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**Sirius™ SLB**

# LED Controller User Manual

Version : 1.0.0

Jan. 18, 2008

## Relevant Products

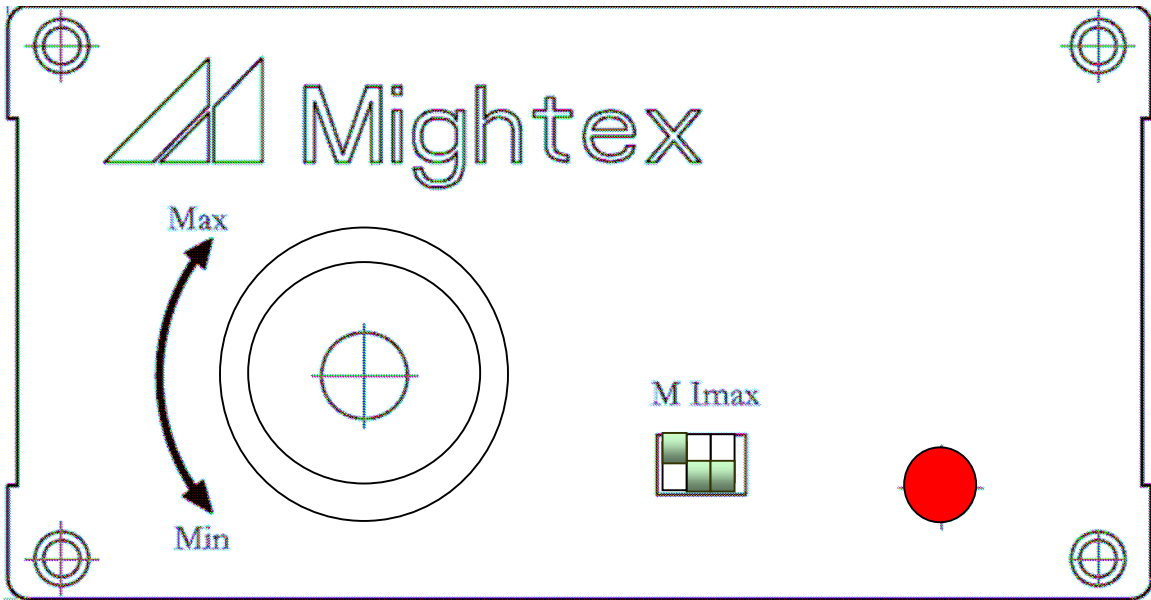
Part Numbers
SLB-1200-1

<b>Revision</b>	<b>Date</b>	<b>Author</b>	<b>Description</b>
1.0.0	Jan. 18, 2008	JT Zheng	Initial Revision

Mightex Sirius™ SLB LED Controller was designed to drive various kinds of LED sources, including Mightex Sirius™ Light Sources, and other LEDs. The controller has two operation modes:

- **Manual Knob Control:** User can adjust the current output of channel manually.
- **Analog Input Control:** 0 – 5V analog input to control the current output of a channel.

The Mode is selected via a DIP switch, each channel has a 3 position DIP Switch:



The first position is for Mode selection as following:

**M**



Set to **Manual Knob Control** Mode, this is the factory default mode. In this mode, user can manually turn the knob to adjust the output current of this channel. (**Note that in this mode, there should be NO analog input connected to the module**)



Set to **Analog Input Control** Mode, in this mode, the output current is proportional to the analog input voltage.

The next two positions are used to select the maximum current of each channel:

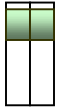
**Imax**



The maximum current is 350mA, this is a factory default setting.



The maximum current is 750mA.

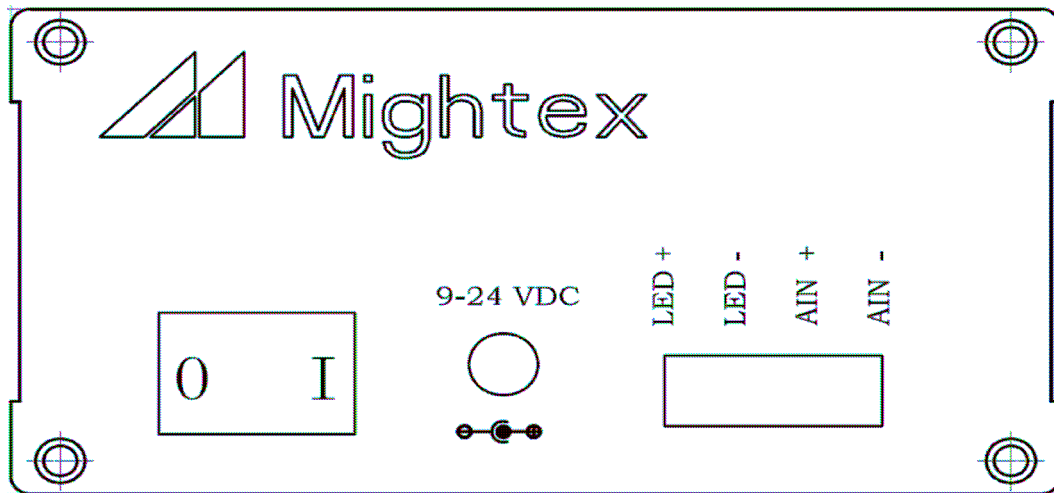


The maximum current is 1200mA.

