

MEMO_MINUTES

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Effects in grandMA2

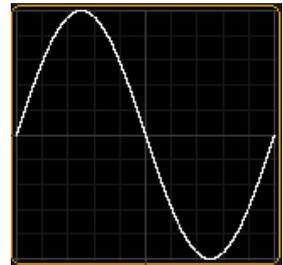
On the following pages we are going to explore what can be done with effects. We will go through steps that introduce you to the most common effect functions.

Effect Theory

But before doing a lot of programming, we need to have a look at the theory behind the effects. Effects run in an cycle. The 'Form' dictates how an attribute moves from 'Low Value' to 'High Value'.

A form could be a sine curve.

The bottom part of the form is 'Low Value'. The top part is 'High Value'. That clearly displays the transition between the two values. In cues and in the programmer, the speed of the effect is controlled by the 'Rate'. The 'Rate' follows the speed readout, defined in the user profile.



An effect in the effect pool has a default speed and a 'Rate' per line, which is a multiplier for the speed. An effect with a speed of 60 BPM and a Rate 1 in the effectline uses 1 second to complete the cycle of this effectline. If the speed is set to 30 BMP, it uses 2 seconds to complete the cycle. An effect with a speed of 60 BMP and a Rate 2 in the effectline uses 0.5 seconds to complete the cycle of this effectline.

If you need to spread out a group of fixtures to begin different places in the cycle you need to use 'Phase'. Phase is described as a number between 0 and 360. Think of it as a circle, and the numbers as a number of degrees on that circle.

What you normally do is create a line in the effect. This line refers to a single attribute (could be 'Dimmer', 'Pan', 'CM1', etc.). Then you define the form that should be used. Define the rate and the 'Low Value' and 'High Value'.

And this is basically what you need for an effect.

Then you can make your effects more interesting by adding different values in the phase.

Some forms can also use parameters like 'Width', 'Attack' and 'Decay'.

'Width' controls how much the form should occupy the cycle. A 'Width' of 100% makes the form take up all the cycle. If the 'Width' is only 50% then the form only occupies the first half of the cycle.

'Attack' And 'Decay' is used to "fade" values in forms that doesn't normally fade (Random, PWM (Pulse Width Modulator) and Chase).

We separated effect values and values – What does it mean?

Until version 2.3 storing effect values always stored a value together with the effect value.

With the software version 2.3 we divorced values and effect values. Values and effect values are activated separately and can be stored to different cues. When using the store filter you are able to even store values, timings or effects only while the other would stay active in the programmer.

The following comparison between values and effect values shows you the typical things you can do with values, and the corresponding for effect values.

Values

- can be stored in the referring Preset Pool
- can be directly set in the programmer
- can be set by using a preset and will be updated in the cues, if the preset has been changed
- are using the cue timing
- individual fade overwrites cue fade
- individual delay overwrites cue delay
- can be stored, edited and updated in cues
- are tracking through the cuelist until they are set to another value or released
- can be edited in the tracking sheet

Effect Values

- can be stored in the Effect Pool
- can be set directly in the programmer or set by an effect template
- can be set by using a selective effect and will be updated in cues, if the selective effect has been changed
- are using the cue timing
- individual effect fade overwrites cue fade
- individual effect delay overwrites cue delay
- can be stored, edited and updated in cues
- are tracking through the cuelist until they are set to another effect value, stomped or released
- can be edited in the tracking sheet

Difference between Effect Playbacks (effects with assigned executors) and effects in programmer and cues

Effects running as pool playbacks or directly assigned to executors will not be stomped by a cue.

Absolute effects will execute OffOnOverwritten for sequences, if possible, but sequences will not execute OffOnOverwritten for effects. Effect playbacks can only be stopped by switching them off.

Comparison between gMA1 and gMA2 effects

Terminology: Difference between effects and modulators

The grandMA series 1 had effects and modulators; effects were only running in the effect pool. When using effects in a sequence, there was only a link to the effect stored in the cue. If the effect was topped, it created modulator values in the programmer, which could be stored in cues, followed the tracking of the cuelist, and could be modified per channel. modulator values could also be adjusted directly in the programmer and stored in cues afterwards, but modulators could not be stored in any pool.

The grandMA2 effects are more related to the grandMA series 1 modulators than to the grandMA series 1 effects. grandMA2 effects can be built or modified in the programmer and stored in the effect pool or directly into a cue. Alternatively effects can be built in the effect pool using the effect editor.

