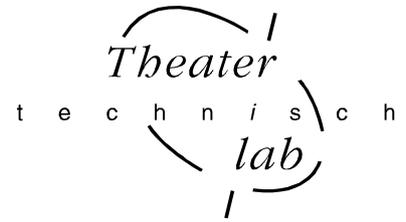# Manual Toddler-4

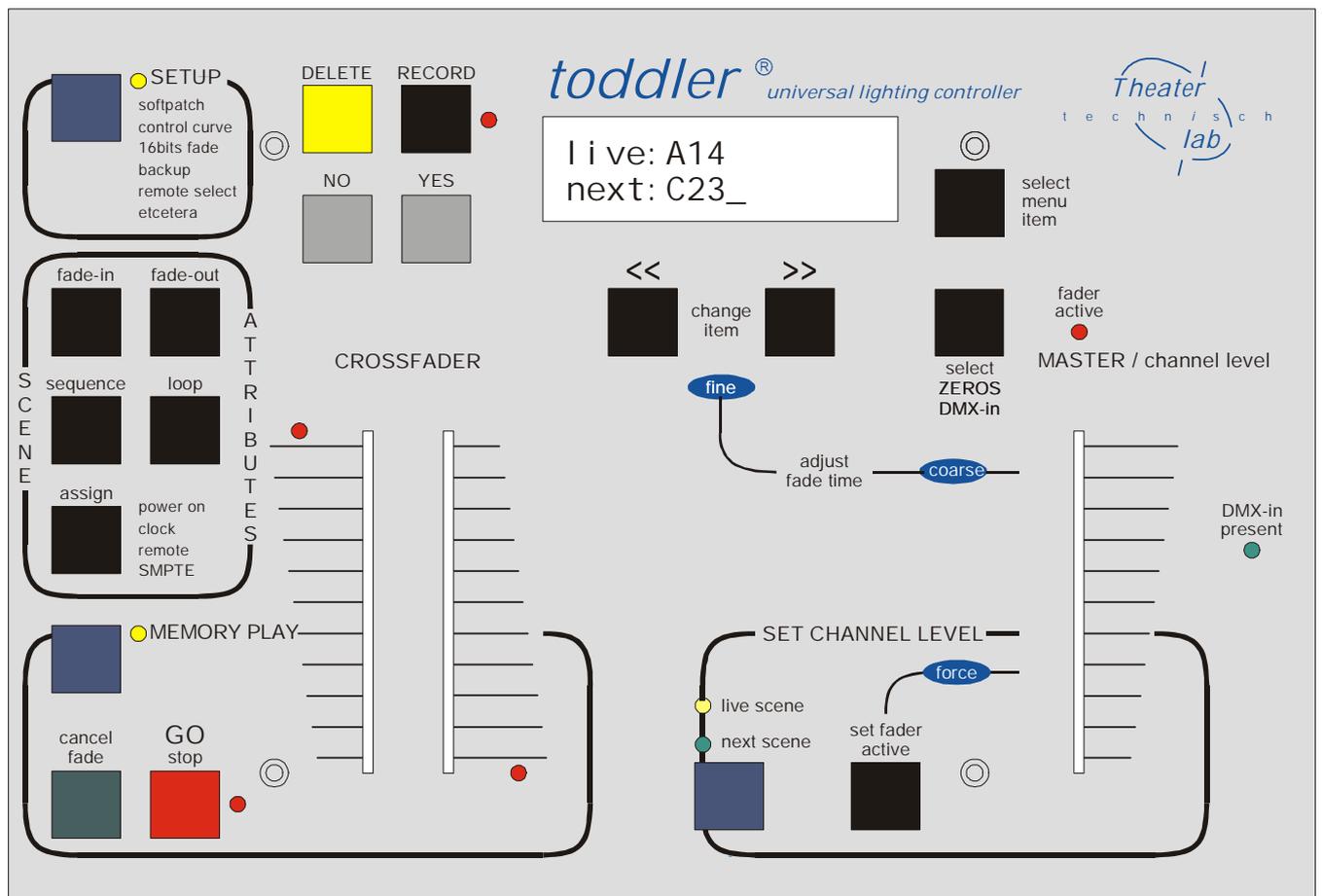For software version V1.x

Introduction

The operation of the Toddler is based upon the methodology of lighting used in the theatres. This means that the lighting course is divided into separate lighting situations (= scenes). A scene is the result of the intensity adjustments of several sources of light. For this purpose the same amount of steering signals/channels are needed, which can be generated by a steering table as the Toddler. As a consequence the operation of the Toddler boils down to the adjustment of the channel intensities and its recording in the memory. The last one with the purpose of being able to recall or to play these settings afterwards again.

Contents

This manual starts with the explanation of some conceptions, than it describes how to operate the Toddler in general terms, and than it explains one by one the following four users modes.

User modes

1. SET CHANNEL LEVEL: to set and to change scene's = to make and to edit presets
2. MEMORY PLAY: to play back the scene's that are recorded in the memory (to play back memories or scene records)
3. SCENE ATTRIBUTES: to set a.o. fade times, delay times, loops, links, autofollow, scene sequence etc.
4. SET UP: general settings of Toddler: a.o. softpatch, control curves, backup, remote/clock control etc.

Important things to know

Symbols used in the manual
[.........] refers to buttons and faders. <......> refers to leds. Cursive words refer to the text at the display. Words in capital letters refer to a user mode.

Power on
If you turn on the Toddler the software version is displayed for 2[s]. Than the Toddler automatically switches in the mode: MEMORY PLAY. The MASTER is set on 100% (see page 3)

Memory capacity
The amount of scenes you can record depends on the amount of channels you have set. The 3 possibility's are: 120/780, 240/420 en 512/210. The default factory set up is 120 channels and memory capacity for 780 scenes. To change default set up see below, under 'reset all'

To check available memory
Press [RECORD] and use scrollbuttons [<<] or [>>] to go to the beginning or end of scene name list. Keep the scroll button pressed. You see the text displayed: '*memory left xxx*'.

To scroll fast
You can speed up the scrolling time by factor 10. You start scrolling in the desired direction and while you keep this button pressed, you press the other scroll button too.

Scene-name
Each scene you make at the Toddler gets a name. The scene-name exists of a capital letter plus two numbers; for example *E12*. The numbers do not necessarily refer to a play sequence. This method avoids sub-numbers in case you want a new scene inserted in the list.

