulation.
 - The **AutoCue** information of the CD is stored on the hard disk, thus avoiding scanning of the CD each time it is inserted. The information is deleted from the hard disk by the function "Delete saved AutoCue Info".
- **FaderStart** function (with and without **Auto Online**)
- Keyboard is locked in **Online** mode (except pushbuttons **AutoStop** and **Time**)
- CD drive will never go to **Standby** mode when in **Online** mode or when **AutoOnline** is active
- Network access is disabled while in **Direct** mode
- It's possible to change from **Full** mode to **Direct** mode
- The following **Full** mode settings are also valid for **Direct** mode:

<ul style="list-style-type: none"> ◦ XLR Line Out ◦ XLR Line Level ◦ Monitor Out ◦ AES/SPDIF Format ◦ Audio-Clock ◦ Clock-Source ◦ Prelisten Time 	<ul style="list-style-type: none"> ◦ Fader-Start ◦ Track change during Online Mode ◦ Auto Track change after Stop in Online mode ◦ Enter Online by Fader (Auto Online) only for CD Direct mode
--	--



7.2 Switching on and of (in Direct Mode):

The EMT 986 will automatically start up in CD Direct mode if it is connected to mains and the mains switch at the rear panel is in position "I". That guarantees that the EMT 986 will start up automatically after a loss of mains voltage. The unit is switched off by pushing the pushbutton "On" at the front panel for more than 1 sec.

It is highly recommended not to disconnect the unit from mains by pulling the mains cable or switching off at the rear panel as this may cause data loss of the hard disk.

Pushing "On" at the front panel starts the EMT 986 again (in CD Direct mode).

7.3 Playback a CD in Direct Mode

- ➡ Push **Eject** to open the tray, put the CD on the slider, close the tray by either pushing **Eject**, **Start-Stop** or gently the slider a little bit
- ➡ The track list is shown

Audio-CD	68:21	#21	↕
Track 5	04:41		
➔ Track 6	03:58		
Track 7	12:01		

- Entire CD time // entire number of tracks

- List of CD tracks
with indication of track times

- ➡ ↻ Select track by turning the control dial
 - ⇒ **Pre Start** Changes to playback mode and starts playback in the PrelistenBegin mode (Pre listening from Start mode) - or
 - **Pre End** Changes to playback mode and starts playback in the PrelistenEnd mode (Pre listening the End) - or
 - **Back** Back to track selection; (start point gets lost!)
 - ⇒ **Start-Stop** Stops playback and jumps to track start or the last Cue point (in case there is one)

# 2/17	TR	4:21:45
Elapsed-TR:	xx:xx:xx	
[CUE]	[AutoCue]	
Remain-TR:	xx:xx:xx	

# 2/17	CD	73:21:45
Elapsed-CD:	xx:xx:xx	
[CUE]	[AutoCue]	
Remain-CD:	xx:xx:xx	

- ⇒ ↻ Changing the current start position exactly per frame as well as dynamically (depending on the rotational speed of the control dial)
- ⇒ **Click** Cue mode on/off; Changing the start position by listening
- ➡ **Online** Activates OnLine mode with Fader Start

# 2/17	
Elapsed-TR:	1:09
Remain-TR:	2:11

# 2/17	
Elapsed-CD:	12:09
Remain-CD:	2:11

- ➡ **Fader In** starts playback in OnLine mode



- ⇒ **(Auto OnLine with Fader In)** Opening the fader will start playback and select **OnLine mode** in case this is activated in the settings.
See [9.1.12 Enter OnLine by Fader](#)

7.4 Direct Mode - Track List

```
Audio-CD 68:21 #21 ↕
      Track 5      04:41
→   Track 6      03:58
      Track 7      12:01
```

Indication:- Entire CD time // Entire number of tracks

- CD track list
showing track time

Functions:



Pre Start	Selects playback mode and starts PrelistenBegin
Pre End	Selects playback mode and starts PrelistenEnd
Start-Stop	Selects playback mode and starts playback
⏮	Selects previous track
⏭	Selects next track
Online	Selects playback mode and activates OnLine
Auto Stop	Toggles between AutoStop on and AutoStop off
Fader Start	without function
Time/ Full-Mode	Pushing more than 1 sec selects Full mode
Playlist	without function
Eject	Ejects CD

Back	without function
↻	Track select
Click	Selects playback mode
Menu	Calls settings menu

Fader-In Opening the fader will start playback and select **Online** mode in case this is activated in the settings. See [9.1.12 Enter OnLine by Fader](#)



7.5 Direct Mode - Playback

```
# 2/17    TR  4:21:45
Elapsed-TR:  xx:xx:xx
[CUE] [AutoCue]
Remain-TR:   xx:xx:xx
```

```
# 2/17    CD 73:21:45
Elapsed-CD:  xx:xx:xx
[CUE] [AutoCue]
Remain-CD:   xx:xx:xx
```

Indication:

- current track number / entire number of tracks // entire time of track / CD
- elapsed time track / CD
- status of **Cue** and **AutoCue**
- remaining time track / CD

Functions (of control elements when unit is in playback mode):

