

The top half of the page features a complex, abstract background of overlapping, semi-transparent blue triangles and polygons in various shades of blue, creating a dynamic, crystalline effect. This pattern transitions into a clean white background at the bottom.

Installation and Setup Guide
020-100329-15

Christie MicroTiles

CHRISTIE®

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WARRANTY

Products are warranted under Christie's standard limited warranty, the complete details of which are available by contacting your Christie dealer or Christie. In addition to the other limitations that may be specified in Christie's standard limited warranty and, to the extent relevant or applicable to your product, the warranty does not cover:

- a. Problems or damage occurring during shipment, in either direction.
- b. Projector lamps (See Christie's separate lamp program policy).
- c. Problems or damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp other than a Christie lamp supplied by Christie or an authorized distributor of Christie lamps.
- d. Problems or damage caused by combination of a product with non-Christie equipment, such as distribution systems, cameras, DVD players, etc., or use of a product with any non-Christie interface device.
- e. Problems or damage caused by the use of any lamp, replacement part or component purchased or obtained from an unauthorized distributor of Christie lamps, replacement parts or components including, without limitation, any distributor offering Christie lamps, replacement parts or components through the internet (confirmation of authorized distributors may be obtained from Christie).
- f. Problems or damage caused by misuse, improper power source, accident, fire, flood, lightning, earthquake or other natural disaster.
- g. Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.
- h. Problems or damage caused by use of a product on a motion platform or other movable device where such product has not been designed, modified or approved by Christie for such use.
- i. Problems or damage caused by use of a projector in the presence of an oil-based fog machine or laser-based lighting that is unrelated to the projector.
- j. For LCD projectors, the warranty period specified in the warranty applies only where the LCD projector is in "normal use" which means the LCD projector is not used more than 8 hours a day, 5 days a week.
- k. Except where the product is designed for outdoor use, problems or damage caused by use of the product outdoors unless such product is protected from precipitation or other adverse weather or environmental conditions and the ambient temperature is within the recommended ambient temperature set forth in the specifications for such product.
- l. Defects caused by normal wear and tear or otherwise due to normal aging of a product.

The warranty does not apply to any product where the serial number has been removed or obliterated. The warranty also does not apply to any product sold by a reseller to an end user outside of the country where the reseller is located unless (i) Christie has an office in the country where the end user is located or (ii) the required international warranty fee has been paid.

The warranty does not obligate Christie to provide any on site warranty service at the product site location.

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

REGULATORY

The product 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 product is operated in a commercial environment. The product 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 the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

CAN ICES-3 (A) / NMB-3 (A)

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ENVIRONMENTAL

The product is designed and manufactured with high-quality materials and components that can be recycled and reused. This symbol  means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!

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Product overview

Christie MicroTiles are modular, high-quality image display units with related accessories which when combined form large display canvases of virtually any size and shape.



The modular design uses rear projection, based on a single TI Digital Micromirror Device™ (DMD) and chipset. High-brightness LEDs provide the illumination source. MicroTiles can be quickly and easily deployed into small display configurations, while providing the additional features required for larger and more complex installations.

MicroTiles consist of several subsystems, including the mechanical housing, screen and Fresnel lens, light engine, Front End Formatter Board (FEFB), IR sensor, internal Low Voltage Power Supply (LVPS) and cooling system. An array of MicroTiles requires at least one ECU (master ECU), acting as a main control unit and input interface for image content distribution through the array.

The self-contained mechanical and optical design allows multiple tiles to be connected together into an array of any size or configuration. Custom electronics allow the array to be completely self-configuring without any external hardware. The video signal to be displayed is fed into the array through an External Control Unit (ECU). This signal is buffered and converted into a high speed (five Gbps) serial stream and relayed to every tile in the array. Each tile captures a portion of the image and applies scaling, as required, which results in a single picture. The ECU also acts as the main system controller and coordinates with all connected tiles to form a canvas.

Terminology

Learn the terms used to describe the components of a MicroTiles array.

Term	Definition
MicroTiles	Refers to multiple tiles.
Tile	Consists of a display unit and a screen.
External Control Unit (ECU)	Controls MicroTiles arrays, video input source.
Master ECU	Only one master ECU can be assigned to a canvas. This master supplies the global video source.
Slave ECU:	Supplies local video sources in multiple ECU configurations.

Term	Definition
Canvas	A group of tiles and ECUs that are connected together electronically. To constitute a canvas, tiles do not need to be physically adjacent to one another. The maximum number of tiles in a canvas is 200, and the maximum number of ECUs is 16.
Array	A group of tiles that are physically connected to each other. A canvas may include multiple arrays. Video sources are mapped to arrays of tiles. Each array represents a new source mapping.
Sub-array	A group of tiles within an array that are configured to display either the local or global video source. A single array may contain multiple subarrays.
Media Source	Provides the source for the input signal.
Global Source	The media source connected to the master ECU also functions as a "global source". The global source can be displayed on any group of tiles connected to the local source input (HSSL-1) side of the master ECU. In a closed loop canvas, all tiles can display the global source.
Local Source	The media source connected to an ECU as a "local source", feeding the local set of tiles connected to its local source output (HSSL-2).
Open/Closed Loop	An open loop canvas terminates with the last tile in the canvas, which is not connected back to the first ECU. In a closed loop canvas, the last tile in the canvas is connected back to the first ECU. There are no unused Display Port connections in a closed loop canvas.

Product documentation

For installation, setup, and user information, see the product documentation available on the Christie Digital Systems USA Inc. website. Read all instructions before using or servicing this product.

1. Access the documentation from the Christie website:
 - Go to this URL: <http://bit.ly/2wOrulu>
or
<https://www.christiedigital.com/en-us/business/products/microtiles>
 - Scan the QR code using a QR code reader app on a smartphone or tablet.



2. On the product page, switch to the **Downloads** tab.

Related documentation

Additional information on the MicroTiles is available in the following documents.

- *Christie MicroTiles Product Safety Guide (P/N: 020-102147-XX)*
- *Christie MicroTiles User Manual (P/N: 020-102146-XX)*

- *Christie MicroTiles Specifications and Application Guide (P/N: 020-100334-XX)*
- *Christie MicroTiles Serial Command Guide (P/N: 020-101547-XX)*
- *Christie MicroTiles Service Manual (P/N: 020-100332-XX)*

Product labels

Learn about the labels that may be used on the product. Labels on your product may be yellow or black and white.

General hazards

Hazard warnings also apply to accessories once they are installed in a Christie product that is connected to power.

Fire and Shock Hazard	
	<p>To prevent fire or shock hazards, do not expose this product to rain or moisture.</p> <p>Do not alter the power plug, overload the power outlet, or use it with extension cords.</p> <p>Do not remove the product enclosure.</p> <p>Only Christie qualified technicians are authorized to service the product.</p>

Electrical Hazard	
	<p>Risk of electric shock.</p> <p>Do not remove the product enclosure.</p> <p>Only Christie qualified technicians are authorized to service the product.</p>



General hazard.



Electric shock hazard. To avoid personal injury, disconnect all power sources before performing maintenance or service.



Bright light hazard. To avoid personal injury, never look directly at the light source.

Electrical labels



Indicates the presence of a protective earth ground.



Indicates the presence of an earth ground.

Additional hazard labels



Light intensity hazard distance

This projector has been classified as Risk Group 2 as per the IEC62471(2006) (First Edition) standard due to possible hazards optical radiation being emitted.

When the screen is removed, directly viewing the beam with an optical instrument (for example, an eye loop, magnifier or microscope) from a distance of less than 220mm may pose an eye hazard. MicroTiles is a Risk Group 2 source of visible LED radiation.

Important safeguards

To prevent personal injury and to protect the device from damage, read and follow these safety precautions.

General safety precautions

Observe these important safety rules to avoid personal injury or damage to the product.



Warning! If not avoided, the following could result in death or serious injury.

- TIP HAZARD! Any array two rows or higher, mounted to the leveling feet, must be fastened to an adequately ballasted base structure to provide stability and prevent tipping.



Caution! If not avoided, the following could result in minor or moderate injury.

- Always provide proper ventilation for the product to prevent overheating.
- Christie products must be installed and serviced by Christie qualified technicians.



Notice. If not avoided, the following could result in property damage.

- Always handle the screen from its sides. Do not touch the inside of the screen.
- Remove all jewelry before handling the screen.
- Do not over-tighten hardware.
- Do not use power tools to install the hardware.
- Excessive force or repeated screen removal may damage the screen.
- Do not place the screen on a hard surface.
- Do not set the screen on its corner or edge.
- Always wear clean, lint-free gloves when handling the product.
- Only use cleaning solutions recommended by Christie. All other cleaning solutions may cause product damage and will void the warranty.
- Only use compressed air with the appropriate guarding and protective equipment.
- FIRE AND SHOCK HAZARD! Use only the attachments, accessories, tools, and replacement parts specified by Christie.
- The intake air must be clean and be clear of dirt and dust. Failure to ensure a clean air supply may void the warranty.
- Always provide proper ventilation for the product to prevent overheating.