Default scene attributes
The default scene attributes are:
fade-in=3[s], delay-in=0[s], fade-out=3[s], delay-out=0[s], autofollow=no, linked scene=none, and no return.
When you record a new scene, the default scene attributes are automatically recorded too. To change scene attributes: see page 8

To save settings
In general you don not have to confirm a setting with [RECORD/enter] in order to store it in memory. Only options indicated with a ? you must confirm with [YES] or you can cancel with [NO].

YES-, NO-, and DELETE-button
In case of y/n-settings you have to press [YES] if 'y' is the desired option and [NO] if 'n' is the option you want. Options displayed with a '?' you activate by pressing [YES]. The button [DELETE] is often used to turn a particular setting in '...' what means 'nothing selected'. For instance you can undo the setting 'LinkedScene=A01' by pressing on [DELETE]. This results in the text 'LinkedScene=...'.

```
RESET ALL!, with
XXX_channels?
```

Reset all
It is possible to set everything into the default setting and to clear the scene-list with the following actions: Push the [SETUP] button while switching the mains power on. At the display you see the same text as here at the left side. Now, if you like, you can choose a different number of channels: 120, 240 or 512.

```
Memory will be
erased! Sure?
```

If you confirm with [YES] you get the second display. [NO] offers you still the possibility to cancel. If you press [YES] again, the Toddler starts with the chosen number of channels and the default set up.

MASTER

The fader at the most right side on the Toddler has plural functions. The position of this fader is recorded continually, so if the fader changes to another function, the position in the earlier function is memorized automatically. When the fader retakes its former function, the fader only functions if the fader has its former position: led <fader active> turns on. The functions are:

1. MASTER, in MEMORY PLAY mode
   remark: when you turn on the Toddler, the MASTER goes to 100%.
2. Level control fader, for the selected channel in the SET CHANNEL LEVEL mode
   Use [set fader active] to make the fader directly active: led <fader active> turns on, or move the fader up/down till you have picked up the former position: led <fader active> turns on.
3. Coarse fade time controller: to adjust the fade time coarsely in [fade in] or [fade out]. For fine adjustments use the [>>] or [<<] scroll buttons. The fader loses its function to set fade times coarse when you press one of the scroll buttons, so when you set fade time fine.

To make fader active

If you use the MASTER in any function, to change settings or to make new records than the fader must be active. The fader is active, only when the led <level picked up> is burning. You can set the fader active in two ways:

- Press [set fader active] to make the fader directly active: led <fader active> turns on.
- You move the fader up/down till you have picked up the former position: led <fader active> turns on. Now the channel intensity is corresponding with the fader's position.

Some concepts

A **scene** is the visible result of a certain channel intensity of a certain amount of channels.
A **preset** is a certain channel intensity of a certain amount of channels of which the result is visible when you have made a crossfade. (preset = next scene)
A scene record or memory is a preset that is stored in the memory.
Mode selection button: the blue buttons you use to go to another user mode

Next and live, ZERO and DMX-in

In the SET CHANNEL LEVEL and MEMORY PLAY mode the words *next* and *live* often occur at the display. Those words refer to two work memories that have a part in the creation and playing back of scenes. The content of *live* appears at the exit of the Toddler (=DMX-out). The next scene you want to fade in is stored in *next*.
You can use the work-memories *next* and *live* for existing scene-records or for *ZEROS* or *DMXin*. *ZEROS* is a pre-programmed zero-scene. You can use it as a take-off point for the creation of a new scene (see page 4). *DMXin* means you get the information offered to the DMX input of the Toddler in your work-memory.

Crossfade

A crossfade (in short a fade) is a gradual transition between two scenes. During a fade channels-level will increase, decrease or remain unchanged. The result of all increases is called the fade in, that of the decreases the fade out.

To start / stop autofade

For a automatic crossfade (= autofade) you can set different values for the fade in times and fade out times.
To start an automatic crossfade you push on [GO stop] or on a external GO button. During the time that the fade is going, the led <GO stop> is flashing and the progress of the fade-in time and fade-out time is displayed proportionally.

To cancel fade

To stop a fade you press [GO stop] again. If you want the fade to continue again, press [GO stop] again. If you press [cancel fade] you have ended the fade prematurely. You can use the results of the cancelled fade. (see page 6/7)

