

RADIANCE™

SUNLIGHT READABLE LED DISPLAYS

RAD-190AUSX1

PRODUCT DATA SHEET – PAGE 1 OF 7

03/22/10

19.0" SXGA LED BACKLIT TFT DISPLAY SOLUTION

SOLUTION OVERVIEW:

The **RAD-190AUSX1 Display** consists of the 19.0" AUO M190EG01 V2 SXGA TFT LCD Display complete with a high performance LED backlight.

Display Features:

- Sunlight readable LCD panel with high efficiency solid state LED backlight
- **1000 cd/m² with 53W**, Sunlight Readable
- Ideal for demanding Industrial, Military and Marine applications, as well as Outdoor Kiosks, POS, and Gas Pumps
- Highly reliable LED backlight configuration provides light-source redundancy
- Includes LED drivers with ultra-wide dimming range
- Exceeds performance of comparable CCFL backlight by 1.50 to 1
- RoHS Compliant

Sunlight Readability/Cool Operation



SOLUTION INCLUDES:

<u>QTY</u>	<u>P/N</u>	<u>DESCRIPTION</u>
1	ACD-AU190-1895	19.0" SXGA TFT LCD Display with High-Performance LED Backlight
2	ACI-E120250-1879	LED Driver
2	27-R0061	Input Cable Assembly

Also available: LCD Controller, LVDS Cable, OSD and Cable.

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DISPLAY SPECIFICATIONS

Panel Manufacturer	AUO
Manufacturer's Part Number	M190EG01 V2
Size	19.0"
Resolution	SXGA 1280(x3) (H) x 1024 (V)
Contrast Ratio	1300:1 (typical)
Pixel Pitch	0.294 (per one triad) x 0.294 (mm)
Operating Temperature Range	0 to +50°C
Response Time	20ms (typical)
Viewing Angle	178° (Horizontal), 178° (Vertical)
Panel Power (not including backlight)	7.5W
Interface	LVDS Dual Channel
Display Colors	16.2M colors 8-bits (6-bits + HiFRC)
Surface Treatment, Polarizer surface	Non-Glare Treatment
Surface Treatment, Polarizer pencil-hardness	3H
Display Mode	Negative

For complete LCD specifications (standard panel), refer to AUO M190EG01 V2 datasheet (document version 0.7 dated Oct. 2, 2008).

BACKLIGHT SPECIFICATIONS

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Top	Operating temperature of display (center of panel surface)	0 to +50	Deg-C
Tled	Operating temperature of LED edge light (light rail contact)	-20 to +75	Deg-C
Tstg	Display storage temperature	-20 to +60	Deg-C
Ifwd	LED Forward Current	125	mADC

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

PANEL/BACKLIGHT OPTICAL CHARACTERISTICS

Ifwd = 62.5mA per bank (LED rail ACR-1054-1891, 4 banks per rail), Ta = +25Deg-C, LCD un-powered

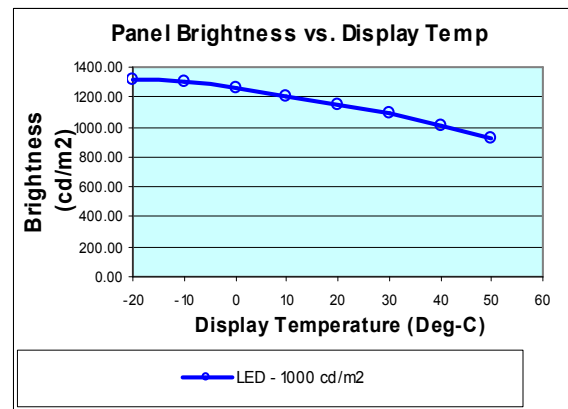
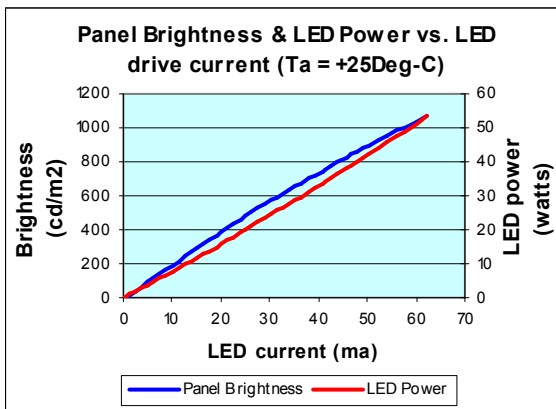
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Bp	Panel Brightness		900	1000	1100	cd/m ²
X	White X coordinate			0.329		-
Y	White Y coordinate			0.376		-

