CLARITY MATRIX LCD VIDEO WALL SYSTEM

March 2017







LCD Technology

Ultra-narrow bezel LCD video walls

- High-impact video walls
 - Shallow depth
 - **Great brightness**
 - Great viewing angles
 - Good color and brightness matching
 - Long life- minimal maintenance







Video Wall Applications

Digital signage

- Build a brand experience
- Informative
- Attract customers
- Engage customer interactions







Video Wall Applications

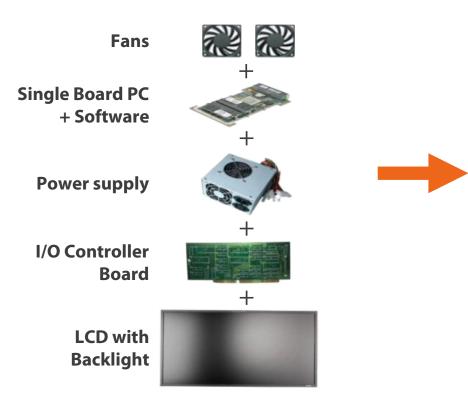
Visualization rooms

- Data visualization
- Collaboration
- Mission-critical decision making





Typical LCD Display Architecture



- Weight and Depth
 - Mounting, alignment, structural, and service issues
- Heat
 - TIR and failures
- Points of failure
 - High probability that something breaks
- - Finding and replacing the bad part





Clarity® Matrix® LCD Video Wall System is a unique approach to ultra-narrow bezel LCD video walls, creating a best-in-class video wall solution for digital signage and control room applications

Clarity Matrix delivers

- Superior visual performance
- Mission-critical design
- Simplified design, installation, and service











A LESIFIED Company

Target audiences and applications

Primary Audiences

- Retail
- Corporate
- Higher education
- Military

Common Applications

- Digital signage
- Command and control
- Corporate

communications













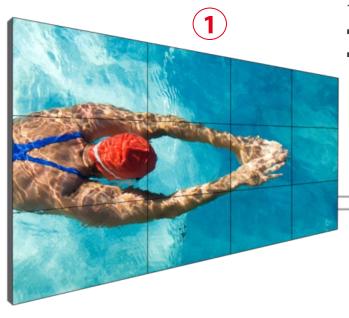








Clarity Matrix LCD Video Wall System Components



- Clarity Matrix LCD Modules
- Slim, light-weight design
- Includes Planar® EasyAxis™ Mounting System for perfect panel-to-panel alignment

- **Ouad Controller Module**
- 1U rack mountable module drives up to 4 panels
- Carries video and control signals over one shielded Cat 6 per cable
- Planar[®] Big Picture Plus[™] Video Wall Processor



- Power & Data Cables
- 1 Power cable per 4-8 panels
- 1 x Cat6 Cable per panel

- **Power Supply Module**
- 1u rack mount module can Drive 4, 6, or 8 panels
- n+1 redundant supply option





- 1. Superior visual performance
 - Perfect panel-to-panel alignment
 - Thinnest profile LCD video wall in the industry
 - Brightness and color balance tools
 - High bandwidth input connectivity
 - Single source Ultra HD (4K) input and scaling
 - 10-bit color input and processing
 - Tiled bezel width as narrow as 1.7mm.







2. Mission critical design

- Redundant power supply option
- Clarity® Matrix® Fiber Video Extension option for information transmission
- Reduced heat load at the LCD, extending its life
- Fewer points of failure at the video wall
- High MTBF and low MTTR
- Ambient light sensor reduces the entire video wall brightness during dark times of the day, lowering operating costs
- Prevention of image retention
- SNMP and network health and status monitoring







- 3. Simplified design, installation, and service
- Included with Clarity Matrix LCDs:
 - Planar EasyAxis Mounting system Six axes of adjustment for perfect panel alignment
 - Off-board Quad Controllers Remotely colocate processors, power, content sources
 - Off-board power supply modules No AC power outlets required behind the displays
- Planar Big Picture Plus processing Scale any source across the entire video wall
- Reduced cable count to the wall Power cables are daisy-chained, single Cat 6 per panel

- Built-in video extenders Eliminates compatibility issues and costs of third-party extenders
- Single IR receiver Control displays individually or globally with a single remote
- Reduced rack footprint PS Modules are now just one rack unit high and can power 4, 6 or 8 panels
- VESA mounting option LCDs include VESA hole pattern



Case Studies – http://casestudies.planar.com



University of Illinois CAVE2™ Electronic Visualization Laboratory Chicago, IL



Gucci Retail Stores Multiple locations worldwide



National Geographic Museum Wildlife Exhibit Washington, DC





Why Clarity Matrix and Planar?

