Table of Content

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Manual & Analog-Input Controlled Universal LED Controller with Current Display

Mightex's SLB-1200-1 universal LED driver is designed for driving a broad range of LED light sources. The LED driver has two operational modes:

1) **Manual Knob Control Mode:** the output current can be adjusted manually;
2) **Analog Input Control Mode**: the output current can be controlled via a 0~5V analog input signal.

The control mode is set via a DIP switch, and the factory default setting is "Manual Knob Control Mode". The driver also has a Maximum Current Setting DIP Switch, which allows user to set the maximum current to 350mA, 750mA or 1200mA, whichever applicable. The factory default sBetting is 350mA. When the Maximum Current Setting DIP Switch is set at a smaller value (e.g. 350mA), the LED driver has a finer resolution for the output current.
When the driver is set to "Analog Input Control Mode", the output current is proportional to the voltage of the analog input signal.

ELECTRICAL SPECIFICATION

Parameters	SLA-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.

** If the channel output voltage is V_d and the output current is I_d, they must simultaneously satisfy the following conditions: (1) $V_d <= V_{max}$; (2) $I_d <= I_{max}$; and (3) $V_d * I_d <= P_{max}$.

CHANNEL I/O PIN DEFINITION

Each channel has four pins, defined as follows:

Pin Label	LED+	LED-	Analog Signal	Analog Input GND
Description	LED Anode	LED Cathode	0~5V Analog Input	Analog Input Ground

Manual and Analog-Input Controlled Universal 2-Channel LED Controllers

Mightex's SLA-series 2- channel universal LED controllers are designed to drive a broad range of LED light sources. These LED drivers have two operational modes:

1) **Manual Knob Control Mode**: the current output of each channel can be adjusted manually;
2) **Analog Input Control Mode**: the current output of each channel can be controlled via 0 ~ 5V analog input

The control mode is set via a DIP switch, and the factory default setting is "Manual Knob Control Mode". The drivers also have a Maximum Current Setting DIP Switch, which allows user to set the maximum current to 350mA, 750mA or 1200mA, whichever applicable. The factory default setting is 350mA. When the Maximum Current Setting DIP Switch is set at a smaller value (e.g. 350mA), the LED driver has a finer resolution for the output current. When the driver is set to "Analog Input Control Mode", the output current is proportional to the voltage of the analog input signal. For the 2-channel models, the operational mode and the current limit of each channel can be set independently from each other.

ELECTRICAL SPECIFICATION

Parameters	SLA-0350-2	SLA-0750-2	SLA-1200-2	Unit
Number of Channels	2	2	2	
Power Supply Input Voltage (V_{dc})	9 ~ 24	9 ~ 24	9 ~ 24	V
Maximum Output Voltage (V_{max}) [1]	<21	<21	<21	V
Maximum Per Channel Output Current (I_{max}) [2]	350	750	1200	mA
Maximum Per Channel Output Power (P_{max}) [3]	10	10	10	W

1. Maximum Output Voltage is 3V less than the Power Supply Input Voltage, i.e. $V_{max} = V_{dc}$ -3V. For instance, with a Power Supply Input Voltage of V_{dc}=24V, the Maximum Output Voltage V_{max} would be (V_{dc}-3V)=21V; and

2. If the channel output voltage is V_d and the output current is I_d, they must simultaneously satisfy: (1) $V_d <= V_{max}$; (2) $I_d <= I_{max}$; and (3) Vd * Id <= P_{max}.

3. If the channel output voltage is Vd and the output current is Id, they must simultaneously satisfy: (1) Vd <= Vmax ; (2) Id <= Imax; and (3) Vd * Id <= Pmax.

CHANNEL I/O PIN DEFINITION

Each channel has four pins, defined as follows:

Pin Label	LED+	LED-	Analog Signal	Analog Input GND
Description	LED Anode	LED Cathode	0~5V Analog Input	Analog Input Ground

Compact Universal 1- and 2- Channel LED Controllers

Mightex's Compact 1- and 2- Channel Computer-Controlled Universal LED Drivers are designed to drive a broad range of LED light sources. Each unit comes with a powerful PC-based software with a user-friendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a full-featured SDK is provided, in order for users to write their own software and to integrate Mightex's LED drivers into their own systems. Furthermore, the drivers have a built-in protection feature, allowing users to limit LED driving current and voltage.