Pre Start	starts playback from current position; after reaching the end of track or terminating with "Stop" the play position will be set to the last start position
Pre End	playback of the last x seconds of the track. Each time the button is pushed again the playback time will be increased by x seconds (x means the time, which is set in 9.1.10 Prelistening Time)
Start-Stop	Start and Stop of playback; after Stop the play position will remain the current one
⏮	pushed 1 time: return to the last start position pushed 2 times: return to track start pushed 3 times: selects previous track
⏭	selects next track
Online	Activates Online mode
Auto Stop	Activates AutoStop = stops automatically when end of track is reached
Fader Start	without function
Time/ Full-Mode	toggles time display between track and CD; pushing longer than 1 second: selects Full Mode
Playlist	without function
Eject	ejects CD
Back	return to track selection; current track is selected (current start position gets lost)
↺	Changes start position exactly per frame and dynamically (depending on the rotational speed of the control dial)
Click	Cue mode on/off
Menu	Activates the menu for settings
Fader-In	<i>Opening the fader will start playback and select Online mode in case this is activated in the settings. See 9.1.12 Enter OnLine by Fader.</i>
Cue Mode:	Selecting the start position by listening Selecting the start position with the control dial playback of 1 second from current position
Menu items:	AutoCue on/off: When inserting a CD start of modulation is automatically detected and stored



Delete save AutoCue: AutoCue information stored on the hard disk will be deleted



7.6 Direct Mode - Prelisten Start

Playback begins with current position to end of CD or track.

Indication:

- Pre Start pushbutton is illuminated, when Pre Start was pushed
- Behavior like playback mode

Functions (of control elements when Pre Start was pushed):

Pre Start	restart of PreStart from the position where it started before
Pre End	terminates PreStart and jumps to the position where it started before
Start-Stop	terminates PreStart and jumps to the position where it started before
⏮	without function
⏭	without function
Online	terminates PreStart and changes in OnLine mode
Auto Stop	without function
Fader Start	without function
Time/ Full-Mode	toggles time display between track and CD
Playlist	without function
Eject	ejects CD
Back	back to track list, current track position gets lost
↺	without function
Click	without function
Menu	without function
Fader-In	<i>Opening the fader will start playback and select Online mode in case this is activated in the settings. See 9.1.12 Enter OnLine by Fader – valid for “Pre Start” and “Pre End” -</i>



7.7 Direct Mode - Prelisten End

Playback of a certain part before the end of the current track (time depends on the setting in **Prelisten Time**, see [9.1.10 Prelistening Time](#))

Indication:

- Pre End button is illuminated after Pre End was pushed
- Behavior like playback mode

Functions (of control elements when Pre End was pushed):

Pre Start	terminates PrelistenEnd and jumps to the previous current position
Pre End	restart of PrelistenEnd with x seconds before the current position (x means the Prelistening time will be added)
Start-Stop	terminates PrelistenEnd and jumps to the previous current position
⏮	without function
⏭	without function
Online	terminates PrelistenEnd and selects OnLine mode
Auto Stop	without function
Fader Start	without function
Time/ Full-Mode	toggles time display between track and CD
Playlist	without function
Eject	ejects CD
Back	back to track list, current track position gets lost
↺	without function
Click	without function
Menu	without function

7.8 Direct Mode - ONLINE

```
# 2/17
Elapsed-TR:      1:09
Remain-TR:       2:11
```

```
# 2/17
Elapsed-CD:      12:09
Remain-CD:       2:11
```

Indication:

- current track number / entire number of tracks
- elapsed time Track / CD (without frames)
-
- remaining time Track / CD (without frames)

Fader start is automatically active, if **OnLine mode** becomes activated. While in **OnLine mode**, it's not possible to eject the CD and the power pushbutton is locked.

Functions:



Pre Start	without function
Pre End	without function
Start-Stop	Start and Stop of playback; (presumed Fader Start is not active) after Stop the play position will remain the current one. (In case Auto Trackchange is active, the next track will be selected. See 9.1.13 Auto Track Change)
⏮	pushed 1 time: return to the last start position pushed 2 times: return to track start pushed 3 times: selects previous track (only if Track Change is active at OnLine)
⏭	selects next track (only if Track Change is active at OnLine)
Online	terminates the OnLine Mode (Fader Start must be switched off before)
Auto Stop	Activates AutoStop = stops automatically at the end of the track (also available in OnLine Mode while in Play mode)
Fader Start	Fader Start on/off during OnLine mode (available also while in Play mode when in OnLine mode)
Time/Full-Mode	toggles indication between track/CD
Playlist	without function
Eject	without function
Back	without function
↺	without function
Click	without function
Menu	without function
Fader-In	<i>Start/Stop of playback (only if Fader Start is active)</i> OnLine mode will be terminated automatically if OnLine mode was activated by fader.

8 Changing to Full Mode

Time/ Full-Mode pushing longer than 1 second toggles between **Direct Mode** and **Full Mode**



8.1 Menus

```
Mainmenu:      ↓
→Playlist
Browse CD
Browse HDD
```

Functions (of control elements in Full mode):

Pre Start	without function
Pre End	without function
Start/Stop	starts prelistening of the first track of an inserted audio CD
⏮	without function
⏭	without function
Online	changes in OnLine Mode (a playlist must exist)
Playlist	the focus for the control dial is set to the playlist in the display
Eject	ejects CD
Time/ Full-Mode	pushed longer than 1 second: Changes to Direct Mode
Back	to previous menu level
⤵	select entry
Click	to next menu level
Menu	without function

Entries in main menu:

Playlist	shows playlist
Browse CD	prelisten and import of audio CD and/or data CD
Browse HDD	prelisten harddisk
Browse USB	prelisten and import of USB storage device
Settings	system settings
Tools	system tools



8.2 Playlist

```
Playlist:#004 018:31
1 Title
→2 Title
3 Title
```

Indication: - entire number of tracks // entire time
- entries of a playlist

Functions (of control elements when focus is on the playlist):

