DC08A

Low-Voltage DC Plug and Play Lighting Controller

User Manual

Version 1.2
June 2016

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Syncrolight is a trading name of Lifetime Software Ltd

Contents

1 Overview

This Synchronised Lighting Plug and Play Lighting controller is fully assembled and wired ready for use. You just need to plug in Lights, Power and optionally data cables.

This unit can be used stand alone, or as part of a computer controlled light display. To access certain functions of the controller, or to use it as part of a computer controlled display a special USB cable is required (see Section 5 for details) along with the Syncrolight Software package. The latest version of the Software can be downloaded from www.Syncrolight.co.uk . The basic version allows up-to 16 channels and is free to download and use.

This unit is designed primarily for use with Synchronised Lighting's range of Light strings, Power supplies and Data cables. Whilst other brands of DC lights may be used with this unit, it may be necessary to remove or change the connectors as required.

Some of Synchronised Lighting's range of compatible Accessories:

24v 2.5 Amp Power Supply

24v 5 Amp Power Supply

80 LED lights strings

100 LED Light String (Available in various colours)

200 LED Lights String (Available in various colours)

LED Lights string extension cable

5m Plug and Play Data Cable

1m Plug and Play Data Cable

Plug and Play Data Cable Tails (For connecting other non-plug and play Syncronised Lighting Controllers)

Plug and Play USB Cable

2 Contents

The unit consists of the main Lighting Controller and an AC/DC Converter. Light strings and a Power supply may have also been supplied depending on the pack that was purchased.

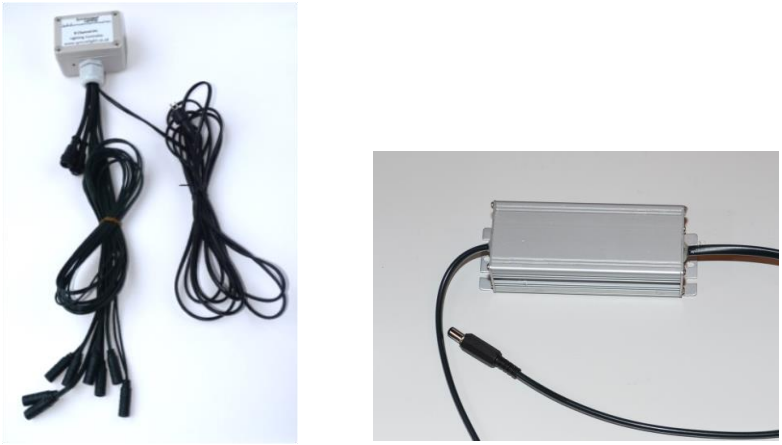

Figure 1 DC Controller and AC/DC cable

The main unit has the following cables coming from the unit:

- 1 x Power cable – For connection to AC/DC convertor and power supply
- 8 x 2.1mm Output sockets – For connection to lights strings
- 2 x 3 Pin connectors - For data connections to other controllers (or a computer via USB-RS485 cable)

3 Choosing a Power Supply

If the unit was not supplied with lights and/or power supply, you will need a suitable power supply.

3.1 Level 2 Heading

Take care when selecting a power supply; ensure it is of the correct voltage, and ampere for the lights you are using. Synchronised Lighting stocks a range of power supplies and lights suitable for use with this plug and play unit.

3.1.1 Level 3 Heading

This unit can be powered from a low voltage AC or DC power supply. This unit comes complete with an AC to DC convertor which must be used whenever an AC power supply is used. The AC power supply must not exceed 24v AC (unregulated). Note that whilst the unit may be powered from an AC power supply, all outputs will be DC.

The AC/DC converter may get quite warm when a use, this is quite normal. The AC/DC Convertor should be located indoors or in a suitable weatherproof enclosure.

If powering the unit from a DC power supply, the AC/DC convertor may be left in place or removed.

The controller itself operates at DC voltages between 7 and 30 volts DC. All 8 outputs from the unit will produce the same voltage as that used to power the controller. When choosing a power supply ensure it is of the correct voltage and has sufficient ampere to power all equipment connected to 8 outputs (when all 8 outputs are on simultaneously).

