

## PLANAR Clarity Matrix LCD Video Wall System



**PLANAR**  
™

4K Superior visual multi-display performance and mission-critical reliability  
High Brightness and Contrast - Interactive Multi-Touch and Multi-User - 3D-Stereo

# Clarity Matrix LCD Video Wall System

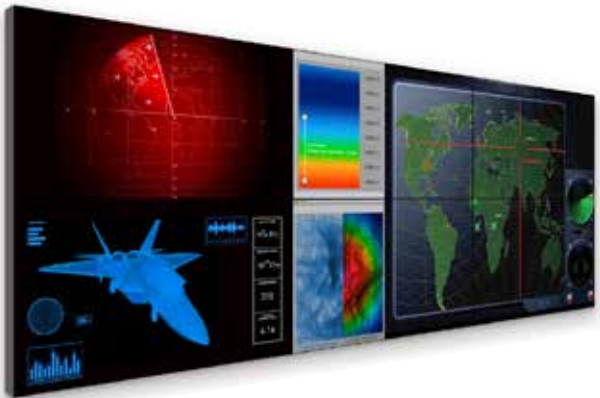
The Clarity Matrix LCD Video Wall System was designed and developed by display industry experts to address the challenges faced by all video wall installations: mounting and alignment, reliability and extended operation, service and maintenance access and simple, effective image processing and management.

## UNIQUE ARCHITECTURE AND BENEFITS BY DESIGN



At the heart of Clarity Matrix with G2 Architecture is a distributed design that takes heat, complexity and potential points of failure off the LCD panel and places it with a centrally located, easily accessible and highly reliable rack-mounted system.

## 4K | BIG PICTURE PLUS PROCESSING



Clarity Matrix supports a wide range of processing options to display sources on the video wall. PLANAR's Big Picture Plus processing is built into Clarity Matrix and allows sources to be scaled across the entire video wall or any section of the video wall. To simplify set-up of Big Picture Plus, Clarity Matrix has position sensors built into the LCD that determine where it is located

### Most Comprehensive Line-up

The Clarity Matrix family is a complete line up of LCD video wall sizes and options to suit the needs in a wide variety of video wall applications.

### Clarity Matrix

- 46" and 55"
- Two brightness levels available
- New 55" model with a tiled bezel width of 3,7 mm

### Clarity Matrix with Extended Ruggedness & Optics (ERO™) Technology

- Optically-bonded, vandal-resistant protective glass for increased ruggedness and durability

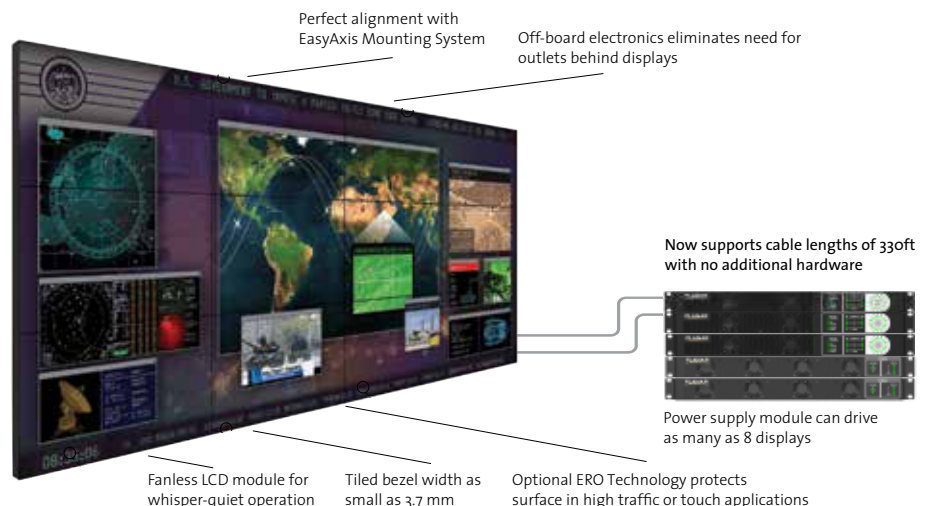
### Clarity Matrix MultiTouch

- Turn-key modular touch kit adds interactivity and collaboration
- Choice of 6 or 32 simultaneous touch points
- Incorporates PLANAR's ERO technology

### Clarity Matrix 3D

- Spectacular 2D and 3D viewing experience for professional 3D visualization applications
- Flicker-free stereoscopic visualization with passive glasses

within the array and scale the sources across the video wall automatically, saving hours of set-up. Big Picture Plus processing also allows for ultra-high resolution content, up to 4k, to be spread over multiple displays at native resolution. For more complex configurations, Clarity Matrix supports all leading image processing and digital signage software solutions including PLANAR's Indisys™ and Clarity™ VCS image processing solutions.