- Planar has over 30 years of experience in display technologies, 15 years experience manufacturing video walls, and hundreds of technical innovations in the display industry across many markets
- Clarity Matrix has been proven in the global market for five years and has an outstanding reputation for high performance and low maintenance in missioncritical control room and retail environments
- Planar has a large global footprint of manufacturing, sales, service, and support along with hundreds of resellers that are already very knowledgeable on the Clarity Matrix system



CLARITY MATRIX LCD VIDEO WALL SYSTEM **COMPETITIVE POSITIONING**





Ultra-Narrow Bezel LCD Comparison

Model Meets Specification

Partially Supported



Not Available

Feature	Benefit	PLANAR	NEC	SAMSUNG	BARCO	MITSUBISH ELECTRIC
Off Board Electronics and Power Supply	Removes Heat, Weight, Noise, and Points of failure from the Wall Quicker to service, No disruption or cost associated with servicing at the wall					
Redundant Power Supply	No downtime if power supply failure occurs					
Fan-less LCD Design	Less noise Less points of failure		0	0	0	0
Less than ≤ 3.6"/ 93mm Depth	Maintain LCD's Slim profile ADA Compliant		0		0	0
Protective Glass Option	Provides panel protection for video walls placed in public spaces Provides a touch surface that is modular		0			0
4k resolution video wall scaling	Input sources of 3840x2160 can be daisy-chained and scaled across the video wall					
Positioning Sensors	• Eases installation and configuration by auto ID and video wall scaling			0	0	0
Color Balance Calibration Tool	Eases Color and brightness matching on the displays					0
DisplayPort Input	• Input sources of 3840x2160 resolution can be input and display native resolution across 2x2 array.					
Built-in Video Wall Scaling	No additional scalers or processing needed to stretch an image over the entire video wall					
46" and 55" Extreme and Ultra-narrow bezel LCD	Narrow bezel LCD Technology for near seamless video walls					





Most successful lock-out specs

- Video wall must not require AC power behind the displays
- Video wall must support transmission of classified information without the use of third party extenders
- LCD displays must not have fans
- Mounting system must provide 6 axes of adjustment for panel alignment
- Mounted depth must be ADA-compliant (< 4" protrusion)
- LCD displays must have redundant power supplies
- LCD displays must have optically bonded protective glass
- Video wall must support signal transmission of 500 ft. (150 m) without any extenders





Continued differentiation

- Off-board electronics architecture
- Fan-less design
- Thinnest mounted depth: 3.6"
- Planar® ERO™ (Extended Ruggedness and Optics™) technology option
- Single 4K input with scaling





Responding to competitive specs

- Image retention orbiter
- **SNMP**
- 10-bit color processing
- Ambient light sensor





CLARITY MATRIX INSTALLATIONS























































CLARITY MATRIX LCD VIDEO WALL SYSTEM PRODUCT DETAILS





Product naming

Product Family: Clarity Matrix LCD Video Wall												
Product Models: LX, MX, 3D												
Product Options:												
<u>Brightness</u>	<u>Diagonal</u>	Resolution	<u>Tiled Bezel</u> <u>Width</u>		<u>Orientation</u>	<u>ERO</u>	<u>Fiber</u>	<u>Distance</u> (standard 60m)				
LX – 500 Nit MX – 800 Nit	46" 55"	HD – 1080p	S – 5.5 mm U – 3.7 mm X – 1.7mm		L – Landscape P – Portrait V – VESA	ERO	F	100 m				