Pre Start	prelistening the begin of the current track with regards to the CueStart
Pre End	prelistening the end of the current track with regards to the CueStart
Start/Stop	changes to prelisten menu and starts playback from CueStart
⏮	without function
⏭	without function
Online	changes in OnLine Mode
Playlist	pushing longer than 1 second deletes playlist (requests for confirmation)
Eject	ejects CD
Time/Full-Mode	pushing longer than 1 second changes in Direct Mode
Back	back to previous menu
↺	selects entry
Click	calls CuePoints menu
Menu	calls context menu

Context Menu:

- Delete this Track deletes track from playlist (with request for confirmation)
- Move this Track changes position of the track within the playlist
- Copy this Track inserts track again into the tracklist, directly behind the current track; in case the track has a CueEnd point, it will be taken as CueStart for the new track
- Set/Clear Pause at End of Track inserts a pause (Auto Stop) in the playlist at the end of the track; independent of the Auto Stop setting
- Cue-Points calls submenu to set and delete cue points
- Show Info shows information about the current track
- Clear Playlist deletes all tracks from playlist (with request for confirmation)
- Load Playlist loads a previous stored playlist
- Save Playlist saves a playlist as a named file
- Delete Playlist deletes a stored playlist

The playlist is stored automatically and will be loaded at the next start of the unit (AutoSave).



8.3 Submenu Cue Points

As default Cue start and Cue end are start and end of a track. A Cue point not set until now is indicated as 00:00:00.

- Set Cue Start Sets Cue start point
- Set Cue End Sets Cue end point
- Set/Clear Pause
at End of Track inserts a pause (Auto Stop) in the playlist at the end of the track;
independent of the Auto Stop setting
- Auto Cue Uses begin and end of the modulation to set Cue start and Cue
end automatically
- Remove Cue Start (= reset to 00:00:00)
- Remove Cue End (= reset to end of track)

Info view:

- Source Track is located on HDD or audio CD
- Length Duration with regards to Cue start and Cue end
- Cue Start Position of Cue Start from begin of the (entire) track
- Cue End Position of Cue End from begin of the (entire) track
- Title Title of tracks and track number resp. or file name in case there
is no meta information available

Valid only for titles on HDD:

- Path Path on HDD
- Format PCM or MPEG
- Bit rate Bit rate in kbit/s
- Sample rate Sample rate in k cycles per second

Valid only for titles on audio CD:

- Track-Nr Position of the track on audio CD



8.4 Create a Playlist (from CD)

- ➡ **Eject** Push **Eject**, insert a CD into the tray, close tray by pushing one of the pushbuttons **Eject** or **Start-Stop** or gently against the slider
 - ⇒ **Full Mode / Time** push longer than 1 second to change to **Full mode**, if unit was in **Direct mode**
- ➡ **Playlist** Push **Playlist** to set focus on playlist in the display
Pushing **Playlist** longer than 1 second deletes playlist if focus is on playlist
- ➡ **Menu** Calls the menu
- ➡ **↺** **Browse CD => Click**
 - ⇒ **Indication of tracks of the audio CD**
- ➡ **↺** Select track
- ➡ **Click** Calls context menu
- ➡ **Click** Add (track) to playlist
- ➡ **↺** Select track ... **Click... Click...↺...** etc.
- ➡ **Playlist** Indicates the playlist again
 - ⇒ **Click** Calls Cue point menu; set Cue start / Cue end, Pause at the end of the track (if necessary)
- ➡ **Online** Change in **OnLine mode** => **Start/Stop** playback in **OnLine mode**

```

CD-A      2/12  8:12  ↓
Track 1
→Track 2
Track 3
    
```

8.5 Set Cue points

Setting Cue-Start:	
Duration:	xx:xx:xx
Elapsed:	xx:xx:xx
Remaining:	xx:xx:xx

Setting Cue-End:	
Duration:	xx:xx:xx
Elapsed:	xx:xx:xx
Remaining:	xx:xx:xx

Duration	indicates the time between the new Cue Start and Cue End ; duration is shown as "0" if Cue Start is behind Cue End.
Elapsed	indicates the time between begin of the track and the Cue point.
Remaining	indicates the time between end of the track and the Cue point.

The Cue point can be shifted with the control dial. Depending on the rotational speed the resolution of the steps differs. The earliest position of Cue end is 00:00:01. The last most position for Cue start is one frame before the end of the track.

Cuing starts at the end of the track, when the dialog window appears.

A loop of 1 second duration is played as control and can be listened in the monitor speaker. For **Cue Start** the loop begins at the Cue point; for **Cue End** the loop ends at the Cue point.

Pushing the control dial sets the Cue point. A confirmation message is displayed.

Functions (of control elements):

Pre Start	playback of a certain segment starting at the current position and return to the start point
Pre End	playback of a certain segment ending at the current position and return to the start point
Start/Stop	playback from current position to the end of the track; in case of terminating with Stop, this is the new current position
⏮	pushing short: jumps to the last set Cue point pushing longer: jumps to track begin
⏭	pushing longer: jumps to track end
Online	terminates and changes in OnLine mode ; Cue point is not stored!
Playlist	stores Cue point and sets focus back on playlist
Eject	ejects CD
Time/Full-Mode	without function
Back	returns from Cue point menu. The other Cue point is deleted in case is not valid (e.g. Cue start is behind Cue end). A short message is shown.
↺	shift current position
Click	set Cue point
Menu	without function

8.6 Function 'Pause' in the playlist:

In the playlist single tracks can be marked to assign to them an automatic pause to there end. This function is independent of the **AutoStop** setting. The information about an assigned pause is stored in the playlist file.

