



---

RGB-160-A

Addressable RGB LED Strip Controller

User Manual

Version 1.0

September 2012

Copyright © 2012 Lifetime Software Ltd

---

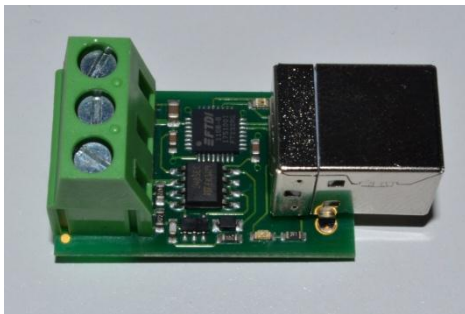
# 1. Building a Network

In order for the computer to be able to control the LED strip, the controller and computer need to be on a RS-485 based network. This is a serial network, capable of reliable transmitting of data over a distance.

The network starts at the computer, but since computers do not usually have an RS-485 port a converter is required. These can take the form of either:

- RS-242 to RS-485 converter (for older computers with serial COM ports).
- USB to RS-485 converter.

The recommended USB-RS485 converter, shown below, has been tested with the SyncroLight controllers and software. The converter is available for sale, with full installation instructions, on the SyncroLight website.



The network is a 2-wire network, which connects to each controller in a liner multi-drop arrangement, connecting to each controller in turn. The network should not contain any spurs or loops.

To ensure reliable data transmission it is often recommended that RS-485 networks are terminated with a resistor between the two wires. This is optional as in most cases the network will work fine without any terminating resistor. If you find messages on the network are being lost (i.e. lights not coming on/ going off as expected), then it may be worth adding a resistor. The SyncroLight controllers keep a count of the number of corrupt messages to aid in identification of poor network performance.

We strongly recommend the use of shielded network cable (available on the SyncroLight website) to minimise interference from electrical cables and equipment. When running network and power cables around your light display to controllers and lights, try and run the network cable away from power cables to minimise any risk of electrical interference. Don't worry if you have to run the network cables alongside power cables, you'll probably be Ok. Just remember where you have done so and revisit this area should you have any communication problems on the network.

The shielding of each cable should be joined at each controller and connected to the ground connection provided on the USB-RS485 converter.

Each controller on the network is given a unique numeric address, often called either, controller address, controller id or device id. This controller address, which has a value between 1 and 255, is used by the software to identify and address each output on the network (i.e. Controller Id 3 Channel 1).

New controllers come with a default id of 1, which can easily be changed using the SyncroLight Device Manager Software.

## 2. Connecting the Controller and LED Strip

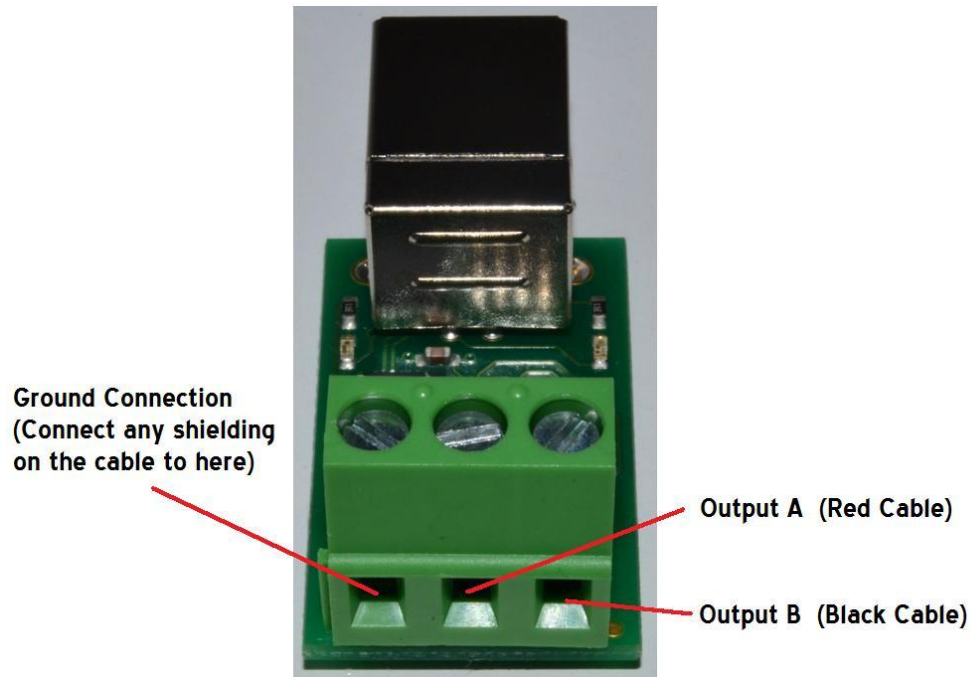
1. First connect the controller to the LED Strip.



