



1195 NW Compton Drive
Beaverton, OR 97006 USA
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PRODUCT SPECIFICATION

FOR

MODEL LC15.ANN.1000-XX

15-INCH AMLCD HIGH BRIGHT MONITOR

Document Number: 021-0165-00

<u>Model</u>	<u>Part No.</u>	<u>Description</u>
LC15.ANN.1000	997-2502-00	1024 x 768, 15" diagonal, VGA input, no dimming, Operating Temperature: 0 to +50 degrees C, 1000 nit, +12V input
LC15.ANN.1000-C	997-2530-00	LC15.ANN.1000 with cooling kit
LC15.ANN.1000-P	997-2562-00	LC15.ANN.1000 with VGA cable, power supply, and US power cord
LC15.ANN.1000-Q	997-2563-00	LC15.ANN.1000 with VGA cable, power supply, and EU power cord
LC15.ANN.1000-CP	997-2564-00	LC15.ANN.1000 with cooling kit, VGA cable, power supply, and US power cord
LC15.ANN.1000-CQ	997-2565-00	LC15.ANN.1000 with cooling kit, VGA cable, power supply, and EU power cord

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Introduction and Overview

This is a product specification that specifies form, fit, and function of the LC15.ANN.1000 15" monitor and its options. The LC15 products are a family of high bright LCD monitors intended for use in a variety of industrial and commercial applications. Some of these applications include automatic teller machines (ATMs), fuel dispensing systems, ticketing and information kiosks, and intelligent vending machines. The LC15 LCD panel has a particularly fast response time of 16ms and is consequently very well suited for video applications.

The LC15.ANN.1000 is a 15.0" active matrix TFT LCD with a native resolution of XGA (1024 x 768). It has a typical luminance of 1050 cd/m² with a +12VDC input. The video interface is through a standard 15 pin analog input with an integrated On-Screen Display (OSD). The sheet-metal external housing is intended for industrial applications where the product is integrated into a larger host system. Commercial applications would most likely require an additional external façade. This unit has standard safety and regulatory certifications appropriate to industrial products. This product includes packaging designed to withstand standard shipping conditions.

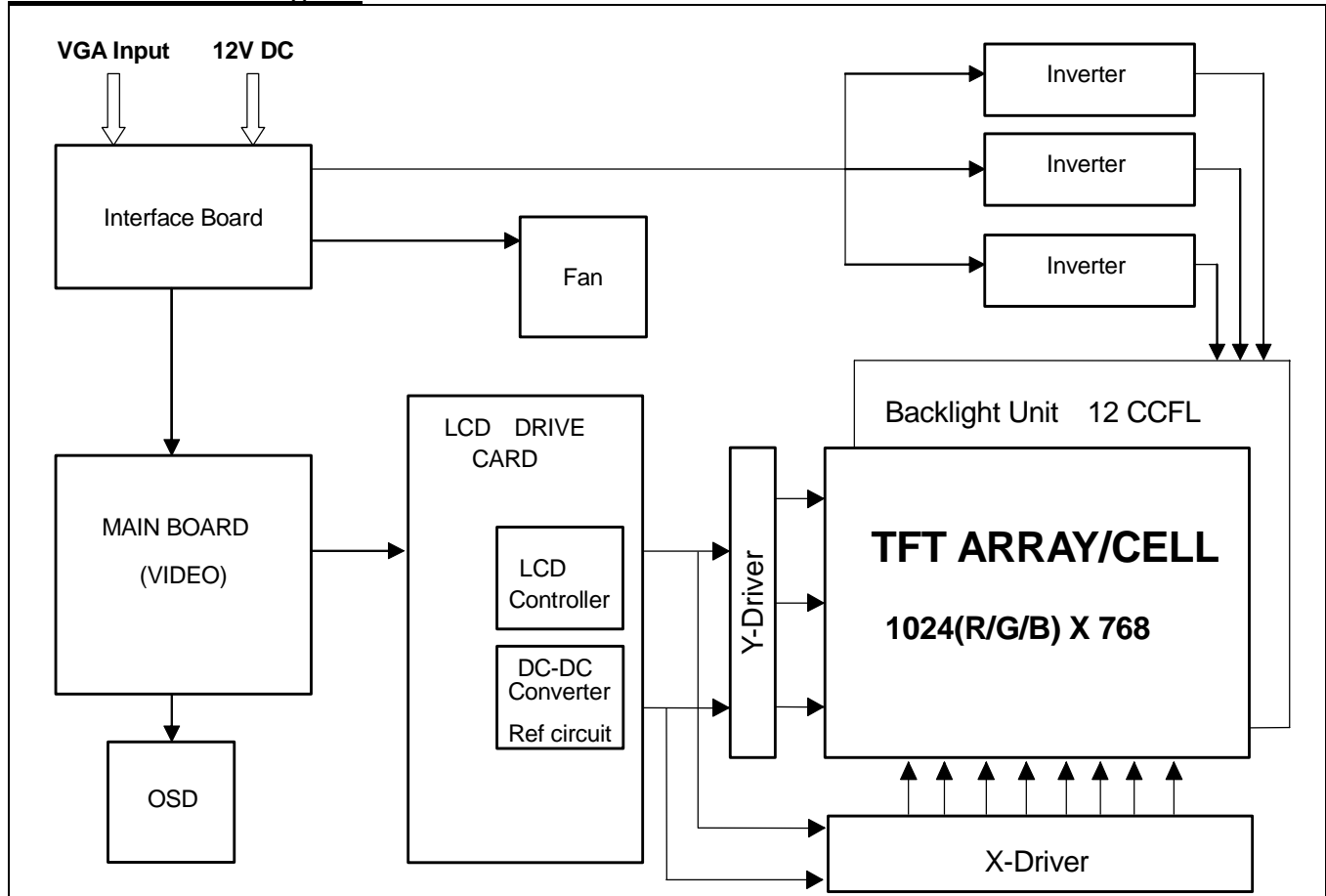
One option that is offered on the LC15 product is a cooling kit. The cooling kit is a self contained three-fan thermostatically controlled kit that attaches externally to the standard monitor. It is comprised of a rear assembly and a front air feature both installed by Planar. The rear housing accepts +12VDC input and houses three fans and a thermostat. The front air feature effectively channels air across the front face of the display. The cooling kit is effective for addressing applications involving challenging solar loading or requiring effective thermal management.