Setting the pause:

- ➡ **Click** Calls the context menu (in playlist window)
- ➡ **⌂** Select entry **Set/Clear Pause**
- ➡ **Click** Pause (Auto Stop) is assigned to the end of the selected track

Showing the function pause:

Playlist window

```
Playlist:#011 33:12
→Track 1
Track 2      ↓
Track 3
```

Indication: - Entire number of tracks // Entire play time

- Entries of a playlist
- Entry with pause (Auto Stop) at the end of track

Online window

```
2/11 ► ↓ LOOP ALL
Elapsed-SEQ: 1:02
Titelinfo
Remain-SEQ: 11:23
```

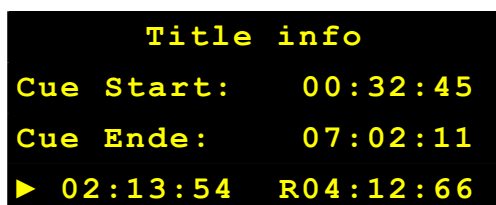
Indication: - actual/entire track(s) // Play/ Pause mode
 ↓ (The underlined arrow indicates the pause at the track end)
 Play mode: CONT, LOOP ALL, LOOP

Depending whether there are tracks with activated pause, an additional time information **SequenceTime** is available. This indicates the play time within a block of tracks (sequence) which are played until the activated pause.

Time indications to be selected with pushbutton Time	Auto Stop w/o Pause in PL		Auto Stop with Pause in PL	
	ON	OFF	ON	OFF
TR	X	X	X	
SEQ			X	X
PL	X	X	X	X

8.7 Prelisten track

When focus is on Playlist or track list



Indication:

- ◆ Title and artist of the track
- ◆ Cue start in min:sec:frames within the entire track (only when prelistening from playlist and Cue point is set)
- ◆ Cue end in min:sec:frames within the entire track (only when prelistening from playlist and Cue point is set)
- ◆ Symbol for playback / elapsed time since track start / remaining time to track end

In case Cue start and/or Cue end are/is set, playback is done only between these positions!

Functions:

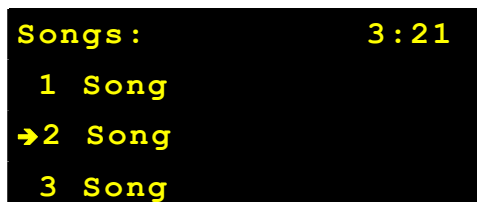


Pre Start	playback of a certain segment from Cue start and track start resp.; pushing again expands the duration
Pre End	playback of a certain segment before Cue end and track end resp.; pushing again expands the duration
Start/Stop	interrupts or continues playback; if the end is reached it stops playback and jumps back to 00:00 and Cue start resp.
⏮	back to Cue start and track begin resp.;
	pushing 2 times: previous track of the list
⏭	next track in the list
Online	changes in OnLine mode
Playlist	aborts and sets focus to playlist
Eject	ejects CD
Time/ Full-Mode	pushing longer than 1 second changes in Direct mode (only possible in stop mode)
Back	aborts prelistening and returns to previous menu
↺	select play position
Click	without function
Menu	without function



8.8 List of Items

(List of albums, artists, songs, files)



Indication of entries of one category; play time of the current selected title.
Folders are indicated in angle brackets.

Functions:

Pre Start	starts prelistening of track start (default: 5sec)
Pre End	starts prelistening of track end (default: 5sec)
Start/Stop	at "Song": changes to Prelisten menu and starts playback at track begin
⏮	without function
⏭	without function
Online	changes in OnLine mode
Playlist	sets focus to playlist; when already in playlist: pushing longer : deletes playlist (with request for confirmation)
Eject	ejects CD
Time/Full-Mode	pushing longer than 1 second: changes in Direct mode
Back	back to previous level; pushing longer : returns directly to main menu
↺	selects entry
Click	calls context menu... <u>or</u> next level (e.g. Artist -> Albums or sub folder)
Menu	calls context menu; pushing longer : returns directly to main menu

Context menu:

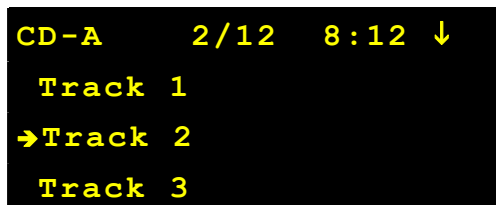
- Add to Playlist adds current entry (Song, File, Album, ...) to playlist
- Add All to Playlist adds all entries of current list to playlist
- Show Info only at "Song": shows information to current song
- Clear Playlist delete playlist (with request for confirmation)
- Delete Entry delete entry from HDD (with request for confirmation)

Info-Ansicht:

- | | | |
|------------|-----------|---------------------|
| ➤ Length | ➤ Genre | ➤ Path |
| ➤ Track-Nr | ➤ Year | ➤ Format (PCM/MPEG) |
| ➤ Title | ➤ Comment | ➤ Bit rate |
| ➤ Artist | ➤ File | ➤ Sample rate |
| ➤ Album | | |

8.9 Audio CD

Indication of the tracks of an audio CD



Indication:

- current track number and entire number of tracks // play time of current track
- In case the CD was found in freedb title names will be shown additionally; otherwise only track numbers are shown

Functions:

Pre Start	starts prelistening of track start (default: 5sec)
Pre End	starts prelistening of track end (default: 5sec)
Start/Stop	changes to pre listen menu and starts playback from track begin
⏮	without function
⏭	without function
Online	changes in OnLine mode
Playlist	sets focus on playlist; when already in playlist: pushing longer: deletes playlist (with request for confirmation)
Eject	back to main menu and eject CD
Time/Full-Mode	pushed longer than 1 second: Changes in Direct mode
Back	back to main menu
↻	selects entry
Click	calls context menu...
Menu	calls context menu...; pushed longer: directly back to main menu