AC power precautions

Learn the safety precautions related to AC power.



Warning! If not avoided, the following could result in death or serious injury.

- SHOCK HAZARD! The line cord has a maximum power carrying capability. For the maximum number of tiles that may be connected per daisy chain when connecting to the power supply, refer to the product specifications.
- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- FIRE AND SHOCK HAZARD! Do not attempt operation unless the power cord, power socket, and power plug meet the appropriate local rating standards.



Caution! If not avoided, the following could result in minor or moderate injury.

- SHOCK HAZARD! Disconnect the product from AC before installing, moving, servicing, cleaning, removing components, or opening any enclosure.
- Install the product near an easily accessible AC receptacle.



Notice. If not avoided, the following could result in property damage.

- The use of Y-cords may be prohibited due to local or national regulations. An alternative method of power distribution may be required. This may include Japan, China, Korea and others.

System overview

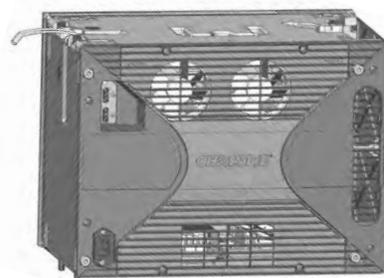
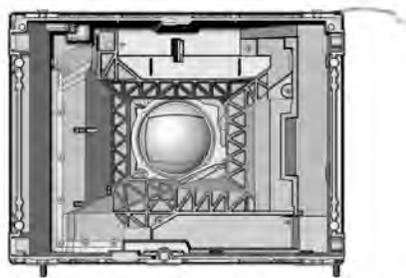
MicroTiles consist of several subsystems, including the mechanical housing, screen and Fresnel lens, light engine, Front End Formatter Board (FEFB), IR sensor, internal Low Voltage Power Supply (LVPS) and cooling system.

An array of MicroTiles requires at least one ECU (master ECU), acting as a main control unit and input interface for image content distribution through the array.

Mechanical housing

The mechanical housing comes equipped with internal supports, which are designed to support small arrays.

For larger arrays, external supports are required. MicroTiles are optimized to operate in an upright, landscape orientation; however, they can be operated in many other orientations, as long as the cooling and support requirements are met. Product cooling and mechanical support is the responsibility of the end user. For information, see *Christie MicroTiles Specifications and Application Guide (P/N: 020-100334-XX)*.



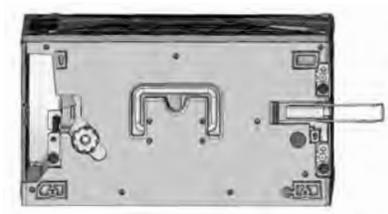
Front of the tile (screen removed)



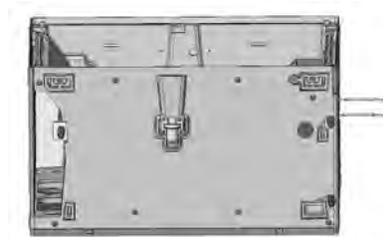
Back of the tile



Left side of the tile



Right side of the tile



Top of the tile

Bottom of the tile

Rear projection screen

Understand the features of the MicroTiles screen.



Notice. If not avoided, the following could result in property damage.

- Always handle the screen from its sides. Do not touch the inside of the screen.
- Remove all jewelry before handling the screen.



The screen is designed to display high-quality images under a wide range of viewing angles and high ambient lighting conditions. The screen has a matte non-glare front surface that reduces specular reflections from adjacent light sources and maintains the contrast and luminance uniformity of the displayed image. The screen is designed to display a sharp image formed close to the screen edge to allow for image blending from screen to screen when tiled in an array.

The screen material has expansion characteristics that are low and closely matched for the screen elements. This allows the screen to retain its dimensions in various operational environments and prevent separation between the screen elements that would induce unwanted image artifacts. The screen is attached magnetically to the housing. The screen can be easily removed by applying suction with a screen removal tool (supplied). In the event that the magnets fail to retain the screen, for instance due to extreme vibration of the housing, an integrated tether ensures the screen remains attached to the housing.

External Control Unit

A MicroTiles array requires an External Control unit (ECU) to display an image across the entire array.



End users connect a PC or media player to the array using a DVI-D cable. The ECU then ensures the supplied video signal is properly displayed across the entire array. For more complex arrays, multiple ECUs can be used.

The ECU is able to communicate with all tiles in the array and with any other ECU using Christie's proprietary HSSL interface. Each tile and ECU has a unique IP address, allowing full communication between tiles and ECUs across the network. The address of each tile is assigned using DHCP.

In a multiple ECU array, one ECU acts as the master ECU, while all remaining ECUs act as slave ECUs. Multiple master ECUs can occur when an array is powered up with more than one ECU attached. On start-up, all ECUs assume they are the master ECU and begin the self-organization process. When two ECUs encounter each other, one of the ECUs is chosen to be the master ECU. If immediately prior to the last power down, one of the two ECUs had been acting as the master ECU and the other as slave ECU, then the unit last identified as the master ECU remains identified as such. If both ECUs (or neither) had been the master ECU, then the next level of priority is based on firmware revision, where the ECU with the newest firmware takes precedence.

The Web User Interface (WebUI) is only functional on a master ECU. It does not communicate with slave ECUs.

A sophisticated external software application is also available to clients, which provides a graphical method of viewing the installation where the on-screen layout of the MicroTiles matches the physical installation. Users are able to arrange and change the configuration and view the results through the on-screen layout of the software. For more information, go to www.microtiles.com and launch the MicroTiles Designer.

MicroTiles ordering guide

Understand the information needed for ordering a MicroTiles array.

For a detailed overview of the kits and accessories visit www.microtiles.com.

Whether the MicroTiles are under warranty or the warranty has expired, Christie’s highly trained and extensive factory and dealer service network is always available to quickly diagnose and correct tile malfunctions. Complete service manuals and updates are available for the MicroTiles. Should a problem be encountered with any part of the MicroTiles, contact your dealer. In most cases, servicing is performed on-site.

If you have purchased MicroTiles, keep a copy of the packing slip shipped with your purchase for your records. The packing slip contains the serial numbers for each tile. The serial number can also be found on the license label located on the back of the tiles, as well as on the front chassis.

Standard components

Learn the items that will be ordered with every system.

Item	Part Number	Part Description	Details
Display Unit	123-001102-XX	MicroTiles Display Unit D100	Each display unit includes a one meter display port cable, three vertical screws, one power connection security clip (comes installed), light seal trim and two horizontal adjustment screws for fine optimization of screen gaps.
Screen	123-124108-XX or 123-128102-XX	MicroTiles Screen S300 MicroTiles Screen S310	Ordered separately from display unit.
External Control Unit	123-101103-XX 123-129103-XX	MicroTiles ECU E100	Includes a three meter display port cable.
User Kit	123-103105-XX	MicroTiles User Kit	Includes: screen removal tool, cleaning cloth, screen tape for sealing the corners of the array, <i>Christie MicroTiles Product Safety Guide (P/N: 020-102147-XX)</i> (with USB card containing additional technical documentation).
Y-cord Kit	123-122106-XX	MicroTiles Y-cord Kit	One kit supports up to nine MicroTiles. This kit includes nine Y-cords with retention clips. This kit does not include regional line cords for connecting a group of tiles to a power outlet. Some regions do not accept Y-cords. Regional line cords will be shipped separately.

Local or national regulations may not allow the use of Y-cords and may require an alternative method of power distribution, such as standard individual line cords for each tile, or power bars. This may include Japan, China, and Korea.

Y-cords and line cords for D100 and E100

Learn what y-cords and line cords are available for MicroTiles.



Notice. If not avoided, the following could result in property damage.

- The use of Y-cords may be prohibited due to local or national regulations. An alternative method of power distribution may be required. This may include Japan, China, Korea and others.

The Y-cord Kit (P/N: 123-122106-XX) can be used in the USA, Canada, Mexico, the European Union, and Russia. It does not include line cords.

Regional line cords are shipped separately by Christie for the display unit (D100) and the ECU (E100), for the regions listed in the table. This list is subject to change and is for reference only.

For all other regions consult with local authorities. Locally approved line cords must be supplied for the tile and ECU.

Country	C13 line cords for D100	C5 line cords for E100	Inlet	Receptacle for D100	Receptacle for E100
North America	108-383105-XX	108-384106-XX			
European Union	108-390103-XX	108-391104-XX			
United Kingdom	108-388100-XX	108-389101-XX			
Japan	108-371102-XX	108-376107-XX			
China	108-373104-XX	108-375106-XX			
Korea	108-390103-XX	108-391104-XX			
Australia	108-392105-XX	108-393106-XX			

Optional accessories

Learn about the available optional accessories which in many cases may be required or recommended. To order additional kits and hardware, go to www.microtiles.com.

