

RADIANCE™

SUNLIGHT READABLE LED DISPLAYS

RAD-150NCXG1

PRODUCT DATA SHEET – PAGE 1 OF 7

03/22/10

15.0" XGA LED BACKLIT TFT DISPLAY SOLUTION

SOLUTION OVERVIEW:

The **RAD-150NCXG1 Display** consists of the 15.0" NEC NL10276BC30-18C XGA TFT display complete with a high performance LED backlight.

Display Features:

- Sunlight readable LCD panel with high efficiency solid state LED backlight
- **1950 cd/m² with 26W**, 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 driver with ultra-wide dimming range
- Exceeds performance of comparable CCFL backlight by 1.75 to 1
- RoHS Compliant

Sunlight Readability/Cool Operation



SOLUTION INCLUDES:

<u>QTY</u>	<u>P/N</u>	<u>DESCRIPTION</u>
1	ACD-NC150-1919	15.0" XGA TFT Display with High-Performance LED Backlight
1	ACI-E120250-1918	LED Driver
1	27-R0061	Input Cable Assembly

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

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DISPLAY SPECIFICATIONS

Panel Manufacturer	NEC
Manufacturer's Part Number	NL10276BC30-18C
Size	15.0"
Resolution	XGA 1,024 (H) X 768 (V)
Contrast Ratio	600:1 (typical)
Pixel Pitch	0.297 (H) x 0.297 (V) mm
Operating Temperature Range	-10 to +70° C (front surface) -10 to +70° C (back surface)
Response Time	18ms (typical)
Viewing Angle	160° (Horizontal), 140° (Vertical)
Panel Power (not including backlight)	1.75W
Interface	LVDS 1port
Display Colors	16,777,216 colors (6bit + FRC)
Surface Treatment, Polarizer surface	Clear + Antireflection (AR)
Surface Treatment, Polarizer pencil-hardness	2H (min.)
Display Mode	Positive

For complete LCD specifications (standard panel), refer to NEC datasheet NL10276BC30-18C (Document Number DOD-PP-0327, 2nd edition, Published July 2007).

BACKLIGHT SPECIFICATIONS

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Top	Operating temperature of display (center of panel surface)	-10 to +70	Deg-C
Tled	Operating temperature of LED edge light (light rail contact)	-20 to +75	Deg-C
Tstg	Display storage temperature	-20 to +80	Deg-C
Ifwd	LED forward current	125	mADC

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

PANEL/BACKLIGHT OPTICAL CHARACTERISTICS

Ifwd = 121mA per Bank. One Bank per Rail, two Rails in parallel per Dual Rail Set (ACR-1092-1917), one Dual Rail Set per Display. Ta = +25Deg-C, LCD un-powered

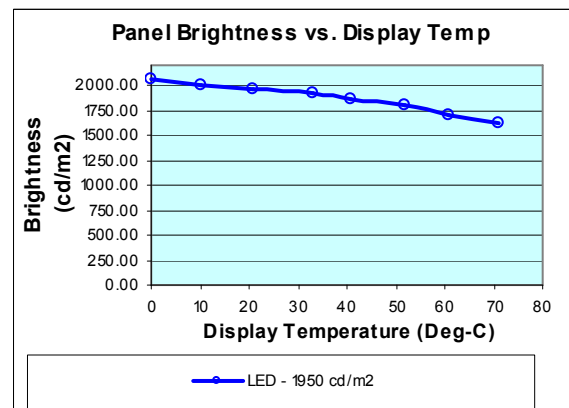
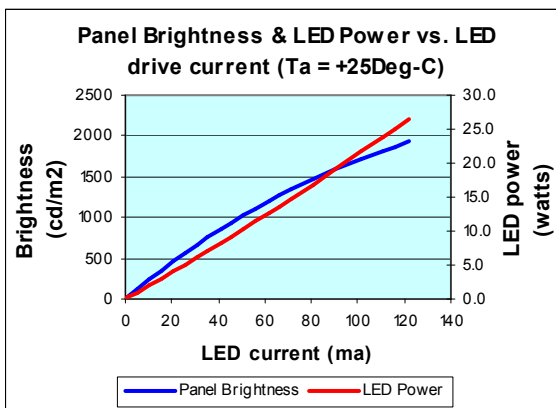
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Bp	Panel Brightness		1755	1950	2145	cd/m ²
X	White X coordinate			0.309		-
Y	White Y coordinate			0.376		-

LED EDGE-LIGHT ELECTRICAL CHARACTERISTICS

Ifwd = 121mA per Bank. One Bank per Rail, two Rails in parallel per Dual Rail Set (ACR-1092-1917), one Dual Rail Set per Display. Top = +25Deg-C

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Vfwd	LED rail forward voltage drop		97	108	119	Vdc

TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS



LED DRIVER SPECIFICATIONS

I-DRIVE, 30 WATT LED DRIVER
(Dual Channel 120V, 0-125mA)