Context menu:

- Add Track to Playlist (only if no tracks are selected the arrow indicates the first track)
- Add all to Playlist (only if no tracks are selected)
- Select/Select
- Select All
- Import selected Tracks (only if tracks are selected)
- Show Info
- Clear Playlist (only if no tracks are selected)

Info-Ansicht:

- CD-Length Entire play time of the CD
 - Tr-Length Play time of the track
 - Title (in case it is in freedb)
 - Artist (in case it is in freedb)
 - Album (in case it is in freedb)
 - Genre (in case it is in freedb)
 - Year (in case it is in freedb)
- “freedb” is a free available data base of CDs. Available on the recovery CD and in the web

Scanning and importing the data from an audio CD is called “ripping”. In the context menu choose **select/deselect** for one or more tracks or **select all** for all tracks. Then choose **import selected tracks**. The following will be indicated:

Indication:

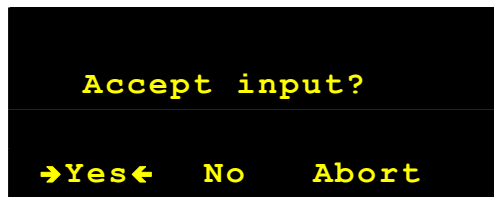
- current position / entire number of tracks within the rip job
- current track number
- progress bar for current track
- information

Back Interrupt ripping (with request for confirmation)

Entering a text, e.g. name of an album (CD import) or host name (network settings). The cursor is indicated as underline and shows the currently editable character.

Functions:

Pre Start	without function
Pre End	without function
Start/Stop	without function
⏮	one character left
⏭	pushed short-time: one character right Pushed longer: insert of a character left of the cursor
Online	changes in OnLine mode
Playlist	without function
Eject	without function
Back	pushed short-time: deletes character left of the cursor pushed longer: deletes all characters In case Back is pushed without available characters, then the input mode is terminated
↺	changes the current character
Click	stores current character and shifts cursor one character
Menu	calls the menu to terminate text input:



- Yes:** store new text
- No:** discards the new text; the previous present text remains unchanged
- Abort:** back to text input

8.12 Data CD/ USB storage device

Indication of folder structure of a data CD/DVD or of an USB storage device

Only import and prelistening of tracks is possible. Direct insert into a playlist is not possible!

```
Data-CD:
  <Dir 1>
  ➔<Dir 2>
  <Dir 3>
```

Not supported files are suppressed automatically and are not shown.

Functions:

Pre Start	changes to prelisten menu and starts PrelistenBegin
Pre End	changes to prelisten menu and starts PrelistenEnd
Start/Stop	changes to prelisten menu and starts playback at track begin
⏮	without function
⏭	without function
Online	changes in OnLine mode
Playlist	sets focus on playlist
Eject	ejects CD
Time/ Full-Mode	pushed longer: Changes in Direct mode
Back	one level back; pushed longer: direct return to main menu
⏵	selects entry
Click	select file and change to folder respectively
Menu	calls context menu; pushed longer: direct return to main menu

Context menu:

- Select/Deselect Select entry to be imported later
- Select All
- Import Selection Copies selected entries to HDD
- Show Info

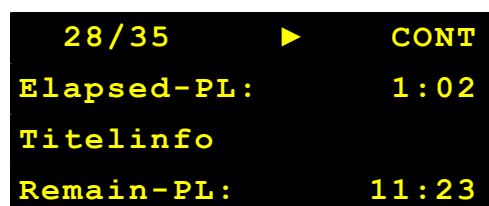
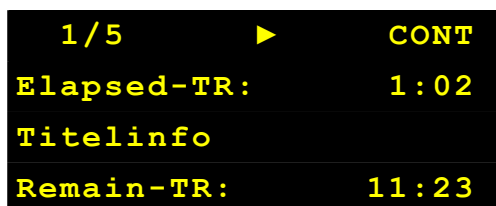
Info indication:

- Length
- Title
- Artist
- Album
- Genre
- Track number
- Year
- Comment
- Path
- Format (PCM,MPEG)
- Bit rate
- Sampling rate

8.13 OnLine mode

Push the **OnLine** button to change in **OnLine mode**. Current track is always the first one in the playlist.

Before changing in OnLine mode, it is checked whether all entries of the playlist are available. In case one or more are missing, OnLine mode is not selectable!



- Indication:**
- current track number / entire number of tracks // Play / Pause mode // Play mode: CONT (Continuous), LOOP ALL, LOOP
 - “Elapsed” shows the time passed since track begin and Cue start respectively. Alternatively the entire duration of the playlist can be shown
 - Info (Title) to the current track
 - “Remaining” shows the remaining time to track end and Cue end respectively. Alternatively the remaining time of the entire playlist can be shown
 - **Auto-Stop** activ/inactiv (is indicated by illuminating the **Auto Stop** push button)
 - **Play status** Play, Pause (is indicated by illuminating the **Start Stop** push button)
 - **Faderstart** activ/inactiv (is indicated by illuminating the **Fader Start** push button)

Functions:



In case Fader Start is active, all other pushbuttons are locked.

Exception – Time indication can be toggled and playlist can be shown!

Track changing in **OnLine mode** can be locked.

Pre Start

Playback of the beginning of the next take starting with the current position of the current title with monitor outputs. Possible only in stop mode. **Start** interrupts prelisten at once. Pushing several times extends the segment to be played.

Pre End

Playback of the last seconds of the current track with built-in speaker and monitor outputs (rear side). Possible only in stop mode. **Start** interrupts prelisten at once. Pushing several times extends the segment to be played.