## SUPERIOR VISUAL PERFORMANCE

You know when you see a Clarity Matrix video wall because it looks stunning, is perfectly aligned and has the thinnest mounted depth. Clarity Matrix with G2 Architecture provides the very best visual performance of any LCD video wall available, with smaller bezels, higher brightness, better uniformity and better alignment. Updated connectivity and 10-bit processing combined with PLANAR's Big Picture Plus processing enables ultra HD 4K sources to be tiled across the video wall.

## MISSION CRITICAL DESIGN

PLANAR's unique architecture provides a mission-critical design with redundant power supplies, reduced thermal stress and health and status monitoring capabilities. Clarity Matrix with G2 Architecture adds SNMP LAN control, extra TIR prevention and ambient light sensing to extend the life of the video wall. For further reliability, Clarity Matrix power supply units include an n+1 redundant design so if any one power supply in the unit fails, the LCDs maintain uninterrupted operation.

## SIMPLIFIED DESIGN, INSTALLATION AND SERVICE

Designing, installing and servicing a video wall with Clarity Matrix has never been easier. Clarity Matrix incorporates PLANAR's EasyAxis Mounting System delivering the industry's thinnest profile LCD video wall, built-in alignment and service capabilities. The new G2 architecture supports integrated video and power extension up to 330 ft (100m) eliminating compatibility and integrity worries and costs associated with long distance cable extenders and AC power outlets behind the video wall. Fewer cables are necessary to run to the video wall, simplifying and reducing the cost of the system.

### Clarity Matrix Architecture Advantages

- Rack-mount components placed in easy-to-service location with no disruption at the video wall
- Co-location of the rack-mount components with sources or additional processing equipment for easy access
- No 3rd party long distance extenders or cables needed
- Entire video wall is controlled with a single remote control, RS232 or LAN device, including 3rd party control systems
- Fewer long distance cables run to the wall with on-wall, loop-out capabilities
- No AC outlets required behind the displays
- Automated brightness, color and gamma balancing tools



Clarity Matrix service mode for in-wall service

# Clarity Matrix HX6o High Bright LCD Video Wall

For customers seeking a high impact LCD video wall in challenging, bright ambient light environments, the Clarity™ Matrix HX6o LCD Video Wall is an optimized solution that delivers outstanding brightness performance up to 1900 nits, unique off-board architecture with remote electronics and power supplies, and an integrated mounting system. The proven Clarity Matrix architecture optimizes the LCD when tiled into a video wall, reducing weight, depth, heat, and points of failures at the video wall and places them in a convenient location. The Clarity Matrix HX6o features a 60" WXGA resolution (1366x768) display with a 1/4" (6.5mm) combined bezel gap, creating virtually seamless arrays of any configuration imaginable.

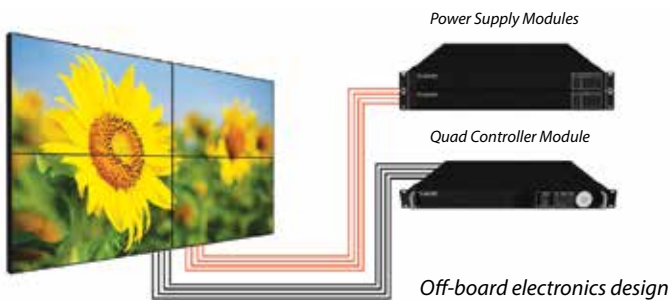
## SUPERIOR BRIGHTNESS AND CONTRAST



Indoor environments such as airports, corporate lobbies, and retail environments can have outdoor-like ambient light conditions. The Clarity Matrix HX6o delivers outstanding brightness up to 1900 nits as well as contrast ratios that exceed 1,000,000 to 1. With PLANAR's unique architecture, the LCD and LED

backlight run cooler than any other LCD monitor, making it up to 10% brighter than its competition. With PLANAR's Advanced Performance LED (AP/LED™) backlight Clarity Matrix HX6o delivers deep blacks and outstanding contrast utilizing algorithms that turn off the backlights when darker or black content is displayed. In addition to superb contrast ratios that PLANAR's AP/LED backlight provides, this technology provides reduced power consumption while still achieving maximum brightness.