Item	Part number	Part description	Details
End Foot Kit	123-105107-XX	MicroTiles Foot/Ends (includes left/right end feet and one grille)	Leveling feet are recommended to help level the bottom row when building on a supporting structure. Order one end foot kit per array.
Center Feet	123-106108-XX	MicroTiles Foot/Center (three-pack includes three grilles)	Order one center foot to place between each column.
Mounting Bracket	123-107109-XX	MicroTiles Mounting Bracket (two-pack)	One required for every tile that is added to rows six and above in an array.

Sample ordering quantities for a 9x9 array

This is a sample bill of materials for a floor mounted 9x9 MicroTiles array, which consists of 81 tiles and three ECUs.

Part number	Part description	Qty.	Calculation notes
123-001102-XX	MicroTiles Display Unit D100	81	
123-124108-XX	MicroTiles Screen S300	81	One per display unit.
123-101103-XX	MicroTiles ECU E100	3	The number of ECUs is a design choice and affects the maximum content resolution of the display. For help in determining the number of ECUs, access the online calculator at www.microtiles.com .
123-103105-XX	MicroTiles User Kit	1	One per system.
123-105107-XX	MicroTiles Foot/Ends (includes one grille)	1	One kit (includes left/right) per bottom row
123-106108-XX	MicroTiles Foot/Center (three-pack/includes three grilles)	3	Count bottom row = 9 tiles Subtract 1 = 8 joints = 8 feet required
123-107109-XX	MicroTiles Mount Bracket (two-pack)	18	Count above five high = 9 x 4 = 36 tiles
123-122106-XX	MicroTiles Y-Cord Kit	9	Some regions do not accept Y-cords.

The appropriate regional line cords are shipped separately. The items listed below contain an example of a USA order, utilizing the Y-cord kits.

Part number	Part description	Qty.	Calculation notes
108-383105-XX	C13 Line Cord for tiles	9	One per Y-cord kit. For regions where the Y-cord is not accepted, the quantity of line cords required is one per display unit.
108-384106-XX	C5 Line Cord for ECUs	3	One per ECU

Installation and Setup

Use the following instructions as a guideline only. Before installing, you must fully understand all site requirements and characteristics.

The configuration of an array will vary on the installation; therefore, the following instructions are to be used as a guideline only. Before installing, it is important to fully understand all site requirements and characteristics. This document outlines installations which are no higher than five rows and no wider than 10 columns.

For installations exceeding these specifications, see *Christie MicroTiles Specification and Application Guide* (P/N: 020-100334-xx) .

Installation guidelines

When designing an array, keep these guidelines in mind.

- When constructing any size array always complete the first row and ensure it is flat before continuing with the next row. Do not attempt to construct the array column by column.
- Power up each tile to ensure it is functioning. Check the LED on the back of the tile. A green light indicates power is enabled.
- Do not remove the lens guard from the MicroTiles or dust cap from the lens until the canvas construction is complete.

Cable and ECU layout and design

Before an array is constructed, it is important to plan the design layout of the canvas to make sure that ECU placement and the cabling layout supports the overall canvas design objectives.

MicroTiles offers considerable flexibility in terms of the number of media sources that can be displayed and the overall resolution. For more information, see the *Christie MicroTiles Specification and Application Guide* (P/N: 020-100334-xx).

Color and brightness matching, as well as certain other functions, may be performed across an entire canvas.

Required tools and hardware

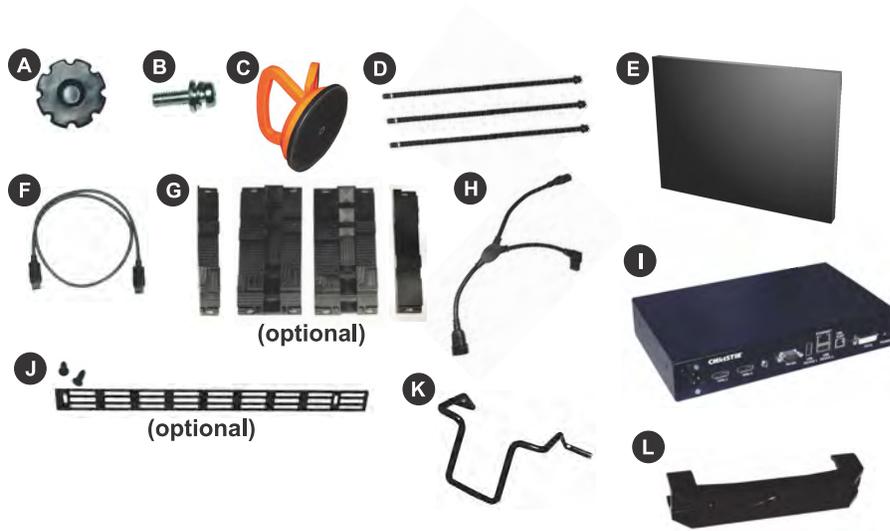
For every MicroTiles system you will need display units, screens (one per display unit), External Control Units (ECUs), a User Kit, a Y-cord Kit, and line cords.

This combination provides some of the tools and hardware shown in the illustration below.



Notice. If not avoided, the following could result in property damage.

- The use of Y-cords may be prohibited due to local or national regulations. An alternative method of power distribution may be required. This may include Japan, China, Korea and others.



A	Assembly Tool
B	18 mm-M6 Socket Head Cap Screw for Horizontal Alignment (two per tile)
C	Screen Removal Tool
D	321 mm-M8 Vertical Alignment Rods (three per tile)
E	Screen
F	Display Port Cable, one per tile. A one meter cable is supplied with the tile and a three meter cable comes with the ECU
G	End and Center Leveling Feet (optional)
H	Y-Power Cord
I	ECU
J	Grille with Hardware-used in conjunction with End and Center Leveling Feet (optional)
K	Security Clip for Power Cord Connection to Tile
L	Retention Clip for Y-Power Cord Connections

Not shown

- Display Unit (tile without screen)
- Straight edge (not provided)
- 5mm hex key (not provided)
- Light seal trim
- Line cords for Display Units
- Line cords for ECU

Installing the MicroTiles canvas

Perform the following tasks when installing the MicroTiles canvas.

1. *Apply the light seal trim* (on page 18).
2. *Mount leveling feet to the base structure (Optional)* (on page 18).
3. *Assemble the first row of tiles* (on page 19).
4. *Add additional rows of tiles* (on page 22).
5. *Unpack the screens* (on page 23).
6. *Install the screens on the tiles* (on page 23).
7. *Connect the cables between the ECUs and tiles* (on page 25).
8. *Display content on the canvas* (on page 27).
9. *Power on the MicroTiles array* (on page 28).

Applying the light seal trim

The light seal trim is supplied with the Display Unit kit (P/N: 123-001102-xx) and is used to prevent light leakage between the tiles in the array.

It is typically used for applications where there is lighting in the space behind the tiles.

If required, apply the light seal trim around the back of the outside perimeter of the tile before adding it to the array.

Mounting the leveling feet to the base structure (Optional)

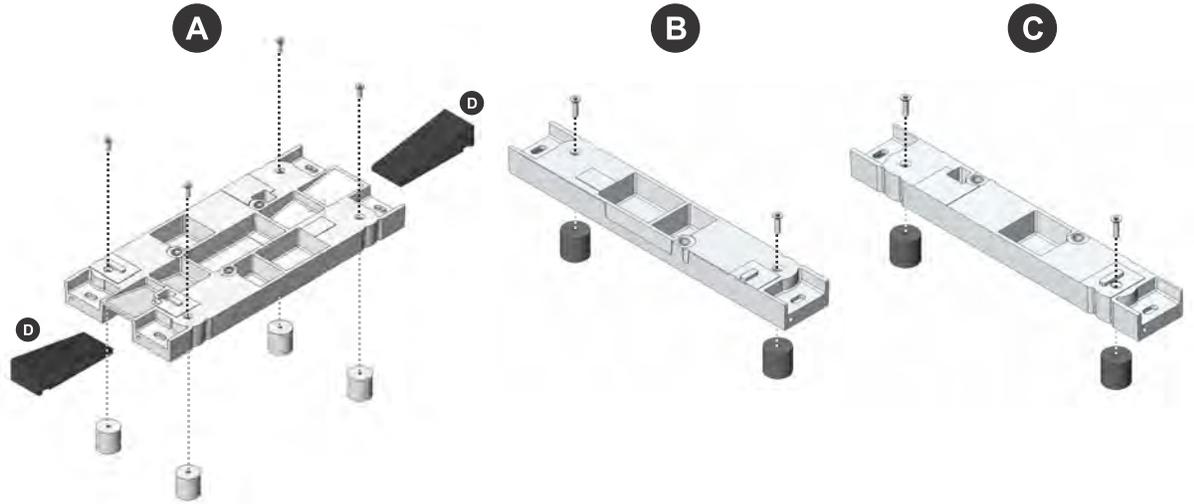
The leveling feet are used when constructing an array two rows or higher to bolt the array down to prevent tipping, and to level and tilt small arrays.