GENERAL DESCRIPTION

The ACI-E120250-1918 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

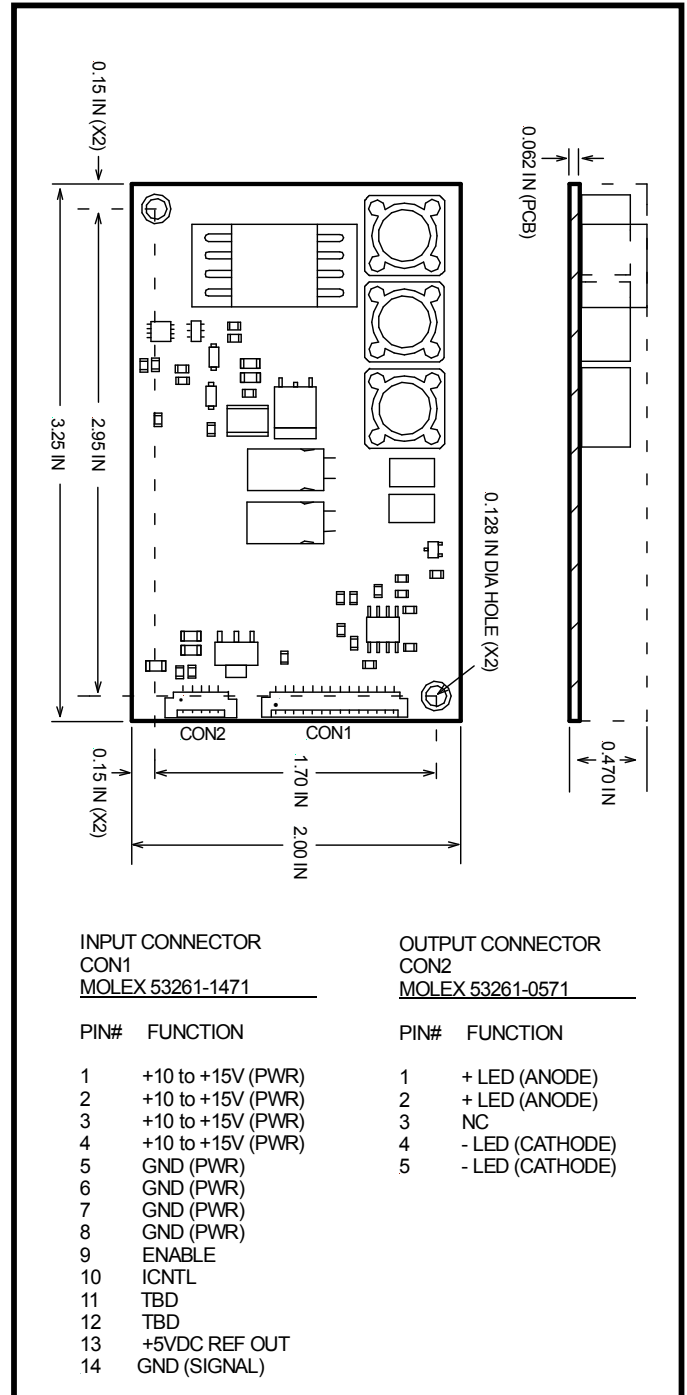
Size (L x W x H) = 3.25 IN x 2.00 IN x 0.47 IN