## UNIQUE ARCHITECTURE & BENEFITS BY DESIGN

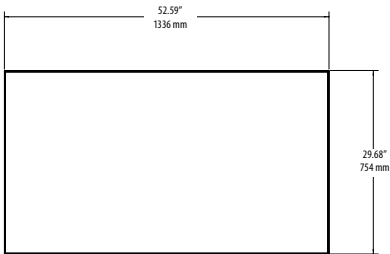


At the heart of the Clarity Matrix architecture is a distributed design that takes heat, complexity and unreliability out from behind the LCD panel and replaces it with a centrally located, easily accessible and highly reliable rackmounted system. The Quad Controller module drives long distance video through Cat 6 cables. The Power Supply modules enable long distance power, which eliminates the need for power outlets behind the displays and also offer a redundant power supply option.

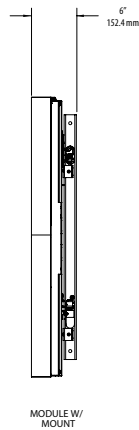




### FRONT



### SIDE



MODULE W/  
MOUNT



### CLARITY MATRIX HX60 SPECIFICATIONS

Screen diagonal	60"
Resolution	1366x768
Brightness Max	1900 Nits
Contrast Ratio (full field typical)	5000:1 (1,000,000:1 w/AP/LED on)
Heat load at LCD (typical)	1570 BTW/hr
Backlight type	PLANAR's Advanced Performance LED (AP/LED)
Full viewing angle	176 degrees
Operating Temperature	5 - 35°C
Operating Humidity	20-90% RH Non-condensing
Display module position sensing	Auto-sensing integrated
Width by height (WxH)	52.59" x 29.68" (1336 x 754 mm)
Installed depth with mount	6" / 152.4mm
Total weight (Includes LCD & mount)	96 lbs (43.6kg)
Tiled Bezel width	6.5 mm
Tiled image-to-image gap	7.1 mm

### POWER SUPPLY MODULE

Type	1U rack mount controller drives up to 2 panels
Redundancy	n+1 redundant power supplies (optional)
Line voltage	100-240 Volts AC, 50/60Hz auto switching
Power status	Diagnostic LED's, health monitoring and alerts
Maximum distance from LCD	100 ft/30m max backlight

### QUAD CONTROLLER MODULE

Type	1U rack mount controller drives up to 4 panels
Inputs	4 single link DVI with HDCP Dual link DVI in and out
Image scaling	Clarity Big Picture Plus 32x32 maximum
Mullion compensation	Integrated Clarity WallNet (LAN) (optional) RS-232 IR remote control
Frame lock	59-60.5 Hz
Controller status	Diagnostic LED's, health monitoring and alerts
Maximum distance from LCD	125 ft/38m max backlight

# Multi-user, multi-touch interactive LCD video wall

For customers looking for a large, interactive display in public spaces or collaboration environments, PLANAR's Clarity™ Matrix MultiTouch Video Wall System provides an ultra-slim profile, high-impact interactive video wall. The MultiTouch utilizes a touch sensor frame around the edge of the video wall allowing multiple users to touch and use gestures to interact with content on the video wall. Clarity Matrix MultiTouch utilizes PLANAR's ERO™ (Extended Ruggedness and Optics™) technology to provide a modular, near seamless touch surface that protects the LCD screens. The system incorporates the latest touch technology to enable up to 32 touch points simultaneously across the video wall. This allows multiple touches or common gesture recognition by a single user but allows for multiple people to interact with the video wall and not affect other users, making it the premier solution for customers looking to expand their collaboration capabilities in visualization or conference room applications. Not only does the Clarity Matrix MultiTouch provide simultaneous touches but it provides a better touch experience with pinpoint accuracy, prevents false touch points, and is capable of creating large video wall sizes up to a 350" diagonal.

## THE ERO ADVANTAGE



Without ERO

With ERO

PLANAR's ERO technology features an optically-bonded glass front for increased ruggedness and optical performance

Clarity Matrix with ERO features a glass front to provide increased ruggedness and optical performance for applications in public spaces or interactive touch. The glass surface is optically bonded to the front of the LCD with a proprietary construction and assembly technique to maintain the narrow bezel spacing and creating a continuous surface when tiled together in a video wall. Clarity Matrix with ERO also provides improved optical performance by providing additional ambient light rejection and increased contrast.

