

LX – Transportation Displays

Optical Bonding
for Improved
Performance and
Durability

www.planarembded.com/Transportation

Rugged Touch Monitors and Display Systems for CHALLENGING Transportation Environments

We like things that move, especially specialty vehicles. Whether it's a police car, fire truck, marine vessel, mining equipment or military transporter, they all share common requirements: sunlight readability, wide operating temperatures, lots of vibration and shock, and the need for open standards.

Specialty vehicles today have become mobile information networks. We have designed and built the displays that put this valuable information to work, sharing essential feedback with the operator and important utilization and maintenance information for fleet management.

Our engineering team has developed several platforms for diverse transportation applications. Our LX platform is perfect for public safety, marine and mining vehicles. The VMC SmartDisplay™ combines our display technology with the vehicle data bus expertise of Vehicle Monitor Corporation. We can also customize any of our products with optical bonding, performance films and coatings, unique bezels or MIL-spec cables.



FEATURES and BENEFITS - In-Vehicle

- Daylight readable AMLCD improves driver safety with at-a-glance readability
- Stealthy, comfortable nighttime viewing in night mode
- Easy to clean safety glass touchscreen will not scratch or burnish
- Configurable macro buttons allow changing screen views with a single touch to minimize driver distraction
- Quickly install peripherals and more memory with the 2-port USB hub
- Magnesium enclosed rugged design lengthens service life
- Open standards design ensures future PC upgrades will not make monitor obsolete or change operator interface

FEATURES and BENEFITS - Marine

- Ultra wide vertical viewing angle
- High ambient contrast ratio
- Greater than 800 cd/m²
- Infrared touch sensor
- Anti-glare coated cover glass
- Direct bonding of cover glass
- IP65 waterproof enclosure

FEATURES and BENEFITS - Mining

- Manual dimming backlight
- Easy to clean safety glass touchscreen will not scratch or burnish
- Configurable macro buttons allow changing screen views with a single touch to minimize driver distraction

DuraTech USA Inc. A certified 8(a), SDB, DBE, SBE, MBE, WBE firm.
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LX

In-Vehicle Touch Monitors



DID YOU KNOW?

- Custom Cable Options Available

SPECIFICATIONS	LX1200TI-12" XGA
Planar Part Number	997-3342-00LF
Native Resolution	XGA (1024 x 768) Supports VGA (640 x 480) and SVGA (800 x 600)
Touchscreen Type	IR with glass overlay
Touchscreen Interface	USB touchscreen driver (Windows 2000/XP)
Brightness* (typical daylight conditions)	1100 cd/m ²
Contrast Ratio	250:1
Viewing Angle (typical)	140° H / +45°/-55° V
Power Consumption (operational)	<17 W
Supply Voltage and Current (typical)	8 to 26 V with built-in transient protection
Video Interface	Analog VGA
Macro Buttons	6 programmable function keys including dedicated color coded Emergency Button
Macro Button Programming	User configurable Planar SoftKey utility included
External Connections	D-Sub 15-pin video connector 2-pin locking power connector 3.5 mm stereo audio input USB (2-Type A, 1 Type B) Power interrupt connector (Power button for remote PC)
Feature	Manual dimming to off Video blanking (for instant screen concealment) Power button turns on/off remote PC 2 port USB 2.0 hub Speaker volume control LED status lights Automatic video mode synchronization Waterproof IP 65 front surface Integrated stereo speakers
Display Active Area	12.1" diagonal (246 mm x 184.5 mm)
Dimensions (WxHxD)	12.36" x 10.51" x 1.9" (314 mm x 267 mm x 47 mm)
Weight (net)	6.5 lbs (2.9 kg)
Approvals	FCC Class B, UL/CSA 60950, E-MARK
Operating Temperature	-20 to 60 °C
Storage Temperature	-20 to 60 °C
Humidity (operating)	<95% RH non-condensing
Service and Support	1 Year standard return to depot Bronze and Silver Service available (p/n 990-0213-00) optional
Options	AC/DC Power Adaptor (80 W switching supply p/n 997-3066-01LF)

"The LX1200 was easy to install and has the perfect screen size for field use. The touch screen was plug-and-play, which helped us get rid of the computer configuration problems."