LED EDGE-LIGHT ELECTRICAL CHARACTERISTICS

Ifwd = 62.5mA per bank, 4 banks per rail, 2 rails per display, Top = +25Deg-C

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Vfwd	LED rail forward voltage drop		94	105	116	Vdc

TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS



LED DRIVER SPECIFICATIONS

I-DRIVE, 30 WATT LED DRIVER

(Single Channel 120V, 0-250mA)

GENERAL DESCRIPTION

The ACI-E120250-1879 represents the 5th generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving up to 40 LEDs in series. This driver provides a complete integrated solution that is regulated over an input range of +10V to +15V.

Simple to connect and operate, this driver solution is capable of providing precise control to support dimming applications with a minimum of 3000:1.

This unit features enable and intensity control inputs.

MECHANICAL/ENVIRONMENTAL

Weight = 33.2 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

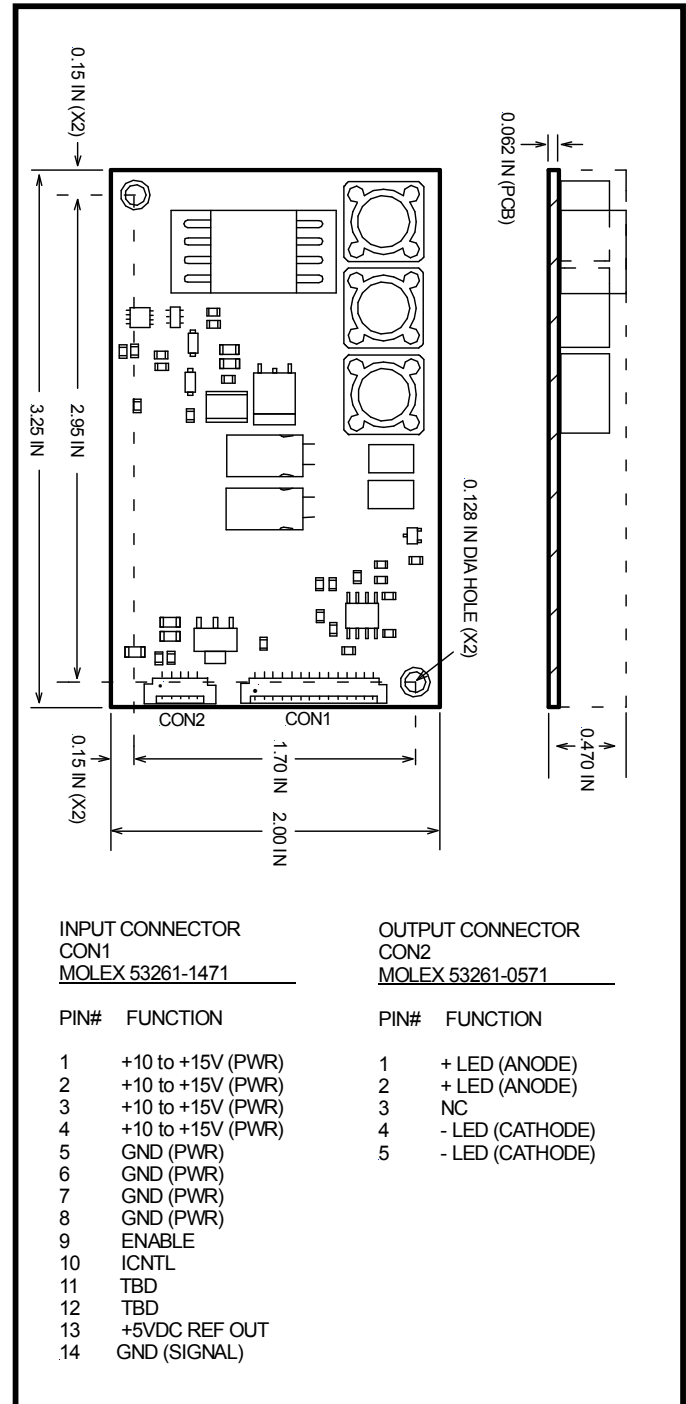
Size (L x W x H) = 3.25 IN x 2.00 IN x 0.47 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2