## MODULAR PROTECTIVE TOUCH SURFACE



Modular design creates continuous touch surface

Other implementations of touch systems for LCD video walls have required a large piece of glass in front of the LCD to protect and provide a touchable surface. This glass can be cumbersome for installation, transport, and servicing of large video walls. The modular design of the Clarity Matrix with ERO provides a near seamless touch surface while ensuring ease of installation and serviceability, less parallax error, and superior optical properties.



## ULTRA-SLIM PROFILE

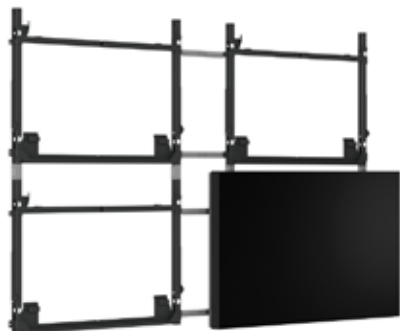
Clarity Matrix MultiTouch features an ultra-slim profile with PLANAR's EasyAxis™ Mounting System. The EasyAxis Mounting System also enables fine adjustments to achieve perfect panel-to-panel alignment, creating a continuous touch surface.

## EASY TO INSTALL AND FULLY CONFIGURABLE

Clarity Matrix MultiTouch is available in 2x2 and 3x3 standard video wall configurations. Custom configurations up to 350" diagonal are available as a special order item. Both standard and custom configurations are available in 6 or 32 touch point options. This modular system is easy to install and includes everything needed to add multi-touch capabilities to the video wall and is installed and calibrated during the installation.

## PERFECT ALIGNMENT

The Clarity Matrix Video Wall System includes PLANAR's integrated EasyAxis Mounting System that features built-in precise alignment capabilities, in-wall service position and a super slim depth as thin as 3.6" (93mm). As a result, Clarity Matrix has the thinnest footprint of any LCD video wall, making it compliant with the Americans with Disabilities Act (ADA) requirement for protruding objects of less than four inches. EasyAxis adjustment cams facilitate precise 6-axis alignment ensuring uniform, minimized image-to-image gap.



EasyAxis Mounting System simplifies and minimizes the time required to install and maintain a perfectly aligned video wall

### CLARITY MATRIX MULTITOUCH SPECIFICATIONS

<b>Touch Options</b>	MT6- 6 Simultaneous Touch Points MT32- 32 Simultaneous Touch Points
<b>Standard Configurations</b>	2x2 and 3x3 LX46HDS-L, LX55HDS-L, MX46HDS-L, MX55HDS-L, LX55HDU-L, MX46HDU-L, MX55HDU-L
<b>Custom Configurations</b>	Height <10 ft. (3 m) Width + Height ffi 40 ft. (12 m) Portrait and Landscape LX46HDS, LX55HDS, MX46HDS, MX55HDS, LX55HDU, MX46HDU, MX55HDU
<b>Touch Frame Dimensions</b>	2.6" x 2.6" x 4.5"
<b>Connectivity to Source</b>	USB 2.0
<b>Power for Touch System</b>	100-240V AC, 50-60 Hz
<b>OS Compatibility</b>	Windows 8, Windows XP, Max OS X, Android (limited to iStick) and Linux



# Clarity Matrix 3D with G2 Architecture

PLANAR's Clarity™ Matrix 3D LCD Video Wall System with G2 Architecture is designed for professional 3D visualization environments seeking a large format, flicker-free, thin profile, stereoscopic display. Clarity Matrix 3D adds a new dimension to the Clarity Matrix LCD Video Wall family utilizing its unique design with an ultra-shallow install depth of only 3.6"/93mm, integrated mounting system, and off-board electronics and power supplies to create exceptional 3D visualization. Clarity Matrix cutting edge ultra-narrow bezel LCD technology is combined with a 3D optical system and passive glass that, when tiled together, enable viewing and analysis of 3D images across the entire video wall. This approach to 3D visualization provides a more comfortable viewing experience versus active glasses solutions. Other benefits to passive glasses include lighter weight, no batteries are required, and they are less expensive than active solutions. This unique design also incorporates off-board power supply and electronic components which reduces the weight, heat load, noise, depth, and points of failure at the LCD video wall extending the lifetime and reducing the cost of ownership. The LCD Video Wall System with G2 Architecture makes the most of LCD technology, including slim profile and vibrant visual performance while achieving perfect alignment, simplified service and extended operation.