Warning! If not avoided, the following could result in death or serious injury.

- **TIP HAZARD!** Any array two rows or higher, mounted to the leveling feet, must be fastened to an adequately ballasted base structure to provide stability and prevent tipping.

The leveling feet come equipped with machined points for bolting the array down; however, fastening hardware is not supplied.



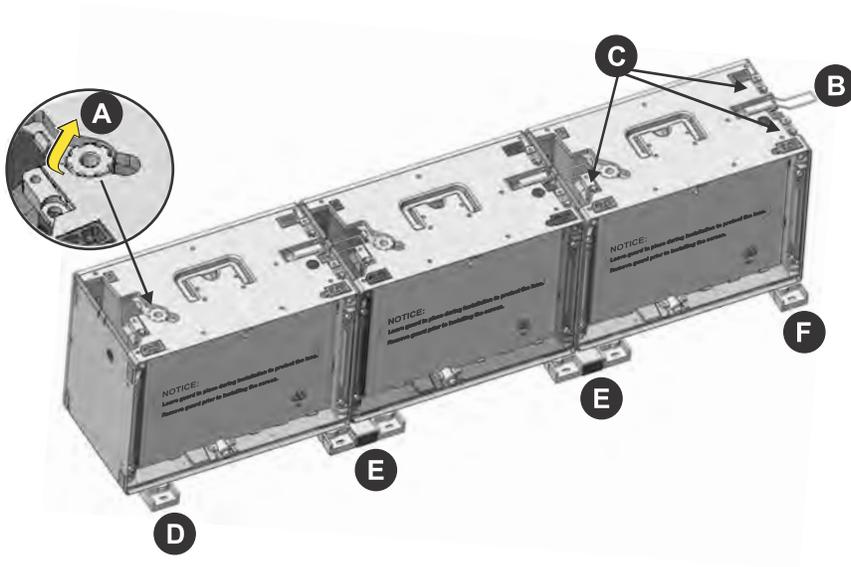
A	Center leveling foot
B	Left leveling foot
C	Right leveling foot
D	Shim

1. Ensure the surface underneath the array is flat before installing the leveling feet.
2. Use either M6 or 1/4" hardware to attach the mounting feet to the base structure. Follow all local safety standard and regulations when bolting the array.

Assembling the first row of tiles

When installing an array without leveling feet ensure the surface is flat. Do not install vertical screws in the bottom row of installations without leveling feet.

It is advised that when an array is set up near a wall to connect the cables row by row. When setting up an array where the back is exposed, first setup the entire array and then connect the wires. Ensure all latches are open before assembling the array.



A	Adjustment tool
B	Latch
C	Vertical Screws
D	Left foot
E	Center foot



Notice. If not avoided, the following could result in property damage.

- Do not over-tighten hardware.
- Do not use power tools to install the hardware.

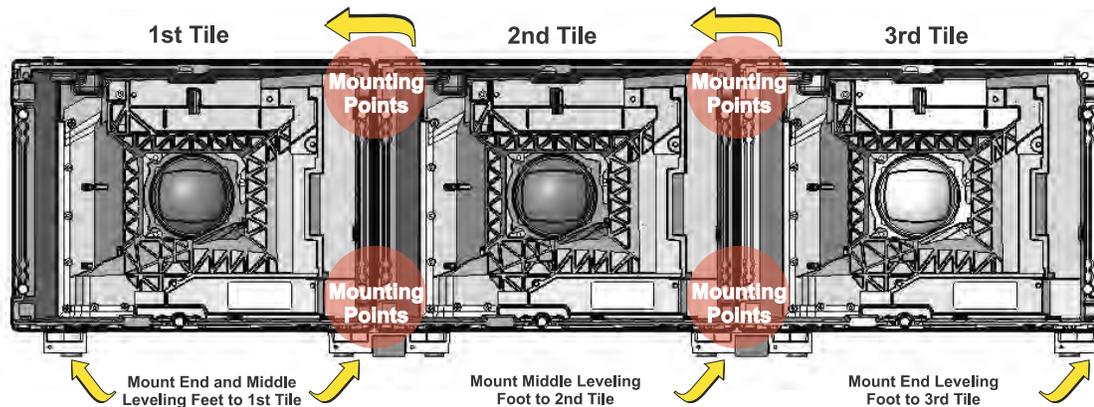
1. Open the latch on the top of the first tile.
2. Attach the first tile in the array to a left and center leveling foot.
3. Insert the three vertical screws that are shipped with the MicroTiles into the three positions indicated in the image above (C).
4. Detach the assembly tool from the top of the tiles (A) and hand-tighten the three vertical screws to mount the tile to the feet.

Do not completely tighten the screws at this point to allow for adjustments. Do not use power tools to tighten the vertical screws. Do not use the vertical screws as anchors to hang the array.

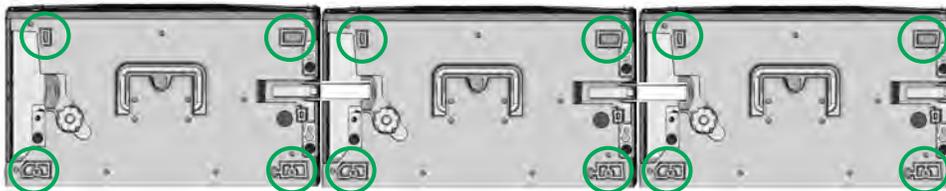
5. Assemble the next tile in the array to a center leveling foot only.
6. Using the assembly tool, hand-tighten the two vertical screws to attach the tile to the center foot.
To allow for adjustments do not completely tighten the screws.
7. Place the second tile inline with the previous tile.
8. Using the assembly tool, hand tighten the vertical screw on the second tile to attach it to the center foot of the previous tile.
9. Install a screen onto both tiles.

10. Use the screens to visually check the horizontal and vertical alignment between each tile.
If needed, use the vertical and horizontal screws to make adjustments.
11. Temporarily remove the screen from the last tile to allow another tile to be added to the row.
12. Repeat steps 5 to 11 for all remaining tiles that are to be used in the first row.
13. Assembly only a right leveling foot to the last tile in the row and secure it to the previous tile.
14. (Optional) Hand thread a horizontal adjustment screw into the mounting points between the first two tiles. To allow for adjustments, do not completely tighten until the entire row is complete.

It is recommended that horizontal adjustment screws be installed on additional rows when assembling an array higher than three rows to ensure fine optimization of seams. For arrays that are three rows or less it is not necessary to install the horizontal adjustment screws.



15. Repeat step 14 for every tile added to the first row.
16. Once the first row is assembled, place a straight edge onto the interface pads (circled in the image below), along the top of each tile to ensure the row is flat. If needed, adjust the vertical screws (if mounted to leveling feet) and the horizontal adjustment screws.



Poor alignment of the first row limits the size of the array that can be built.

17. Lock the latch (B) from one display unit onto the adjacent display unit. Repeat for every tile in the row.
18. If the array is mounted to leveling feet, use the assembly tool to completely tighten all vertical screws.
19. Use a 5mm hex key to completely tighten all horizontal adjustment screws.
20. If the array is mounted to the leveling feet, insert shims into either the front or the back (or both) of each leveling foot to tilt the array or provide additional security. If necessary, fasten the leveling feet to the base structure.
21. (Optional) Fasten the grilles to the leveling feet.
22. Add the second row of tiles.

Adding additional rows of tiles

Only install a row of tiles after the lower row is installed, leveled, and secured.



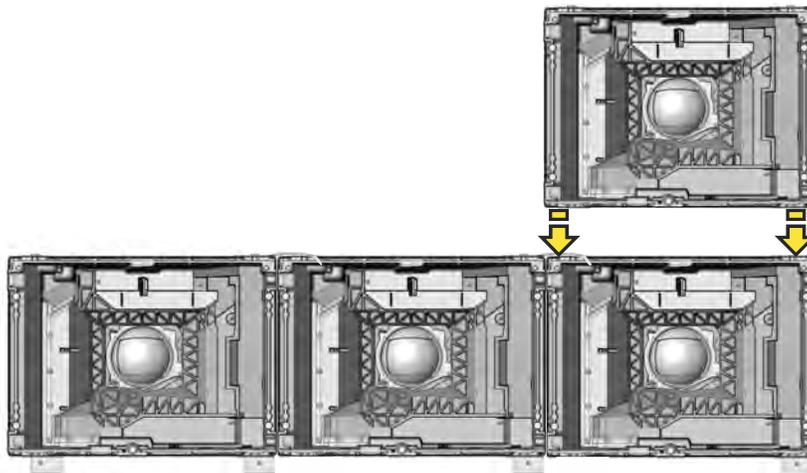
Warning! If not avoided, the following could result in death or serious injury.