2. Connect the Network

The controller comes pre-wired with some cable to connect to your RS485 network. Alternatively remove the cover of the controller and wire your RS485 network into screw terminals on the PCB.

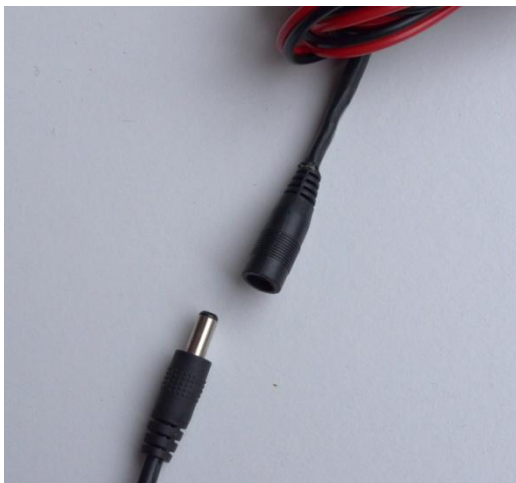
We recommend the use of 2-core shielded cable for the network connections. Terminal connection on the controllers are labelled A and B, outputs of the USB-RS485 converter are as shown below.



Where the wire colours are red and black, we suggest using the red wire to connect to the 'A' terminals and black wire to connect to the 'B' terminals. Adopt your own colour code if you have different colour wire.

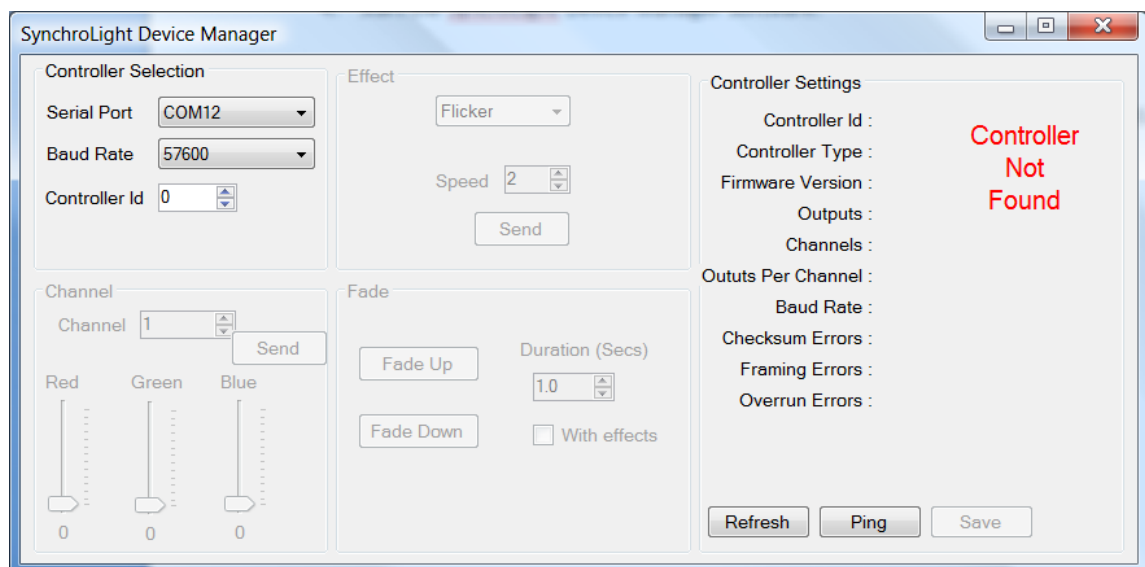
### 3. Connect the power

Connect the supplied 5v DC 10 Amp transformer to the controller.