Another option available is a power supply with US or EU cord options and a 1.8m (6ft) VGA cable. The power supply is appropriately rated and tested for the LC15 displays. The power supply that is ordered with the fan kit also includes appropriate cabling to power both the display and the cooling kit.

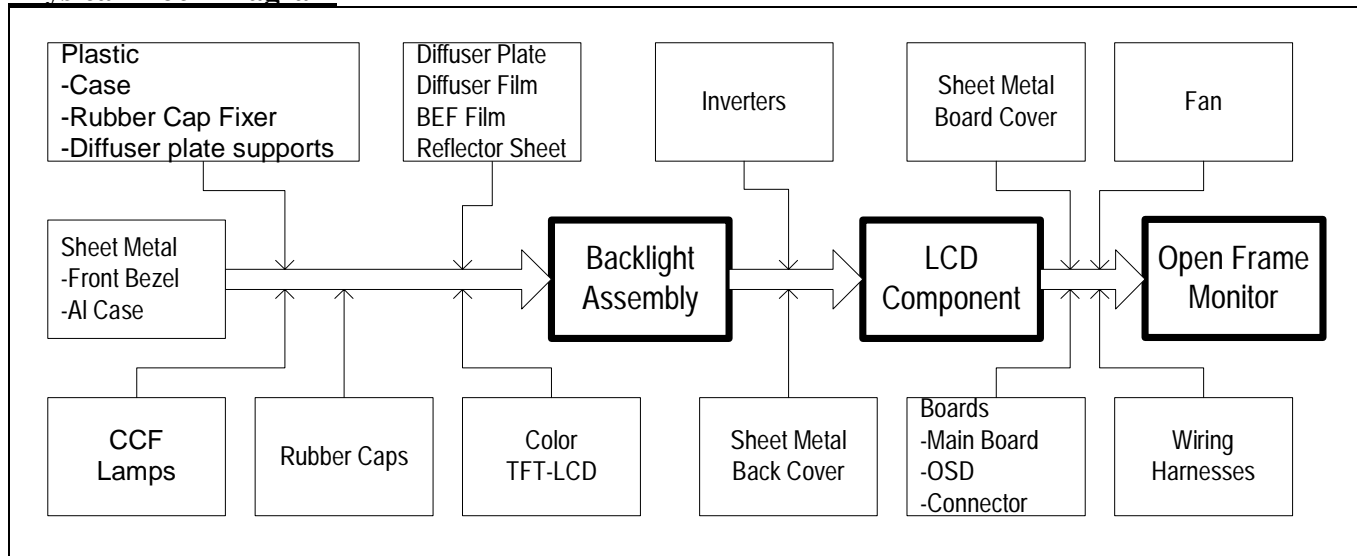
Monitor Characteristics

ITEMS	SPECIFICATION
Monitor	
Display	Full Color TFT AMLCD
Video Modes	XGA, SVGA, VGA
Screen Diagonal	381 mm (15 inches)
Outline Dimension	333mm x 262mm x 78mm
Electrical Interface	VGA Analog; 15-pin sub-D connector
User Interface	On-Screen-Display (OSD) 6 languages
Weight	< 3kg
Mounting	Side Mounting, M4 x .5 blind holes located per drawing
Color TFT-LCD	
Screen Diagonal	381 mm (15 inches)
Display Area	304.128mm (H) x 228.096mm
Resolution	1024(R,G,B x 3) x 768
Pixel Pitch	0.297mm x 0.297mm
Pixel Arrangement	R.G.B. Vertical Stripe
Display Mode	TN mode, Normally White
Response Time	16ms typ. (Tr + Tf)
Surface Treatment	Anti-glare, hard coating (3H)
Supported Colors	262,144 colors

Functional Block Diagram



Physical Block Diagram



Functional and Environmental

Item	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	V _{in}	11.4	12.0	12.6	Volts	
Input Current	I _{in}		4.2	4.3	Amps	
Power	P _{in}		47.4	49.2	Watts	
White Luminance		950	1050		cd/m ²	Center; Normal
Luminance Uniformity	BNU	69	78		%	9-point; 10% from edge
Contrast Ratio	CR	200	350			Center; Normal
Viewing Angle			±80		degree	Horizontal; CR=5
			+53/-56		degree	Vertical; CR=5
Response Time			16	23	Msec	Tr+Tf
<p>Note: Above measurements at 25°C steady state conditions at initial use Measuring Equipment: TekJ17 Photometer/Radiometer/Colorimeter J1803 Luminance Head Eldim Conoscope</p>						
Operating Temperature	Top	0		50	°C	
Operating Humidity	Hop	30		85	%RH	Non-condensing
Storage Temperature	Tst	-20		+60	°C	
Storage Humidity	Hst	10		85	%RH	Non-condensing

Vibration

Operating :

Sine sweep vibration : 10~500 Hz, 0.25g o-p, 0.25 oct / min

Random vibration : 10~500 Hz, 0.002 g²/Hz, 1 grms, 1 hr / axis

Non-operating :

Sine sweep vibration : 10~500 Hz, 0.75g o-p, 0.5 oct / min

Random vibration : 10~500 Hz, 0.0082 g²/Hz, 2 grms, 1 hr / axis

Shock

half-sine wave, 30g, 11ms, 3 shocks per axis

Cosmetic and Workmanship

