

I-DRIVE 3, 12 WATT LED DRIVER

Dual Mode, 120V, (0-100mA Day), 120V, (0-30mA NVIS)

GENERAL DESCRIPTION

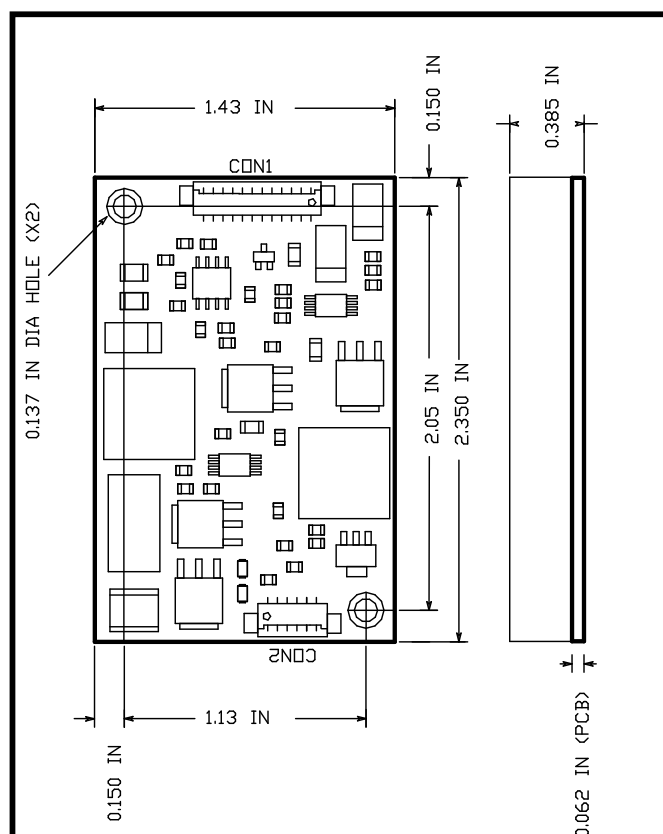
The ACI-2596 provides a single board LED Driver solution for the powering of a LED backlight consisting of two types of LEDs, High Bright "Day" LEDs, and IR filtered "NVIS" LEDs.

This driver operates as a Dual Mode constant current LED Driver. In "Day" mode, the driver supplies power out of the Day channel, and in the "NVIS" mode, out of the NVIS channel. Mode selection is accomplished via a signal provided by the user on pin 9 of CON1.

The driver is capable of driving series connected LEDs with a forward drop of up to 95V, and operates over an input voltage range of +9V to +18V.

This driver also features an enable and intensity control input with logarithmic output brightness response, yielding a combined dimming range of greater than 10,000 to 1.

This unit features enable and intensity control inputs, and is designed to work with the Digital View LCD Controller and Button Board (See page 3 for more information).



INPUT CONNECTOR
CON1
MOLEX 53261-1271

OUTPUT CONNECTOR
CON2
MOLEX 53261-0671

PIN#	FUNCTION	PIN#	FUNCTION
1	+9 TO +18V (PWR)	1	+LED (ANODE)
2	+9 TO +18V (PWR)	2	+LED (ANODE)
3	+9 TO +18V (PWR)	3	-LED (NVIS CATHODE)
4	GND (PWR)	4	-LED (NVIS CATHODE)
5	GND (PWR)	5	-LED (DAY CATHODE)
6	GND (PWR)	6	-LED (DAY CATHODE)
7	ENABLE		
8	ICNTL		
9	DAY/NVIS MODE SELECT		
10	NC		
11	GND (SIGNAL)		
12	+5V REF OUT		

MECHANICAL/ENVIRONMENTAL

Weight = 20.5 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 2.35 IN x 1.43 IN x 0.385 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.137 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

RoHS Compliant

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.7 to 20	Vdc
Vip	Voltage applied to any Input Pin (Referenced to Ground)	-0.7 to 5.7	Vdc
Iop	Current sourced or sinked from any Output Control Pin	+/- 10	mAdc
Pin	Input Power (DC Input Voltage x DC Input Current)	16.0	W
Top	Operating Temperature (Still air ambient around Driver)	-30 to +85	°C
Tstg	Storage Temperature	-40 to +105	°C