The short overview below should give you a brief overview of the different types of grandMA series 1 effects and their grandMA2 reference.

grandMA series 1	grandMA2
<p>"red" effects</p> 	<p>These effects are called Effect Templates in grandMA2</p>
<p>red" effects running in the pool</p>	<p>Effect Template values are brought into programmer and can be modified in the programmer or live edited with the effect editor</p>
<p>"orange" effects</p> 	<p>These are not needed any more, as the effect values of the effect templates are stored into the cues and can be edited directly in the tracking sheet or by editing the cue or using the update function.</p>
<p>"pink" effects</p> 	<p>Selective Effects</p>
<p>"pink" effects running out of the pool</p> 	<p>"Pool Playbacks" offer you this functionality. Selective effects can be started in the pool by hitting the go hardkey and the effect pool icon afterwards. For faster access an effect pool view can be switched to pool playback and direct action mode. In this mode every pool button press will execute a "GO" at this effect.</p>  
<p>"pink" effects assigned to executor</p>	<p>Selective effects can still be assigned directly to executors and work the same way as they do in grandMA series 1.</p>
<p>Effects with base value</p>	<p>These effects are called absolute effects in grandMA2</p>
<p>Effect without base value</p>	<p>These effects are called relative effects in grandMA2</p>

How to create an effect in grandMA2

There are two ways to create an effect

Predefined effects can be found at

Setup/Show/Import Export/Import/Effects and can be imported into the effect pool by opening the file "predefined.xml")

Creating an effect in the effect pool:

Select Fixtures / Channels, press the "Edit" button in the effect pool to open the Effect Editor.

"Add" will open the „select Effect attribute" menu. To get attribute combinations (e.g. Pan + Tilt) this must be done multiple times. Now the effect can be started via selection in the effect pool.

All following entries in the Effect Editor will be directly executed on the fixtures currently selected.

To adjust the details of these explained functions the encoder in the "Edit Effect Encoderbar" will open the corresponding option menus by pushing it.

In the row "QTY", the amount of selected fixtures is displayed.

Note:

- If the amount is >0 this effect is a "Selective Effect"
- If it is 0 this effect is a temporary effect (Effect Template).

Selective effects are working similar to presets. When storing these effects in cues, only the link (effect pool number / effect ID) will be stored in a cue. This means that afterwards changing the effect will directly have impact to the corresponding cues - (...as they are only calling this effect from the pool).

When storing Effect Templates all effect values for each parameter are stored in the cue. This means afterward changing parameter of this effect does have NO impact on the behavior in the cue.

In the row "Interleave", a subset of the selection can be chosen, e.g. „1 of 3".

In the row "Attribute", the attribute can be changed

In the row "Mode", there can be chosen how the effect will be executed:

- "Abs" (absolute) means, that the attribute values which are active before starting the effect will be ignored and overwritten with the values stored in this effect.
- "Rel" (relative) means that the attribute values which are active before starting the effect will be used as base value .

Note 1:

Because of the fact that the effect values are added to the base value, it normally makes sense to have an effect value range from negative to positive e.g.. -30° to +30°.

Note 2:

The default whether an effect is "relative" or "absolute" can be set here:
Setup/User/Defaults/Effect Defaults.

In the row "Form", all forms of the form pool are displayed (when editing)

When a multidimensional form has been chosen, a popup to select the sub form will come up. If more than one effect lines are selected simultaneously, the subform order is done automatically equivalent to the effect line selection .

In the row "Rate", it can be entered how fast the effect shall run .if e.g. the rate=2, the effect runs as twice as fast as the rate=1.

In the row "Dir", the direction in which the effect will be executed can be chosen.

In combination with "bounce", the effect will be executed forward and backward , starting with the selected direction.

In the rows "Center" and "Size" the base Value and the size can be entered.

With the button in the lower right side "Val. Readout" the entry in this columns can be changed from "Low Value" and "High Value". Now the start and end value can be entered.

This setting will stay for all effects menus

When editing an absolute effect you can also see the available presets in these columns.

In this way it is possible to create very fast e.g. a pan/tilt effect between different stage positions.

Note:

For an effect without selected fixtures (Template Effect) only global and universal presets are displayed.

In the row "Phase", the starting time of all fixtures in an effect row can be entered.

- Is this "0°", all fixtures are executing this effect in parallel
- Is this "0.0 thru 360.0", the starting time will be divided through the number of fixtures.
The effect will be executed one after the other
- Is this "0.0 thru -360.0", the effect will be started reverse.
-

Note:

This is necessary, as a sinus function, for example, will be executed mathematically correct from left to right per fixture. Nevertheless the resulting pattern on stage will look like a moving pattern from right to left, if the Phase is set to "0 thru 360". Changing the phase to "0 thru -360" will change the pattern direction to from left to right. (Same as grandMA series 1)

In the row "Width", it can be adjusted how long the high value „high Value" is active.
(e.g. for the form PWM (Pulse Width Modulation))

In the rows "Attack" and "Decay", a "in fade time" and a "out fade time" for a form can be put in. These rows are only available for the forms "Random", "PWM", and Chase.

In the row "Rate Group", a rate master can be assigned to the effect line.
Then the speed of single effect lines can be influenced afterwards.

In the row "Groups", there can be configured how the selected fixtures work together with the phase subdivision "0 thru360" or "0 thru -360" .