Crossfader

You can make a crossfade manually with the [CROSSFADER]. The crossfader consists of two parts (faders). The crossfader only functions in the MEMORY PLAY mode. One of the fader-LED's must burn. If that is not the case both the faders should be put in the same end position. The fader of which the led is on controls the fade-in. The other fader controls the fade-out. For example: In the case of a fade to a black-out (no lights on) the fader with the led on does not work. The fade is controlled completely by the fader of which the led is not on.
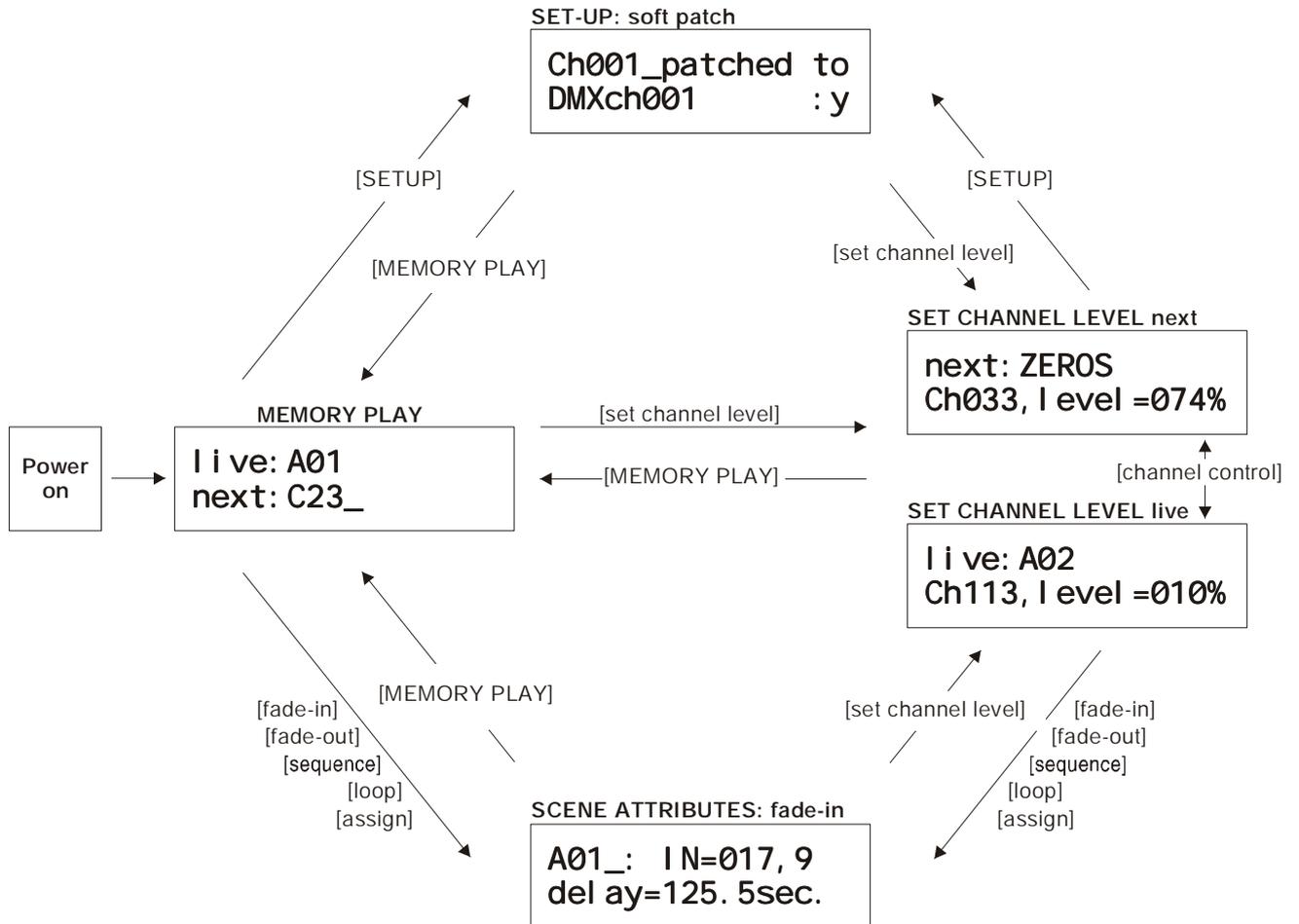
To overrule autofade

When a autofade is going on, you can take over this crossfade partially or completely with the crossfader. When you have finished the manual take over, the position of both fader's are in general not the same. To make the crossfader active again you have to set the crossfaders both in the same end position

The global users interface

The users-scheme below shows the changes between the users modes with the corresponding displays. The text between the symbols [......] refers to the buttons you have to use to change between those modes.
The user modes are: SET CHANNEL LEVEL, MEMORY PLAY, SCENE ATTRIBUTES and SETUP, this four users modes are described separately in the next chapters.
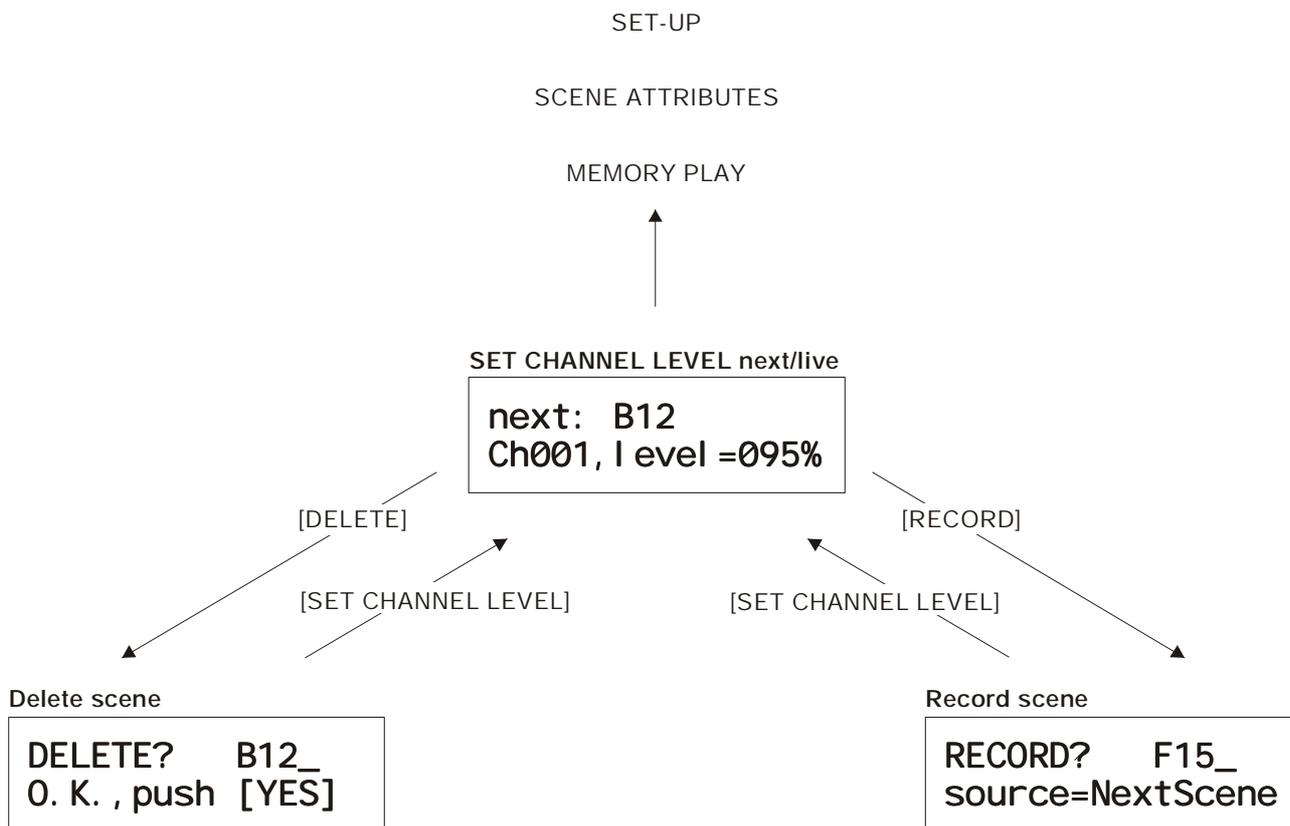
SET-UP: soft patch

```
Ch001_patched to
DMXch001      :y
```