Each channel can be individually configured to work under one of the following two modes:

1) **Normal Mode (or DC Mode)**: The output current is a constant, which can be adjusted (using software) from 0 mA to 1,000 mA, through the USB interface;

2) Strobe Mode: A Pulse-Width-Modulated (or PWM) periodic strobe pattern is output from the channel, which can be turned on by a software trigger. The strobe pattern may last indefinitely or for a preset number of cycles. The frequency of the PWM strobe can be up to 500Hz

In addition, each channel can be individually **DISABLED** and **ENABLED**. No voltage or current is output from a DISABLED channel.

ELECTRICAL SPECIFICATION

Parameters	SLC-MA01-U	SLC-MA02-U	Unit
Number of Channels	1	2	
Power Supply Input Voltage (V_{dc})	9 ~ 24		V
Maximum Output Voltage (V_{max}) [1]	<21		V
Maximum Per Channel Output Current (I_{max})	1,000		mA
Maximum Per Channel Output Power (P_{max}) [2]	10		W
Output Current Resolution	1		mA
Output Current Accuracy	±5 mA or ±1.0%, whichever is larger		mA
Output Current Repeatability	±2 mA or ±0.5%, whichever is larger		mA
PWM Timing Resolution [3]	100		ms
PWM Timing Minimum Step Size [3]	1,000		ms
Interface	USB		

1. Maximum Output Voltage is 3V less than the Power Supply Input Voltage, i.e. $V_{max} = V_{dc} - 3V$. For instance, with a Power Supply Input Voltage of V_{dc}=24V, the Maximum Output Voltage V_{max} would be (V_{dc}-3V)=21V;
2. If the channel output voltage is V_d and the output current is I_d, they must simultaneously satisfy: (1) $V_d <= V_{max}$; (2) $I_d <= I_{max}$; and (3) Vd * Id <= P_{max}; and
3. Each period of a PWM square wave comprises of ON time and OFF time, i.e. two (2) 'steps'. The minimum value for each step is 1000ms, and the minimum increment is 100ms.

CHANNEL I/O PIN DEFINITION

Each Channel has two pins, defined as following:

Label	LED+	LED-
Description	LED Anode	LED Cathode

Universal 2- and 4-Channel LED Controllers with External Triggers

Mightex has developed a series of computer-controllable, multi-channel, universal LED controllers, which can be used to drive any type of LED in any of the three (3) modes: 'NORMAL' (or 'constant current'), 'STROBE', and/or external 'TRIGGER' mode. Each unit comes with PC-based software with a user-friendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a powerful SDK is provided, in order for users to write their own software and to integrate Mightex's LED drivers into their own systems. Furthermore, the drivers have a built-in security feature, allowing users to limit LED driving current and voltage.

ELECTRICAL SPECIFICATION

Parameters	SLC-AA02-US SLC-AA04-US	SLC-AV02-US SLC-AV04-US	SLC-SA02-US SLC-SA04-US	SLC-SV02-US SLC-SV04-US	Unit
Power Supply Input Voltage, V(dc)	9 ~ 24				V
Power Supply Input Current	< 4000				mA
Per Channel Driving Voltage (max)	11.5V (with a 12V DC input) or 23.5V (with a 24V DC input)				V
Per Channel Driving Current	0 ~ 1000 ("NORMAL" MODE)				mA
	0 ~ 3500 ("STROBE" or "TRIGGER" MODE)				mA
Output Current Resolution	1				mA
Output Current Linearity	+/-4 (or +/-0.5%)				mA
Output Current Repeatability	+/-1 (or +/-0.2%)				mA
Trigger Input High Level	4.5 ~ 10.0				V
Trigger Input Low Level	0.8 (Max.)				V
Forward Voltage Monitoring Capability	No	Yes	No	Yes	-
Forward Voltage Monitoring Accuracy	N.A.	+/-10	N.A.	+/-10	mV

TIMING SPECIFICATION:

Parameters	SLC-AA02-US SLC-AA04-US	SLC-AV02-US SLC-AV04-US	SLC-SA02-US SLC-SA04-US	SLC-SV02-US SLC-SV04-US	Unit
Timing Resolution	20				µs
# of Data Points for Waveform Definition	128		2		-
Trigger Pulse Width	100 (Minimum)				µs
Max Trigger Delay	25				µs