This product is constructed to industry standard cosmetic and workmanship levels. For specific information on rejectable defect criteria please contact Planar Systems, Inc.

Reliability and Life

Monitor Reliability

Demonstrated MTTF testing in progress

Backlight Reliability and Life

CCF lamps; 40,000 hour rated life @ 25°C

CCF lamp life is defined as time to 50% of initial brightness

Backlight end-of-life for this LC15 product is defined as 475 nits center luminance at 25°C

Typical values indicated for luminance and uniformity are indicative of typical steady state values measured at initial use at 25°C after warm-up to steady state. Actual luminance and uniformity values are directly dependent on the environmental usage profile. Repeated cold temperature start-up can cause accelerated aging of the backlight lamps resulting in reduced luminance and uniformity.

Extended High Temperatures and Solar Loading

Extended operation at the upper temperature extreme or in conjunction with extended direct solar loading can cause permanent mura or localized pixel non-uniformity effects. Other side effects could include latent image and flicker. These effects are not covered under Planar warranty. Please consult Planar for further guidance on system design to effectively manage environments requiring extended high temperatures or direct sun-loading. Cooling kit and CEG vandal glass options can effectively address these issues.

Safety and Regulatory Certifications

1. FCC Certification

FCC Part 15, Subpart B, Class A – Conducted and Radiated Tests

Caution! Per Section 15.21 of FCC regulations - Information to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note. Per Section 15.105 of FCC regulations – Information to user

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2. CE Certification

Emission

EN 55022:1998

EN61000-3-2:1995+A1:1998+A2:1998, Class A

EN61000-3-3:1995

Conducted & Radiated Test

Harmonic Current Emissions

Voltage Fluctuations and Flicker

Immunity (EN 55024:1998)

IEC 61000-4-2: 1995 Electrostatic discharge immunity test

IEC 61000-4-3: 1995 Radiated, radio-frequency, electromagnetic field immunity test

IEC 61000-4-4: 1995 Electrical fast transient/ burst immunity test

IEC 61000-4-5: 1995 Surge immunity test

IEC 61000-4-6: 1996 Immunity to conducted disturbances, induced by radio-frequency fields