For Example, if controlling 8 sets of LED lights and each set requires 24v and 600ma. You will need a 24v power supply of **at least** 4800ma (600*8 = 4800) or 4.8 amps.

The maximum recommended output is 2 Amps per channel, or 5 Amps per controller. Whilst the components used are rated higher, the controller has only been designed and tested for use with low power lighting equipment such as individual sets of LED lighting. For animated lighting displays using LED lighting, you seldom require high ampere outputs since it is usual to have lots of individually controllable lights, for animation purposes, rather than lots of sets wired together on one channel.

4 Pre-set sequences / Standalone use

This Plug and Play unit has 3 built in sequences that may be used to produce simple animation effects. This enables it to be used standalone, without requiring any data connection to a computer or any other controller.

The pre-set sequences are as follows:

1) On in turn – Each channel turns on in turn, then each turns off in turn
2) Slow Chase – Each channel turns on then off in turn
3) Fast Chase – Each channel turns on then off in turn

The controller comes pre-configured to use the 1st pre-set sequence.

If the controller is connected to a network, the standalone sequences will stop as soon as a master controller is detected on the network. A master controller is a special controller or a computer on the network that is actively controlling the network. The master controller can be either a computer running the Syncrolight software or an SD card controller running in master mode. The standalone sequences will restart automatically if the master controller is turned off or disconnected from the network.

Note: This standalone facility may be used in conjunction with a computer controlled display. For example if you do not want to run a show from your computer all the time, you can configure this standalone mode so that when your computer is off, the standalone sequence is played.

To use a different pre-set sequence the controller must be connected to a computer using our Plug and Play USB Cable. The Device Manager of the Syncrolight software can then be used to change the configuration on the controller as shown below.

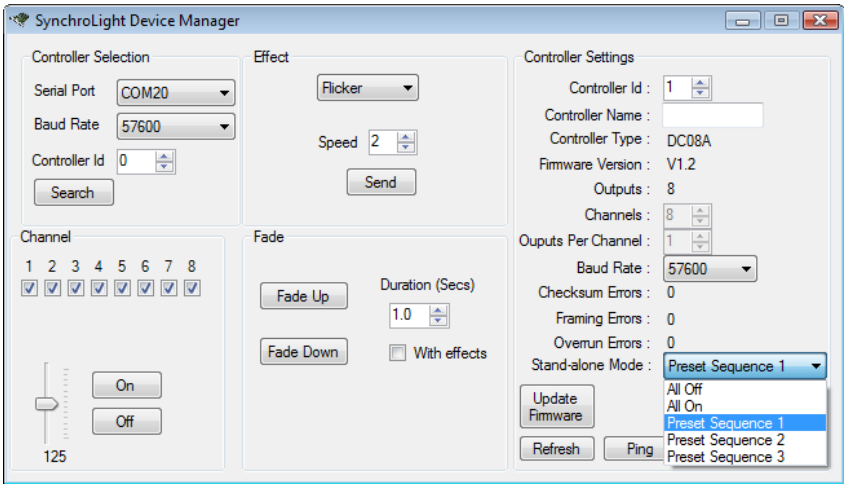

Figure 2 Device Manager screen- Changing preset sequence

Note that the controller has two additional settings for the standalone Mode, All On and All Off. With these settings all 8 channels will automatically turn on or off whenever the controller is in standalone mode (i.e. no active network).

The built in sequences are not currently user programmable, but bespoke built-in sequences can be provided for special projects at additional cost. Contact Synchronised Lighting for more details.

5 Connecting a Network

Figure 3 Data Cables

This lighting controller contains weatherproof connectors to allow the controller to be connected to a computer and/or other controllers. Up-to 255 controllers can be connected together. A variety of Plug and Play cables are available from Synchronised Lighting to allow you to connect controllers together.

To connect the network to a computer a USB-RS485 cable is required. For simple connection please use the Plug and Play USB-RS485 cable, as this will plug directly into the data connector of your plug and play controller.

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.

6 Testing and Configuring the Controller

1. Without any network or lights connected, turn on the power to the controller. The status indicator LED should flash to indicate the controller is running but has no network connected.
2. Turn off the power to the controller.
3. Connect the controller to the computer via the USB-RS485 cable. If you have multiple controllers, just connect **one** to the network for testing.
4. Start the Syncrolight Device Manager Software. The screen should look like the one below.