[SETUP]

[MEMORY PLAY]

[SETUP]

[set channel level]

SET CHANNEL LEVEL next

```
next: ZEROS
Ch033,level =074%
```

MEMORY PLAY

```
live: A01
next: C23_
```

[set channel level]

[MEMORY PLAY]

[channel control]

SET CHANNEL LEVEL live

```
live: A02
Ch113,level =010%
```

Power on

[fade-in]
[fade-out]
[sequence]
[loop]
[assign]

[MEMORY PLAY]

[set channel level]   [fade-in]
[fade-out]
[sequence]
[loop]
[assign]

SCENE ATTRIBUTES: fade-in

```
A01_:  IN=017,9
delay=125.5sec.
```

Remarks:
- The first mode after the power on is MEMORY PLAY. The MASTER will be initiated at 100%.
- As long as you have not made a record, the only selection you can make for live/next is ZEROS of DMX-in. If you press [assign], [sequence], or [loop] the displays says: NO EXISTING SCENE RECORD
- The displays of SETUP and SCENE ATTRIBUTES are examples of the possible displays you can get.

Channel Control: set channel level

In SET CHANNEL LEVEL mode you can adjust the channel-intensity of the displayed *next* or *live* scene. In this mode you can create and store scenes and change existing scene-records. When you make or change the scene in *next* (led <next> burns) you can't see on stage what you are doing: this is called blind control. When led <live> burns every thing you do is direct visible, (if the MASTER is open): you see the scene you make or change *live* on stage. <Live scene> you usually use to create a new scene, <next scene> you usually use if you have to change something during the show.
The next description is for live and blind channel control.

SET-UP

SCENE ATTRIBUTES

MEMORY PLAY

↑

SET CHANNEL LEVEL next/live

```
next:  B12
Ch001,level =095%
```

[DELETE]   [RECORD]

[SET CHANNEL LEVEL]   [SET CHANNEL LEVEL]

Delete scene

```
DELETE?    B12_
O.K., push [YES]
```

Record scene

```
RECORD?    F15_
source=NextScene
```

To set channel levels

If you press the blue button of the mode SET CHANNEL LEVEL the cursor is always on the position channel number: *CH00x*. This is the second display line, see also the most above picture. With [<<] and [>>] you can select the channel number. The channel levels are displayed in percents. You can set the level from the selected channel with the fader [MASTER/level control]. The fader must be active: use [set fader active]: led <fader active> burns (see p. 3) You can set the level more precisely by using the scroll buttons.

To give a great number of channels the same intensity

To set successive channels quickly to the same level you use [set fader active]. This feature speeds up channel setting enormously. You just keep [set fader active] pushed while you select the next channel by scrolling with [>>].

To select a scene

Press [select menu item]: the cursor goes to the first display line, which shows a scene (memory pre-set): for example *B12*. With [<<] and [>>] you can select an other scene. The channel levels of the selected scene can now be viewed or modified. Note: As long as you haven't recorded a scene, you can only select the pseudo scenes *ZEROS* or *DMX-in*.
You can use *ZEROS* (all channels are zero) or a existing scene as a take-off point for building a new scene. The text *modi* (= modify) is displayed as soon as you have changed a channel level.

To record a scene

To create the scene (pre-set) you want to store in memory, you give each channel the desired level (see above). You push [RECORD] to get the record scene menu. With [<<] and [>>] you can select a scene name for the record. If the selected name has already been used the word *MODIFY?* is displayed. Otherwise *RECORD?* Did you use *ZEROS* as take-off for creating the scene, than the display always gives *RECORD?* and the record name suggested is always the next in the scene-list.

The second line tells you from which source you work. If you start from SET CHANNEL LEVEL <live scene> you get *source = live*. If you start from SET CHANNEL LEVEL <next scene> you get *source = next*. (This information can be extremely important if you are in the middle of a show)
Confirm your choice with [YES] -> led <RECORD> flashes. If you press [NO] you can cancel the record procedure. A record of a new scene is always placed at the end of the scene-list. See SEQUENCE on page 8 for changing this sequence.

To delete a scene
In SET CHANNEL LEVEL mode it is also possible to delete/remove a record out of the scene-list. Push [DELETE], select with the scroll buttons [<<] or [>>] the scene you want to delete. Push on [YES] to confirm. Push on [NO] or any other button to cancel the delete procedure.