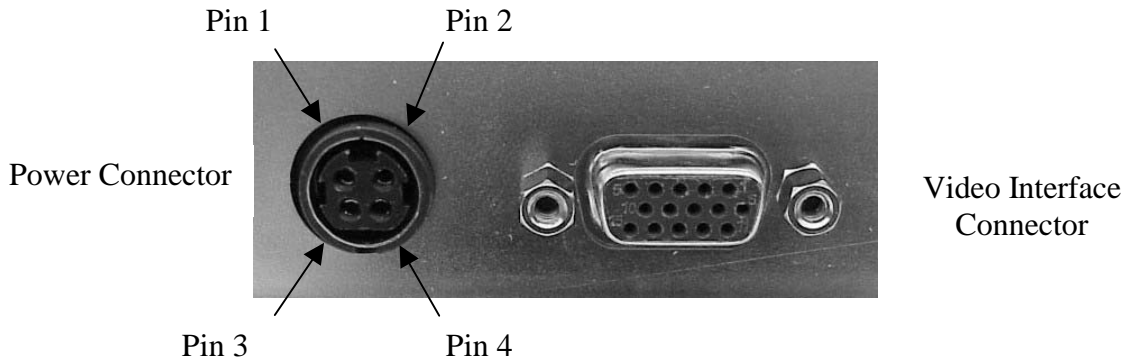
IEC 61000-4-8: 1993 Power frequency magnetic field immunity test

IEC 61000-4-11: 1994 Voltage dips, short interruptions and voltage variations immunity tests

3. UL/CUL Certification

4. TUV Certification

Signal and Power Interface



Video Interface Connector

Connector Name	Video Interface Connector
Connector Description	Standard 15-pin Sub-D Analog Connector

Power Connector

Connector Name	Power Connector
Connector Description	4 Pin Mini DIN Locking Power Connector
Connector Manufacturer	Singatron Enterprise Co. (Taiwan)
Connector Part Number	2MJ-0402A120
Mating Connector Part Number	2MP-0402 series

Power Connector Pin Configuration

Pin	Description
1	+12.0V DC
2	+12.0V DC
3	Ground
4	Ground

Main Board Video Modes

The LC15.ANN.1000-XX Series Monitor will support VGA, SVGA, and XGA video modes.

	Minimum	Maximum
Input Resolution	640 x 480	1024 x 768
Vertical Frequency	59.94 Hz	75.03 Hz

OSD Controls

5-button OSD control keypad:

Menu:	OSD menu; changes to next page
Select:	Selection Key
Power:	Powers monitor on/off
'-' :	Decrease scale; 'No' selection
'+' :	Increase scale; 'Yes' selection

Hot Keys:

Select:	Auto-Adjust
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note: Hot keys are active when OSD is off





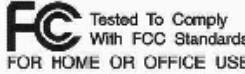


Functions:

Auto-Adjust	
Contrast	
Horizontal Position	
Vertical Position	
Frequency	
Tracking	
Display Mode	
OSD Off-Time	
Languages	English (default), Deutsh, Italiano, Francais, Espanol, Japanese
Text Graphic	
Reset	
Color	6500k, 9300k, Preset, Custom
OSM Function Warnings	
No signal	
Out of range	
No Touch Auto Adjustment (NTAA)	

Self-Test Mode

Self-Test Mode is ~2 second alternating screens of black, white, red, green, blue. Self-test can be activated without any VGA input. Self-test mode is activated by simultaneously depressing and holding '+' and '-' then pressing 'power'.

Monitor Identification and Labeling




	Planar Systems, Inc. 1195 NW Compton Drive Beaverton, OR 97006 USA		
LC15ANN1000	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and(2)this device must accept any interference received,including interference that may cause undesired operation.		
P/N: 997-2502-00			
SERIAL NO : A617315A0111K0001			
			
RATING :  12V / 6.67A			
			
MADE IN CHINA C		E161332	

Packaging

Packaging designed and tested to CNS2354 Uniform Freight Classification

Package Size: 456mm x 188mm x 418mm

Identification and Labeling:

	
MODEL:	LC15ANN1000
PART NO.:	997-2502-00
SERIAL NO.:	A617311A0111K0001
	
UPC CODE:	
	8 10689 02502 3
	MADE IN CHINA

Mechanical Outline

Please reference Planar mechanical outline drawings:

Versions with cooling kit:

076-0534-00 Mech O/L LC15.XXX.1000-C

Versions without cooling kit:

076-0536-00 Mech O/L LC15.XXX.XXXX

REVISION HISTORY

REVISION	DATE	DESCRIPTION OF CHANGE	By
A	Feb 20, 2003	Spec creation - Preliminary	J. Selberg
B	May 19, 2003	Spec update and release	J. Selberg