- TIP HAZARD! Any array two rows or higher, mounted to the leveling feet, must be fastened to an adequately ballasted base structure to provide stability and prevent tipping.



Notice. If not avoided, the following could result in property damage.

- Do not over-tighten hardware.
 - Do not use power tools to install the hardware.
1. Open the latch on top of the first tile of the second row.
 2. Place the tile on top of the first tile in the bottom row.



Never build from the center out.

3. Push the tile back until the front edge aligns with the front edge of the tile below it.
4. Tighten the three vertical alignment rods with the assembly tool.
Do not completely tighten at this point to allow for adjustments.
5. Continue to add the remaining tiles to the second row and repeat step 4 for every tile added to the second row.
6. Once the second row is in place, use the assembly tool to completely tighten the vertical screws.
Failure to properly tighten the vertical screws and horizontal adjustment screws causes the tiles to be misaligned.
7. It is recommended that horizontal adjustment screws be installed on all other rows when assembling an array higher than three rows.
For arrays that are three rows or less it is not necessary; however, if you require fine seam optimization, horizontal adjustment screws are recommended on all rows.
8. Place a straight edge along the four interface pads on the side of the column to ensure the top and bottom tiles are straight. If needed, readjust the top tile or the first row.
9. Lock the latch from one tile onto the adjacent tile.
10. It is recommended that screens are installed during the installation in order to check seam gaps, rather than waiting until the array is completely constructed.

11. Anchor the MicroTiles using the rear mounting points or bolting the leveling feet into the base structure so the weight of each tile is individually supported.

A mounting bracket can be purchased from Christie (P/N: 123-107109-xx). For details, see *Christie MicroTiles Specification and Application Guide* (P/N: 020-100334-xx).

Unpacking the screens

Take precautions when removing the screens from the packaging.



Notice. If not avoided, the following could result in property damage.

- Always handle the screen from its sides. Do not touch the inside of the screen.
 - Remove all jewelry before handling the screen.
 - Do not place the screen on a hard surface.
 - Do not set the screen on its corner or edge.
 - Always wear clean, lint-free gloves when handling the product.
1. Open the box and, without removing it, examine the screen to ensure it has not been damaged during shipping.
 2. Place one hand under the screen's frame, between the front two foam corners.
 3. Carefully lift the frame and screen until the front two foam corners are clear of the box.
 4. Remove the front two foam corners.
 5. Carefully lower the frame and screen back into the box.
 6. With two hands, grasp the sides of the frame and lift the frame and screen together out of the box.
 7. If the work surface is hard (for example, a table top), have another person close the lid of the box and place the screen on the lid. Otherwise, place the screen on the work surface.
 8. Remove the remaining two foam corners.
 9. Put on clean gloves.
 10. Place one hand lightly on the screen and pull open the plastic bag.
 11. Grip the bottom of the bag with one hand and the frame with the other and pull the screen out of the bag.
 12. If you have lifted the screen and bag up while performing step 11, place the screen back on the work surface or box.

Installing the screens on the tiles

Christie recommends the screens be installed starting from the bottom of the array.



Notice. If not avoided, the following could result in property damage.

- Always handle the screen from its sides. Do not touch the inside of the screen.
- Remove all jewelry before handling the screen.
- Do not place the screen on a hard surface.
- Do not set the screen on its corner or edge.
- Always wear clean, lint-free gloves when handling the product.

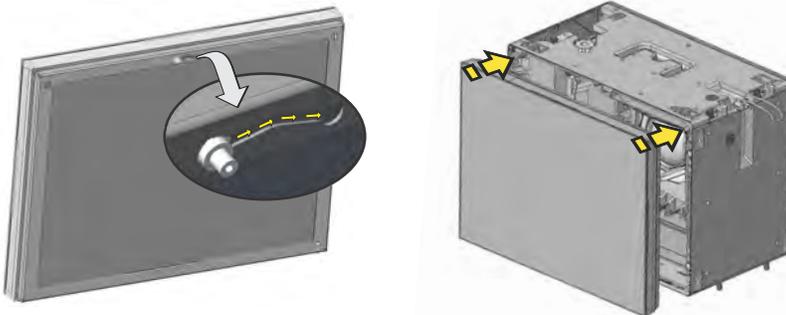
In an array, the physical size of the gap between two adjacent screens is affected by temperature and humidity. Improper installation of the tiles also affects both the size and consistency of screen gaps. With proper installation, the average physical screen gap is typically 1.3mm at 25°C (77°F) ambient and 50% non condensing relative humidity, with a variance of ± 0.3mm. Feeler gauges should be used to measure screen gaps accurately.

1. Ensure the surface of the screen removal tool is clean and free of debris to avoid damaging the screen.
2. Before installing the screens, remove the lens guard from the tiles and the dust cap from the lens.
Replace the lens guard and the dust cap anytime the array is disassembled and shipped.
3. Open the handle on the screen removal tool and gently place it in the center of the screen.



4. Carefully, push the screen removal tool towards the screen using moderate pressure (no more than five lbs / 2.27 kg).
5. Close the handle on the screen removal tool to apply suction.
6. Carefully lift the screen from the work surface.
7. Pull the screen tether out from the top of the tile housing and hook it into the locking latch on the screen.

The tether ensures the screen does not fall if subjected to excessive force or vibrations.



8. Ensure the screen tether is secured before completely installing the screen.
9. Line up the two mounting holes on the screen with the two pins on the tile and carefully press onto the tile.

Magnets on the housing secure the screen to the tile.

Removing the screen from the tile

Take precautions when removing the screen from the tile.



Notice. If not avoided, the following could result in property damage.

- Excessive force or repeated screen removal may damage the screen.

1. Ensure the surface of the screen removal tool is clean and free of debris to avoid damaging the screen.
2. Open the handle on the screen removal tool and gently place it in the center of the screen.
3. Carefully, push the screen removal tool towards the screen using moderate pressure (no more than 5 lbs / 2.27 kg).
4. Close the handle on the screen removal tool to apply suction.
5. To remove the screen, carefully pull on the screen removal tool.

Connecting the cables between the ECUs and MicroTiles

Connect the cables row by row when an array is set up near a wall. When setting up an array where the back is exposed, first set up the entire array and then connect the cables.

Ensure there is sufficient slack in the cable to allow servicing of the tile from the front. Do not tie wrap or secure the cabling if the array is set up near a wall.



1. Plug the display port cables into either of the two ports on the back of the tiles.
Either port is acceptable on both the ECU and the tile unless connecting multiple ECUs. When using multiple ECUs, HSSL-1 is the local source input and HSSL-2 is the local source output.
2. Daisy chain the cable from one tile to the next and plug the last one back into the ECU.
It is not necessary to make a complete loop; however, communication to the entire array will not be lost if one tile fails.
3. To remove the cable, press down on the cable tab.

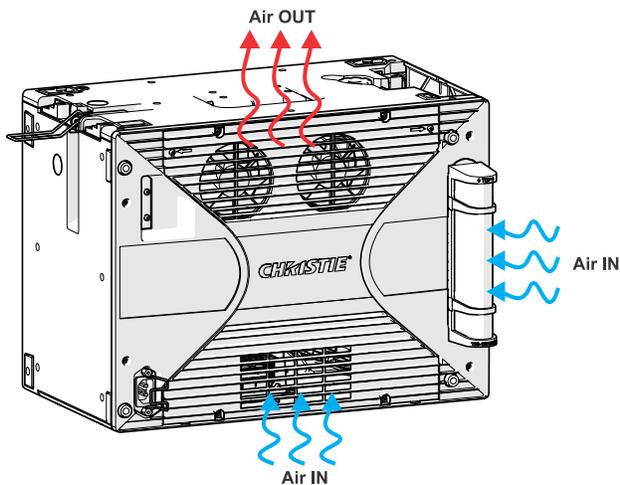
Cooling the array

Tiles are cooled only from the back, and if the array is installed in an enclosed area, additional cooling may be required in order to comply with safety regulations and local codes.



Notice. If not avoided, the following could result in property damage.

- The intake air must be clean and be clear of dirt and dust. Failure to ensure a clean air supply may void the warranty.
- Always provide proper ventilation for the product to prevent overheating.



If any of the three LEDs reaches its maximum temperature tolerance, the LED drive levels dim the tiles gradually until the minimum LED drive level is reached. If the temperature remains hot, when the minimum drive level is reached the light engine shuts down. The tiles remain on and continue to communicate with the ECU.

99% of the heat generated is exhausted out the back and should be accounted for at the rear of the array. A sufficiently sized unobstructed space must be left at the back of all MicroTiles arrays to allow for air flow and cooling, to make sure that the intake air of each tile is within the operating range of 5-40°C (41-104°F) for the display unit.