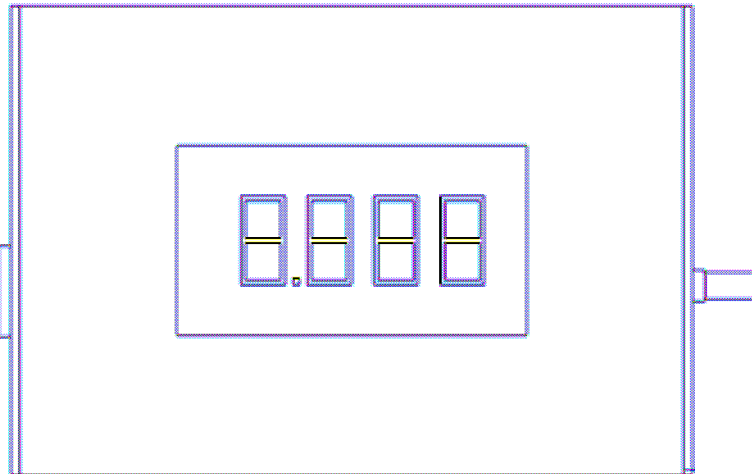
Note

1). When setting a smaller  $I_{max}$  (e.g. 350mA), user gets a fine resolution of current control.

Another side is for connecting the LEDs and Analog inputs:



SLB with a current display on the top of the controller as following:



The display shows "X.XXX" which is in 'A', e.g. 0.025 means 0.025A which is 25mA.

**ELECTRICAL SPECIFICATION:**

Parameters	SLB-1200-1	Unit
Number of Channels	1	
Power Supply Input Voltage ( $V_{dc}$ )	9 ~ 24	V
Maximum Output Voltage ( $V_{max}$ )	$V_{dc} - 3.0$	V
Maximum Per Channel Output Current ( $I_{max}$ )*	1200	mA
Maximum Per Channel Output Power ( $P_{max}$ )**	10	W

\*. The maximum output current can be set to 1200, 750 or 350 mA using the DIP switch.

The maximum current's accuracy is  $-4\% \sim +8\%$ , e.g. for 350mA, the actual maximum current might be from 336 – 378mA.\*\* If the channel output voltage is  $V_d$  and the output current is  $I_d$ , they must simultaneously satisfy: (1)  $V_d \leq V_{max}$ ; (2)  $I_d \leq I_{max}$ ; and (3)  $V_d * I_d \leq P_{max}$ .

SLB module is designed with high-efficiency DC-DC switch inside, the channel can work separately with very different loads, the efficiency is 85- 90% in most cases. However, cares must be taken while driving a LED head on a certain channel, for protecting the LED head and the controller, we expect customer to pay attention to the following items:

1). **HEAT SINK FOR LED:** User **MUST** have proper heat sink for the LED load (usually the light head), especially for some high power LEDs, the heat dissipation is considerable big, so we expect user have necessary heat sink for the LED to make sure LED can work under the desired current/voltage.

2). **CHANNEL MAXIMUM CURRENT:** For driving a certain LED (or LEDs combination ), user **MUST** carefully set the maximum current of the channel by setting the DIP switch, for example, for 350mA LED, user should set DIP switch to select the maximum current to 350mA. Fail to do so may damage the LED.

3). **CONTROLLER INPUT CURRENT/VOLTAGE:** When user choose AC-DC adapter, we expect user to do:

1>. User should choose an AC-DC adapter which can output voltage at least 3V higher than the highest load voltage of the channels, for example, the load on channels are:

Channel 1: 7.0V at 0.35A

User should choose AC-DC adapter with at least 10V output voltage (10V- 24V), as for current, user might figure out with the 80% power efficiency, in the above example, the total output power is:

$$P_{out} = 7.0 \times 0.35 = 2.45W$$

So the  $P_{in} = 2.45/0.8 + 1 = 4W$  (note that the additional 1W is the power consumption for other on board circuit), In this case, the AC-DC output current should be bigger than  $4/12 = 0.33A$ , Here, we assume a 12V AC-DC adapter is used, and in this case, a 12V/1.0A adapter is a good choice.

2>. Although each channel may output 21V maximum load voltage and 1.2A maximum current, the maximum power output limit is 10W, which means while output 21V, the current should not be more than 0.48A (in DC mode), the same for the case of 1.2A output (in this case, the output voltage should be kept less than 8.4V).

## CHANNEL I/O PIN DEFINITION

Each Channel has four pins, defined as following:

Signal	LED+	LED-	Analog Signal	Analog Input GND
Description	LED Anode	LED Cathode	0-5V Analog Input*	Analog Input GND

\*. *In Analog Input Control Mode, the output current is linearly proportional to input voltage.*

## MECHANICAL SPECIFICATION:

Dimension: 150mm(L) x 106mm (W) x 55mm ( H )

Weight: 250g

Distributor



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