

## Computer-Controllable Two-/Four-Channel Universal LED Drivers

(Part Numbers: SLC-AA02-US, SLC-AV02-US, SLC-SA02-US, SLC-SV02-US, SLC-AA04-US, SLC-AV04-US, SLC-SA04-US, SLC-SV04-US)

### **FEATURES**

- Computer controllable
- Universal suitable for any LED
- Capable of driving variable loads
- User friendly application software with GUI
- SDK and Rich RS232 command set included for custom applications
- Normal, Strobe and Trigger mode for every channel
- Programmable constant current, pulse-width modulation and/or arbitrary waveform
- Driving current up to 1A in DC mode and up to 3.5A in pulse mode, with over current protection
- Up to 23.5V output voltage for each channel
- Built-in non-volatile memory, can be used without a PC

### **APPLICATIONS**

- Machine vision
- Displays
- Microscopy
- Semiconductor equipment
- Testing instruments
- Medical instruments
- Lighting

#### PRODUCT DESCRIPTION

Mightex has developed a series of computer-controllable, multichannel, universal LED drivers, 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 userfriendly GUI, which enables users to drive LEDs without the need to write any code. In addition, a powerful SDK and a rich RS232 command set are 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.



This datasheet covers four (4) product series (i.e. AA, AV, SA, and SV), which currently include eight (8) models in total. The following table, which can also be used as a product selection guide, compares the key features of the 16 product models.

	# of	Control Mode <sup>(1)</sup>			Arbitrary		Forward
P/N	Channels	NORMAL	STROBE	TRIGGER	Waveform <sup>(2)</sup>	Interface <sup>(3)</sup>	Voltage Monitoring
SLC-SA02-US	2	•	•	•		USB & RS232	
SLC-SV02-US	2	•	•	•		USB & RS232	•
SLC-AA02-US	2	•	•	•	•	USB & RS232	
SLC-AV02-US	2	•	•	•	•	USB & RS232	•
SLC-SA04-US	4	•	•	•		USB & RS232	
SLC-SV04-US	4	•	•	•		USB & RS232	•
SLC-AA04-US	4	•	•	•	•	USB & RS232	
SLC-AV04-US	4	•	•	•	•	USB & RS232	•

Notes: (1) Each output channel can be individually configured to work in one of the following three (3) modes, controlled through a PC-based software with GUI. In all three modes, overdrive current limit can be set:

**Normal**: Constant current output at any value from 0mA to 1,000mA with 12-bit resolution.

<u>Trigger</u>: External trigger signal could be used to turn on each individual channel, generating driving current with any user-defined waveform. Alternatively, each output channel can work under the "FOLLOWER" mode, in which the current output follows the waveform of the trigger input; and

**Strobe**: Internal Strobe Generator generates frequencies as high as 25KHz. The strobe signal (i.e. current levels, duty cycle and strobe frequency) can be set through software. For AA and AV series, the strobe signal can be a user-defined arbitrary waveform with 128 data points.

(2) Arbitrary Waveform. Using the included application software or SDK or RS232 command set, user may define

any arbitrary waveform using 128 data points.

(3) There is a flip switch on the back of the unit, which allows users to select either the USB2.0 or the RS232 interface.



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SLC-AA04-US, SLC-AV04-US, SLC-SA04-US, SLC-SV04-US)

### **ELECTRICAL SPECIFICATION**

Parameters	SLC-AAxx-xx	SLC-AVxx-xx	SLC-SAxx-xx	SLC-SVxx-xx	Unit
Power Supply Input Voltage V <sub>dc</sub>		9 ~ 24			V
Power Supply Input Current	< 4,000			mA	
Per Channel Driving Voltage (max) 1	< 23.5V				V
	0 ~ 1,000 ("NORMAL" Mode)				mA
Per Channel Driving Current	0 ~ 3,500 ("STROBE" or "TRIGGER" Mode)				mA
Output Current Resolution	12			bit	
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 Accuracy	N.A.	+/-10	N.A.	+/-10	mV

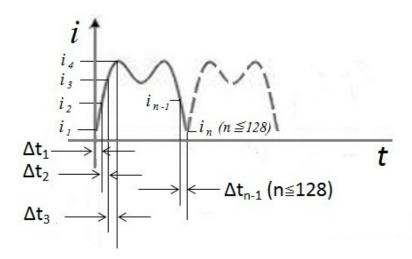
Notes: 1. Maximum Output Voltage is 0.5V less than the Power Supply Input Voltage. For instance, with a Power Supply Input Voltage of V<sub>dc</sub> = 24V, the Maximum Output Voltage Vmax would be  $V_{dc}$  - 0.5V = 23.5V.