MEMORY PLAY

In MEMORY PLAY mode you can play back the scenes you have recorded earlier in the memory. Push the blue button [MEMORY PLAY], the yellow led next to this button burns. With [<<] or [>>] you can change the scene that is *next: Xxx* scene. You can choose any recorded scene or ZEROS or DMX-in (see page 10). As long as no scene-record is made, you can only select the pseudo-scenes *ZEROS* (pre-programmed pre-set with all level zero*)* or *DMXin*.
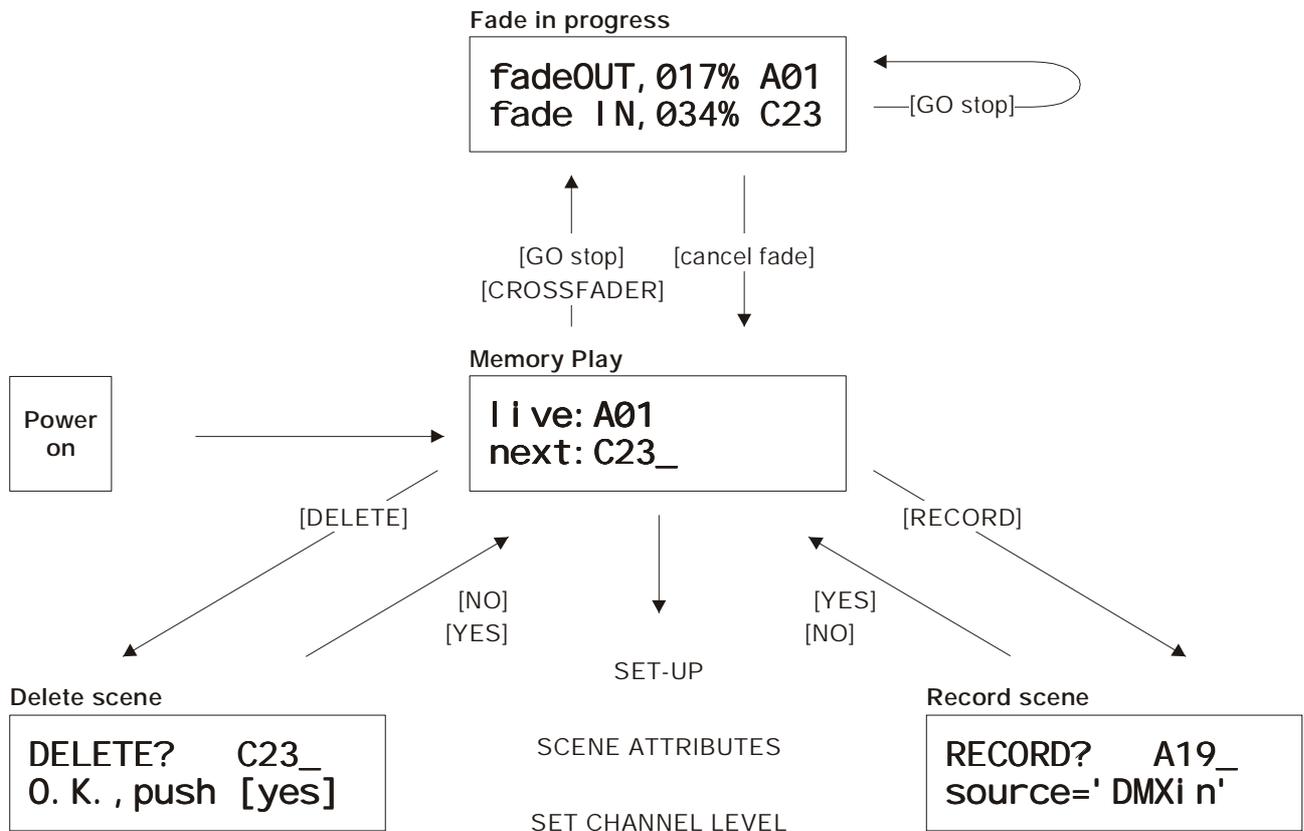
The MASTER
In MEMORY PLAY the fader on the most right side has the function of master. This means level control for all channels. See to it that the master is active: led <fader active> burns. See page 3.

To record DMX-in and the instant result of a crossfade
If you have interrupted a crossfade, you can record the instant result of that moment: *source = crossfade*. If you press record while there is no crossfade going on, than you record the DMX input: *source = DMXin*.
You can record the information received at the input of DMX-inlet, like a normal scene. You select for *next: DMXin* , you just have to press the [select ZEROS DMXin] button. Be aware that you can only make this selection if the option *SCENEmode* has been selected by *DMXin* in SETUP (see page 10).

Fade in progress

```
fadeOUT,017% A01
fade IN,034% C23
```

——[GO stop]

[GO stop]   [cancel fade]
[CROSSFADER]

Memory Play

```
live:A01
next:C23_
```

Power on

[DELETE]   [RECORD]

[NO]   [YES]
[YES]   [NO]

SET-UP

SCENE ATTRIBUTES

SET CHANNEL LEVEL

Delete scene

```
DELETE?    C23_
O.K.,push [yes]
```

Record scene

```
RECORD?    A19_
source='DMXin'
```

To record a scene

You push [RECORD] to get the record scene menu. With [<<] and [>>] you can select a scene name for the record. If the selected name has already been used the word *MODIFY?* is displayed. Otherwise *RECORD?* Confirm your choice with [YES]. By pressing [NO] you can cancel the record procedure. A record of a new scene is always placed at the end of the scene-list. See SEQUENCE on page 8 for changing this sequence.

The second line tells you from which source you work. If you start from MEMORY PLAY you get *source = DMXin.*

To delete a scene

In MEMORY PLAY mode it is also possible to delete/remove a record out of the scene-list. Push [DELETE], select with the scroll buttons [<<] or [>>] the scene you want to delete. Push on [YES] to confirm. Push on [NO] or any other button to cancel the delete procedure.

Crossfade

A crossfade (in short a fade) is a gradual transition between two scenes. During a fade channels-level will increase, decrease or remain unchanged. The result of all increases is called the fade in, that of the decreases the fade out.

To start / stop autofade

For a automatic crossfade (= autofade) you can set different values for the fade in times and fade out times. (page 8)
To start an automatic crossfade you push on [GO stop] or on a external GO button. During the time that the fade is going, the led <GO stop> is flashing and the progress of the fade-in time and fade-out time is displayed proportionally.

To cancel fade

To stop a fade you press [GO stop] again. If you want the fade to continue again, press [GO stop] again. If you press [cancel fade] you have ended the fade prematurely. The result of the cancelled fade is put in live. The display gives the text: '*MIXED!*'. If you cancel a manual crossfade the crossfader is disconnected. It functions again, if you have put the fader in the end position. Now you can select a new scene record for *next*.

Crossfader

You can make a crossfade manually with the [CROSSFADER]. The crossfader consists of two parts (faders). The crossfader only functions in the MEMORY PLAY mode. One of the fader-LED's must burn. If that is not the case you must put both the faders in the same end position. The fader of which the led burns controls the fade-in. The other fader controls the fade-out. For example: In the case of a fade to a black-out (no lights on) the fader with the led on does not work. The fade is controlled completely by the fader of which the led is not on.

To overrule autofade

When a autofade is going on, you can take over this crossfade partially or completely with the crossfader. When you have finished the manual take over, the position of both fader's are in general not the same. To make the crossfader active again you have to set the crossfaders both in the same end position.

To fade in DMXin

When you select for *next: DMXin* , you just have to press the [select ZEROS DMXin] button, you can fade in the information received at the input of DMX-inlet, like a normal scene. Be aware that you can only make this selection if the option *SCENEmode* has been selected by *DMXin* in SETUP (see page 10).

Scene Attributes

[Fade-in]

```
A12_: t_IN=012,5
delay=015,5 sec.
```

Fade-in times

Maximum 999.9[s]. You can only select existing records.

IN=xxx.x gives the time of the fade-in. *Delay=xxx.x* is the time between the GO-command and the start of the fade-in. In the example A12 fades in 15,5 sec. after the GO command. The fade-in A12 takes 12,5 sec. Use [select menu item] and [change item] to select the desired scene and to adjust both the times. To set fade time coarse you use the fader [MASTER/channel level]. Make sure the fader is active: press [set fader active] led <fader active> burns. You can use the scroll buttons to set fade times fine.

