



## MOD-RGB

# FIRMWARE NOTE SUITABLE FOR FIRMWARE REVISION 2

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## DMX MODE

Requires RS-485 interface (MOD-RS485 and MOD-RS485-ISO are tested and working successfully).

To enter DMX512 mode:

Turn off/power down MOD-RGB then close DMX\_EN and turn on/power up MOD-RGB. The other jumper UPWR\_E should be closed if the device board we interface with needs to be powered via the UEXT. If we use MOD-RS485 we also close UPWR\_E and then we power cycle the board.

In the beginning the board has no address. To acquire one we transmit data (different than 0) to a channel. For instance we transmit the value N to RED channel. Then GREEN would be N+1 and N+2 would be BLUE. If we want to change the addresses again we open and then close the DMX\_EN jumper.

## I2C MODE

To enter audio-in/I2C mode (default):

Power the board up with jumper DMX\_EN being open. In this mode we can connect audio stream via the audio jack and the LEDs (or the LED strips) should start blinking according to the music.

Note the board works with frequencies in the (100-150)Hz range – if you listen to music with no proper bass the demo won't work properly!

This audio mode would remain active until you send a command via the I2C line (via the UEXT). The commands available are:

1. 0x01 – Enable LED PWM (start)
2. 0x02 – Disable LED PWM (stop)
3. 0x03 -- Entering RGB colors in 0 до 255 (3 parameters)
4. 0x14 – Command to receive the input signal from the audio-in connector
5. 0x15 -- Command to disable the input signal from the audio-in connector
6. 0xB0 – New I2C address

Initially the default I2C address is 0xA0

Standard I2CE messaging example:

S |AAAAAAA|W/R|ACK| |DDDDDDDD|ACK| |DDDDDDDD|ACK| |DDDDDDDD|ACK| ..... |P

, where

S - Start condition (automatically sent)

AAAAAAA - Olimex Address - 0x48

W/R - read or write - 0

ACK - acknowledge

DDDDD – DATA to transmit

ACK -

DDDDD – DATA to transmit

..... - the address of the device

P – command to perform and its parameters

We send data and the next bit should be 0x05, which corresponds for MOD-RGB and the third bit is the device's address.

After that we pass the command and its parameters if there are any.

For example:

1/ 0x48 0x05 0xA0 0x01 - Enable LED PWM

2/ 0x48 0x05 0xA0 0x02 - Disable LED PWM

3/ 0x48 0x05 0xA0 0x03 255 0 0 – set the first LED in 255, the second and third in 0 – RED color

4/ 0x48 0x05 0xA0 0x14 – enable the input signal from the audio-in connector

5/ 0x48 0x05 0xA0 0x15 – disable the input signal from the audio-in connector

6/ 0x48 0x05 0xA0 0xB0 0x55 – change the default address from 0xA0 to 0x55

To enter the address before entering a command you need to close DMX\_EN jumper, enter the command to change the address (0xB0) and then remove the jumper.