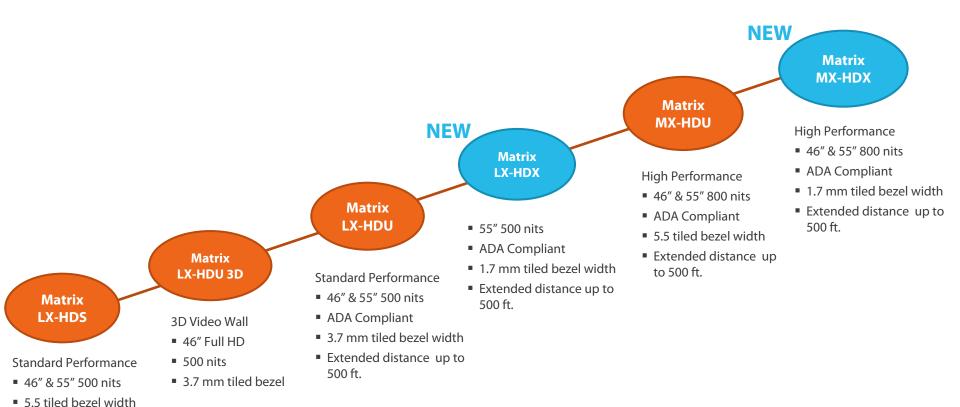
Product models

LX S Models	LX46HDU 3D Models	LX46HDU Models	MX46HDU Models	MX46HDX Models	LX55HDU Models	MX55HDU Models	LX55HDX Models	MX55HDX Models
LX46HDS-L	LX46HDU-3D-L	LX46HDU-L	MX46HDU-L	MX46HDX	LX55HDU-L	MX55HDU-L	LX55HDU-L	MX55HDX-L
LX46HDS-P	LX46HDU-3D-L, Top	LX46HDU-P	MX46HDU-P	MX46HDX-V	LX55HDU-P	MX55HDU-P	LX55HDU-P	MX55HDX-P
LX46HDS-V	LX46HDU-3D-L, Bot	LX46HDU-V	MX46HDU-V	MX46HDX-ERO	LX55HDU-V	MX55HDU-V	LX55HDU-V	MX55HDX-V
LX46HDS-L-ERO		LX46HDU-L-F	MX46HDU-L-F	MX46HDX-V-ERO	LX55HDU-L-F	MX55HDU-L-F	LX55HDU-L-F	MX55HDX-L-F
LX46HDS-P-ERO		LX46HDU-P-F	MX46HDU-P-F	MX46HDX-F	LX55HDU-P-F	MX55HDU-P-F	LX55HDU-P-F	MX55HDX-P-F
LX46HDS-V-ERO		LX46HDU-V-F	MX46HDU-V-F	MX46HDX-ERO-F	LX55HDU-V-F	MX55HDU-V-F	LX55HDU-V-F	MX55HDX-V-F
LX55HDS-L		LX46HDU-L-100	MX46HDU-L-100	MX46HDX-V-F	LX55HDU-L-100	MX55HDU-L-100	LX55HDU-L-100	MX55HDX-L-100
LX55HDS-P		LX46HDU-L-ERO	MX46HDU-P-100	MX46HDX-V-ERO-F	LX55HDU-L-ERO	MX55HDU-P-100	LX55HDU-P-100	MX55HDX-P-100
LX55HDS-V		LX46HDU-P-ERO	MX46HDU-V-100		LX55HDU-P-ERO	MX55HDU-V-100	LX55HDU-V-100	MX55HDX-V-100
LX55HDS-L-ERO		LX46HDU-V-ERO	MX46HDU-L-ERO		LX55HDU-V-ERO	MX55HDU-L-ERO	LX55HDU-L-ERO	MX55HDX-L-ERO
LX55HDS-P-ERO		LX46HDU-L-ERO-100	MX46HDU-P-ERO		LX55HDU-L-ERO-100	MX55HDU-P-ERO	LX55HDU-P-ERO	MX55HDX-P-ERO
LX55HDS-V-ERO		LX46HDU-L-ERO-F	MX46HDU-V-ERO		LX55HDU-L-ERO-F	MX55HDU-V-ERO	LX55HDU-V-ERO	MX55HDX-V-ERO
		LX46HDU-P-ERO-F	MX46HDU-L-ERO-F		LX55HDU-P-ERO-F	MX55HDU-L-ERO-100	LX55HDU-L-ERO-100	MX55HDX-L-ERO-100
		LX46HDU-V-ERO-F	MX46HDU-P-ERO-F		LX55HDU-V-ERO-F	MX55HDU-P-ERO-100	LX55HDU-P-ERO-100	MX55HDX-P-ERO-100
			MX46HDU-V-ERO-F			MX55HDU-V-ERO-100	LX55HDU-V-ERO-100	MX55HDX-V-ERO-100
			MX46HDU-L-ERO-100			MX55HDU-L-ERO-F	LX55HDU-L-ERO-F	MX55HDX-L-ERO-F
			MX46HDU-P-ERO-100			MX55HDU-P-ERO-F	LX55HDU-P-ERO-F	MX55HDX-P-ERO-F
			MX46HDU-V-ERO-100			MX55HDU-V-ERO-F	LX55HDU-V-ERO-F	MX55HDX-V-ERO-F





