Clarity® Matrix® G3 LCD Video Wall System

This document is to be used by an integrator, designer, consultant, or end user to develop specifications to a project utilizing a Clarity® Matrix® G3 LCD Video Wall System. Below you will find a table of product specifications for the Clarity Matrix G3 and unique specifications that can be used when designing and writing specifications. The table lists the feature category and the detailed specs. There is also a description of the main benefit, which usually does not appear in the bid but offers background and explanation on the requirement purpose.

Clarity Matrix G3 Bid Specifications

Clarity Matrix G3		
Feature	**Requirement**	**Benefit**
Specification List applies to: MX55X, MX55U, MX46X, MX46U, LX55X, LX55U, LX46X, LX46U	• Mounted Depth (wall to display front): 91.4mm (3.6in) • LCD Technology: Commercial-grade direct view LCD • Display Resolution: 1920 x 1080 • Contrast Ratio: 4000:1 • Full Viewing Angle: 178° • Backlight Sensing and Reporting: At display level • Display Module Position Sensing: Auto-sensing integrated • Redundancy: n + 1 redundant option • Power supply voltage: 100-240V AC ± 10%, 50 to 60 Hz • Controller status: Diagnostics LEDs, health monitoring and alerts • Acoustic Noise: Fanless operation at the display • Operating Temperature/Humidity (degrees F/C) 20-90% relative humidity, non-condensing: 5° to 40° C | 41° to 104° F • Protective Glass: Planar ERO technology (Optional) • Regulations: Complies with EN60950, FCC Class A, CISPR22/85, EC, EU RoHS, TAA Compliant	
Specification List: MX55X	• Diagonal Size: 55 inches (1397mm) • Tiled bezel width (min.) : 1.7mm or better • Brightness (maximum) : 800 candelas or nits • Response time (typical) : 8ms or better • Colors : 16.7 million • Backlight type : LED • Backlight life (1/2 brightness) : 50,000 Hrs • Heat load (Typical) : 940 BTU per hour • Backlight control : Individual and wall control	

	• Power consumption: 220 watts / Display (Typical)	Page | 2
Specification List: MX55U	• Diagonal Size: 55 inches (1397mm) • Tiled bezel width (min.) : 3.7mm or better • Brightness (maximum) : 800 candelas or nits • Response time (typical) : 8ms or better • Colors : 16.7 million • Backlight type : LED • Backlight life (1/2 brightness) : 50,000 Hrs • Heat load (Typical-500 nits) : 888 BTU per hour • Backlight control : Individual and wall control • Power consumption : 202 watts / display (Typical)	
Specification List: MX46X	• Diagonal Size: 46in (1168.4mm) • Tiled bezel width (min.) : 1.7 mm or better • Brightness (maximum) : 800 candelas or nits • Response time (typical) : 8ms or better • Colors : 16.7 million • Backlight type : LED • Backlight life (1/2 brightness) : 50,000 Hrs • Heat load (Typical) : 734 BTU per hour • Backlight control : Individual and wall control • Power consumption: 159 watts /display (Typical)	
Specification List: MX46U	• Diagonal Size: 46in (1168.4mm) • Tiled bezel width (min.) : 3.7 mm or better • Brightness (maximum) : 800 candelas or nits • Response time (typical) : 8ms or better • Colors : 16.7 million • Backlight type : LED • Backlight life (1/2 brightness) : 50,000 Hrs • Heat load : 648 BTU per hour • Backlight control : Individual and wall control • Power consumption : 134 watts / display (Typical)	
Specification List: LX55X	• Diagonal Size: 55 inches (1397mm) • Tiled bezel width (min.) : 1.7mm or better • Brightness (maximum) : 500 candelas or nits • Response time (typical) : 8ms or better • Colors : 16.7 million • Backlight type : LED • Backlight life (1/2 brightness) : 50,000 Hrs • Heat load (Typical) : 700 BTU per hour • Backlight control : Individual and wall control • Power consumption: 146 watts /display (Typical)	