Start/Stop

Starting / interrupting / continuing the track



previous track of the playlist (only possible in Stop mode or if enabled in the settings. See [9.1.11 Manual Track Change](#))



next track of playlist (only possible in Stop mode or if enabled in the settings. See [9.1.11 Manual Track Change](#))



Online Playlist	changes to Prelisten mode and shows current playlist as long as Playlist is pushed, the playlist is shown with current position
FaderStart	activates Fader Start ; deactivation of Fader Start is only possible when fader is closed! If Fader Start is active all other pushbuttons are locked. Exceptions: pushbuttons Time , Playlist and AutoStop
AutoStop	toggles Auto Stop ; also possible in Play mode
Eject	Eject is locked
Time/ Full-Mode	toggles time indication area between track and playlist; also possible during playback
Back	without function
↺	without function
Click	without function
Menu	calls context menu ... (only possible in stop mode)

Context menu

- Play mode: Continuous, Loop Single, Loop All
- Time mode: Current Track / Playlist



9 Settings

Access to tools and settings is given when pushing the **Menu** button and scrolling down to either **Tools** or **Settings**.

9.1 Settings

Access to Settings can be protected with an admin password against not allowed access. Thus avoiding not wanted changes.

- | | | |
|--------|---|--|
| 9.1.1 | CD Import
Extra Error Correction | Switches on and off an additional error correction when importing CD's |
| 9.1.2 | FreeDB
Source
URL | Source for CD database: local HDD, internet
Entry of the internet address of the database:
standard: freedb.freedb.org |
| 9.1.3 | Network
Get Status:
Change Settings:
SMB Settings: | Indication of current network settings
To change the network settings
Entry of a password for network access (EMT 986 has no active network access, but is available as network drive) if no password is set it is available via network without control
In case password is active, connection must be made as user "nobody" |
| 9.1.4 | XLR Line Out | Muting the XLR line outputs during prelisten |
| 9.1.5 | XLR Line Level | Setting the output level: +4, +6, +9, +10 dBu |
| 9.1.6 | Monitor Out | Muting the monitor output in OnLine mode |
| 9.1.7 | AES/SPDIF Format | Selecting either consumer or professional format |
| 9.1.8 | Audio Clock | Selecting either: 44.1 kHz or 48 kHz |
| 9.1.9 | Clock Source | Source for audio clock: Internal, BNC, Toslink, Coax
(If an external source is selected and no valid signal is available, the internal clock is used until a valid external signal appears again) |
| 9.1.10 | Prelistening Time | Setting the length of time for Pre Start and Pre End |
| 9.1.11 | Manual Track Change | Enables/disables track change in OnLine mode |
| 9.1.12 | Enter OnLine by Fader | Only in Direct mode ! Opening the fader activates OnLine mode automatically. – In this case standby function of the |



drive is disabled (if not used for a certain time the drive goes to standby to extend it's life time. There is no setting available for this option).

9.1.13 Auto Track Change

Automatic change to next track, when playback is stopped in **OnLine mode**

9.1.14 Fader Start

Setting the fader input for either open contact or closed contact, when fader is opened

9.1.15 Date & Time

Setting time and date of day

9.1.16 Set Admin Password

Changing the administrator password. Only figures can be used for the password. At least 4 figures are needed. Password protection is disabled in case no password is set.

9.1.17 Import Settings

Import settings from an USB device (except network settings)

9.1.18 Export Settings

Export settings to an USB device (except network settings)

9.2 Tools

Access to parts of the tool menu can be protected with an admin password which is set in the settings.

Show Statistics

Indication of free disk space of the HDD and Entire number of stored music files (**access enabled**)

Show Versions

Indication of revision versions of hardware software and firmware (**access enabled**)

Rebuild Music DB

Rebuilt Music Data Base according to music files on HDD (**access only with password, if set**)

Update FreeDB

Update of CD title database „FreeDB“ according to CD (**access only with password, if set**)

Update Software

Update Software (**access only with password, if set**)



10 Software Update and reinstallation of EMT 986

The system software of EMT 986 is stored on the built-in HDD. In case the HDD has to be replaced or after a severe malfunction (e.g. power blackout or similar) it may be necessary to reinstall the software. Furthermore it is possible to update the software without loss of stored data.

10.1 Reinstallation

For a new setup you'll have to start the unit with already inserted recovery CD. Please take into account that a new setup will format the HDD, divide it into partitions and copy the system software to the HDD. All data stored on the HDD will get lost. All settings will be reset to their default values.

- ⇒ Backup the stored audio data via the network interface if it is needful and in case it is still possible.
- ⇒ Insert the recovery CD into the drive.
- ⇒ Switch off the unit.
- ⇒ Switch on the unit again.
- ⇒ A message is shown: "Recovery CD Revision x.x"
- ⇒ Confirm the message "Do you want to reinstall the software?" with "Yes"
- ⇒ Confirm the message "Really? All of your data will be deleted!" with "Continue"
- ⇒ Wait until the installation is terminated. This will last some minutes.
- ⇒ Remove the CD, leave the tray open and switch off the EMT 986.
- ⇒ Switch on the EMT 986 and reconfigure it.