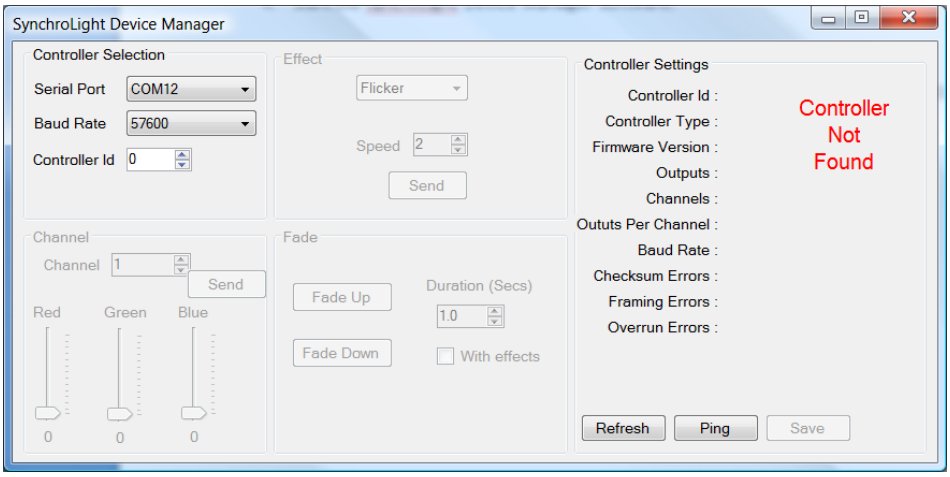

Figure 4 Device Manager screen - No controller found

5. Select the appropriate Serial Port from the drop down list for your RS-485 network.
6. Ensure the Baud rate is set to 57600 and controller id set to 0.
7. If you have the USB-RS485 cable you can verify that RS-485 network is active by a little flashing red LED on the USB-RS485 converter.
8. Turn on the power to the controller. The status indicator LED on the controller should now stay lit to indicate an active network. (The little red LED on the converter will continue to flash).
9. If you press the 'Refresh' button on the controller, the controller's details should appear on the right of the window as shown below (Controller type and version will vary depending on your controller).

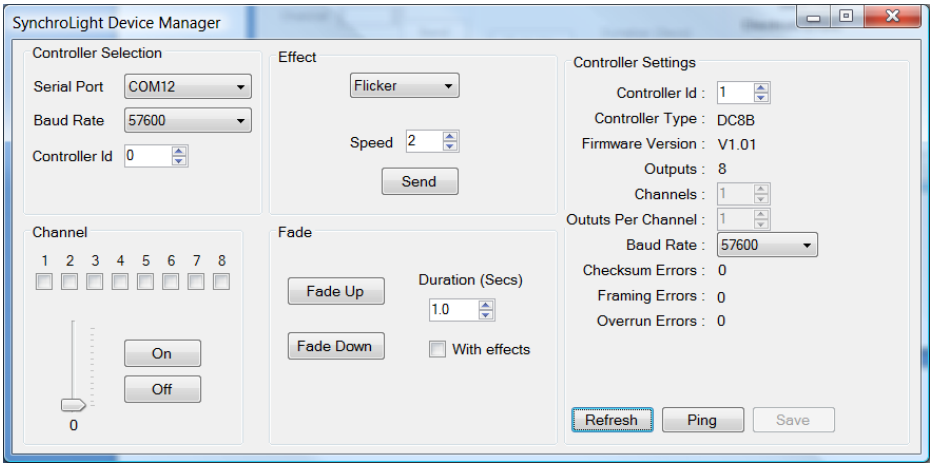

Figure 5 Device Manager screen – Using address zero to search for controller

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).

10. 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).