Clarity Matrix 3D utilizes micro-polarizing optics on the surface of the LCD to provide constant 3D visualization to each eye. This is done by polarizing the light from each horizontal row of pixels matching the polarization of the left and right eye in passive 3D glasses. The left eye only sees every other horizontal row of pixels, the right eye sees the remaining rows of pixels and the brain combines each eyes view to create a single high resolution image.

## PASSIVE GLASSES

Passive glasses 3D is superior to active shutter glasses 3D because passive glasses create less fatigue and eye strain when viewing 3D images. The Clarity Matrix 3D also delivers great brightness and contrast levels unachievable with other 3D display technologies. The circular polarized passive glasses used with the Clarity Matrix 3D are less expensive, lighter weight, and don't require batteries.

## WIDE VIEWING ANGLES

Clarity Matrix 3D offers wide viewing angles enabling multi-user use with acceptable stereo contrast over varying viewing angles. Having a wide viewing angle, both vertically and horizontally, ensures a more comfortable and superior viewing experience.







### 3D AND 2D

The Clarity Matrix 3D can also display conventional 2D images maintaining the capability of a multi-purpose, high resolution video wall display. The Clarity Matrix 3D is compatible with numerous graphics cards and 3D visualization software tools in various applications such as:

- Data Visualization
- Molecular Modeling
- Engineering Design
- 3D Production Review
- Oil and Gas Exploration
- Simulation and Training



#### CLARITY MATRIX 3D SPECIFICATIONS CLARITY MATRIX LX46S-L 3D

<b>Weight</b>	52 lbs / 24 kg
<b>Brightness Max</b>	2D: 300 Nits 3D: 120 Nits
<b>Power consumption</b>	290 Watts per panel (Max)
<b>Screen Diagonal</b>	46"
<b>Tiled bezel width</b>	7.1mm
<b>Resolution</b>	1366 x 768
<b>Operating Temperature Range</b>	5 - 35°C
<b>Stereo Viewing Angle</b>	Horizontal: +/- 40° Vertical: +/- 17°
<b>Stereo Technology</b>	3D Micro-polarizer Optical System
<b>Stereo Glasses</b>	Passive Glass Circular Polarized
<b>Operating Humidity</b>	20-90% RH Non-condensing
<b>Mounting System</b>	EasyAxis™ Mounting System Included
<b>Off-Board Architecture</b>	Clarity Matrix G2 Quad Controller Electronics and Power Supply Module
<b>Input</b>	4 single link HDMI with HDCP DisplayPort 1.1 in and out
<b>Safety regulations</b>	FCC Class A, EN55022/CISPR22, ICES-003, CNS 13438, EN55024, EN60950, RoHS
<b>Dimensions Width x Height Depth w/ Mount</b>	40.4" x 22.8" / 1025.7 x 579.8 mm 3.6" / 93 mm

# Case Studies, references and areas of application

The display has been tuned and tested with a range of the most popular professional graphics cards, controllers and content sources in order to make solution deployment easier and more successful for applications, including:

Geospatial

Oil and Gas Exploration and Production

Process Control

Computer Aided Design (CAD)

Architecture

Visualization, Simulation & Presentation

Medical Imaging

Digital Post-Production

Science – Academic Research and Commercial

Financial Decision Room

Control Room

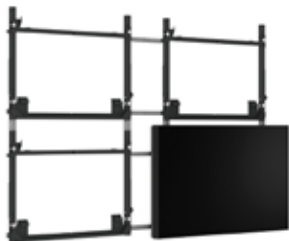
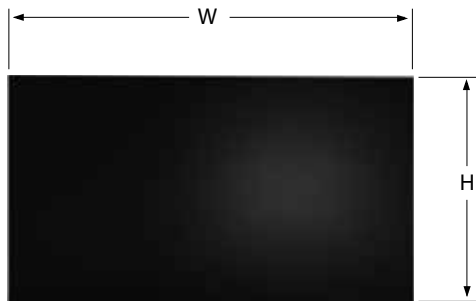
Collaborative Conference Room or Team Room

Digital Signage





Some images show the old Clarity System with 7.1 and 5.1 mm tiled bezel width.



EasyAxis Mounting System simplifies and minimizes the time required to install and maintain a perfectly aligned video wall.