Planar LCD Video Wall Line-up







Introducing the New Clarity Matrix MX55HDX

Extending the Clarity Matrix Video Wall Family to the Industries Smallest LCD **Bezel Class**

- 55" 800 Nit
- Smallest tiled bezel width available- 1.7mm
- Updated Planar EasyAxis mounting system-
 - The only mounting system achieving the extreme bezel width
- Superior optical performance
- ~10% power consumption reduction over ultra narrow bezel equivalent model
- Mission-critical 24/7 operation







Introducing the New Clarity Matrix MX46HDX

Extending the Clarity Matrix Video Wall Family to the Industries Smallest LCD Bezel Class

- 46" 800 Nit
- Smallest tiled bezel width available- 1.7mm
- Updated Planar EasyAxis mounting system-
 - The only mounting system achieving the extreme bezel width
- Superior optical performance
- ~10% power consumption reduction over ultra narrow bezel equivalent model
- Mission-critical 24/7 operation







Clarity Matrix LCD Video Wall

Off-board electronics architecture

Benefits of off-board electronics

- Removes heat, weight, depth, noise, and points of failure from the video wall
- Rack can be co-located with sources and processing for convenient cabling, security, and climate control
- Maintenance is easy to access and does not interfere with video wall
- Redundant power supply option maintains operation in the case of a power supply failure



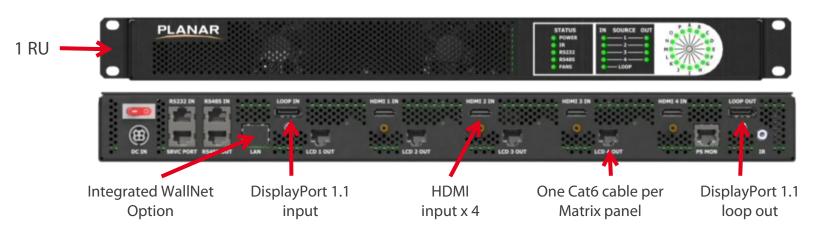




Clarity Matrix LCD Video Wall

Quad controller module

- Standard cable lengths: 200 ft./ 60 m
- Longer distance option: 500 ft./ 150 m
- Built-in IR remote extension







Clarity Matrix LCD Video Wall

Image processing

Supports a wide range of processing options

- Planar Big Picture Plus processing
- Clarity® Visual Control Station™ (VCS™)
- Planar® Indisys® Extensity™ Video Wall Processor support
- Support for all leading image processors and digital signage solutions via HDMI, DVI, DisplayPort inputs







Clarity Matrix Fiber Video Extension Module Option

Highest level of protection for mission-critical information

- Fiber Optic cabling is the preferred technology to use in sensitive and secure environments for data transport
- Clarity Matrix Fiber Video Extension Option will transmit the video signal over fiber optic cable between the guad and the Matrix LCD Module
- Extends the supported distance between the wall and off-board electronics
 - Multimode (standard): up to 1000 feet
 - Single mode (compatible): up to 10K
- Better integration for Clarity Matrix MultiTouch
 - Built-in USB Extension and Power