Specification List: LX55U	- Diagonal Size: 55 inches (1397mm) - Tiled bezel width (min.) : 3.7mm or better - Brightness (maximum) : 500 candelas or nits - Response time (typical) : 8ms or better - Colors : 16.7 million - Backlight type : LED - Backlight life (1/2 brightness) : 50,000 Hrs - Heat load (Typical-500 nits) : 700 BTU per hour - Backlight control : Individual and wall control - Power consumption : 145 watts / display (Typical)	
Specification List: LX46X	Diagonal Size: 46in (1168.4mm) - Tiled bezel width (min.) : 1.7 mm or better - Brightness (maximum) : 500 candelas or nits - Response time (typical) : 8ms or better - Colors : 16.7 million - Backlight type : LED - Backlight life (1/2 brightness) : 50,000 Hrs - Heat load (Typical) : 580 BTU per hour - Backlight control : Individual and wall control - Power consumption: 114 watts / display (Typical)	
Specification List: LX46U	- Diagonal Size: 46in (1168.4mm) - Tiled bezel width (min.) : 3.7 mm or better - Brightness (maximum) : 500 candelas or nits - Response time (typical) : 8ms or better - Colors : 16.7 million - Backlight type : LED - Backlight life (1/2 brightness) : 50,000 Hrs - Heat load : 563 BTU per hour - Backlight control : Individual and wall control - Power consumption : 106 watts /display (Typical)	
Architecture	The video wall must be made up of 46" or 55" direct view LCD in an architecture, which include slim LCD modules with an integrated mounting system, off-board electronics and redundant power supplies, and built-in image processing.	An LCD video wall system that provides a perfectly aligned slim LCD array, that removes heat, weight, and points of failure and places them conveniently where they can be serviced. This design provides reliability and extended.
Mounting System		
6-Axis Adjustable Mount	The LCD module must include an integrated mounting system that allows for 6-axis of adjustments to achieve a perfectly aligned LCD array.	Minute adjustments allow for precise alignment from panel to panel; particularly where the corners of four LCDs come together.

Installed Depth	The installed depth of the LCD module must be less than 3.6"/(114.3mm). The install depth must be compliant with the Americans with Disabilities Act (ADA) for protrusion under 4".	The thinnest profile available for an extreme narrow bezel category LCD.
In-Wall Servicing	The LCD module and mounting system must allow for a LCD to be put into a service position to access components or make cable connections from the front of the video wall. The LCD module and mounting system must allow the removal of a LCD module without completely taking down the LCD modules around it. The components on the back of the LCD module need to be serviceable from the front of the wall when installed.	Most mounting systems, including those that attach to VESA hole patterns, will not allow easy access to the back of the LCD. They don't have a service position, and you must remove panels starting at the edge of the wall in order to gain access to the back of an LCD in the middle of the wall.
Weight	The LCD module and mount combined must weigh less than: • 46" sizes = 41 lb (19 kg) • 55" sizes = 51 lb (23.1 kg)	Most LCD modules have built-in power supplies and electronics, which adds to their weight. LCDs with off-board electronics are lighter and more manageable, requiring less labor to handle.
Orientation	The display must be capable of being installed in both landscape and portrait orientation.	Many video wall systems do not support LCDs mounted in portrait orientation, or they are not warranted for portrait mounting.
Curved Walls	The display mounting structure must be capable of supporting concave curved walls.	
Alignment Brackets	The mounting structure must have alignment brackets that properly space the mounts apart from each other.	Many mounting systems do not space the LCDs perfectly, nor do they keep the LCDs from resting on each other, which can cause damage.
Environmental		
Noise	The display must utilize a fan-less LCD design.	Most LCDs have built-in fans that have measurable decibel levels at the video wall. This is distracting and intolerable in quiet environments.
Operating Temperature	The display must be able to operate in a 5-40°C (41-104°F) environment.	
Operating Humidity	The display must be able to operate in a 20-90% RH non-condensing environment.	