The fans on each tile have a maximum inlet air flow of 70 CFM (33 L/s). Maximum cooling load is 110W (375 BTUs/hr) per tile, when operating with all LEDs manually driven to the maximum levels; for example, without color matching. The inlet air cannot exceed the maximum operating temperature of 40°C (104°F) for S300 screens and 35°C (95°F) for S310 screens.

If the array is installed in an enclosed area, additional cooling may be required to make sure the maximum inlet temperature does not exceed 40°C (104°F). Consult an architect or mechanical engineer to calculate the required space, and to plan an adequate ventilation plan. For detailed information on ventilation requirements, see the *Christie MicroTiles Specification and Application Guide* (P/N: 020-100334-xx).

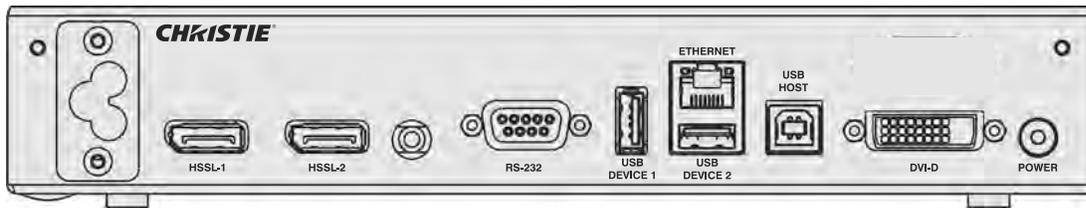
Connecting sources

A MicroTiles array requires an ECU, to allow the user to display an image using a source, connected through a DVI-D cable.

The ECU acts as the controller and ensures the supplied video signal is properly displayed across the entire array.

Once the ECU is connected and powered up, the video content is enabled by default as long as the video source is connected to the DVI-D connection. It also monitors the health of the array. Up to 7m (20 ft.) of long distance communication between the ECU and the tiles is supported at this time.

In a complex setup, multiple ECUs can be used. For details on controlling an array with multiple ECUs, see Power distribution on page 33. When multiple ECUs are connected into a single array, an arbitration scheme is used to ensure only one ECU acts as the main system controller (master ECU) and the video source connected to this ECU is always capable of playback on all tiles. Each slave ECU will playback its video source to the connected tiles; it cannot playback the local video from another ECU to its connected tiles.

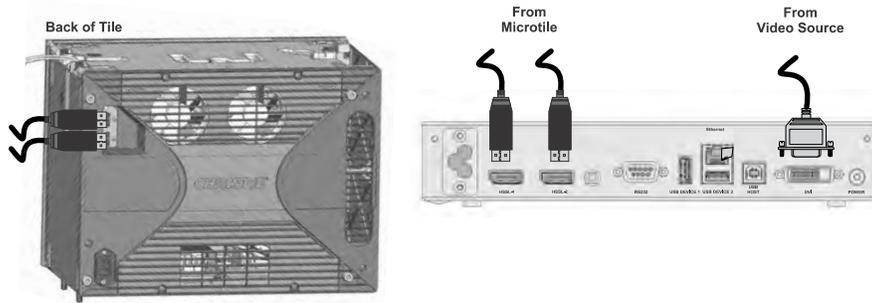


- **Power Connector**—Each ECU comes with a universal power supply (110V-240V, 50Hz/60Hz) power splitter cable, which forms a T-junction. One end of the 'T' plugs into the back of the ECU and the other two ends form a daisy chain with either another ECU or with a tile.
- **HSSL-1 and HSSL-2**—These bidirectional ports are capable of carrying 5 Gbps of video and data in both directions, simultaneously. The ECU is connected through the HSSL interface directly to a tile. The order in which system elements are connected is not significant unless you are connecting multiple ECUs. When connecting multiple ECUs, HSSL-1 is the local source input and HSSL-2 is the local source output.
- **RS-232**—Connect with a laptop or PC for access to all controls and all system status information.
- **USB Device 1 /USB Device 2**—Reserved for future use.
- **Ethernet**—A host computer connected to this interface has full access to all controls and all system status information. All firmware can be updated through this port. This interface supports 10BaseT and 100BaseT. A web client interface is available through this port and is used as the primary human interface for remote PC based control of a MicroTiles installation. There are two methods of connecting through this port:
 - **Direct Cable**—The PC must be assigned a static IP Address 192.168.0.x where 'x' is any integer 2 through 254; at the factory, the IP of the ECU will be 192.168.0.1
 - **Router or Switch**—Press and hold the Power button to display the IP Address to which the web browser will be connected.
- **USB Host**—Reserved for future use.
- **DVI-D**—Connect a variety of progressive video and graphics sources to the DVI-D port. The bandwidth of the input is limited to 25 -165 MHz.
- **Power Button**—Press to switch the ECU and any attached MicroTiles array between ON and STANDBY. The bicolored LED flashes green when the system is in the ON state and red when the system is in STANDBY. If an error occurs the LED flashes red.

Displaying content on the canvas

Connect the cables between the ECU and the MicroTiles.

1. Connect the DVI-D output from the video source, for example a media player or computer, to the DVI-D input on the ECU.



2. After the DVI-D is connected and the ECU is powered up, the video is enabled by default. Use the WebUI to control the video content.

Connecting to power

For each MicroTiles array, Christie provides the necessary line cords required for proper power distribution in your country of origin.



Warning! If not avoided, the following could result in death or serious injury.

- SHOCK HAZARD! The line cord has a maximum power carrying capability. For the maximum number of tiles that may be connected per daisy chain when connecting to the power supply, refer to the product specifications.



Notice. If not avoided, the following could result in property damage.

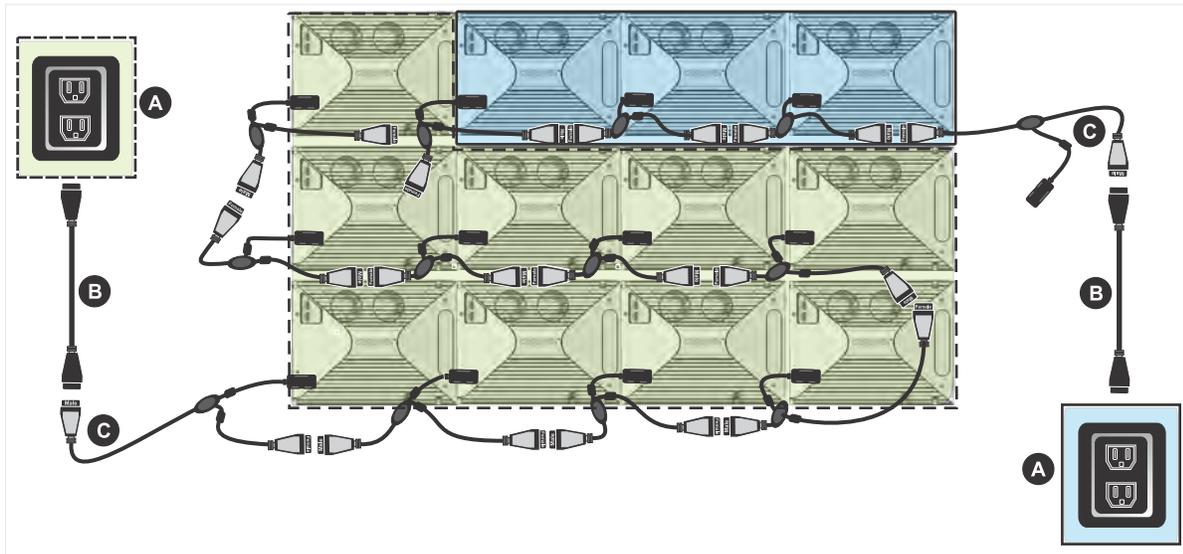
- The use of Y-cords may be prohibited due to local or national regulations. An alternative method of power distribution may be required. This may include Japan, China, Korea and others.

For regions that accept Y-power cords, a Y-Cord Kit can be ordered.

For regions that do not accept Y-power cords an alternate solution is required. For details, see the *Christie MicroTiles Specification and Application Guide* (P/N: 020-100334-xx).

The Y-cord Kit does not include line cords (the cords that connect the array to the wall outlet). Suitable regional line cords must be used.

A quantity of nine Y-cords are shipped with each kit. Multiple tiles are daisy chained to a single power feed. Up to nine tiles per chain can be supported.



A	Wall outlets
B	Line cord (specific to country of origin)
C	Y-power cord (Y-cord Kit)

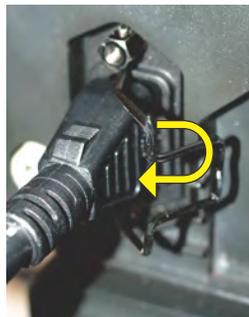
Installing the power connection security clip

To ensure the power cord is secured to the power connection of the display unit, a security clip supplied with the Display Unit Kit (P/N: 123-001102-xx) must be installed.



