



MATricks and Shuffle

MATricks is a tool that can be used to divide a selection of fixtures into sub-selections.

The general workflow is that a selection of fixtures is selected, then different MATricks settings are applied to select fixtures inside the primary selection.

For example, ten fixtures are selected, and you want to step through these ten fixtures one at a time to do a position correction. MATricks is the tool used to do this.

The selection can be shuffled using a set of shuffle tools. Read more [below](#).

MATricks Tools

One of the ways to work with MATricks is the MATricks toolbar or window.

The MATricks window is separated into 3 sections. One for each axis. The X-axis section has a red background, the Y-axis section has a blue background, and the Z-axis section has a green background.

Tap **X**, **Y**, or **Z** in the toolbar on the left side to display or hide the corresponding axis.

Each axis section has its properties that are grouped.

Here are the groups and their properties:

- **Grid:** Axis (X, Y, Z), Block, Group, Wings, and Width.
- **Layers:** Fade From/To, Delay From/To, Speed From/To, and Phase From/To.
- **Shuffle:** Shuffle and Shift.

Tap **Grid**, **Layers**, or **Shuffle** to display or hide the corresponding group in the title bar.



MATricks tools in a window

The above is the MATricks tools available in a window that can be created like any other window.



An overlay version of the window can be opened by tapping **MAtricks** in the standard **Encoder bar**.

The two versions have the same buttons and options. Read the next topics for details about the different options.

Dimensions and Selection Grid

The MAtricks toolbar shows a lot of settings that can be applied to X, Y, and Z. These are the three dimensions used by the **Selection Grid**.

If the fixtures are in a 3-dimensional grid selection, then the MAtricks tool can be used in all three dimensions.

MAtricks Pool

The different settings that can be made in the MAtricks tool can be stored in the **MAtricks Pool**.

This pool can be created like any other window. You can find it under the **Data Pools** tab.



MAtricks pool with some store MAtricks

This pool works just like most pools in the grandMA3. The two most used functions are storing the MAtricks settings and recalling them.

Store a New Pool Object

This is the process for storing a MAtricks pool object.

The easiest way to do this is by long-pressing an empty pool object. This stores the current MAtricks settings (even if no settings are stored).

The general syntax uses the **Store keyword** and the **MAtricks keyword**: **Store MAtricks [MAtricks_Number]**

Simple Example

This simple example uses ten fixtures.

Select the ten fixtures without any specific grid information. Press **Full** to turn the intensity on.

This is how it looks in the **Selection Grid** and the **MAtricks** window:



Ten fixtures without any MAtricks settings

These ten fixtures are now in one row on the X-axis.

Press **Next**. This is the same as tapping the **+** in the X setting.



Hint:

It is also possible to tap, hold, and slide your finger across any value area to change it.

This is the result:



Ten fixtures with X 0

Notice that the MATricks is active - the **Active** button in the title bar is On. This can be used to toggle the MATricks tool On or Off without resetting the MATricks settings.

The selection frame around the first fixture is the usual yellow color. The rest have a darker yellow selection color. This indicates that they are part of the bigger selection.

Try pressing **Next** to step through the selection. Pressing **Prev** (previous) goes through the selection in the opposite direction.

Notice how the X number in the MATricks tool updates with the key presses. There is no difference between using the **-** and **+** buttons in the X-axis in the MATricks tool or the keys.

A specific X number can be reached using the command line. For instance, if X needs to be 6, then the following command can be used:

```
MA User name[Fixture]>Set Selection MATricks 'X' 6
```

When you are comfortable with **Next** and **Prev**, then press **Set**.

When **Set** is pressed, the MATricks toggles between active and inactive.

Multiple Selection

Each user profile has two different fixture selections called selection 1 and selection 2.

Tap and hold **ActiveSel** at the button off the MATricks tool; this opens the dropdown menu, and select selection 1 or 2.



The selection can also be changed using the **Selection keyword**.

For example, the command needed to change to selection 2 is:

```
MA User name[Fixture]> Select Selection 2
```

A selection of fixtures can be copied from one to the other by tapping **Copy Sel**. It copies the currently active selection to the other.

Values can be cloned from one selection to another by tapping **Copy Values**. This applies the values from the currently active selections to the other selection.

A **ClearAll** command clears both selections. **ClearSelection** only clears the active selection.

Shuffle Selection

The **Shuffle keyword** allows shuffling the selection order in a random sort.

By default, Shuffle will randomize the selection order on all 3 axes in the **Selection Grid**.

Each shuffle setting per axis can be set to 0 (=None) up to 32 767. Each value represents a different shuffled selection order. When selecting the same amount of fixtures repeatedly, the same shuffle value will result in the same shuffled selection order. This can be useful when a specific nice shuffled selection order is desired for the same number of fixtures. In this case, apply the same shuffle value in the MATricks when having the same number of fixtures selected. The fixtures are then shuffled the same way.

Tapping **Shuffle** in the MATricks tool shuffles all three axes in the Selection Grid by adding a random number in XShuffle, YShuffle, and ZShuffle.

To shuffle on a single axis, enter a shuffle value for the desired axis in the MATricks tool or tap the **+** or **-** in the axis until there is a wanted shuffle result.

On the right side of the MATricks tool, there is a Shuffle Mode with three available modes:

- **Auto:**
When doing shuffle only for one dimension, this behaves like **Linked**. Shuffling on two or three axes behaves like **Unlinked**.
- **Linked:**
All fixtures placed on the same position along the axis that will be shuffled but have a different position on the other axis will keep their alignment along the other axis.
- **Unlinked:**
The fixtures placed on axes other than the axis that will be shuffled but have the same position on the shuffled axis will be shuffled independently.

Tap **ShuffleMode** to switch between these three modes.



Hint:

When deactivating or resetting the MAtricks, the original selection order will be restored.

Since the shuffle is part of the MAtricks, they are also stored in a MAtricks pool object like any other MAtricks setting.

See shuffle examples in the [Shuffle topic](#).

Shift Selection

The shift setting in the MAtricks tool allows for shifting the current selection within the selection grid positions. This can be done per axis in the grid. Therefore, change the values for **XShift**, **YShift**, or **ZShift**.

Positive values shift to the right (x-axis), to the bottom (y-axis), and to the front (z-axis). According to this, negative values shift in the opposite direction.

Invert Options

Invert will define which axis in the selection grid the values should be inverted when turning the encoder or applying a range of values.

The inverted fixtures are displayed with a green font in the fixture sheet, a green body color in the 3D window, and a green border in the layout window and the selection grid window.

The following buttons can be found at the bottom left of the screen:

- **InvertStyle** : Defines if Invert shall be applied to Pan, Tilt, Pan and Tilt, or All attributes.
- **InvertX** : Inverts the overall invert of the current individual inverts per MAtrick property on the X axis.
- **InvertY** : Inverts the overall invert of the current individual inverts per MAtrick property on the Y axis.
- **InvertZ** : Inverts the overall invert of the current individual inverts per MAtrick property on the Z axis.

Grid properties can also be inverted by tapping .



Hint:

When using Align in combination with Invert, the alignment is still based on the arrangement of fixtures inside the selection grid; however, the aligned values will be inverted.



Restriction:

At the moment, Align only works with the X axis.