10.2 Update

When updating the software neither audio data nor the playlists will get lost. It could happen, that the settings will be reset. The update can be installed from different media:

- ⇒ Recovery CD
- ⇒ CD-R with update file(s) in the main directory
- ⇒ USB stick update file(s) in the main directory
- ⇒ From built-in HDD (if update file(s) had been copied into the folder "shared files")
- ⇒ Backup the stored audio data via the network interface if it is needful.
- ⇒ Copy the update files into the folder "shared files" on the HDD
- or
- Plug in the USB device with the update files
- or
- Put in the CD-R with the update files
- or
- Put in the Recovery CD
- ⇒ Select "Tools->Update Software"
- ⇒ Confirm the message "Continue Updating Software?" with "OK"
- ⇒ It will be searched for the update. In case an update was found it is shown: "SW Update: valid". Confirmation of this message will start the update
- ⇒ After a successful update the Music Data Base will be rebuilt
- ⇒ After an update please check the configuration settings of the EMT 986

10.3 Update of the title data base "freedb CD"

The CD title data base is to detect the title of album, artist, title of track etc. of an inserted audio CD. Don't mix it up with the Music Data Base, which catalogues the stored audio data. The therefore request data are stored on the HDD. Additionally the web can be searched for unknown CD's.

Separately from the software this data base can be updated:

- ⇒ Insert the Recovery CD into the drive
- ⇒ Carry out the menu item "Tools -> Update freedb"



11 Menu structure EMT 986

- **Playlist** Shows Playlist
 - Playlist entry 1
 - Playlist entry 2
 - ...
- **Browse CD** Shows CD tracks; automatic detection whether data CD or audio CD
 - Title 1
 - Title 2
 - ...
- **Browse HDD** Submenu HD
 - by Filename Explorer view with folders
 - Folder 1
 - Folder 2
 - ...
 - File 1
 - File 2
 - ...
 - by Song Indication of all titles according to Music Data Base (MDB)
 - by Artist Indication of all artists according to MDB
 - All Songs
 - Album 1
 - Album 2
 - ...

all titles of an artist
 albums of the artist
 - by Album Indication of all albums according to MDB
 - Album 1
 - Album 2
 - ...
 - by Genres Indication of all genres according to MDB
 - Genre 1
 - Genre 2
 - ...
 - Search... Submenu full-text search
 - Meta-Tags search within the meta tags (title, album, artist, genre)
 - Filename search for file names
- **Browse USB** searching USB devices and offer an extract
 - Device 1 Indication of the index structure of the USB device
 - Device 2
 - ...



- **Settings...** **Submenu Settings**
 - CD-Import
 - Extra Error-Correction Additional error correction for ripping
 - freedb
 - Source Settings for CD title data base
 - URL Source for searching the data base: local / local & internet
URL for freedb internet server
 - Network...
 - Get Status: Network settings
 - Change Settings... Indication of current configuration
 - Mode: Changing the settings
 - Hostname: Toggles between automatic configuration (DHCP, AutoIP) and manual configuration
 - Workgroup: Enter the host name
 - IP: Enter the workgroup
 - Subnet-Mask: Enter the IP address of the EMT 986 (only valid in manual mode)
 - Gateway: Enter the subnet mask (only valid in manual mode)
 - DNS: Enter the gateways for internet access (only valid in manual mode)
 - SMB Password: Enter the DNS server for internet access (only valid in manual mode)
Activates password for network access to the EMT 986
 - XLR Line Out Line Out in Prelistening: muted / unmuted
 - XLR Line Level +4, +6, +9, +10 dBu
 - Monitor Out Monitor Out in Online Mode: muted / unmuted
 - AES/SPDIF Select format: Consumer / Professional
 - Audio-Clock for internal usage and digital outputs: 44.1 kHz / 48kHz
 - Clock Source internal, BNC, Cinch, Toslink
 - Prelistening Time Time length for prelistening in seconds: 1sec - 30sec
 - Track Change Track change enabled in **OnLine mode**: allowed / not allowed
 - Enter Online by Fader Activate **OnLine mode** by fader in **Direct mode**
 - Auto Track Change autom. track change at Stop in **OnLine mode**
 - Fader Start Fader Start activ when switch in fader is: closed / open
 -
 - Date & Time Set date and time of day
 - Set Admin Password Admin password for access to settings and tools
 - Export Settings Export of settings to an USB device (except network settings)
 - Import Settings Import of settings from an USB device (except network settings)
- **Tools...** **Submenu Tools**
 - Show Statistics Indication of free disk space and stored audio files
 - Show Version Indication of versions of hardware, software and firmware
 - Rebuild MusicDB Rebuilds the Music Data Base according to the available meta information of the audio files
 - Update freedb Update CD title data base from a CD
 - Update Software Update system software from CD, USB, or network



12 Technical Data EMT 986

12.1 Common

Weight:	ca. 9.8 kg
Dimensions:	485 x 95 x 380 mm (WxHxD) (2HU) (incl. 19" brackets and feet)
Installation dimensions:	447 x 89 x 359 mm (WxHxD) (2HU) (excl. 19" brackets, feet and counter plugs)
Mounting angles:	max. 15° deviation from horizontal in all directions
Storage temperature:	-20°C ... +60°C
Operating temperature:	+10°C ... +35°C
Storage humidity:	5% ... 90%rh, non condensing
Operating humidity:	30% ... 80%rh, non condensing
Mains voltage:	110 - 230V/AC; 50/60Hz (auto ranging)
Current:	max. 0.3A
Overload protection:	self healing fuse
Mains socket:	3-pol. Socket according to IEC-320-C13 with protective ground and mechanical mains switch
Cooling:	passive by convection

12.2 CD drive

Supported formats:	Audio CD, CD-ROM, CD-R, CD-RW, Data-DVD (DVD-ROM, DVD-R, DVD-RW, DVD+R, DVD+RW)
Data systems:	Audio-CD, ISO9660 (+Joliet), UDF
Media:	12cm and 8cm
Tray:	motor driven
Multi session:	yes (supports open CD's but not open sessions)
Emergency opening:	available
Speed:	Import of audio CD to HDD as PCM: max. 20x
Form factor:	Half size 5.25"
Interface:	IDE
Audio playback:	per IDE