Insert the end of the clip into the two machined holes on the two posts.

- If connecting the 90° connection to the tile, ensure the clip locks from the left side.
- If using the standard connector, ensure the clip locks from the right side.



Installing the Y-power cord retention clip

To ensure the Y-power cords are secured between connections a retention clip, supplied with the Y-Cord Kit (P/N: 123-122106-xx), must be installed.

To install, snap the clip onto the joint between two Y-power cords.



Powering on the MicroTiles array

To turn on the display, connect the MicroTiles array to a power source.



Warning! If not avoided, the following could result in death or serious injury.

- **SHOCK HAZARD!** The line cord has a maximum power carrying capability. For the maximum number of tiles that may be connected per daisy chain when connecting to the power supply, refer to the product specifications.
- **FIRE AND SHOCK HAZARD!** Do not attempt operation unless the power cord, power socket, and power plug meet the appropriate local rating standards.



Caution! If not avoided, the following could result in minor or moderate injury.

- Install the product near an easily accessible AC receptacle.

1. Connect the power plug from the ECU into an outlet or power bar.
2. Connect the power cable to the AC receptacle at the lower-left corner on the rear of the tiles and to a proper AC power source (outlet).

It is recommended that a power bar with an in-line power switch be used to simplify switching the array ON and OFF.

3. Daisy chain the Y-power cords into each tile in the array.
4. Apply electrical tape or tie wraps, or use the Y-power cord retention clip to secure the inline connection between the Y-power cables.
The LED status light on the ECU Power button is red during the power-up sequence, which takes approximately one minute. If any of the tiles fail to power up, check each connection.
5. After the array (ECU and tiles) is powered up, the LED status light on the ECU Power button flashes green.
6. Always check the firmware version installed on the tile(s) and ECU on initial power up against the version available at www.microtiles.com.

Failure to install the latest firmware version can affect system performance.

Powering off the MicroTiles array

Turn off the array when servicing the tiles.

1. Push the **Power** button on the ECU.
2. Move the power bar switch to the OFF position or disconnect the power plug from the outlet.

Disassembling a MicroTiles array

Perform the following steps when disassembling the MicroTiles canvas.

1. Power down the array and disconnect all power cables and display port cables.
2. *Remove the screens.* (on page 24)
3. Replace the lens guard and dust cap.
4. Loosen the three vertical screws from each tile in the top row using the assembly tool.
5. Unlock all the latches from the top row.
6. Remove each of the tiles from the top row.
7. Repeat steps 2-6 for all remaining rows.
8. If the horizontal adjustment screws were used in building the array, make sure they are removed.
9. If necessary, remove the bottom row of tiles from the leveling feet.

Configuring the array

MicroTiles can be controlled remotely, typically at a controller such as a PC, through a web user interface (WebUI) on an Ethernet network.

If there are concerns about network security, run the WebUI on a local area network only and install a firewall. The WebUI is only functional on a master External Control Unit (ECU), and does not communicate with slave ECUs.

In a browser, access the WebUI by going to the IP address of the master ECU. Users are prompted to login on start up using admin for both the user name and password. From the top toolbar of each screen in the WebUI, you can do the following:

- Select and setup an active input source
- Manipulate the appearance of video content (size, position, color, and sharpness)
- Perform firmware upgrades
- Display a test pattern
- Configure the array
- View system information and alerts
- View current time and date

System requirements for the WebUI

Understand the requirements for accessing the WebUI.

- One of the following browsers: Mozilla Firefox, Safari, Microsoft® Internet Explorer, or Google Chrome
- Adobe® Flash Player™ Plug-In version 10.0 or higher

Automatically configure the array

Array configuration is required to organize the display and to ensure each tile knows its physical arrangement within the array.

MicroTiles are equipped with neighbor detection circuitry. When power is applied to the array, the ECU uses the neighbor detection circuitry to determine the configuration of the array. It then relays the total dimensions of the array and the exact physical location of the array back to each tile.

Configuration is checked approximately every 10 seconds. By default, **Automatic Array Configuration** is enabled.

Each tile, knowing its own position within the array and the video source characteristics, is required to crop the active input source, select its own sub-image portion, and scale the sub-image to display in full screen.

1. Select **Canvas Management > Layout > Configure**.
2. In the **Automatic Array Configuration** list select **Enabled**.

With this feature enabled, the software detects changes in the array's setup and configures the array accordingly. For example, it detects and reconfigures the array when a tile is added or removed, tiles are moved, subarrays are changed, or manually mapped tiles are changed.

3. To update the array and ensure the most current information is displayed, click **Refresh**.
4. To force an array reconfiguration manually, click **Reconfigure Array**.

Creating a subarray

A subarray can increase the input resolution by combining multiple inputs and display two images on an array. Multiple ECUs must be connected to the array and automatic array configuration must be enabled.

Multiple ECUs must be connected to the array and automatic array configuration must be enabled.

Manually adding a subarray

Select the specific tiles to include in the subarray.

1. Select **Canvas Management > Layout > Subarray Configuration** .
2. To get a reading of any subarray regions that have already been created click **Refresh**.
3. Ensure you are in **Add Mode**.
4. Click the top left or top right tile within the new subarray.
5. Press **Shift** and click the bottom right or bottom left tile in the subarray.
You must select tiles in a diagonal configuration (opposite corners) to configure a subarray.
6. When the subarray region has been selected, click **Add**.
All the subarrays saved on the master ECU are shown in the table.

Automatically adding a subarray

Allow the system to automatically group the tiles into a subarray.

Creating an automatic subarray erases all existing subarrays.

1. Select **Canvas Management > Layout > Subarray Configuration** .
2. To put all tiles between ECUS into separate subarrays, click **Auto Subarray**.
3. In the warning dialog, click **OK**.

Editing a subarray

Change the settings for the subarray.

Automatic array configuration must be enabled for changes to take affect. Edit Mode is grayed out if no subarray is selected in the table.

1. Select **Canvas Management > Layout > Subarray Configuration** .
All the subarrays saved to the master ECU are shown in the table.
2. To edit an existing subarray, select it from the table and click **Edit Mode**.
Once selected, the bottom portion of the window changes to display the subarray properties.
3. To change the width and height of the subarray use the scroll bars to adjust the **X/Y Offsets**.

The display window changes as you make the adjustments.

4. To define the Video Source for the subarray, select **No Video**, **Global**, or **Local** (default).
5. When the changes are correct, click **Apply**.

Prioritizing the ECUs in the array

Identify the ECUs in the array as a slave or master.

All ECUs are shipped as slaves from the factory. In a multiple ECU array, one ECU acts as the master ECU, while all remaining ECUs act as slave ECUs. The master ECU sends configuration information to all slave ECUs.

When replacing ECUs in the field, ensure at least one ECU is a master. If you have two masters, one of them must be set as a slave.

1. Select **Canvas Management > Layout > ECU Priority**.
2. To load the information from the ECUs connected to the array, click **Refresh**.
3. Select an ECU from the table.
4. Use the Priority scroll bar or the up and down arrow keys to manually set a priority to the ECU. The priorities are from 0-255 in descending order, where 0 is the highest priority. The master ECU has the highest priority.
5. Click **Apply**.

Configuring the IP address of the ECU

Manually update the IP address of an ECU.

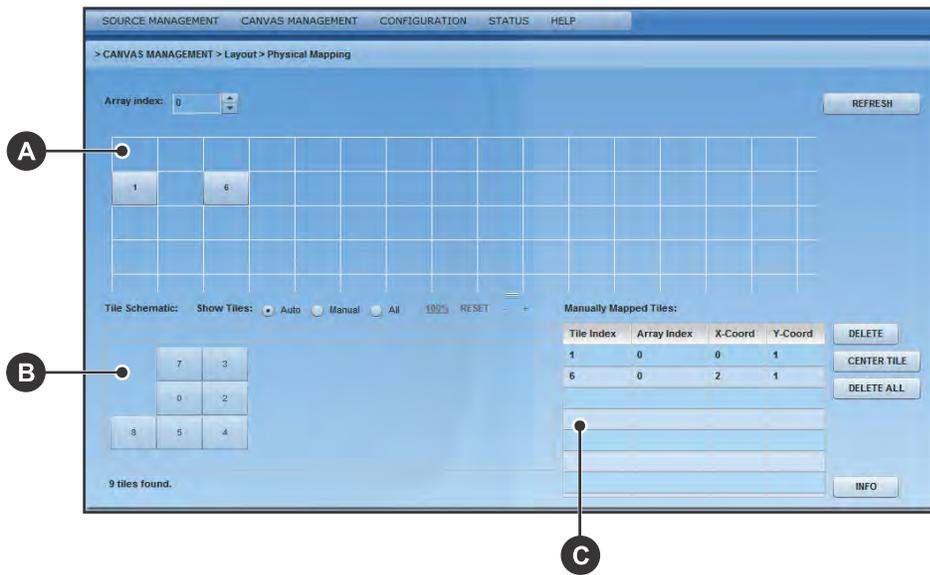
1. Select **Configuration > Ethernet**.
2. Select the ECU.
3. To manually enter an IP address for the ECU, disable DHCP and type the IP Address.
4. Click **Apply**.