### TIMING SPECIFICATION

Parameters	SLC-AAxx-xx	SLC-AVxx-xx	SLC-SAxx-xx	SLC-SVxx-xx	Unit
Timing Resolution	20			μs	
# of Data Points for Waveform Definition	1	28	:		
Trigger Pulse Width	100 (Minimum)			μs	
Max Trigger Delay	25			μs	

### What's "Arbitrary Waveform"?

For some LED controller models, one can use up to 128 pairs of [current (mA), duration (µs)] data points to define the 'shape' of the waveform. This will allow one to define an 'Arbitrary Waveform' for the LED driving current and consequently the LED's optical output. Details see diagram below.



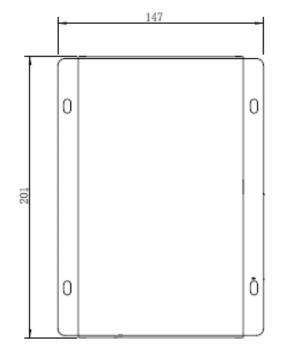
	I(mA)	T(µS)	
1	i <sub>1</sub>	$\Delta t_1$	
2	i <sub>2</sub>	$\Delta t_2$	
3	i <sub>3</sub>	Δt <sub>3</sub>	
4	i <sub>4</sub>	∆t <sub>4</sub>	
n-1	i <sub>n-1</sub>	$\Delta t_{n-1}$	
n	in	$\Delta t_n$	
	0	0	



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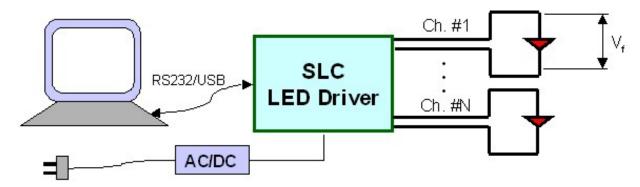
SLC-AA04-US, SLC-AV04-US, SLC-SA04-US, SLC-SV04-US)

### INSTALLATION DRAWING





### **APPLICATION DIAGRAM**



### **OPERATION CONDITION**

Operating Temperature Range: 0°C ~ 45°C Storage Temperature Range: -25°C ~ 85°C Relative Humidity, Non-condensing: 5% ~ 95%

### **DIMENSION AND WEIGHT**

Dimension: 201mm(L) x 147mm (W) x 40mm (H)

600g Weight:



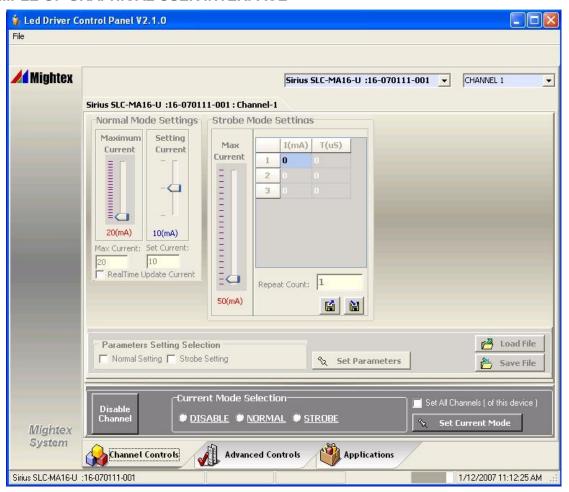




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### **EXAMPLE OF GRAPHICAL USER INTERFACE**



With a world-class OEM design team, Mightex offers a broad range of customized solutions in order to meet individual customer's unique requirements. Please call 1-416-840 4991 or email sales@mightex.com for details.