High-Precision Universal 2- and 4-Channel LED Controllers with External Triggers

Mightex has developed a series of computer-controllable, multi-channel, universal LED controllers, which can be used to drive any type of LED in any of the three (3) modes: 'NORMAL' (or 'constant current'), 'STROBE', and/or external 'TRIGGER' mode. Each unit comes with PC-based software with a user-friendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a powerful SDK is provided, in order for users to write their own software and to integrate Mightex's LED drivers into their own systems. Furthermore, the drivers have a built-in security feature, allowing users to limit LED driving current and voltage.

ELECTRICAL SPECIFICATION

Parameters	SLC-FA02-US SLC-FA04-US	SLC-FV02-US SLC-FV04-US	SLC-XA02-US SLC-XA04-US	SLC-XV02-US SLC-XV04-US	Unit
Power Supply Input Voltage, V(dc)	9 ~ 24				V
Power Supply Input Current	< 4000				mA
Per Channel Driving Voltage (max)	11.5V (with a 12V DC input) or 23.5V (with a 24V DC input)				V
Per Channel Driving Current	0 ~ 100 ("NORMAL" MODE)				mA
	0 ~ 350 ("STROBE" or "TRIGGER" MODE)				mA
Output Current Resolution	0.1				mA
Output Current Linearity	+/-4 (or +/-0.5%)				mA
Output Current Repeatability	+/-1 (or +/-0.2%)				mA
Trigger Input High Level	4.5 ~ 10.0				V
Trigger Input Low Level	0.8 (Max.)				V
Forward Voltage Monitoring Capability	No	Yes	No	Yes	-
Forward Voltage Monitoring Accuracy	N.A.	+/-10	N.A.	+/-10	mV

TIMING SPECIFICATION:

Parameters	SLC-FA02-US SLC-FA04-US	SLC-FV02-US SLC-FV04-US	SLC-XA02-US SLC-XA04-US	SLC-XV02-US SLC-XV04-US	Unit
Timing Resolution	20				µs
# of Data Points for Waveform Definition	2		128		-
Trigger Pulse Width	100 (Minimum)				µs
Max Trigger Delay	25				µs

High-Current Universal 2-Channel LED Controllers with External Triggers

Mightex has developed a series of computer-controllable, multi-channel, universal LED controllers, which can be used to drive any type of LED in any of the three (3) modes: 'NORMAL' (or 'constant current'), 'STROBE', and/or external 'TRIGGER' mode. Each unit comes with PC-based software with a user-friendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a powerful SDK is provided, in order for users to write their own software and to integrate Mightex's LED drivers into their own systems. Furthermore, the drivers have a built-in security feature, allowing users to limit LED driving current and voltage.

ELECTRICAL SPECIFICATION

Parameters	SLC-HA02-US	SLC-HV02-US	Unit
Power Supply Input Voltage, V(dc)	9 ~ 12		V
Power Supply Input Current	4,000		mA
Per Channel Driving Voltage (max)	Up to 11.5		V
Maximum Per Channel Driving Current	2,000 ("NORMAL" MODE)		mA
	3,500 ("STROBE" or "TRIGGER" MODE)		mA
Output Current Resolution	1		mA
Output Current Linearity	+/-4 (or +/-0.5%)		mA
Output Current Repeatability	+/-1 (or +/-0.2%)		mA
Trigger Input High Level	3.3 ~ 10.0		V
Trigger Input Low Level	0.8 (Max.)		V
Forward Voltage Monitoring Accuracy	N/A	+/-10	mV

TIMING SPECIFICATION:

Parameters	SLC-HA02-US	SLC-HV02-US	Unit
Timing Resolution	20		µs
# of Data Points for Waveform Defini-	2		
Trigger Pulse Width	100 (Minimum)		µs
Max Trigger Delay	25		µs

Universal 12- and 16- Channel LED Controllers

Mightex's 12- and 16- Channel Computer-Controlled Universal LED Drivers are designed to drive a broad range of LED light sources. Each unit comes with a powerful PC-based software with a user-friendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a full-featured SDK is provided, in order for users to write their own software and to integrate Mightex's LED drivers into their own systems. Furthermore, the drivers have a built-in protection feature, allowing users to limit LED driving current and voltage.