- John Vincent, Municipal Systems Analyst



*LX1200TI uses Transflective display – equivalent brightness in typical sunlight condition

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LX

Marine Touch Monitors

DID YOU KNOW?

- Custom Cable Options Available
- IP65 Waterproof Enclosure



SPECIFICATIONS	NEW! LX0850PTI - 8.4"	NEW! LX1201PTI - 12"	NEW! LX1501PTI - 15"
Part Numbers	997-4387-00LF	997-4350-00LF	997-5422-00LF
Native Resolution	SVGA	XGA	XGA
Touchscreen Type	Infrared (IR)	Infrared (IR)	Infrared (IR), 4096 points of resolution
Touchscreen Interface	USB	USB	USB
Brightness (typical)	>700 cd/m ²	>800 cd/m ²	1200 Nits
Contrast Ratio (typical)	600:1	600:1	650:1
Viewing Angle (typical)	160° H, 140° V	130° H, 115° V	80° H, 70° V
Power Consumption (typical)	<15 W	<30 W	<45 W
Supply Voltage	8 - 32 VDC	8 - 32 VDC	8 - 32 VDC
Video Interface	Analog, VGA	Analog, VGA	Analog, VGA
External Connections	D-Sub 15-pin, Video Connector USB Type B, Locking Connector 7-pin, Locking Power Connector	D-Sub 15-pin, Video Connector USB Type B, Locking Connector 7-pin, Locking Power Connector	Waterproof D-sub 15-pin, Video Connector, Waterproof USB Type B Locking Connector, Waterproof Locking Power Connector
Features	IP65 Waterproof Enclosure	IP65 Waterproof Enclosure	IP65 Waterproof Enclosure
Dimension (WxHxD)	220 mm x 187 mm x 54 mm	315 mm x 251 mm x 69 mm	315 mm x 251 mm x 69 mm
Weight	3.0 kg (6.6 lbs.)	3.7 kg (8.2 lbs.)	3.7kg (8.2 lbs.)
Approvals	FCC Class A, CE, UL, TUV	FCC Class A, CE, UL, TUV	FCC Class A, CE, UL, TUV
Operating Temperature	-20 to +60 °C (-4 to 140 °F)	-20 to +60 °C (-4 to 140 °F)	-20 to +70 °C (-4 to 158 °F)
Storage Temperature	-20 to +85 °C (-4 to 185 °F)	-20 to +70 °C (-4 to 158 °F)	-20 to +80 °C (-4 to 176 °F)
Service and Support	1 Year standard return to depot, Bronze and Silver Service available (p/n 990-0213-00) optional	1 Year standard return to depot, Bronze and Silver Service available (p/n 990-0213-00) optional	1 Year standard return to depot, Bronze and Silver Service available (p/n 990-0213-00) optional



Front

Back

VMC SMARTDISPLAY™

Vehicle Data Bus Platform

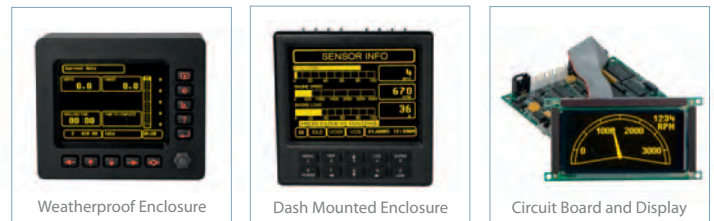
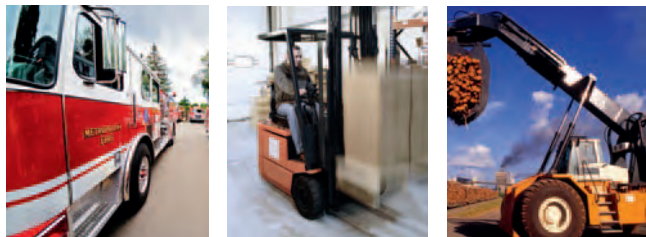
DID YOU KNOW?

