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## I-DRIVE 3, 8.1 WATT LED DRIVER

Dual Mode, 90V, (0-90mA Day), 90V, (0-30mA NVIS)

### GENERAL DESCRIPTION

The ACI-3035 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 90V, 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,

Unit is designed to work with the Digital View LCD Controller and Button Board (See page 3 for more information).

### 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

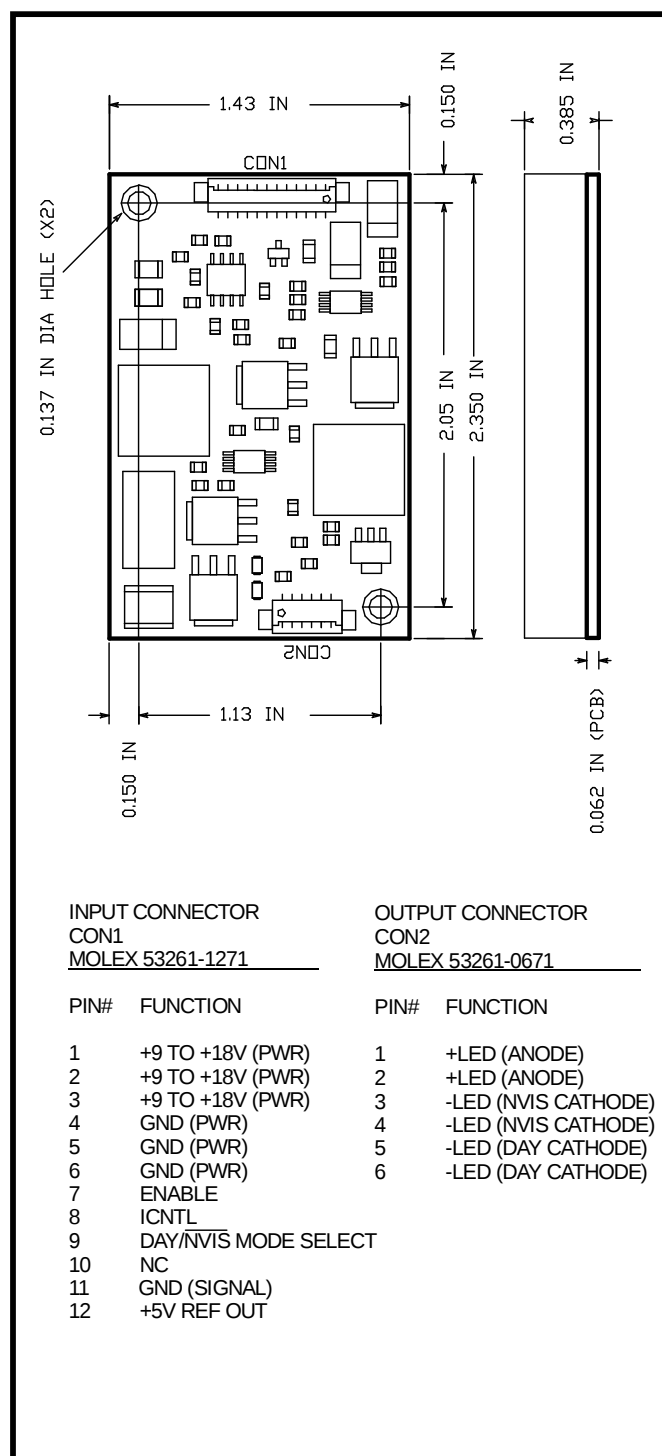
LED Output Connector = CON2

RoHS Compliant

# ACI-3035

## PRODUCT DATA SHEET

11/19/2019



### 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)       | 10.8        | 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  | 90   | Vdc  |
| Icntl  | LED Intensity Control Voltage                                      | 0.1 | 4.6  | Vdc  |

### ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Vf=90V, Icntl = +0.1V, Enable = +5V, unless otherwise specified.

