# Introduction

## Typical Usage

Controlling DMX via Mestra devices typically have the following use cases:

* During a song change (e.g. MIDI program change), the complete setup changes
* By controlling a remote device, either the complete setup or some DMX device change.
* By pressing/depressing keys (MIDI noteon/noteoff), one or few DMX device change.
* Some DMX devices will have a continuous color, some will change (e.g. fade/stroboscope).
* Scenes should be taken into account (multiple DMX devices with each having a pattern).

## Glossary

### DMX Universe

Each DMX universe can have 512 channels. Mestra will support max. 4 universes, thus 2,048 DMX channels. The first universe may be result in shorter instructions than the other three universes.

### DMX Device

A fixture is a set of continuous DMX channels (start DMX channel, end DMX channel) which together control one DMX device.

### DMX Channel

One control for a DMX device which can have a value from 0 to 255 and has a meaning specific for a DMX device, e.g. intensity of a certain color, color mode, strobe speed etc.

### Pattern

By default a DMX channel has one value. However, with a pattern, a dynamic change of this value can be defined. E.g. automatic fading from a value from 255 to 0 in 0.5 seconds.

### Scene

A scene is a set of DMX channels, each pointing to a pattern. Patterns can be reused (e.g. multiple different DMX channels pointing to the same pattern).

### Chase

A list of scenes which will be played continuously (and repeated).

## Pattern List

The following patterns are defined. Some patterns can have properties.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Name** | **Description** | **Property Name(s)** | **Property Description(s)** |
| 0 | Min | Minimum fixed value (0) | - | - |
| 1 | Max | Maximum fixed value (255) | - | - |
| 2 | Fixed | Fixed value | Value | Value |
| 5 | StroboMaxMin | Alternatively Min/Max | Time [s] |  |
| 6 | StroboMaxMinTimes | Alternatively Min/Max | Time Min \*, Time Max \* |  |
| 7 | StroboHighLowTimes | Alternatively High/Low | Min Value,  Time Min \*,  Max Value,  Time Max \* |  |
| 10 | MaxToMin | Timed from maximum (255) to minimum (0) value | Time \* | Time from maximum to minimum |
| 11 | MinToMax | Timed from minimum (0) to maximum (255) value | Time \* | Time from minimum to maximum |
| 12 | HighToLow | Timed from high to low value | Time \*,  High,  Low | Time from high to low,  high value,  low value |
| 13 | LowToHigh | As 12 but reversed | As above | As above |
| 20..23 | Triangle UpFirst | As 10 to 13 but going up and down, starting up. |  |  |
| 24..27 | Triangle DownFirst | As 20 to 23, but startin down. |  |  |
| 30-37 | Sinus | As triangle but sinus formed. |  |  |
| 40 | Random | Random values 0-255 | Time \* |  |

**Time**

Time should be exponentially, since small time differences are much more noticeable than higher value time differences.

|  |  |  |
| --- | --- | --- |
| **Value** | **Time [s]** | **Description** |
| 0 | 0 | (no change) |
| 1 | 0.001 |  |
| 2 | 0.002 |  |
| 3 | 0.005 |  |
| 4 | 0.010 |  |
| 5 | 0.02 |  |
| 6 | 0.05 |  |
| 7 | 0.1 |  |
| 8 | 0.2 |  |
| 9 | 0.3 |  |
| 10 | 0.4 |  |
| 11 | 0.5 |  |
| 12 | 0.6 |  |
| 13 | 0.7 |  |
| 14 | 0.8 |  |
| 15 | 0.9 |  |
| 16 | 1.0 |  |
| 17 | 1.5 |  |
| 18 | 2.0 |  |
| 19 | 2.5 |  |
| 20 | 3 |  |
| 21 | 3.5 |  |
| 22 | 4 |  |
| 23 | 4.5 |  |
| 24 | 5 |  |
| 25 | 6 |  |
| 26 | 7 |  |
| 27 | 8 |  |
| 28 | 9 |  |
| 29 | 10 |  |
| 30 | 12 |  |
| 31 | 15 |  |
| 32 | 20 |  |
| 33 | 25 |  |
| 34 | 30 |  |
| 35 | 40 |  |
| 36 | 50 |  |
| 37 |  |  |