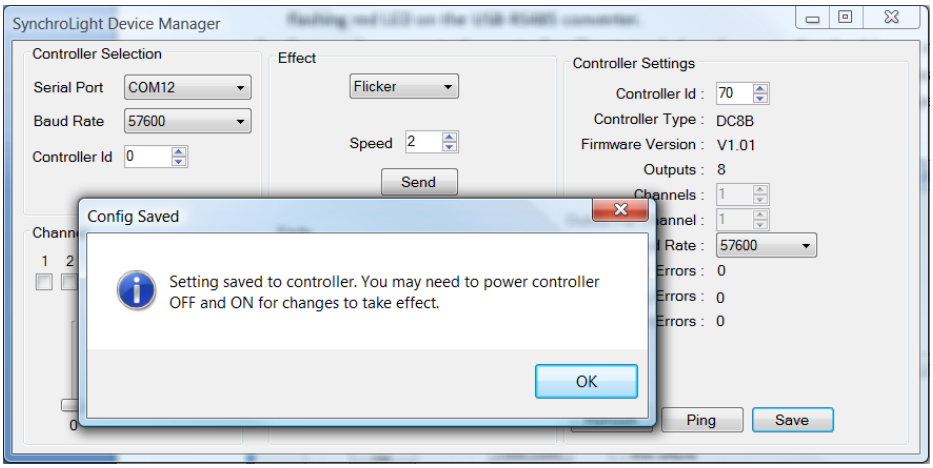

Figure 6 Device Manager screen - Power On/Off message

11. You can now connect the lights to your controller and test each channel in turn using the Device Manager software. Check one of the Channel check boxes on the left hand side and press the ON button or move the brightness slider up. The lights connected to channel 1 of your controller should come on. Repeat this to test all 8 channels.

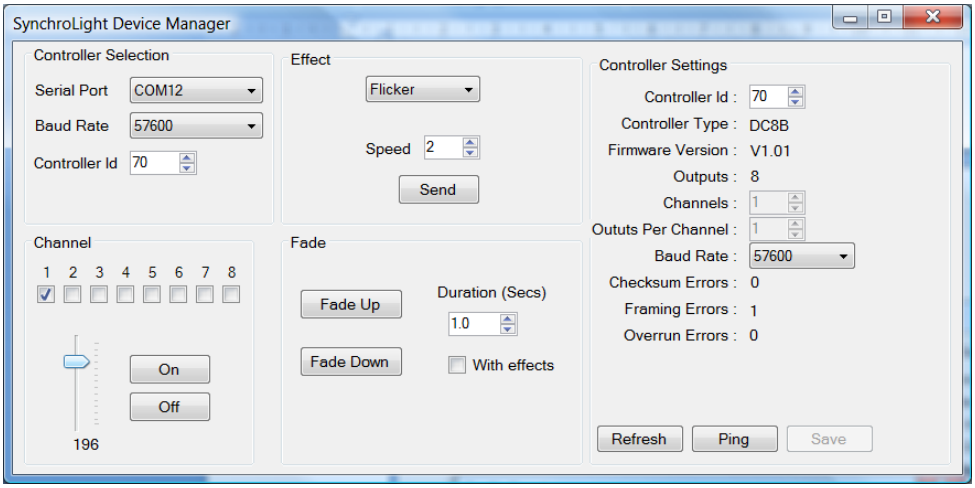

Figure 7 Device Manage screen - Showing changed controller id

7 Installation

This unit is suitable for indoor or outdoor use. The AC/DC converter must be located indoors.

When used outdoors the unit should be mounted upright with the wires coming out of the bottom of the unit. In no circumstances should the unit be mounted with the wires upmost, as this may lead to water ingress.

Figure 8 Controller installation

The unit should be secured to a wall or post. The unit has 4 small screw mounting holes which may be accessed by removing the 4 large retaining plastic screws and removing the lid of the unit. When refitting the lid please ensure the rubber seal is correctly seated and do not over tighten the screws.

When positioned outdoors in cold conditions, it is recommended that an occasional check is performed to ensure that condensation is not accumulating in the base of the unit.

The connectors attached to this unit are suitable for outdoor use, providing the ends are securely connected to a wire with a matching style connector. If any wires are not used, and the unit is located outdoors, we recommend putting a little insulating tape on the unused connector to keep them dirt and moisture free.

The unit and the connectors must not be submerged in water. The connectors may be left trailing on the ground, but if puddles of water are likely to form, the connectors should be raised off the ground slightly.