[Fade-out]

```
A12_:t_OUT=003,0
delay=002,0 sec.
```

Fade-out times

The fade-out times are the same as the fade-in times as long as you haven't set up this separately. *OUT=xxx.x* is the time of the fade-out, this is the time the previous scene disappears. *Delay=xxx.x* is the time between the GO-command and the start of the fade-out. Use [select menu item] and [change item] to select the desired scene and to adjust both the times. You can also use the [MASTER/level control] to set the time coarse. Push on [set fader active] to activate the fader.

[Sequence]

```
A32: autofollow=y
LinkedScene=A21
```

Sequence of playing

Sequence menu 1: push once at [sequence]

The scenes are automatically played back in the order they have been recorded. Hereto the memory has created a scene-list. *Bgn* and *End* refers to the beginning and the end of this list.

Autofollow=Y: means that the fade of the selected scene, in this case *A32*, automatically follows the previous scene. To create a loop (=chase) you have to put on *autofollow* (=Y) for each scene in the loop. To set 'Y ' you simple press [YES] and to set 'N' you press [NO] You do not have to move the cursor first.

LinkedScene=A21: at the same time the fade to scene *A32* starts, the fade to *A21* starts, too (in its own fade-times). This linked fade can have a link too. It is possible to link to a 'dept' of 5. With [DELETE] you can remove an existing link: the display changes in *LinkedScene=....*

```
SHIFTscene B22
select next:A23
```

Sequence menu 2: push twice at [sequence]

With *SHIFTscene* you can change the place of the scene in the scene-list. Scene *B22* is moved according to the scene chosen at *select next*. In this case the next scene is *A23*, so the sequence will be first *B22* and then *A23*.

To insert a new scene you have just created: Make a new scene and record it with a name, for example *B22*. This scene will be placed at the end of the list. Go to the menu *SHIFTscene B22* (push twice on [sequence]) and select the desired next scene, in this case *select next: A23*. Now you are ready and *B22* is inserted before *A23*. You can leave this menu by pressing any other button.

[Loop]

```
D32:jump to D01
loop count=inf
```

To set of loops or jumps

You can interrupt the automatic play back sequence, that is determined in the scene-list. You use the scene attribute *jump to* or *back to*. For each selected scene you can determine which scene is next. With *loop count* you can define the number of times the jump occurs. *inf.* refers to infinite. In this case after *D32,* follows *D01* and this happensevery time *D32* is faded out (*loop count* is set to *inf*). When you want to create an automatic loop (repeated sequence) it is also necessary to put *autofollow* on *Y* for each scene in the loop. See for more information above: under sequence.

[assign] fade-control by:

In general:

- The menus below are only visible if you have already recorded scenes in the memory.
- Press once [assign] gives menu 1, press twice [assign] gives menu 2, etc.
- To get menu a or b depends on the setting you have made under SEUP
- **In all menus you can use [DELETE] to undo a setting**.

```
Autofade in at
POWERon : B21
```

1. Power on

In case you want to start a automatic fade-sequence or a fade-in of a particular scene by power-on you have to set the right scene-name in this assign menu.

```
Clock-Qxx: Xxx at
hh:mm 'DayOfWeek'
```

2.a Clock, time/day

To get this menu you must set *Clock Control* in *time-day mode* under SETUP (page 11). *Clock-Qxx* is: moment numbered *xx* (xx= 1,..,14) *Xxx* is: the scene you chose. *hh:mm 'DayOfWeek'* is: the time you can set. *hh*=hours *mm*=minutes and *'DayOfWeek'* you can select all days of the week or 'daily'. Example: *Xxx = B12, hh:mm'DayOfWeek'* is *09:26* Monday. This means each monday at 9:26 scene B12 starts to fade in.

```
Clock-Q004:B12 at
13:21 13-12-03
```

2.b Clock, time/date

To get this menu you must set *Clock Control:* in *time-date mode* under SETUP (page 11).The same as above but now you can set a absolute time. In the example scene B12 starts to fade in at 13:21 on 13-12-2003.

```
PRESET button XX
fades in Xxx
```

3.a Remote Preset controller

To get this menu you must set *Remote Control= PRESET selector* under SETUP (page 11). You select the button number (*button XX=1,...28*) and the scene you want to fade in (*fades in Xxx*). It is possible to connect several remote preset controllers to the Toddler.

```
MIDI data   XX
fades in Xxx
```

3.b MIDI

To get this menu you must set *Remote Control= MIDI* under SETUP (page 11). Select on the first line the value of the data byte (0,..,99) of a MIDI message 'program change' and on the second line the scene you want to fade in. See for a detailed description of MIDI and the Toddler the appendix.

```
SMPTE-Qxx:Xxx at
hh:mm:ss:ff
```

SMPTE (optional)

To get this menu you must set *SMPTE control=on* under SETUP (page 11) SMPTE-*Qxx xx*=99 to give the (video/sound) fragments numbers, (to make a cue-list) *Xxx* is the name of the scene. *hh:mm:ss:ff* is the time code (the cue) for the fade-in of scene *Xxx. hh*=hour, *mm*=minutes, *ss*=seconds, *ff*=frame number (0,...30). For example: Xxx=D17 en *hh:mm:ss:ff*=00:26:56:16 means scene D17 starts to fade in at the moment the time code 00:26:56:16 comes in.. See for a detailed description of SMPTE and the Toddler the appendix.

Toddler SETUP

[SETUP]

```
Ch001_patched to
DMXch017      :n
```

Softpatch

The steering information for the dimmers appears on the DMX-output. The DMX signal consist for the Toddler of 512 information bytes (DMX channels). This display gives you the opportunity to patch a Toddler channel to a DMX channel. The default patch is Toddler *Ch00x patched to DMXch00x*, with x= 1 up to the amount of channels. Use [YES] to set a selected patch and [NO] to undo an existing patch. If you scroll the channelnumbers (of the Toddler): *Ch00x,* it gives you automatically the patched DMXchannel at the display: *DMXch00x.* If there is a channel with no patch to a DMXchannel the scrolling stops automatically. If there exist more then one patch, the patched DMXchannels are displayed in a chase. If you scroll the item *DMXch* the scrolling stops automatically at an existing patch of the selected Toddler channel.