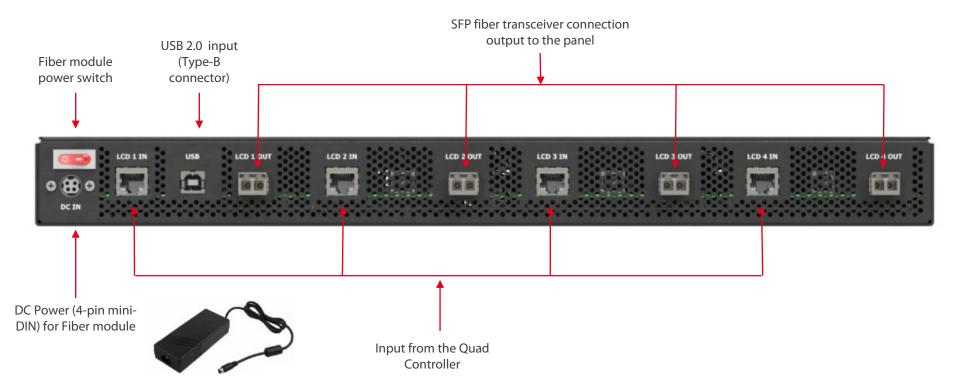


Applications: Transportation and traffic Government/military | Utilities | Broadcast | Security





Clarity Matrix Fiber Video Extension Module

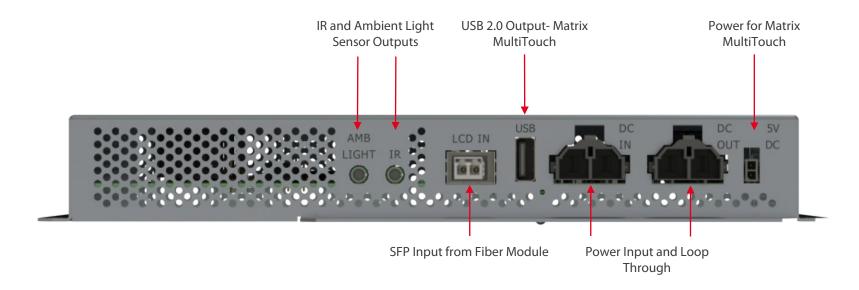






Clarity Matrix Fiber Video Extension Option

Panel interface board







Power supply module

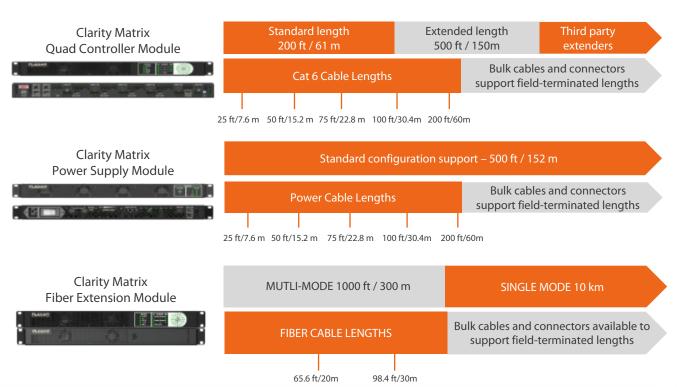
- Supported cable lengths of 500 ft./150 m
- Redundant power supply option







Supported cable lengths









Clarity Matrix App

Flexible control of the Clarity Matrix LCD Video Wall System with your phone or tablet

- Power on and off the display
- Switch between Planar Big Picture Plus configurations
- Recall saved preset configurations
- Create custom names for inputs
- Quickly access multiple video walls on the same network
- Access display information for support
- Design to be used with the Planar® WallNet[™] option











Mounting system

- Planar EasyAxis Mounting System includes added robustness and improved cable access
- Reduced space requirements above the panel for service position
- Attachment points maintain position of previous EasyAxis mount
- Now supports optional VESA mounting