Electronics and Image Processing		
Connectivity	The display must have the capability to inputting and displaying 4 HDMI 2.0 inputs and 1 DisplayPort 1.2 input	
High Bandwidth Input Capabilities	The display must be able to accept multiple high bandwidth inputs with a pixelclock up to 660 Mhz and spread it across multiple displays	Higher resolution scaling provides better looking content and requires fewer PC outputs.
Setup and Control Software	The display must come with setup and control software that allows you to configure and control the source position, sizing, and scaling on the video wall.	
Panel Damage Prevention	The display must have a real time clock integrated into the electronics to allow for scheduled Power On and Off to prevent long term damage.	
Off-board Electronics and Power Supply modules	The electronics and power supplies for the LCD module must be removed from the back of the LCD panel and placed in a rack mount location that is conveniently placed for service and installation. The electronics for the LCD module must be co-located next to the content sources to prevent any degradation from sending DVI signals long distances.	Off-board electronics significantly reduce the time and difficulty of servicing any of the parts in the LCD video wall. It allows the critical electronics to be located in a secure, controlled environment away from the video wall, and prevents unsightly servicing at the wall.
HDCP 2.2 Compliance	The display must be HDCP 2.2 compatible and be capable of passing the licensing key to other displays in the array when looping the signal through (daisy-chaining).	Many prosumer and consumer devices require HDCP 2.2 to distribute content to the display.
Loop through Capabilities	The display must be able to distribute any of its 4 inputs to any one of the 4 LCD modules and any additional controller electronics connected with the loop-through signal.	This eliminates the need for any external hardware for signal distribution.
IR Remote Control	The display must have IR remote control that can control an individual display or an entire array for complete control over all command functions by an on-site operator through an on-screen menu.	This simplifies the installation and maintenance of the system. It provides a very simple control for an end-user, similar to the menu of a TV set.
Memory Slots	The display must contain a minimum of 256 preset memory slots in which a source configuration can be saved and recalled.	Recalling a saved setting is quick and helps ensure proper setup.
Auto Setup Options	The display must be able to automatically detect and sync to any incoming selected source within the specified operating range without user intervention.	This plug and play feature saves time and reduces labor requirements.

RS232	The display must be capable of accepting and passing through RS-232 control commands to an array of displays. The display must be capable of setting a unique unit identification number for acceptance of unit specific RS-232 commands and address the array globally.	This standard communication protocol provides the capability of controlling the entire wall with a single communication controller.
Color Temperature presets	The display must include selectable presets that allows for color temperature settings of at least 6500, 3200, and native.	Adjusting color temperature digitally prevents the extra cost of color filters.
LAN Control	The display must have a built-in option for control and health monitoring of the display including current status and email alerts over a LAN.	This allows for health and status monitoring over the Internet and allows operators to take a proactive service approach.
Compatibility Mode Table	The display must be capable of accepting over 175 different mode timings and syncing without user intervention.	This prevents the need for and cost of a special timing programming.
Diagnostic LED's	The Power supply module and quad controller electronics need to have diagnostic and status LED's that aid with setup and troubleshooting.	These indicators save time and labor cost.
Scaling Capabilities	The display must be capable of accepting input resolutions of VGA (640x480) to 4k (3840x2160) and scaling an image across various sections of an LCD video wall, or an entire LCD video wall up to 32x32 screens.	Built-in scaling prevents the cost and complexity of adding a third-party video processing solution.
Downscaling Capabilities	The display must be able to take any one of its inputs and down scale it in a window within a display.	Built-in scaling prevents the cost and complexity of adding a third-party video processing solution.
Quadview Capabilities	The display must be capable of scaling 4 inputs up to 4k resolution within the display.	Built-in scaling prevents the cost and complexity of adding a third-party video processing solution.
Genlock to external sync	The video wall must be able to genlock to an external sync such as a house sync	Critical to optimal performance in Broadcast and other environments
Genlock to source	Must be able to synchronize any size video wall to a single video source connected to the video wall	Genlock ensures full-wall video playback is synchronized with no tearing
Scan inversion	Video wall must support automatic scan inversion eliminating potential panel-to-panel horizontal artifact	Prevents horizontal tearing artifact commonly seen with content that has horizontal

