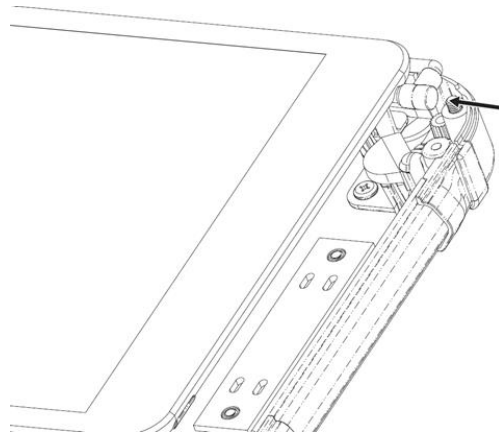![MagTarget logo]

The aim of this guideline is to assist developers in making their App capable of controlling the light properties on the VisualTarget line of tablet enclosures.

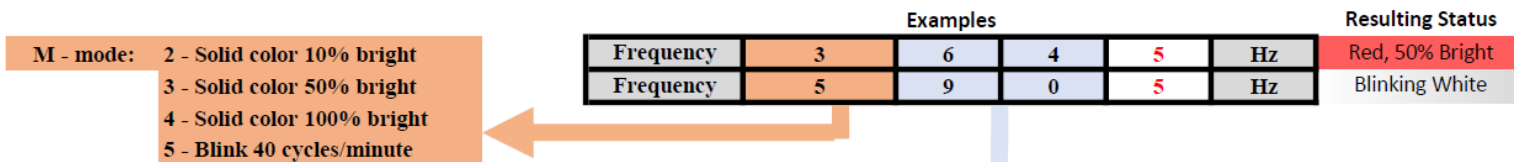## *Understanding the core functionality*

An audio cable goes from the tablet audio port to the VisualTarget electronics.



If the tablet plays a certain frequency through the audio jack, the enclosure recognizes it and switch the lights to the corresponding state requested.

The frequency value is encoded in such a way that 100 different colors (99 RGB colors + black/OFF) can be requested of the enclosure. In addition, the selected color can be set to 3 distinct brightness level as well as a blinking state.

The graphic below highlights how to find the frequency value for a given color/state.

| | M | Color Code | | Constant | |
|---|---|---|---|---|---|
| Frequency | Dig4 | Dig3 | Dig2 | Dig1* | Hz |
| | | | | * Always use 5 for Dig 1 | |

**Examples**

| | | | | | | Resulting Status |
|---|---|---|---|---|---|---|
| Frequency | 3 | 6 | 4 | 5 | Hz | Red, 50% Bright |
| Frequency | 5 | 9 | 0 | 5 | Hz | Blinking White |

**M - mode:**
2 - Solid color 10% bright
3 - Solid color 50% bright
4 - Solid color 100% bright
5 - Blink 40 cycles/minute

| Color Code | R | G | B | Color | Name |
|---|---|---|---|---|---|
| 64 | 255 | 0 | 0 | | Red |
| 77 | 255 | 255 | 0 | | Yellow |
| 12 | 0 | 255 | 0 | | Green |

| Color Code | R | G | B | Color | Name |
|---|---|---|---|---|---|
| 87 | 255 | 255 | 200 | | Warm White |
| 90 | 255 | 255 | 255 | | White |
| 93 | 200 | 255 | 255 | | Cool White |

Six popular light colors are show, with the full list available here: support.magtarget.com

**Popular color used for meeting scheduling:**
Red at 100% brightness (room occupied): 4,645 Hz
Green at 100% brightness (room available): 4,125 Hz
Blinking Yellow (upcoming meeting / check-in): 5,775 Hz

| Other LED Options | | | | | | Resulting Light Color |
|---|---|---|---|---|---|---|
| Frequency | 6 | 0 | 0 | 5 | Hz | LED OFF |
| Frequency | 6 | 0 | 5 | 5 | Hz | Rainbow |

In rainbow mode the enclosure progressively cycles through all colors indefinitely. This can be used for testing. It can also be used in scenarios where the enclosure is designed to attract attention, as in a trade-show display for examples.

## Requirements for compatibility with VisualTarget enclosures

1. Frequency plays through the tablet audio port when an audio jack is connected
    a. Some developers choose to disable audio sent to speakers to avoid nuisance to the users if the frequency is enabled but nothing is plugged into the audio port
2. Frequency plays continuously
    a. A five second delay is built into the enclosure electronics to avoid false positive
    b. The enclosure will technically keep its last requested color even after the audio frequency stops. But we ask that the given frequency plays continuously. As random color changes have otherwise been experienced due to noise from the surrounding electrical/network cabling

## Additional options

You may consider implementing the following to improve the user experience:

**Allow local admin to enter their own frequency for a given state**
Although this requires more time to develop than a hard-coded frequency set. It greatly improves the customer experience and reduce tech-support tickets. A common request is to have the brightness tweaked as it is either too strong or not strong enough to the customer taste.

**Allow each enclosure to have a different light setting**
This can come in handy if an overall office is running at 50% brightness. But a particular enclosure is under direct sunlight, which makes its colors harder to detect, if not set at 100%

## Testing your App

Final testing should be performed on the target device inside a VisualTarget enclosure. But the following tool can be used by developers for preliminary evaluation:
Windows/MacOS/Linux: Friture (friture.org)
**MagTarget can also assist in testing your App free-of-charge**
If you send login credentials for your app/services to: info @ magtarget.com