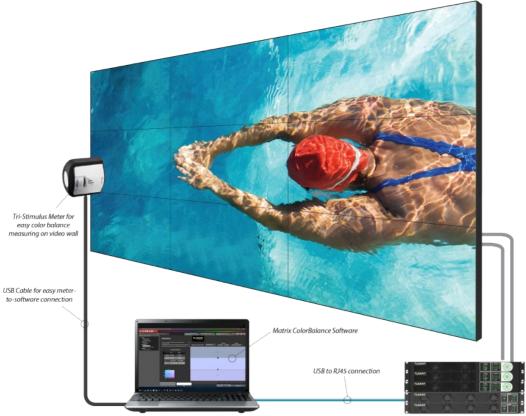


CLARITY MATRIX LCD VIDEO WALL SYSTEM OPTIONS AND ACCESSORIES





Clarity Matrix ColorBalance Tool







Planar ERO (Extended Ruggedness and Optics) technology

The Planar ERO Advantage

- Added protection and durability
- Improved contrast, clarity, and legibility
- Keeps out dust and moisture
- Reduced glare and parallax error
- Modular touch surface







Clarity Matrix MultiTouch LCD Video Wall System

Interactive LCD Video Wall

- Up to 32 simultaneous touch points
- Allows multiple people to interact without affecting each other
- Pinpoint touch accuracy
- Capable of wall sizes up to 500" diagonal
- Planar Modular protective touch surface with **ERO**
- Available in 46" or 55" in 1920x1080 resolution







Large Format Professional 3D Visualization

- Flicker-free, think profile stereoscopic display
- 3D optical system with passive glasses
- Wide viewing angles for multiple users
- Excellent brightness and contrast
- Off-board electronics architecture
- Spectacular 3D and 2D viewing experience
- Clarity Matrix LX46HDU-3D:
 46" LCD with 1920x1080 resolution and 3.7mm tiled bezel width







Accessories

- Cat6 Cables: 25, 50, 75, 100, 200 ft.
- DC Power Cable (Plenum Rated): 8, 25, 50, 75, 100, 200 ft.
- Bulk cables, connectors, tools
- Redundant power supply option
- Floor stands
- Edge trim
- Color Balance Tool
- Stud adapter bracket

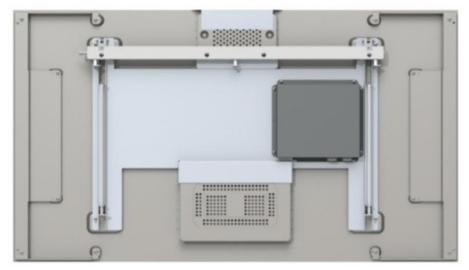
- Integrated Planar WallNet
- Clarity Matrix MultiTouch



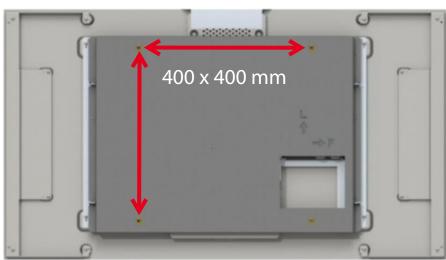




Mounting options



Updated Planar EasyAxis Mounting System



Optional VESA mount hole pattern





CLARITY MATRIX SALES TOOLS





Sales tools

- Clarity Matrix family web pages
- Clarity Matrix product family brochure and datasheet
- Clarity Matrix 3D brochure
- Clarity Matrix MultiTouch brochure
- Product presentations
- Product renderings
- CAD files with more configurations

- Product and service videos
- Specifications sheets
- Bid Specification document
- Competitive bubble chart
- Clarity Matrix Calculator
- Case studies website
- BIM files





Calculator own Clarity Matrix Video Wall System

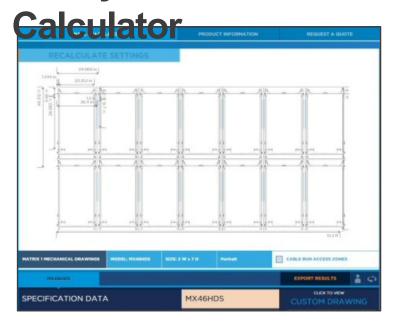
The Clarity® Matrix® LCD Video Wall Calculator allows users to configure and generate specification data, provides installation cabling diagrams, and simulates a finished custom Clarity Matrix LCD video wall array.























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