# MOWL®
## DMX SPECIFICATIONS

# MOWL – DMX Specifications

MOWL supports controlling your studio lighting via DMX. The DMX feature is only available to licensed users.

## Setup:

MOWL sends DMX commands using ArtNet, which is simply a way to send DMX data over your local network or Wi-Fi. Because of this, you'll need an ArtNet receiver for your DMX setup.
Any ArtNet-compatible receiver will work.

## Getting Started:

The first time you run MOWL a dmx_setup.json will be automatically generated. The file is located here:

### Windows (depending on version)
%programData%\IntelligentCycling\Main\IntelligentCycling
%localAppData%\IntelligentCycling\Main\IntelligentCycling
%localAppData%\IntelligentCycling\Saved

### Mac (depending on version)
~/Library/Containers/IntelligentCycling/Data/Library/Application Support/
Epic/IntelligentCycling/Saved/
~/Library/Application Support/Epic/IntelligentCycling/Saved

Open this dmx_setup.json and adjust it as needed.

## Basic Settings:

| | |
|---|---|
| DMXEnabled | Enable or disable sending DMX commands |
| DestinationIP | Set this either to the IP Address of your ArtNet Node or to broadcast (255.255.255.255). If you use the broadcast address, the DMX commands will be sent to all members in the network, including your Artnet Node. |
| DestinationPort | Leave this at the standard of 6454 |
| SourcePort | Leave this at the standard of 6454 |
| Net | The DMX Net you want to send the DMX command to |
| Subnet | The DMX Subnet you want to send the DMX command to |
| Universe | The DMX Universe you want to send the DMX command to |

| | |
|---|---|
| UseIdleLight | The Idle Light defines how your lights behave while you're in MOWL but not running a workout.<br>When set to true, all lights switch to the specified idle color and brightness as soon as the software launches. This state remains active until a workout begins, and it resumes when the workout ends. If set to false, MOWL will only control your lights during a workout. |
| IdleLightRed | Enter a value between 0 and 255, where 0 is completely off and 255 is full brightness for red LEDs. |
| IdleLightGreen | Enter a value between 0 and 255, where 0 is completely off and 255 is full brightness for green LEDs. |
| IdleLightBLue | Enter a value between 0 and 255, where 0 is completely off and 255 is full brightness for blue LEDs. |
| IdleLightBrightness | Enter a value between 0 and 255, where 0 is completely off and 255 is full overall brightness. |
| Lights | Your custom light setup. See next section. |

## Light Setup

With the Lights parameter you can specify which lights should be controlled by MOWL. As different Light models use different channels, we have to specify how those lights distribute their DMX channels.

| | |
|---|---|
| StartChannel | This is the start channel of your light. You can always physically set this channel on your light. Multiple lights can have the same start channel. Setting this channel is mandatory. All other channels depend on it. |
| RedChannel | This is the red channel of your light. You can find this number in the user manual of your light.<br>If not provided, it will use the StartChannel as RedChannel |
| GreenChannel | This is the green channel of your light. You can find this number in the user manual of your light.<br>If not provided, it will use RedChannel+1 |

| | |
|---|---|
| BlueChannel | This is the blue channel of your light. You can find this number in the user manual of your light.<br>If not provided, it will use RedChannel+2 |
| UseWhiteChannel | Some lights offer a separate white channel in addition to RGB.<br>Set this value to true if your light has a white channel. MOWL will then use it in white zones, which looks more natural than mixing RGB.<br>Set this value to false if your light does not have a white channel. Otherwise, the light will turn off when a white zone is triggered.<br>If not provided, it is treated as false and the white channel is simply ignored. |
| WhiteChannel | This is the white channel of your light. You can find this number in the user manual of your light.<br>If not provided, it will use RedChannel+3 |
| DimmerChannel | The dimmer channel of your light. You can find this number in the user manual of your light.<br>**IMPORTANT:**<br>If your light has a dimmer channel, you must set it. If you don't, the light will stay off.<br>If not provided, it will assume your light has no dimmer channel (and fails to work if it has one). |
| DimmerValue | Controls the overall brightness of the light. Enter a value between 0 and 255, where 0 is completely off and 255 is full brightness.<br>If not provided, 255 will be used. |
| ColorWheelChannel | If your light uses a color wheel instead of RGB LEDs, set this parameter to the appropriate channel. You can find this number in the user manual of your light. The wheel contains predefined colors, and the output color depends on the DMX value (0–255) sent on this channel.<br>If provided, the red, green, blue and white channels will be ignored. |
| IdleColorWheelValue | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| Zone1ColorWheelValue | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |

| | |
|---|---|
| **Zone2ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **Zone3ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **Zone4ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **Zone5ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **Zone6ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **Zone7ColorWheelValue** | Enter a value between 0 and 255. The user manual of your light lists which values produce which colors. |
| **StroboscopeChannel** | The channel for the strobe effect. You can find this number in the user manual of your light. If you set this channel, the strobe effect will activate during Zone 7. |
| **StroboscopeValue** | Enter a value between 0 and 255, where 0 is extremely slow blinking and 255 is full strobe madness. |
| **AudioReactiveBrightness** | This parameter lets you control how the light should react to audio. See next section. |

## Audio Reaction

Audio reaction is only available on Windows. On all other platforms, the AudioReactiveBrightness parameter is ignored.