Manually adding tiles to the canvas

When configuring a canvas that includes a group of tiles not physically connected, you must add the tile to the grid and specify the X and Y coordinates.

Use the rows (y-coordinates) and columns (x-coordinates) of the grid to manually map tiles; the input image automatically stretches spanning across all manually mapped tiles. The top left is 0,0. Each array index corresponds to a unique mapping of the input image.

The image on the array is automatically configured and mapped once the tile is dropped into the main grid. All blue colored tiles indicate they have been manually mapped and non-mapped tiles are gray. All manually mapped tiles are displayed in the Manually Mapped Tiles table.



A	Main grid
B	Physical layout or map of all tiles
C	Manually mapped tiles

1. Ensure *Automatic Array Configuration* is enabled (on page 32).
2. Select **Canvas Management > Layout > Physical Mapping**.
3. In the Tile Schematic section click a tile.
4. Drag and drop the tile into the main grid to manually map it.
5. To center the main grid on the currently selected manually mapped tile, click **Center Tile**.
For example, if you want to manually map a tile to location x=20 and y=20, select a manual mapping from the table and click **Center Tile** to make the main grid reposition the tile to the center of the main grid.
6. To bring up the properties of each tile, click **Info**.
Use the tile system information screen to see the number of each tile.

Viewing the array as a wire map

Display the wiring of the ECU and tiles as text. Use the wire map to verify the cabling between the ECU and the tiles, and to diagnose issues with the array.

1. Select **Canvas Management > Diagnostics and Calibration > Wire Map**.
2. Read the wire map.
The left column identifies the coordinates of the output tile and, the right column is the input tile.
3. To save the wire map as a .cvs file, click **Export**.

Creating a custom video resolution

Customize Extended Display Identification Data (EDID) allows you to create a custom video resolution to send to the graphics card for one or more ECUs.

The default settings are 1920 horizontal pixels x 1200 vertical lines at a vertical frame rate of 59.94 Hz. The maximum input resolution supported per ECU is 1920 x 1200 @60Hz.

1. From the top menu bar select **Source Management > Customize EDID**.
2. To select each ECU connected to the array click **Select All**, or click a specific ECU from the table.
3. If using an ASCII file provided by Christie, click **Load File**.
4. If the ECU cannot detect or display a good video source, to return to the default values click **Restore**.

This can occur when connecting different types of input sources to the ECU, which can cause the EDID information to be incorrect.

5. Customize the EDID elements.

Field	Description	Minimum value	Maximum value	Default value
Horizontal Size	Adjust the horizontal size of the display.	64	4088	1920
Vertical Size	Adjust the vertical size of the display.	64	4095	1200
Frame Rate	Adjust the frame rate of the display.	1	75	60

6. Click **Apply**.

Setting the date and time

Ensure the date and time match your location.

1. Select **Configuration > Date and Time**.
The date displayed in the MicroTiles System Date and Time field is processed from the ECU, while the date in the **New Time** field is updated to the time on the computer.
2. Set the date and time.
3. To see changes take effect click **Refresh**.
4. Click **Apply**.

Switching the display mode

Switch the display mode between Video, OSD, and OSD (Unscaled with Overscan) modes. Video is used for most applications.

1. Select **Canvas Management > Display Mode**.
2. Select the appropriate display mode.
 - **Video (All Tiles)**—Displays video from the ECU input source (HSSL-1 or HSSL-2). One or both ports must be enabled.

- **OSD (All Tiles)**—Displays a 800 x 600 image, scaled to approximately 720 x 540, which is the viewable area of the screen.
- **OSD (Unscaled with Overscan) (All Tiles)**—Displays test patterns in overscan resolution (800 x 600).

The display mode is applied as soon as it is selected from the menu.

3. Click **Apply**.

Powering all tiles on or off through the WebUI

Selecting Power ON Canvas and Power OFF Canvas affects the entire array, regardless of how many tiles have been selected through the WebUI.

- To turn on all tiles in the array, select **Configuration > Power > Power On Canvas**.
To turn off all tiles in the array, select **Configuration > Power > Power Off Canvas**.
Wait approximately ten seconds between powering the canvas off and on.

Saving tile and ECU settings

To move the tile and ECU settings to additional devices, save the settings to an external location.

1. Select **Configuration > Save & Restore > Save & Restore Settings**.
2. To download and save the specific settings file, click **Save**.
3. Name the file, and navigate to a storage location.
The settings are saved as a .mct file. All settings for the tiles or ECUs are included in the saved files.

Restoring tile and ECU settings

Restore settings backed up from another tile or ECU.

1. Select **Configuration > Save & Restore > Save & Restore Settings**.
2. For ECUs, select the settings to be restored.
Only the selected settings are restored. All tile settings are restored during this process.
3. To upload a saved settings file to the tiles or ECUs, click **Restore**.

Restoring factory defaults

Reset the ECU(s) and tile(s) back to their default settings.

This is typically done when setting up a new configuration or when swapping master ECUs from one configuration to another. Restoring factory settings applies to all ECUs and tiles in the array. Factory settings cannot be restored on an individual ECU or tile.

1. Select **Configuration > Save & Restore > Restore Factory Settings**.
2. Click **Restore**.
3. In the confirmation dialog, type **CONFIRM** in all capital letters and click **OK**.

All defaults are restored.

4. (Optional) *Restore the ECU and tile settings from a backup* (on page 37).

MicroTiles Specifications

Learn about the product specifications. Due to continuing research, specifications are subject to change without notice.

Physical specifications

		Value
Display unit	Dimensions (W x H x D)	408 mm x 306 mm x 260 mm (16.06 in x 12.05 in x 10.24 in)
	Screen size (diagonal)	510 mm (20 in)
	Weight with screen	9.2 kg (20.3 lbs)
	Weight without screen	8.0 kb (18.7 lbs)
	Tile resolution (native)	720 x 540
	Pixel pitch	0.567 mm x 0.567 mm
ECU	Dimensions (W x H x D)	259 mm x 50 mm x 191 mm (10.20 in x 1.97 in x 7.52 in)
	Weight	1.6 kg (3.5 lbs)

Power requirements

Learn the power requirements for MicroTiles.

Display unit

		Value
Input rating	100-240 Vac, 1.3 - 0.54 A, 50/60 Hz. Maximum nine MicroTiles on a single circuit (10 A total)	
Power consumption per tile	70 W (typical)	
Heat load per tile	239 BTUs/hr (typical)	
	375 BTUs/hr (maximum)	

ECU

	Value
Input rating	100-240 Vac, 0.20 A, 50/60 Hz.
Power consumption	8.5 W (typical) 11.5 W (maximum)

Environmental specifications

	Value
Operating temperature	S300: 5°C to 40°C (41°F to 104°F) S310: 5°C to 35°C (41°F to 95°F)
Relative humidity	35-85% non-condensing
Minimum clearance for ventilation	50 mm (2 in.)
Altitude	0 ft (0 m) to 10,000 ft (4000 m)
Vibration/motion limit	0.5 G
Sound pressure per tile	35 dB at 25°C (77°F) ambient typical

Regulatory

This product conforms to the latest regulations and standards related to product safety, environmental requirements, and electromagnetic compatibility (EMC).

Safety

- CAN/CSA C22.2 No. 60950-1
- ANSI/UL 60950-1 - Information Technology Equipment – Safety – Part 1: General Requirements
- IEC 60950-1 IEC/EN 60950-1 - Information Technology Equipment – Safety – Part 1: General Requirements
- EN 60950-1
- IEC 62471:2006 (First Edition)

Electro-magnetic compatibility

Emissions

- FCC CFR47, Part 15, Subpart B, Class A - Unintentional Radiators

- ICES-003 (A), ISSUE 5, Class A
- CISPR 32/EN 55032
- IEC 61000-3-2/EN61000-3-2: Limits for Harmonic Current Emissions

Immunity

- IEC 61000-3-3/EN61000-3-3

Environmental

EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendment(s).

EU Regulation (EC) No. 1907/2006 on the registration, evaluation, authorization and restriction of chemicals (REACH) and the applicable official amendment(s).

EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s).

China Ministry of Information Industry (along with 7 other Government Agencies) Order No.32 (01/2016) on the control of pollution caused by electronic information products, hazardous substances concentration limits (GB/T 26572 - 2011), and the applicable product marking requirement (SJ/T 11364 - 2014).

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