- Custom Cable Options Available

VMC SmartDisplay™ Data Bus Terminal

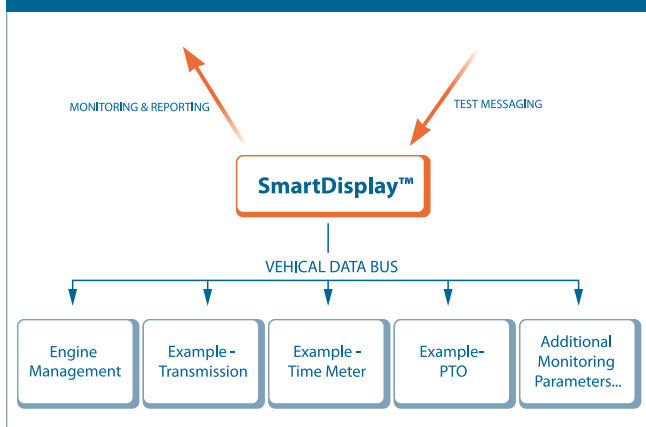
Rapid interface development. Proven durability. High ROI.

Commercial, industrial, mining and agricultural off-road vehicles live in harsh environments. High-duty cycle, temperature extremes, rising fuel costs, and emissions regulations are pushing vehicle designers towards increasingly complex vehicle control systems. Additionally, increasing productivity requirements are pushing the adoption of vehicle messaging, automated reporting, and vehicle tracking. The VMC SmartDisplay™ enables you to offer more features without burdening your development team with ground up design work.



SPECIFICATIONS	SMARTDISPLAY DATA BUS TERMINAL
Screens	Up to 100 user definable screen views
Bus Compatibility	J1708 standard, J1939, CAN, others available
Operating Temperature	-40 to +85 °C (version dependent)
Connectivity Options	WiFi, Bluetooth, Radio
Power	12VDC or 24VDC (version dependent)
Displays	Daylight readable EL (QVGA or 160 x 80)

How the VMC SMARTDISPLAY Works



KEY BENEFITS

- SAE J1708, J1939, CAN and other bus protocol options
- Tools for rapid development of user interface
- Rugged and dependable - proven in thousands of Class 8 trucking, mining, forestry, and other specialty vehicles
- Terrestrial and extraterrestrial communications modem options
- Readable at-a-glance EL display technology
- Display lasts over 100,000 hours
- Wide temp range (-40 to +85 °C) with "instant on" display capability
- Daytime brightness and nighttime dimming for comfortable viewing

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TRANSPORTATION CASE STUDIES

Proven Experience in the Field

CASE STUDY - IN-VEHICLE Mack Trucks: Vehicle Information Profiler™



MARKET and APPLICATION

- Driver information display for heavy duty trucking (class 8)

CHALLENGES

- Readability at any viewing angle across range of ambient lighting conditions
- Sunlight readability
- Wide temperature requirements
- Shock and vibration resistant over one million mile lifespan

SOLUTION

- EL320.240.36-HB display system developed entirely by Planar

CUSTOMER BENEFITS

- Improved driver safety with easy-to-read display
- Graphic display for multiple controls and parameters in one compact unit
- Instant-on even at low temperatures

CASE STUDY - MINING Wenco International Mining Systems

Wenco International Mining Systems



MARKET and APPLICATION

- Fleet management for mining equipment and vehicles

CHALLENGES

- Rugged touch monitor inside vehicle cab
- Sunlight readability
- Wide temperature requirements
- Shock and vibration resistance

SOLUTION

- Custom version of LX0800PTI with military-grade cables

CUSTOMER BENEFITS

- Improved visibility of critical operating information
- Increased efficiency and utilization of mining equipment

CASE STUDY - IN-VEHICLE Freightliner: Truck Productivity Computer™

Freightliner: Truck Productivity Computer™



MARKET and APPLICATION

- Driver information display for heavy duty trucking

CHALLENGES

- At-a-glance readability at any viewing angle or lighting condition
- Space-constrained dash environment (DIN-1 slot)

SOLUTION

- EL320.80.50 custom electroluminescent display

CUSTOMER BENEFITS

- Improved driver safety with easy-to-read display
- Graphic display for multiple controls and parameters in one compact unit
- Instant-on even at low temperatures

DID YOU KNOW?