Is the entry "None", the phase will be divided by the number of fixtures, otherwise by the number of groups

In the row "Blocks", there can be configured how much of the side by side selected fixtures run with the same effect.

In the row "Wings" can be defined how many of the selected fixtures – in the opposite selection order – execute the effect with the same phase

"Delete" deletes the selected effect lines

"Take Selection" enters the current selected effects in the selected effect lines

If no fixture is selected the effect application changes basically

The effect turns into a Template Effect (similar to the red effects in grandMA series 1)

Note:

If a 0 is entered in the row "QTY" the marker in the effect pool changes from "S" (selective) to "T" (template)

"Show Selection" selects the fixtures attached to the effect

"Default speed" adjusts a basic speed which is multiplied with the rate factor of each effect line and is used when the effects is taken into the programmer or directly attached to an executor

A speed master can be entered as well.

Note:

The representation of the effect speed (Hz, BPM or Sec) can be defined here:
Setup/User/Settings/Speed Mode.

"Kill individuals" kills all in the selected effect line stored individual effect values.

You get individual values when you afterwards store own effect values for single fixtures in an effect. These cells have a pink background.

"Edit Effect Line" opens a graphical effect line Editor.

On the right side single effect lines can be chosen or combined to work on the effect lines.

"Align" switches the input of the entries of "Low", "High" and "Width".

Only one value, from – to Values, or the selection of presets..

(selective presets are only display with absolute effects)

Note 1:

Is e.g. the "Low Value" set to a fan (Align), the values will only be spread on the low value of the selected fixtures

Note 2:

All buttons in the bottom area of the „ graphical effect line editor" will only be executed for the selected effect lines.

Create an effect in the programmer:

When effects are created via the encoderbar (as described below), all entries are taken as active effect value (storable) directly into the programmer and at the same time given out on stage.

These values can directly be stored in a cue or in the effect pool for further use.

Open a fixture/channel sheet and select some devices.

Select the preset type in the encoderbar and press "Effect layer 1 of 3" (to select the effect form)

For the following example we will take the preset type "Color" with the Feature "Color mix".

With the button between "Color mix" and "Value layer" can be adjusted whether the encoders are only active for one attribute (single link) or for all 3 Colors simultaneously (Link Feature)
(for this example we take "Link Feature")

Select an effect form with the encoder and the effect start immediately

Pressing the encoder (or the button above the encoder) will open an option menu (calculator) to select a form.

Note 1:

Is "Auto" selected in the fixture view, the display follows automatically the selected function the encoder bar.

Note 2:

Whether the effects is started "relative" or "absolute" is defined per default in "Setup/ User/Defaults/Effect Defaults".

This is displayed in the fixture view of the effect form with an "R" (relative) or an "A" (absolute) in front of the effect form

By pressing "Rate" this function will be put onto the encoder.

Note:

"Rate" changes the factor multiplied with base speed.

The speed is fixed to 1 Sec / 60 BPM / 1 Hz and cannot be changed.

Units can be changed in the user profile: "Setup/User/Settings/Speed Mode".

When selecting "Low" or "High" values between the effect will be executed can be entered via the encoder

Note:

When the encoder have the function "Low" or "High" presets from the preset pools can be used directly

Pressing "Effect Layer 2 of 3" switches to the 2nd assignment of the encoderbar.

The starting time of all fixtures in an effect can be adjusted with "Phase".

Pressing the encoder (or the button above the encoder) will open an option menu (calculator) to select fanning functions:

- Choosing "0 thru 360" the start time will be divided by the number of fixtures – that means the effects will be executed on after the other
- Choosing "0 thru 360" the effect starts reverse

Note:

This is necessary, as a sinus function, for example, will be executed mathematically correct from left to right per fixture. Nevertheless the resulting pattern on stage will look like a moving pattern from right to left, if the Phase is set to "0 thru 360". Changing the phase to "0 thru -360" will change the pattern direction to from left to right. (Same as grandMA Series 1)

„Width" e.g. with the form PWM (pulse width modulation) defines how long the "high Value" is active.

"Fade" or "Delay" takes individual effect fadetimes (fade-in times) or individual effect delay times active into the programmer.

Note:

These values are only stored in cues – not in the effect pool.

If no individual effect times are stored in the cue, the cue timings are used instead.

If no individual effect times are stored in the cue, but individual times for values, the effect parameter will take these values.

Pressing "Effect Layer 3 of 3" switches to the 3rd assignment of the encoderbar.

"Attack" or "Decay" can be used to adjust a "in-fade time" or an "out-fade time" for a form.

These columns are only available for random,PWM and chase.

„ID" is used to changeover the fixture sheet to see from which effect pool an effect has been started.



If an effect layer is selected you will see in the encoder bar the button "Special Dialog".

When opening this dialogue you can see most adjustment in a graphical form.

In addition with "Sync Effects" all in the programmer active effects are started in sync (this can be done with the combination „MA" + „Effect" as well).

With "Absolute" / "Relative" the mode of the effect forms can be changed.