12.3 Hard Disk Drive (HDD)

Capacity:	80 GB (73GB available for audio data)
Interface:	40pol. IDE
Form factor	3.5"



12.4 XLR Line Output

Connection:	2 x XLR male socket left/right
Line amplifier:	electronically balanced
Output impedance:	approx. 20 ohms
Output level:	+4, +6, +9, +10dBu (software selectable) at 600 ohms; (0dBu = 0.775Veff), level for left/right separated fine adjustable by multiturn potentiometer, int. muted by relay
Signal/noise ratio:	100dB at 0dB
Frequency response:	25Hz - 20kHz: +/- 0.2dB
THD:	<0.008% (at 1kHz, 0dB)

12.5 Digital outputs (AES/SPDIF) XLR/RCA/Toslink

Connection 1: 3-pol XLR male socket
 Output level: 3.3Vpp at 110 ohms; transformer balanced
 Connection 2: RCA
 Output level: 450mVpp at 75 ohms; unbalanced
 Connection 3: Toslink
 all connections usable in parallel
 Sampling rate: 44.1kHz, 48kHz (software selectable)
 Data format: AES3; consumer or professional format software selectable
 Status bytes used:

Consumer Format:

Byte 0	<i>bit 0</i>	0: Consumer Format
	<i>bit 1</i>	0: Digital Audio
	<i>bit 2</i>	0: Copyright set
	<i>bit 3-5</i>	000 No Pre-emphasis, 2 channel Audio
	<i>bit 6</i>	0: Mode 0
	<i>bit 0-7</i>	0000 0000: Category: General
Byte 2	<i>bit 0-3</i>	0000: Source Number unspecified
	<i>bit 4-7</i>	0000: Channel Number: unspecified
Byte 3	<i>bit 0-3</i>	Depends on sampling rate: 0000: 44.1kHz 0100: 48kHz
	<i>bit 4-5</i>	00: Clock Accuracy Level II
Byte 4-23		reserved

Professional Format:

Byte 0	<i>bit 0</i>	1: Professional Format
	<i>bit 1</i>	0: normal Audio
	<i>bit 2-4</i>	000: no Emphasis
	<i>bit 5</i>	0: Source Sample Frequency locked
	<i>bit 6-7</i>	Depends on sampling rate: 01: 48kHz 00: 44.1kHz
Byte 1	<i>bit 0-7</i>	0000 0000
Byte 2	<i>bit 0-2</i>	000: maximum audio word length is 20 bits
	<i>bit 3-5</i>	000
Byte 3		reserved
Byte 4	<i>bit 0-1</i>	00: no reference signal
	<i>bit 2-7</i>	reserved
Byte 5-23		not used

12.6 Monitor Output

Connection: 2 x RCA for left/right
 Output amplifier: unbalanced
 Output level: 2.0 V_{eff} / 47kOhms

12.7 Internal monitor speaker (mono)

Power: approx. 200 mW, adjustable; muted if headphone connected
 Overload protection: Power limited by built-in limiter

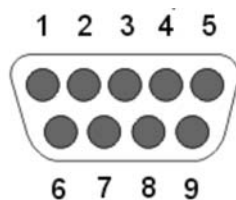
12.8 Headphones

Connection: 6.3mm jack socket
 Output level: 1.5V_{eff} at 32ohms
 Output power: max 70mW at 32ohms
 Volume: adjustable by potentiometer

12.9 Clock input

Input signal: SPDIF/AES
 Connections: RCA (75ohms), Toslink, BNC (75ohms) (software selectable)

12.10 RS232 Connection: 9pol SubMin-D male socket; incl. fader input



Plug in view

Pin	Signal
1	n.c.
2	RX
3	TX
4	n.c.
5	GND
6	Fader-In to be connected to GND
7	n.c.
8	n.c.
9	n.c.



12.11 Network interface

Connection:	RJ45 Socket with LED's for Media sense and transmission
Standard:	IEEE 802.3 (10 and 100MBit/s)
Protocol:	SMB-Filesharing; compatible with Windows 98, ME, 2000, XP, Linux, MAC OS X access is password protectable
Configuration:	manually, DHCP, AutoIP

12.12 USB Host Interface

Connection:	2 x USB socket (Host)
Standard:	USB 1.1 Full speed
Supported devices:	Mass Storage Class (FAT, FAT32 formatted)

12.13 Supported audio formats

MPEG:

Standards:	MPEG1-Layer1-3, MPEG2-Layer1-3, MPEG2.5-Layer1-3
Bit rates:	32 - 448 kBit/s, variable bit rate
Modes:	Mono/Stereo
Sample rates:	8kHz, 11.025kHz, 12kHz, 16kHz, 22.05kHz, 24kHz, 32kHz, 44.1kHz, 48kHz (in case the sample rate differs from the set audio clock there will be a software sample rate conversion)
Meta data:	ID3-Tag V1 and V2

WAV:

Standards:	MPEG (see above), PCM (16Bit and 8Bit)
Modes:	Mono/Stereo
Sample rates:	8kHz, 11.025kHz, 12kHz, 16kHz, 22.05kHz, 24kHz, 32kHz, 44.1kHz, 48kHz (in case the sample rate differs from the set audio clock there will be a software sample rate conversion)
Meta data:	LIST-Chunk (IART (Artist), INAM (Titel), IPRD (Album), IGNR (Genre), ITRK (Track Number), IYEA (year of publication), ICMT (Comment))

Playback compatible to BroadcastWaveFormat (**BWF**)



12.14 Manufacturer, contact

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13 Remarks to the Software

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