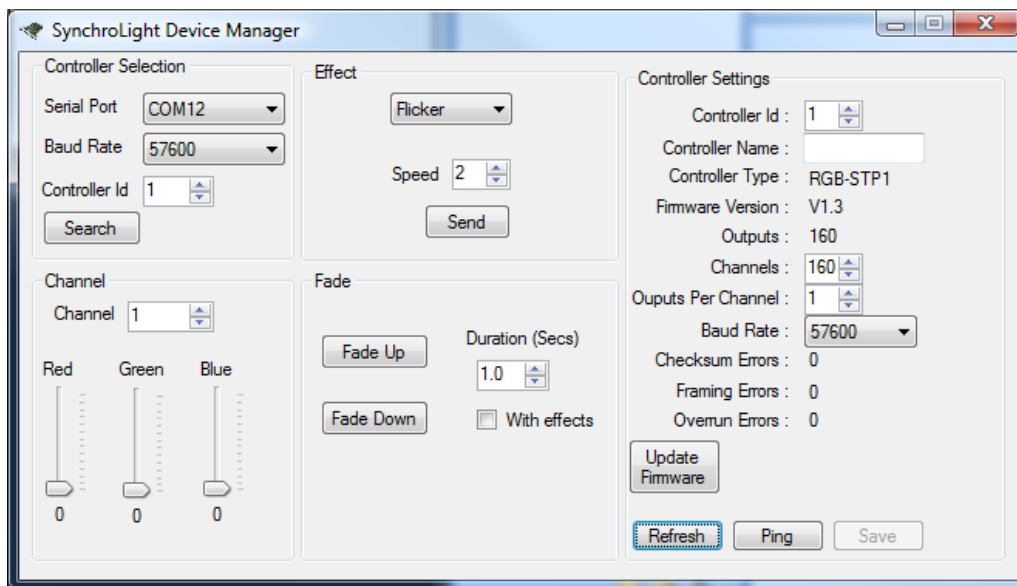
### 3. Testing and Configuring the Controller

1. Ensure the controller is connected to the computer via the USB-RS485 converter (or similar RS-485 interface). If you have multiple controllers, just connect **one** to the network for testing and configuration
2. Start the SyncroLight Device Manager Software. The screen should look like the one below.



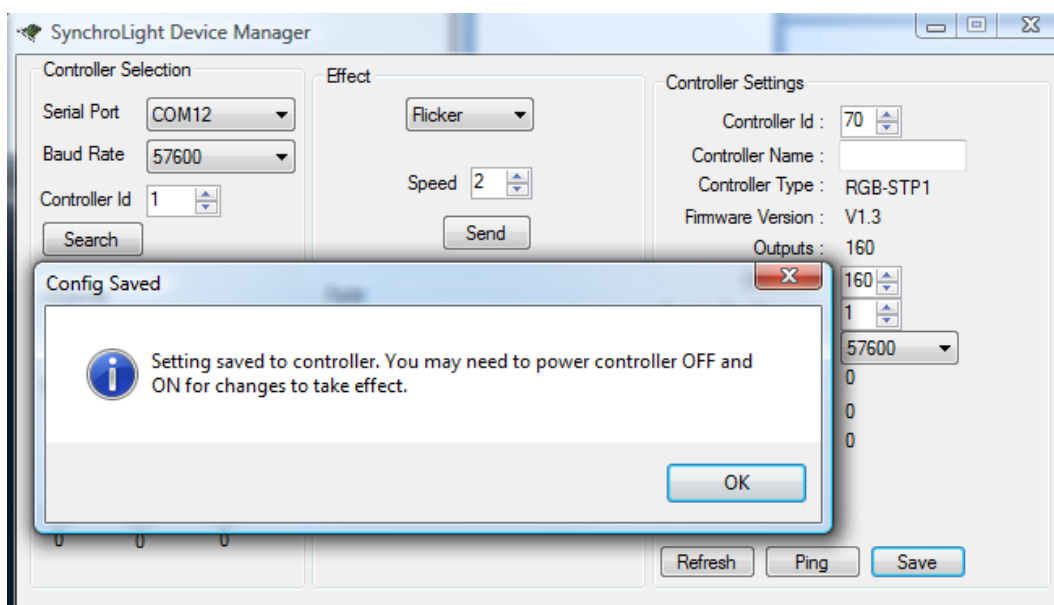
3. Select the appropriate Serial Port from the drop down list for your RS-485 network.
4. Ensure the Baud rate is set to 57600 and controller id set to 0.
5. If you have the USB-RS485 converter you can verify that RS-485 network is active by a little flashing red LED on the USB-RS485 converter.
6. Turn on the power to the controller.

7. If you press the 'Refresh' button on the controller, the controller's details should appear on the right of the window as shown below.