- Minimum 5 Year Life for Standard and Semi-Custom Displays

Planar Systems Lifecycle Policy

Planar's lifecycle program makes it easier for our customers to focus on their products. Planar can help you build a better product and keep it in production longer. Planar's product lifecycle policy communicates this commitment.

Over the lifecycle of a product, Planar builds displays with the same components, eliminating concerns about varying components.

Planar:

- has consistently exceeded a 5 year life for standard and semi-custom displays. Many Planar products continue to be produced for 8 to 10 years.
- provides 90 day written notice of necessary changes that affect form, fit or function of the display.
- provides 90 days to place orders and 1 year to receive shipments for End of Life (EOL) products.
- secures long-term commitments from component suppliers prior to design and production.
- works closely with suppliers to ensure long-term availability of products and components.

Planar Offers the Industry's Leading Warranty Packages

Planar recommends **Bronze Service**, which is an extension of the standard one year warranty, providing basic support to protect you against the costly, unforeseen expenses of repairing an out-of-warranty display and unknown display downtimes. The **Silver Service** further enhances uptime guarantee and return shipping options.



Available for LC, LN, LX, EL, SD and Custom Products



Available for LA, LB, LC, LN, LX, EL, SD and Custom Products

FEATURES	STANDARD	BRONZE	SILVER
Service Coverage	Return to Depot	Return to Depot	Advanced Exchange
Uptime Guarantee	30 day	10 day	Next day
Shipping Deadline	N/A	N/A	2 pm PST
24 x 7 Phone Support	√	√	√
Shipping	Return shipping	Return shipping	Advance and return
Contract Length	1 year	3 years	3 years

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RoHS Statement

European Union 2002/95/EC Directive on the Restriction of Hazardous Substances (RoHS)

In February 2003, the European Union issued Directive 2002/95/EC on the Restriction of Hazardous Substances, commonly known as RoHS, in certain electrical and electronic equipment. It restricts the use of six hazardous substances, including lead (Pb). The Directive states that all products placed on the European market after July 1, 2006 must be compliant with its requirements.

Planar Systems, Inc. is fully in support of and compliant with EU Directive 2002/95/EC on all its products, except where exempted, such as medical, or where otherwise stated. Should those exemptions be removed in the future, Planar will comply with such directives or amendments.

A Planar part number will be modified with an "LF" suffix designation to indicate RoHS compliance, as shown on the part number label affixed to the display and on the box containing the display.

ISO Certifications

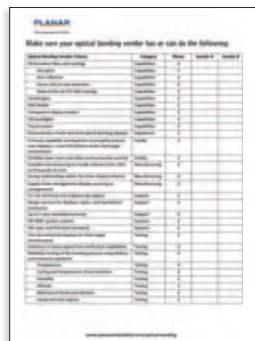
Planar's Beaverton, Espoo, and Waltham sites have obtained ISO 9001:2000 registration and throughout our organization there is a commitment to continual improvements. In addition, Planar's Beaverton and Waltham sites have obtained ISO 13485:2003 registration.

Planar Systems, Inc.'s FDA Establishment Registration Number: 1226517

For more information visit <http://www.planar.com/advantages/ISO/index.html>

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Rugged and Custom Display Partner Checklist



We know there are a lot of considerations in finding the right display partner. We want to make it easier for you to find the right fit. Download a display partner checklist and guide to making this decision.

www.planarembded.com/display-partner



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