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

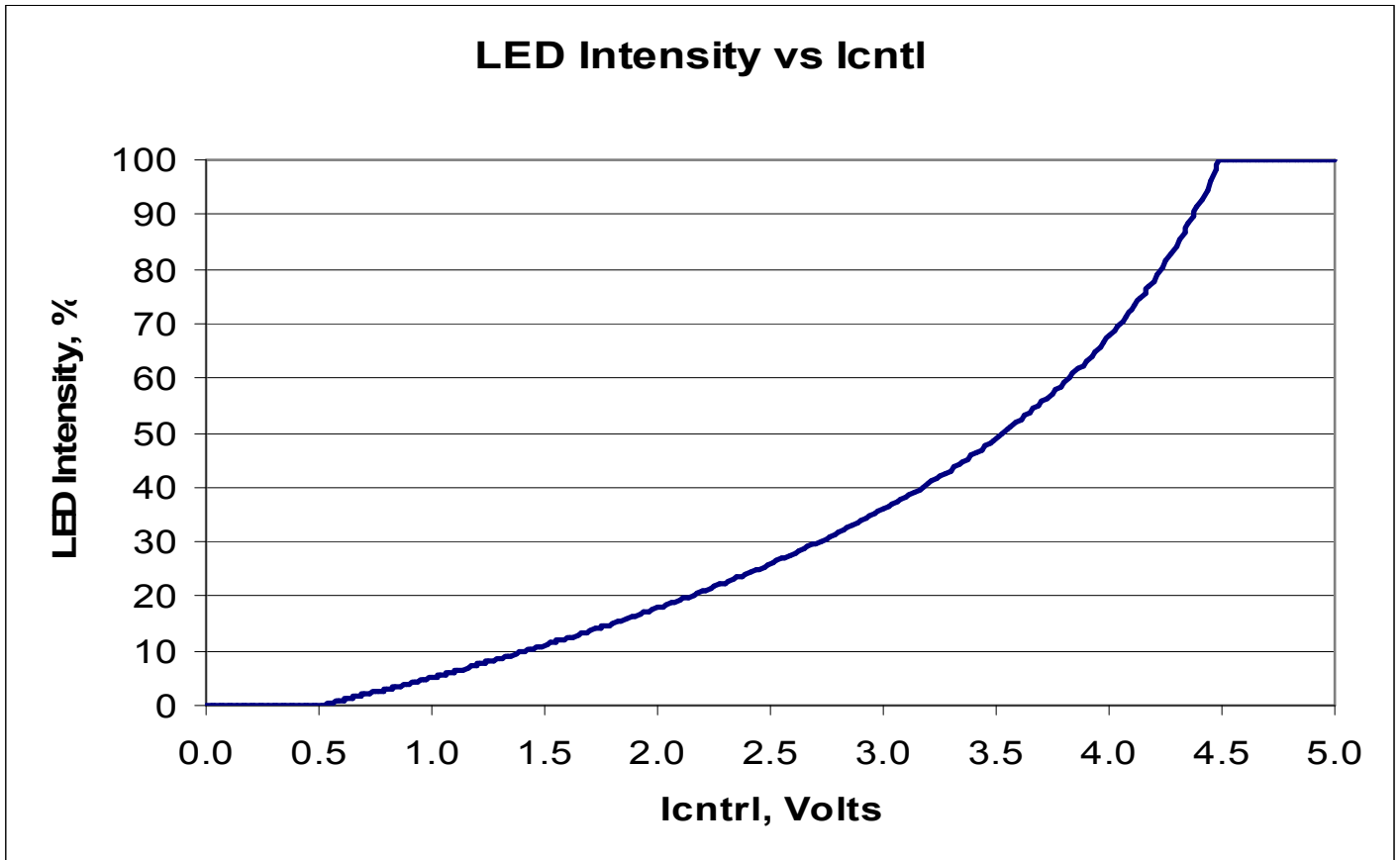
Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	10.0	15.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	36	110	Vdc
Icntl	LED Intensity Control Voltage	0.5	4.5	Vdc

ELECTRICAL CHARACTERISTICS

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

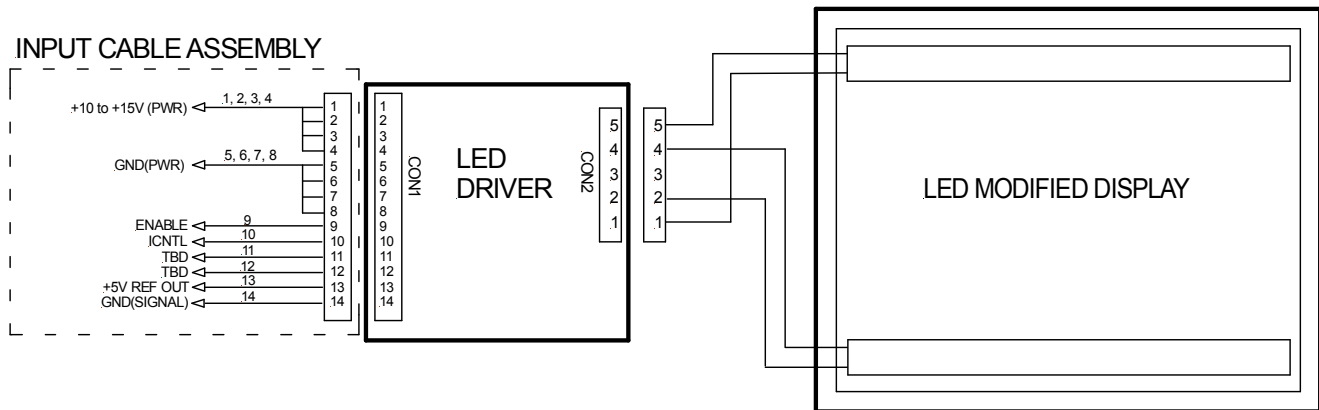
Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	133	140	147	Vdc
Iout	Output Current (Per Channel)		118.7	125	131.2	mAdc
Iadj	Nominal Output Current Adjust Range (Per Channel)	Icntl(Pin 10)= +0.5V to +4.5V	0		125	mAdc
ENoff	Enable Control, Unit Off				0.5	Vdc
ENon	Enable 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		88			%

LED DRIVER SPECIFICATIONS



APPLICATION NOTES

Connection Diagram:



1. If Enable (PIN 9) is not used, it can be left electrically floating.
2. If no dimming is required, connect Icntl (PIN 10) to +5V REF OUT (PIN 13).
3. If dimming is required, the +5V REF OUT (PIN 13) may be used for high-side of Intensity Control Potentiometer. A 10K Ohm Potentiometer is recommended.

Connecting 10K Ohm Potentiometer used for Dimming