*Maximum Ratings are those values beyond which damage to the driver may occur.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	9.0	18.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage (Day or NVIS)	36	120	Vdc
Icntl	LED Intensity Control Voltage	0.1	4.6	Vdc

ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Vf=120V Icntl = +0.1V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	133	140	147	Vdc
ENoff	Enable Control, Unit Off	Pin 7 <= 0.5V			0.5	Vdc
ENon	Enable Control, Unit ON	Pin 7 >= 2.0V	2.0			Vdc
Ms	Mode Select, Day Mode	Pin 9 >= 2.0V	2.0			Vdc
Ms	Mode Select, NVIS Mode	Pin 9 <= 0.5V			0.5	Vdc
+5Vref	+5V Output Reference Voltage	1K Ohm Load to Ground (Pin 12)	4.75	5.0	5.25	Vdc
Iind	Input Current Draw (Disabled)	Enable (Pin 7) = 0V		0.08		mA
Eff	Electrical Efficiency		87			%
Day Mode, Ms = 5V						
Iout	Output Current		95	100	105	mA
Iadj	Nominal Output Current Adjustment Range	Icntl(Pin 8) = +4.6V to +0.1V	0		100	mA
Iin	Input Current Draw	Vf = 120V		1.2		Adc

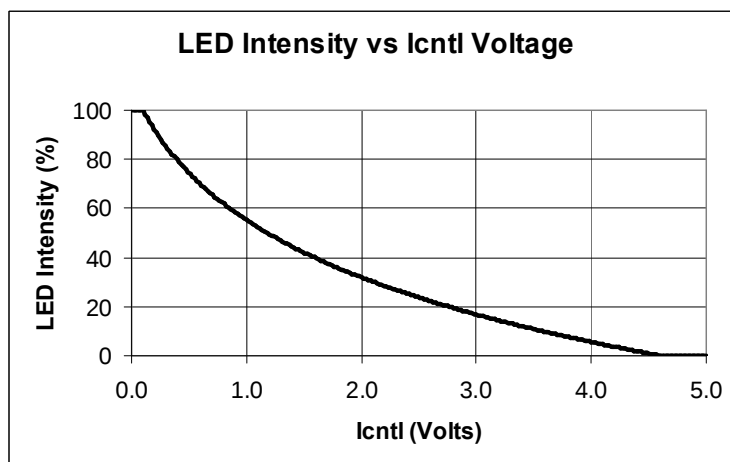
Electricals continued on page 3.

ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Vf=120V Icntl = +0.1V, Enable = +5V unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
NVIS Mode, Ms = 0V						
Iout	Output Current		28.5	30	31.5	mA
Iadj	Nominal Output Current Adjustment Range	Icntl(Pin 8) = +4.6V to +0.1V	0		30	mA
Iin	Input Current Draw	Vf = 120V		0.35		Adc

BRIGHTNESS CURVE



NOTE: The intensity response curve is designed to be compatible with the Digital View LCD Controller and Button Board.

Digital View LCD Controllers and Jumper Settings

LCD Controller	Jumper Settings
ALR-1400	(JB2 = 2-3) (JB3 = 1-2) (JP2 = 1-2)
ALR-1920	(JB2 = 2-3) (JB3 = 1-2) (JB5 = 1-2)
DVS-1600	(JB1 = 2-3) (JB2 = 2-3) (JB3 = 1-2) (JB5 = 1-2)
SP-1600	(JB2 = 2-3) (JB3 = 1-2) (JP3 = 1-2)
SVH-1920	(JB2 = 2-3) (JB3 = 1-2) (JP3 = 1-2)



TIMING DIAGRAM – Example of Switching from NVIS to Day Mode

When user wants to switch modes, do the following:

1. Change to the desired mode, via Pin 11 on CON1 (This is shown to occur at T0).
2. Update Icntl setting, Pin 10 on CON1, within 200ms of mode change.
3. 200ms after mode change, the output channel will switch, and the new Icntl setting will appear (this is shown to occur at T1).