LED DRIVER SPECIFICATIONS

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)	35	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

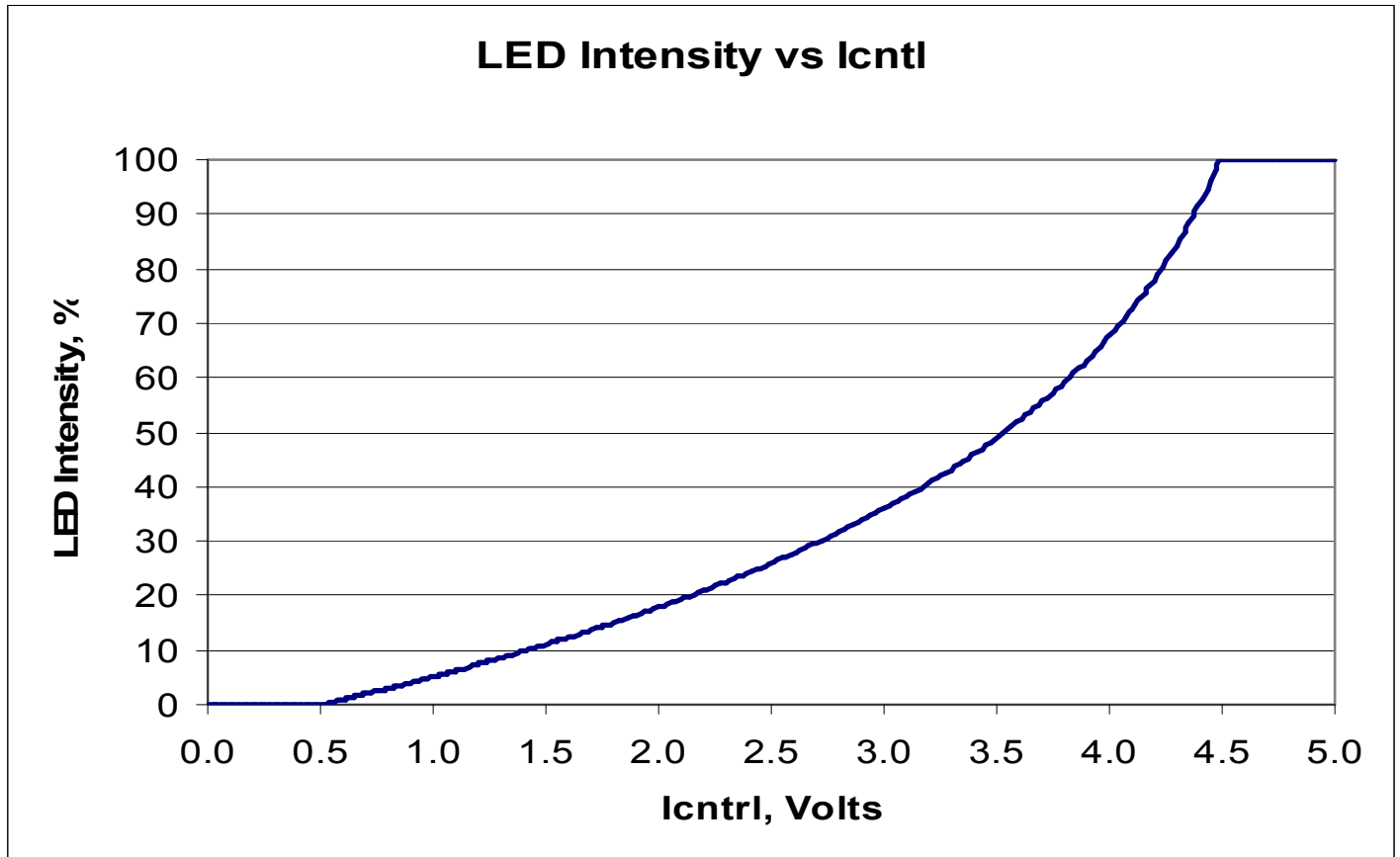
Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	10.0	15.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	36	110	Vdc
Icntl	LED Intensity Control Voltage	0.5	4.5	Vdc