Note: Controllers can have an Id between 1 and 255 inclusive. Address 0 is a special 'broadcast' id that can be used in the Device Manager, ALL controllers will respond to this id. This is useful for testing a controller if you have forgotten its id! (Just ensure only one controller is connected though as all controllers will respond).

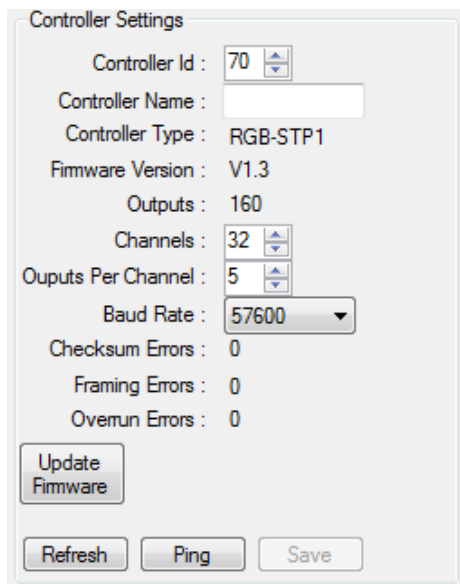
8. You can now change the default baud rate and id of the controller using the controller settings on the right. If you make any changes press 'Save' and turn the controller off and on as directed (Screen below shows the controller id being changed to 70).



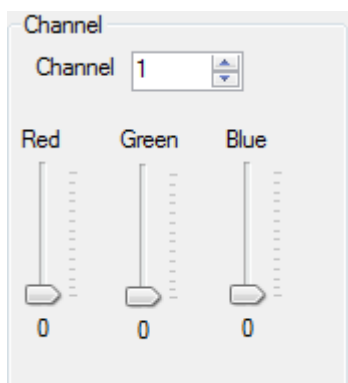
9. Other Configuration settings can also be changed or left to the default values.

**Controller Name** – You can give the controller a short name to aid identification of the controller on large networks.

**Channels and Outputs per Channel** – The 5m LED strip contains 160 LEDs. Each LED can be controlled individually. In the software channel number 1 would control the first LED and channel 160 would control the last LED. Rather than control each LED individually you may wish to control the LED's in blocks. For example you could have 32 blocks of 5 LEDs ( $32 \times 5 = 160$ ). To do this you would set channels (blocks) to 32 and Outputs per Channel to 5 as shown below. Now channel 1 in the software would control LEDs 1 to 5.



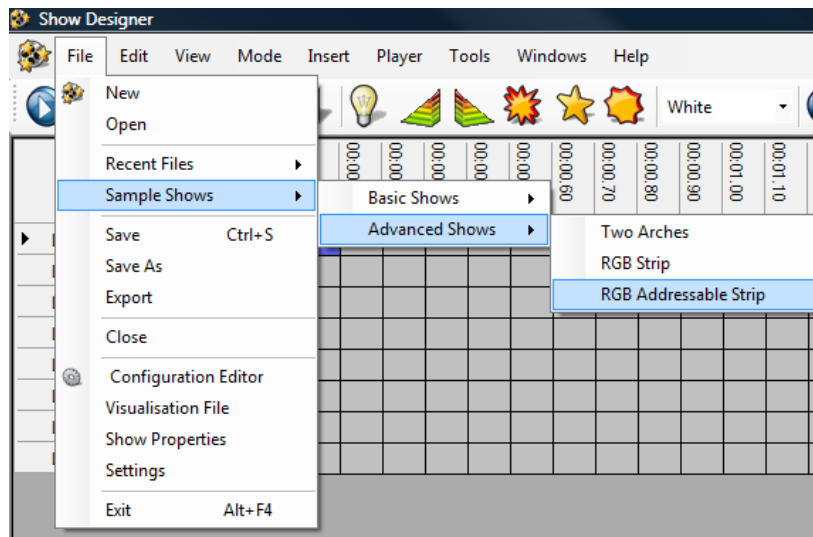
10. In the Device Manager you can test the strip by selecting a channel and using the Red, Green and Blue sliders. Selecting channel 0 will control the whole LED strip.



## 4. Sample Show for LED Addressable Strip

A sample demonstration show (non-musical) is included in the Show Designer.

Open the Sample show called 'RGB Addressable Strip' in the Show Designer from the file menu as shown below.