[SETUP]

```
PATCHshift=0230_
Reset PATCH ?
```

This menu gives you the opportunity to shift the whole patch patron. In the example you shift the patch patron with 230; for example in case of a default patch, the steering information of Toddler channel 1 will appear at DMX channel 231, channel 2 will appear at DMX channel 232 etc.
When you select *Reset PATCH ?* and push [YES] you always get the default patch situation again: which means *ch00x patched to DMXch00x* and no PATCHshift.

[SETUP]

```
control curve
Ch001_: Linear
```

Control Curve

The Toddler has for each channel five different corrections to adjust fade behaviour. This gives you the opportunity to improve the dimming behaviour for different type of lamps. Options are: *Linear* = no correction, *40W* =low voltage glow-lamp, *600W* and *1kW.* There is also the possibility to select *NONdim.* NONdim gives a steering behaviour like a switch: on / off.

[SETUP]

```
NONdim ON:50%_
all Ch.:Linear?
```

NONdim ON: xx% gives the opportunity to determine the switch moment in the fade, for all channels with a nondim setting. Default setting is *50%.* This means as 50% of the fade is done, all those channels with a nondim setting go from zero to 100%. With *all Ch.:Linear?* you can give all channels the same correction (dimming behaviour) at once: select the wished correction and push [YES].

[SETUP]

```
DMXin:MERGEmode_
DMX-rate: slow
```

DMXin/out modi

'MERGEmode': with this selection for DMXin the incoming DMX-signal of an other device will be merged with the steering signal of the Toddler, according to the principal the highest takes precedence.

```
DMXin:SCENEmode_
DMX-rate: slow
```

'SCENEmode': with this setting the DMXin signal is like a scene which can be selected for *live* or *next* under CHANNEL CONTROL or PLAY mode. In the PLAY mode you can fade in or out DMXin, like a scene. When the Toddler is used as a back-up for another steering table, this setting should be selected. *DMX-rate: slow/high.* Line two gives the opportunity to select the data-rate of DMX-out; *slow*=35[1/s] and *high*=44[1/s]. This is important for DMX-steered devices that can not handle full speed DMX.

[SETUP]

```
PAIR  Ch234&235_
for 16bit fade:n
```

Softfade or 16 bits fade

The default minimal stepping size of a fade is 1/255 (=8 bits) of the total change in value. With this menu you can set a smaller stepping size for particular control channels by pairing them. *'PAIR CHxxx&xxx'*. Push to confirm [YES]. Two successive channels make a pair. Each pair builds up one 16 bit control channel: channel N is the highbyte and channel N+1 the lowbyte. This makes the minimal stepping size for a fade 1/65535 (16 bits)

of the total change in value. The real stepping size of the corresponding byte values in the DMX signal depends on the DMX-rate and the fade time. Channel pairing is only useful if the DMX steered devices can handle this. For example in case of moving lights; channel pairing gives the opportunity of a 16 bits positioning. With [NO] you can undo a previous pairing.

[SETUP]

```
Clock Control:
time-day mode
```

Clock Control

You can set whether the internal clock must start a fade in .Possible settings are:
* *Off* (no clock control)
* *CLOCK, time/day*: for example always at 17.15 on Tuesday.
* *CLOCK, time/date*: absolute time, for example 20.43 on 9-9-99.

Note 1: See also page 9 under [assign]. Note 2: 03-07-00 is 3 July 2000.

[SETUP]

```
Remote Control=
MIDI, Channel04
```

Remote Control

In this menu you can select a possible remote control.
Possible settings are:
* *Off* (no remote control)
* *PRESET selector* (= remote preset control see page 9)
* *MIDI, channelXx*

The example setting: you have enabled MIDI control and the MIDIchannel number of the Toddler is 4. More about MIDI in relation with the Toddler see page 12.
Note 1: See also page 9 under [assign].
Note 2: An external GO-button is not a remote control in this context.

[SETUP]

```
Adjust: Friday
13:48 13-12-98
```

Adjust clock

With this display you can adjust the built-in clock.

[SETUP]

```
CREATE: memory
backup 1 ?
```

Memory Backup

It is possible to make 4 different copies (backups) of the whole set up and all scene-records (only if a flash ROM has been placed in the provided socket). These copies are stored in a not volatile memory and are numbered 1 up to and including 4. Select with the buttons [change item] the desired number and confirm this choice by pushing [YES]. During 5[s] the word *'busy'* appears than the word *'done'* lights up. In case the word *'failed'* appears you must make a new attempt. If this repeats itself, a part of the memory is no longer useful. Then you must chose another backup number, whereby an other part of the memory is used. Once a backup has been made it is possible to transfer it to another Toddler. Hereto you must take the backup memory from the socket (U12) and transfer it to another Toddler. See beneath for restoring the memory.

[SETUP]

```
RESTORE memory
from backup 1?
```

Memory Restore

You can put a backup earlier made in the working memory of the Toddler. Select with the button [change item] the desired backup-number and confirm this choice by pushing [YES]. Than a warning appears. You must press [YES] again, than you have replaced the actual memory-contents by the contents of the selected backup. After this the Toddler restarts.

For more information about the Toddler (software up-dates, applications) visit our website: www.theater-technisch-lab.nl

Appendix: The Toddler versus MIDI

The Toddler can be a slave in a MIDI configuration. The Toddler reacts only on MIDI channel messages of type 'program change'. You can use MIDI to remotely command the Toddler to start a particular fade-in of a previously recorded scene.

More about MIDI-connection

A MIDI-connection is a digital serial electronic connection, type current loop.
Explanation:
- '..... serial electronic....': a two wired connection across which digital data is send bit by bit.
- 'digital....current loop': the messages exist of current pulses.

Connecting MIDI to Toddler

The Toddler can only **accept** MIDI messages. For that purpose the Toddler has a MIDI **input** on the right side. The connector used is a 5-pin DIN (180 degree) male. Pin4=MIDI+, pin5=MIDI-. Note that pins 1, 2 and 3 are not used and should be left unconnected. Only in case a twisted pair cable is used, pin 2 should be used to connect the shielding of the twisted pair cable. The maximum length of the MIDI cable is 6 meters.