ELECTRICAL CHARACTERISTICS

Vin = +12V, Vf = 110Vdc, Icntl = +4.5V, Enable = +5V unless otherwise specified

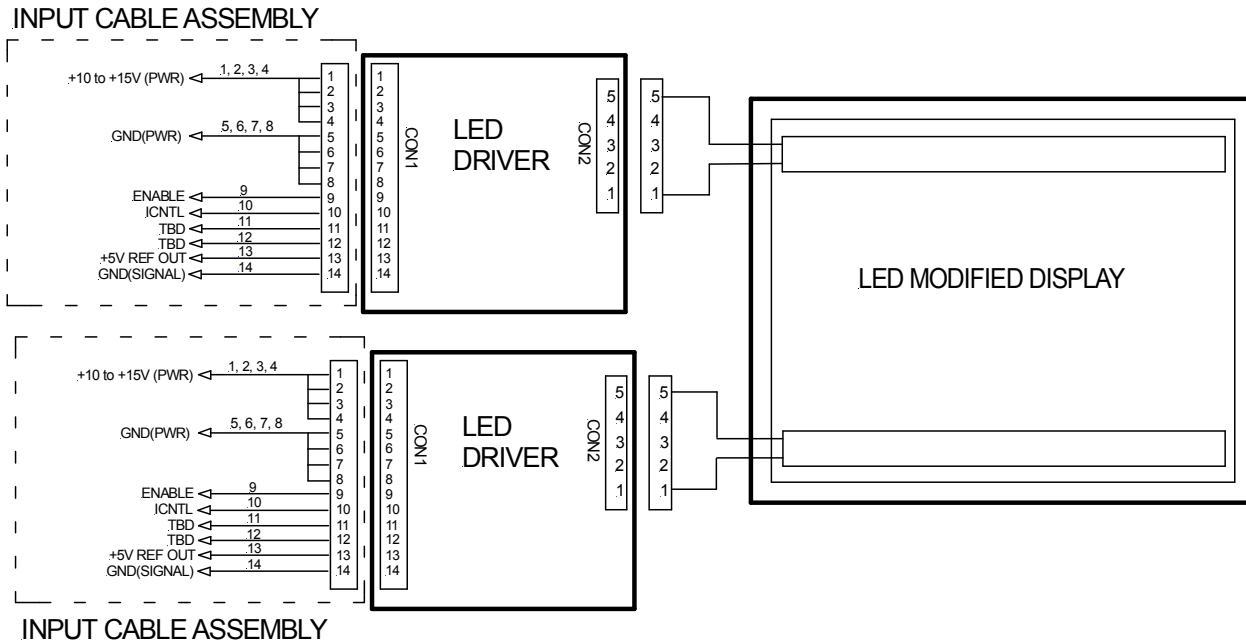
Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	133	140	147	Vdc
Iout	Output Current		237.5	250	262.5	mAdc
Iadj	Nominal Output Current Adjust Range	Icntl(Pin 10)= +0.5V to +4.5V	0		250	mAdc
ENoff	Enable Control, Unit Off				0.5	Vdc
ENon	Enable Control, Unit ON		2.0			Vdc
+5Vref	+5V Output Reference Voltage	1K Ohm Load to Ground (Pin 13)	4.75	5.0	5.25	Vdc
Iin	Input Current Draw			2.6		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V			0.06	Adc
Eff	Electrical Efficiency		89			%

LED DRIVER SPECIFICATIONS



APPLICATION NOTES

Connection Diagram:



1. Tie the +10 to +15V (PWR) leads together from both drivers.
2. Tie the GND (PWR) leads together from both drivers.
3. If using the Enable line, tie the Enable leads together from both drivers.
4. If Enable line is not being used, it may be left electrically floating.
5. If dimming is not being used, tie the ICNTL lead to the +5V REF OUT lead together for each driver.
6. If dimming is being used, tie the ICNTL leads together from both drivers. A 10K OHM Potentiometer is recommended.
7. If the +5V REF OUT is being used for the high side of the Potentiometer, use only one of the +5V REF OUT leads.

Connecting 10K Ohm Potentiometer used for Dimming