Clarity Matrix service mode for in-wall service

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CLARITY MATRIX LCD VIDEO WALL SYSTEM SPECIFICATIONS

Model	LX46S-3D	LX46HDS	MX46HDU	LX55HDU	MX55HDS	MX55HDU
Diagonal	46"	46"	46"	55"	55"	55"
Brightness (optimal)	450 nits	500 nits	800 nits	500 nits	800 nits	800 nits
Contrast ratio (full field typical)	4500:1	3500:1	3500:1	3500:1	3500:1	3500:1
Power consumption (typical)*	230 watts	147 watts	177 watts	183 watts	231 watts	231 watts
Heat load at LCD (typical)	623 BTU/hr	440 BTU/hr	544 BTU/hr	557 BTU/hr	628 BTU/hr	628 BTU/hr
Resolution	1366 x 768	1920 x 1080				
Backlight type	CCFL	LED				
Full viewing angle	178 degrees					
Technology	Commercial-grade SPVA LCD					
Acoustic noise	Fanless operation					
Operating temperature	5 - 40°C					
Operating humidity range	20-90% RH non-condensing					
Backlight sensing and reporting	At display level					
Display module position sensing	Auto-sensing integrated					

Mounting

EasyAxis Mounting System	1 per display included. Optional VESA hole pattern available.
Orientation	Landscape and Portrait Options
Floor standing mount bases	Optional
In-wall service	Front and rear
Display module position adjustment	6-axis integrated
Regulations	Complies with EN60950, FCC Class A, CISPR22/85, EC, EU, RoHS, TAA Compliant

Power Supply Module

Quad Controller Module

Type	1 U rack mount controller drives up to 3-6 panels	Type	1U rack mount controller drives up to 4 panels
Redundancy	n+1 redundant power supplies (optional)	Inputs	4 single link HDMI with HDCP DisplayPort 1.1 in and out
Line voltage	100-240 Volts AC, 50/60Hz auto switching	Image scaling	Clarity Big Picture Plus 32x32 maximum
Power status	Diagnostic LED's, health monitoring and alerts	Mullion compensation	Integrated
Maximum distance from LCD	500 ft/150m max backlight	Control	RS-232, IR remote control, Clarity WallNet (LAN) (optional)
Controller status	Diagnostic LED's health monitoring and alerts	Frame lock	49-61 Hz
		Maximum distance from LCD	200ft/60m standard 330ft/100m with long distance option

CLARITY MATRIX LCD VIDEO WALL SYSTEM DIMENSIONS

Model	LX46 S-3D	LX46 HDS-L	MX46 HDU	LX55 HDU	MX55 HDS-L	MX55 HDU
Diagonal	46"	46"		55"		
Cabinet dimensions (WxH)	40.3" x 22.8" 1225.7 mm x 579.8 mm	40.3" x 22.8" 1023.9 mm x 578.6 mm		47.8" x 27.0" 1215.3 mm x 686.1 mm		47.8" x 27.0" 1215.3 mm x 686.1 mm
**Installed depth with mount (DM)	3.6" / 90mm	4.2" / 107 mm	3.6" / 90 mm	4.2" / 107 mm	3.6" / 93 mm	3.6" / 93 mm
Installed depth ERO with mount (DM)	N/A	4.4" / 111 mm	3.7" / 93 mm	4.3" / 110 mm	3.8" / 96 mm	3.8" / 96 mm
LCD module depth with VESA Option (Display Only) Option (D)	N/A	4" / 101.7 mm	3.3" / 84 mm	4" / 101.7 mm	3.3" / 84 mm	3.3" / 84 mm
ERO LCD module depth with VESA option	N/A	4.1" / 105 mm	3.4" / 86 mm	4.1" / 105 mm	3.4" / 86 mm	3.4" / 86 mm
Total weight (includes LCD & mount)	48 lbs (21.8 kg) 58 lbs (26.3 kg) with ERO	48 lbs (21.8 kg) 58 lbs (26.3 kg) with ERO	48 lbs (21.8 kg) 58 lbs (26.3 kg) with ERO	59 lbs (26.8 kg) 74 lbs (33.6 kg) with ERO	59 lbs (26.8 kg) 74 lbs (33.6 kg) with ERO	59 lbs (26.8 kg) 74 lbs (33.6 kg) with ERO
Tiled bezel width	7.1 mm	5.5 mm	3.7 mm		5.5 mm	3.7 mm

\*Power consumption can vary with configuration and backlight setting

\*\*Complies with US ADA regulations for installed depth <4"