The parameter is followed by a value from 1 - 4, indicating the smoothing level: 1 provides minimal smoothing (fast response), whereas 4 provides maximum smoothing (slow, subtle response).

**The valid values for AudioReactiveBrightness are:**

| | |
|---|---|
| OFF | No audio reaction. |
| PeakAmplitude1<br>PeakAmplitude2<br>PeakAmplitude3<br>PeakAmplitude4 | Peak amplitude rises immediately in response to sudden loud audio peaks, but then decays smoothly over time. |
| Amplitude1<br>Amplitude2<br>Amplitude3<br>Amplitude4 | Amplitude changes smoothly both when it rises and when it falls, avoiding abrupt transitions. |
| BeatLow1<br>BeatLow2<br>BeatLow3<br>BeatLow4 | This detects beats in the low-frequency range. When a beat occurs, the light flashes to full brightness and then slowly fades away. |
| BeatMid1<br>BeatMid2<br>BeatMid3<br>BeatMid4 | This detects beats in the mid-frequency range. When a beat occurs, the light flashes to full brightness and then slowly fades away. |
| BeatHigh1<br>BeatHigh2<br>BeatHigh3<br>BeatHigh4 | This detects beats in the high-frequency range. When a beat occurs, the light flashes to full brightness and then slowly fades away. |
| Pitch1<br>Pitch2<br>Pitch3<br>Pitch4 | Pitch corresponds to the dominant frequency of the audio signal. As the pitch increases, the brightness level also increases. |

| PitchInverted1 | PitchInverted corresponds to the dominant frequency of the audio |
| --- | --- |
| PitchInverted2 | signal, but with an inverted mapping. As the pitch increases, the |
| PitchInverted3 | brightness level decreases, and lower frequencies produce higher |
| PitchInverted4 | brightness. |

Any value not listed above will be treated as OFF.

## Examples

### 1. Simple Light setup

We have a room with multiple lights of the same model.
The lights have the following specs:
Channels:
1 – Red
2 – Green
3 – Blue
4 – White

Start channel is set to 1 for all lights.

The final dmx_setup.json would look like this:

```
{

    "DMXEnabled": true,
    "DestinationIP": "255.255.255.255",
    "DestinationPort": 6454,
    "SourcePort": 6454,
    "Net": 0,
    "Subnet": 0,
    "Universe": 0,
    "UseIdleLight": true,
    "IdleLightRedValue": 255,
    "IdleLightGreenValue": 255,
    "IdleLightBlueValue": 255,
    "IdleLightBrightness": 255,
    "Lights": [
        {
            "StartChannel": 1,
            "UseWhiteChannel": true
        }
    ]
}
```

## 2. Complex Setup
A room with 6 lights from different manufacturers.

Two lights with the following specs:

Channels:
1. Dimmer
2. Red
3. Green
4. Blue
5. White

Starting channel of BOTH lights is set to 10

One light with the following specs:
1. Red
2. Green
3. Blue
4. White

Starting channel is set to 15

One professional light with the following specs:
1. Dimmer
2. Red
3. Red (fine)
4. Green
5. Green (fine)
6. Blue
7. Blue (fine)
8. White
9. White (fine)

Starting channel is set to 19. We also want this lights brightness to be controlled by the Music.

One light that uses a color wheel with the following specs:
1. Dimmer
2. ColorWheel
3. Strobe

Starting channel is set to 28. We also want this light to display a strobe effect while working out in Zone 7. As it is a very bright light we set the Dimmer to 50% brightness.

One light that isn't controlled by MOWL. Its Starting channel is set to 1. We don't want to control that light, which is why we don't list it in the settings file.

The final dmx_setup.json would look like this:

```
{
    "DMXEnabled": true,
    "DestinationIP": "255.255.255.255",
    "DestinationPort": 6454,
    "SourcePort": 6454,
    "Net": 0,
    "Subnet": 0,
    "Universe": 0,
    "UseIdleLight": true,
    "IdleLightRedValue": 255,
    "IdleLightGreenValue": 255,
    "IdleLightBlueValue": 255,
    "IdleLightBrightness": 255,
    "Lights": [
        {
            "StartChannel": 10,
            "DimmerChannel": 1,
            "RedChannel": 2,
            "UseWhiteChannel": true
        },
        {
            "StartChannel": 15,
            "UseWhiteChannel": true
        },
        {
        "StartChannel": 19,
        "DimmerChannel": 1,
        "RedChannel": 2,
        "GreenChannel": 4,
        "BlueChannel": 6,
        "UseWhiteChannel": true,
        "WhiteChannel": 8,
        "AudioReactiveBrightness": "PeakAmplitude2"
    },
```

```json
    {
        "StartChannel": 28,
        "DimmerChannel": 1,
        "DimmerValue": 127,
        "ColorWheelChannel": 2,
        "IdleColorWheelValue": 10,
        "Zone1ColorWheelValue": 10,
        "Zone2ColorWheelValue": 170,
        "Zone3ColorWheelValue": 90,
        "Zone4ColorWheelValue": 53,
        "Zone5ColorWheelValue": 77,
        "Zone6ColorWheelValue": 77,
        "Zone7ColorWheelValue": 77,
        "StroboscopeChannel": 3,
        "StroboscopeValue":240
    }
  ]
}
```