More about MIDI-messages

In a system where several devices are connected with each other by means of a MIDI-connection, one of the devices is the MASTER. This MASTER controls the others (SLAVES) by means of messages, which imply several commands. In general not every message is meant for all connected slaves; there are SLAVE specific messages.
Each SLAVE has a number between 1 up to 16 and SLAVE specific messages involves also a number between 1 up to 16. This number is called CHANNEL number and in this sense a SLAVE is called a CHANNEL. So it must be possible to define for a SLAVE a channel number. A slave selective message is called 'CHANNEL MESSAGE'; this kind of messages involves always a channelnumber.

Channel message of type: Program change

There are several types of channel messages. The Toddler (from Toddler2 software version 3.2) acts only on type PROGRAM CHANGE. This message exist of two bytes.
The **first byte**, STATUS BYTE, specifies the message type and the channel number; the value is Cn[hex], n=channelnumber (1,...16).
The **second byte** is called the DATA BYTE; bit-7 is always zero, byte value=0,...,127.

Running status

The MIDI-handler of the Toddler knows 'RUNNING STATUS'. This means: when a status byte is received and processed, the MIDI-handler remains in that status until a different status byte is received. This means that during the time the status is not changed, one only have to send data bytes in the succeeding messages. Further, the Toddler recognises SYSTEM REAL-TIME messages, in that way that RUNNING STATUS remains maintained.
The relation table below is applicable in case of the Toddler.

MIDImessage = status byte	+ data byte	--> start fade-in scene
Cn[h]	0	Xxx
Cn[h]	1	Xxx
Cn[h]	2	Xxx
,	,	Xxx
,	,	Xxx
Cn[h]	99	Xxx

'n' is the under 'SET-UP' chosen MIDI-channelnumber. [h] means hexadecimal.

To set the Toddler for MIDI-control

- To define a channelnumber to Toddler: set under [SET-UP] for *Remote control=* the option *MIDI*. Select in the same menu a channel number. (see page 10 in manuel Toddler)
- Record the desired scenes.
- Define under [assign] the relation between the second byte of the MIDI-message and the scene that must be fade-in. (see page 9 in manual Toddler)

An example

For example: the Toddler is set on "MIDIchannel=4" and "MIDI data= 14 fades in A03". At the moment the MASTER sends the bytes "0C4[h]" and "0E[h]" (E[h]=14 decimal), the Toddler reacts by cancelling the going fade and fading in scene A03.

Appendix 2: Toddler and SMPTE

What is SMPTE

SMPTE time code is an option on some recorders, like video recorders, CD recorders, tape recorders. It offers you the opportunity to locate the exact position of each recorded fragment. A fragment can be an video fragment or a sound fragment. The position is marked by a digital code that has a hour, minutes, seconds and frame indication. A frame is a part of a second, often 1/24 part on a audiotape and 1/30 on a videotape. The audio recorder with SMPTE records the SMPTE time code on a separate track. A video recorder records the SMPTE time code together with each video fragment. When you play back the recorded information the SMPTE time code signal is offered to a separate outlet. There are different types of SMPTE signals. The most used is the longitudinal time code; LTC.

Toddler and SMPTE

You can use SMPTE to control one device by another. A video recorder can control the Toddler. You can realise to fade in a certain scene at the moment a certain video fragment is played back. The Toddler needs an extra IC, that can transfer the SMPTE time code signal into a standard digital format. Besides that the Toddler must have extra software routine to accomplish an assignment between the SMPTE time code and the scene that you want to fade in. The software versions with the letter S in the end are able to work with SMPTE time code.

The SMPTE connection to the Toddler

The SMPTE input at the Toddler uses the same connector as the RS232 gate. It is the 9-poles Sub-D connector. The Toddler has a symmetric SMPTE input. The pin connection is pin4=LTCin-, pin9=LTCin+ and pin5=common. Vsymm. must be minimal 0,1[V] and can be maximal 5[V].
In case the incoming signal is asymmetric you must connect pin4 with pin5in the connector of the connecting cable. In that case the SMPTE connection exists of a shielded audio cable with a single core of which the cable screen is connected with pin4&5 and the core is connected with pin9.

To set the Toddler for SMPTE control

- set SMPTE control=on in the SETUP menu (page 11 manual Toddler)
- record the desired scenes
- under [assign] you make the relation between the SMPTE time code and the scene that must be faded-in. (see SCENE ATTRIBUTES page 9 in manual Toddler)

SMPTE assign menu

```
SMPTE-Qxx: Xxx at
hh: mm: ss: ff
```

SMPTE-*Qxx* *xx*=99 numbers for the (video/sound) fragments, (to make a cue-list) *Xxx* is the name of the scene. *hh:mm:ss:ff* is the time code (the cue) for the fade-in of scene *Xxx*. *hh*=hour, *mm*=minutes, *ss*=seconds, *ff*=frame number (0,...30). For example: Xxx=D17 en *hh:mm:ss:ff*=00:26:56:16 means scene D17 starts to fade in at the moment the time code 00:26:56:16 comes in..

Two methods
1. You start to make a cue list of your video/sound fragments. You write down the SMPTE time codes corresponding your cues. You create the scenes for your cue list. Now you go to the SMPTE assign menu on the Toddler. To select your cues, scenes and SMPTE time code you use the scroll buttons [change item] and to jump with the cursor you use [change menu item]
2. You have made a cue-list of your video/sound fragments. You have already made scenes to go with your video/sound fragments. You turn on the Toddler, that is connected with your video/tape recorder. You are in the SMPTE assign menu. You fill in the number of your first cue. You put the cursor at Xxx; the display says Xxx=...You play back your video/audio tape. At the moment you see or hear your first cue you start selecting the corresponding scene. At the moment you press the scroll button [change item] the Toddler records the incoming SMPTE time code. Now you have made the assignment by the catching method.

Examples of Toddler-SMPTE applications

- Toddler and DMX switchbox (power-DAC8) and video/tape recorder and remote preset controller.
  You can start a specific program on the Toddler with the remote preset controller. Part of this special program is the switching on of the video/tape recorder by the power-DAC8). The recorder controls the Toddler by SMPTE. With the last SMPTE command the Toddler returns control. You can always interrupt this sequence with the remote preset controller and switch to another part of the program.

- Toddler and DMX switchbox (power-DAC8) and video/tape recorder and internal time clock.
  The real time clock on the Toddler gives you extra opportunities. Instead of using a remote preset controller, you can set the internal time clock to determine the take off of a specific program on the Toddler. You can use both the internal time clock as well as the remote preset controller to select a part of the Toddler's program.