Each channel can be individually configured to work under one of the following two modes:

Normal Mode (or DC Mode): The output current is a constant, which can be adjusted (using software) from 0 mA to 1,000 mA, through the USB interface;

Strobe Mode: A Pulse-Width-Modulated (or PWM) periodic strobe pattern is output from the channel, which can be turned on by a software trigger. The strobe pattern may last indefinitely or for a preset number of cycles. The frequency of

In addition, each channel can be individually **DISABLED** and **ENABLED**. No voltage or current is output from a DISABLED channel.

ELECTRICAL SPECIFICATION

Parameters	**SLC-CA12-U SLC-CA12-S**	**SLC-CA16-U SLC-CA16-S**	**SLC-MA12-U SLC-MA12-S**	**SLC-MA16-U SLC-MA16-S**	**Unit**
Number of Channels	12	16	12	16	
Power Supply Input Voltage (V_{dc})	9 ~ 24		9 ~ 24		V
Maximum Output Voltage (V_{max}) [1]	<21		<21		V
Maximum Per Channel Output Current (I_{max})	1,000		1,000		mA
Maximum Per Channel Output Power (P_{max}) [2]	10		10		W
Output Current Resolution	5		1		mA
Output Current Accuracy	±10 mA or ±2.0%, whichever is larger		±5 mA or ±1.0%, whichever is larger		mA
Output Current Repeatability	±5 mA or ±1%, whichever is larger		±2 mA or ±0.5%, whichever is larger		mA
PWM Timing Resolution [3]	100		100		µs
PWM Timing Minimum Step Size [3]	1,000		1,000		µs
Interface	USB (-U) or RS232 (-S)				

1. Maximum Output Voltage is 3V less than the Power Supply Input Voltage, i.e. $V_{max} = V_{dc} - 3V$. For instance, with a Power Supply Input Voltage of V_{dc}=24V, the Maximum Output Voltage V_{max} would be (V_{dc}-3V)=21V;
2. If the channel output voltage is V_d and the output current is I_d, they must simultaneously satisfy: (1) $V_d <= V_{max}$; (2) $I_d <= I_{max}$; and (3) Vd * Id <= P_{max}; and
3. Each period of a PWM square wave comprises of ON time and OFF time, i.e. two (2) 'steps'. The minimum value for each step is 1000ms, and the minimum increment is 100ms.

CHANNEL I/O PIN DEFINITION

Each channel has two pins, defined as following:

Label	LED+	LED-
Description	LED Anode	LED Cathode

High-Current Dual-Mode (Manual/Software) LED Controller

Mightex's SLB-HA01-U LED controller is a constant-current source, and it is designed as a universal LED controller capable of driving a broad range of LED's. The device has two control modes:

- **Software Control Mode**: The device can be controlled via USB interface by software on a host (e.g. a PC).
- **Manual Control Mode**: When the device is set to NORMAL mode, the device can be manually controlled via a knob and three buttons on its front panel.

The SLB-HA01-U LED controller has one (1) output channel. It has a USB interface through which the device can be controlled by a host (e.g. a PC). In addition, it also has a turning knob, three buttons, and a 2x16 LCD display on its front panel, through which user can control the output current manually. In addition, one can set the maximum output current (Imax), manually or by software, and then adjust the actual output current ranging from 0 to Imax via the knob or via software.

ELECTRICAL SPECIFICATION

Parameters	SLB-HA01-U	Unit
Power Supply Input Voltage,	9 ~ 24	V(dc)
Max Output Voltage	V(dc) - 1.0	V
Channel Driving Current	0~2000 (in CW mode)	mA
	0~3500 (in Strobe/Trigger mode)	mA
Current Resolution	1 (in 0~3500mA range)	mA
Current Accuracy	+/-4 or +/-0.5% (whichever is larger)	mA
Current Repeatability	+/-1 or +/-0.2% (whichever is larger)	mA
Trigger Input High Level	4.5~10.0	V
Trigger Input Low Level 0~0.8 V	0~0.8	V

CHANNEL I/O PIN DEFINITION:

The channel has four pins as follows:

Pin Label	LED +	LED -	Trigger +	Trigger -
Description	LED Anode	LED Cathode	External Trigger +	External Trigger -