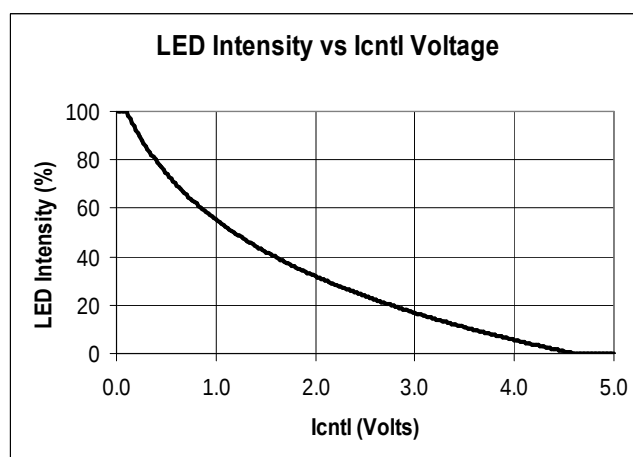
| Symbol            | Parameter                               | Test Conditions                | Min  | Nom  | Max  | Unit |
|-------------------|-----------------------------------------|--------------------------------|------|------|------|------|
| OCV               | Open Circuit Voltage                    | 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                          |                                | 85   | 90   | 95   | mA   |
| Iadj              | Nominal Output Current Adjustment Range | Icntl(Pin 8) = +4.6V to +0.1V  | 0    |      | 90   | mA   |
| Iin               | Input Current Draw                      | Vf = 90V                       |      | 0.78 |      | Adc  |

Electricals continued on page 3.

#### ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Vf=90V, Icntl = +0.1V, Enable = +5V unless otherwise specified.

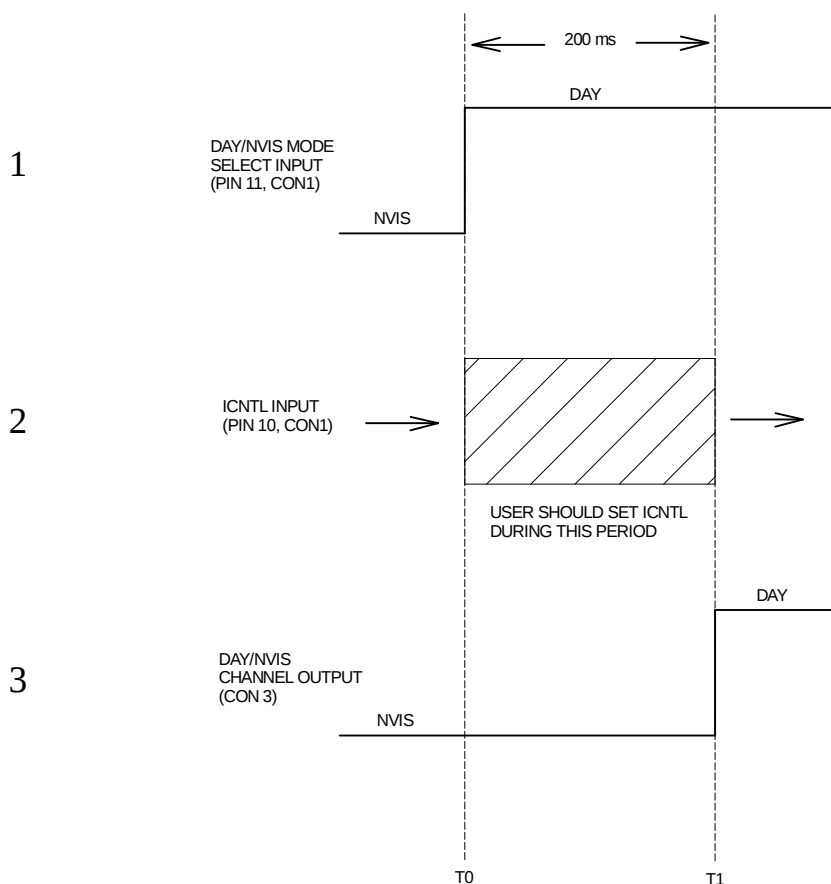
| Symbol             | Parameter                               | Test Conditions               | Min | Nom  | Max | Unit |
|--------------------|-----------------------------------------|-------------------------------|-----|------|-----|------|
| NVIS Mode, Ms = 0V |                                         |                               |     |      |     |      |
| Iout               | Output Current                          |                               | 28  | 30   | 32  | mA   |
| Iadj               | Nominal Output Current Adjustment Range | Icntl(Pin 8) = +4.6V to +0.1V | 0   |      | 30  | mA   |
| Iin                | Input Current Draw                      | Vf = 90V                      |     | 0.26 |     | Adc  |



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).