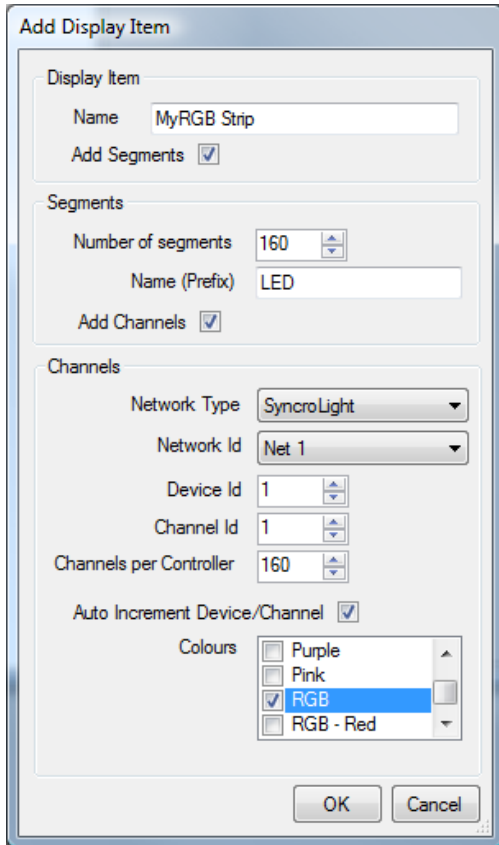


## 5. Using the LED strip in the Show Designer

To use the LED strip within your show you need to create channels for it within the Show Designer.

1. Open the Configuration Editor in the Show Designer and Click Add Group (or Add Segment if using Basic show type).
2. Complete the dialog as shown to create segments and channels for your controller. In this example the controller is configured with an id of 1 and 160 outputs (the default values).





3. You should now have channels and segments like those below.

Channel Name	Group	Segment	Colour	Network Type	Network Id	Device Id	Channel Id
LED1(RGB)	MyRGB Strip	LED1	RGB	SynchroLight	Net 1	1	1
LED2(RGB)	MyRGB Strip	LED2	RGB	SynchroLight	Net 1	1	2
LED3(RGB)	MyRGB Strip	LED3	RGB	SynchroLight	Net 1	1	3
LED4(RGB)	MyRGB Strip	LED4	RGB	SynchroLight	Net 1	1	4
LED5(RGB)	MyRGB Strip	LED5	RGB	SynchroLight	Net 1	1	5
LED6(RGB)	MyRGB Strip	LED6	RGB	SynchroLight	Net 1	1	6
LED7(RGB)	MyRGB Strip	LED7	RGB	SynchroLight	Net 1	1	7
LED8(RGB)	MyRGB Strip	LED8	RGB	SynchroLight	Net 1	1	8
LED9(RGB)	MyRGB Strip	LED9	RGB	SynchroLight	Net 1	1	9
LED10(RGB)	MyRGB Strip	LED10	RGB	SynchroLight	Net 1	1	10
LED11(RGB)	MyRGB Strip	LED11	RGB	SynchroLight	Net 1	1	11
LED12(RGB)	MyRGB Strip	LED12	RGB	SynchroLight	Net 1	1	12
LED13(RGB)	MyRGB Strip	LED13	RGB	SynchroLight	Net 1	1	13
LED14(RGB)	MyRGB Strip	LED14	RGB	SynchroLight	Net 1	1	14
LED15(RGB)	MyRGB Strip	LED15	RGB	SynchroLight	Net 1	1	15
LED16(RGB)	MyRGB Strip	LED16	RGB	SynchroLight	Net 1	1	16
LED17(RGB)	MyRGB Strip	LED17	RGB	SynchroLight	Net 1	1	17
LED18(RGB)	MyRGB Strip	LED18	RGB	SynchroLight	Net 1	1	18
LED19(RGB)	MyRGB Strip	LED19	RGB	SynchroLight	Net 1	1	19
LED20(RGB)	MyRGB Strip	LED20	RGB	SynchroLight	Net 1	1	20
LED21(RGB)	MyRGB Strip	LED21	RGB	SynchroLight	Net 1	1	21
LED22(RGB)	MyRGB Strip	LED22	RGB	SynchroLight	Net 1	1	22
LED23(RGB)	MyRGB Strip	LED23	RGB	SynchroLight	Net 1	1	23
LED24(RGB)	MyRGB Strip	LED24	RGB	SynchroLight	Net 1	1	24
LED25(RGB)	MyRGB Strip	LED25	RGB	SynchroLight	Net 1	1	25