		visual elements combined with horizontal panning
Mullion Compensation	The display must have the capability to scale an image across an array and scale the image to compensate for the physical mullion in the image.	Scaled images without mullion compensation look bad and don't present the content as designed.
Internal Cable connections	The display must have locking internal cable connections	Locking connections prevent cables from coming loose or coming out, resulting in image failure.
Long Distance Signal transport	The display must incorporate a Cat 6 solution that allows the electronics and source to be placed up to 200ft (60m) away from the displays with no 3rd party extension devices.	Adding third-party extenders adds cost and complexity as well as points of failure, and can negatively impact signal quality.
Fiber Optic Video Extension	The display must incorporate a video transmission scheme that utilizes Fiber Optic cabling between the off-board electronics components and the display connectivity.	Provides a secure, longer distance option.
Fiber Optic Video Extension compatibility	The Fiber Optic video extension should use SPF+ Multimode Fiber transceivers with support for single mode as well.	Multi-mode transceivers are capable of extending video up to 1000 ft./ 300M and single-mode transceivers support up to 10kM.
Add/Remove/Change sources	The display must be capable of adding, removing, or changing source inputs without disrupting the LCD video wall	Reduces costs and complexities in changing sources at the LCD array location.
LCD Modules		
Commercial Grade LCD Module	The display must have a DID commercial grade LCD module	A commercial grade LCD is resistant to image sticking and other long term aging affects.
Viewing Angle	The display must have a horizontal and vertical viewing angle of 178°	
Auto Panel Position Discovery	Each LCD module must have sensors built inside the unit to determine where it is in an array and communicate to the other displays where it is. It then must be able to scale an image across the entire array automatically.	Without auto position discovery, the technician must go through a slow and cumbersome manual process.
LCD Temperature Monitoring	The LCD module must contain a temperature sensor that can monitor the temperature of the LCD module and through LAN	If LCDs are allowed to operate over rated temperatures without

	and other RS232 control devices can alert the user of an over temperature condition.	warning, they can be damaged or ruined as a result.
Backlight Control	The display must have the capability to control the backlight intensity individually or globally across the entire array,	This allows for easy brightness balancing, and can help a user comply with LEED certification requirements or other energy use standards.
Resolution	The display must have a native resolution of 1920x1080p	
LCD Module serviceability	An LCD module must be capable of being replaced without changing the power supply module or electronics module.	
Power		
Remote Power Module	The display must be powered by a remote power supply module up to 500ft (152.4m) away from the LCD.	This removes heat, noise, weight, depth, and points of failure from the LCD video wall.
Power Supply	The power supply must have an in-rush current rating that is 10% over the maximum current draw.	This safeguard prevents overloads.
No AC Power behind the displays	AC power behind the displays is not required.	Most LCD video wall systems require AC power outlets behind the displays. This requires expensive and inconvenient electrical work.
Redundant Power Supply Option	The LCD modules must have a redundant power supply module built in that will allow for continuous operation in the case of a power supply failure.	When up-time percentage is critical, or the video wall is in a high-traffic area, redundant power ensures continuous operation.
Other		
24-hour advanced exchange policy	The display manufacturer must offer a service policy that allows a replacement LCD to be shipped out within 24 hours.	
Multi-Touch support	A 32-point touch system must be available with the LCD video wall system.	
Vandal-resistant glass option	The Extended Ruggedness & Optics (ERO) option must be available with the LCD video wall system which protects the glass, improves the optics, and creates a smooth and modular touch surface	
3D option	The LCD displays must be available in stereoscopic 3D	

4K input support	The LCD displays must support ultra-HD inputs that are up to 3840x2160 in resolution.	