Àuragami® Elements

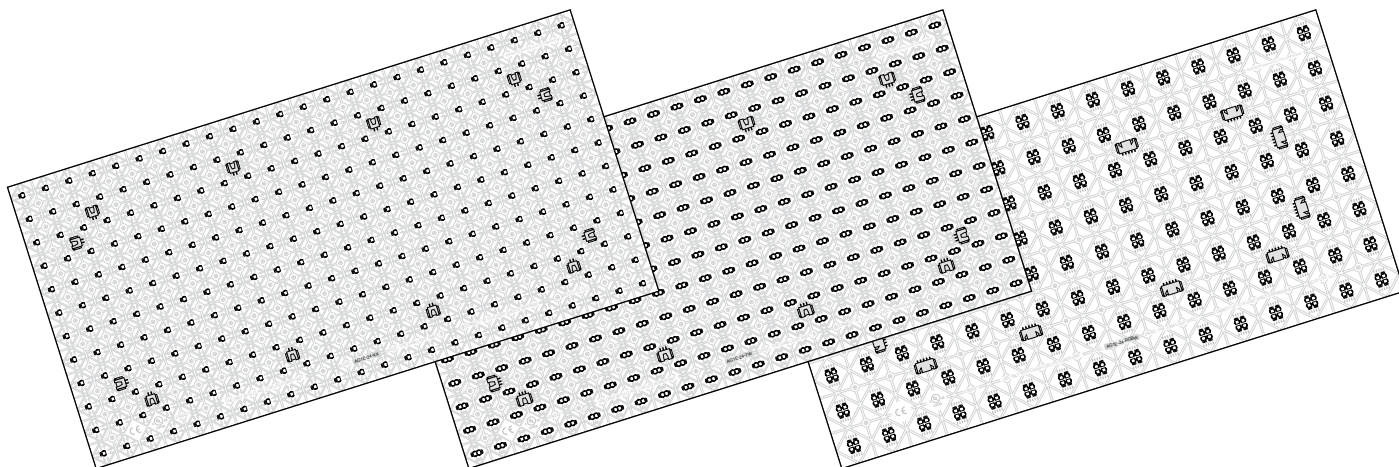**Flexible Light Sheets**

Instruction Manual

For items: AG1E-24-27, AG1E-24-30, AG1E-24-35, AG1E-24-40, AG1E-24-50, AG1E-24-TW, AG1E-24-RGBW

LED ••••	24VDC Low Voltage	Dimmable	50K Rated Life	3-YEAR Warranty

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⚠ SAFETY & COMPLIANCE INFORMATION   *Read all instructions before beginning.*

- **WARNING: Risk of electric shock.** Product should be installed by a licensed electrician in accordance with all local/regional electrical codes and the current National Electric Code. Always turn off power at the circuit breaker before installing or modifying electrical components.
- **Do not connect this product to AC current. Only use with 24VDC input power.**
- To reduce the risk of fire, electric shock, or injury to persons, pay close attention to this manual and stay within its guidelines when using this product. Read and follow the *Product Handling, Installation, & Integration Advisory* on the last page.
- **Product must be installed per these instructions and contained within and exclusive to application where not subject to damage.**
- Use only with UL Listed or UL Recognized Class 2, Limited Power Source (LPS) or Low Voltage Limited Energy (LVLE) power supplies. Provide the appropriate number of 24VDC Class 2 circuits for your layout. Do not exceed the maximum load limit of any power supply per the manufacturer's recommendations.
- To retain Class 2 compliance per UL regulations, **do not interconnect more than 8 full light sheets (88 watts total)** in any configuration. Each light sheet consumes 11 watts of power (0.46A at 24VDC). The light sheet has a 96 watt / 4A rating at 24VDC capacity. Do not exceed the capacity in any configuration.
- This product is rated IP65 and is suitable for use in dry and wet locations, but not where water may accumulate. Refer to wet location advisory on the last page for more information.

Tunable white proportional balancing note: Auragami Tunable White Light Sheets have been engineered to utilize proportional balancing control which maintains the 11 watt power consumption rating of each sheet, allowing for interconnecting a total of 8 full light sheets. Operating both the warm white and cool white channels at 100% will double power consumption to 22 watts, which limits the total allowable number of interconnected, full light sheets to 4 per UL and Class 2 guidelines (96 watt / 4A at 24VDC). Evo-Lite specified control solutions utilize proportional balancing.

Pre-installation advisory

Inspect all light sheets at the time of delivery to ensure no damage has occurred during shipping. Dry fit test the light sheets for proper illumination prior to permanently mounting. Test light the entire system before, during, and after the forward-facing material is installed.

Field cutting of the light sheet does not void UL Listing. Avoid cut edge contact with other conductive materials including other cut light sheet edges. Make precise, clean cuts with a sharp tool. See section 02 for more details.

Improper care and handling may damage the light sheets. Do not set objects on the light sheet (tools, mugs, etc.). Avoid placing the product in areas where they may be stepped on, crushed, accumulate construction debris, or encounter damage.

Forward-facing materials in horizontal applications require complete support across the surface. Unsupported sections of the forward-facing material may result in damage to the material.
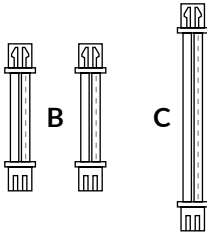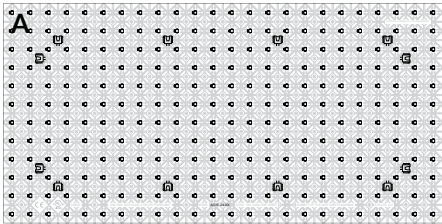
Do not install light sheets where subject to flexing. Do not fold a single light sheet back on itself. Adhering two separate light sheets back to back is acceptable.
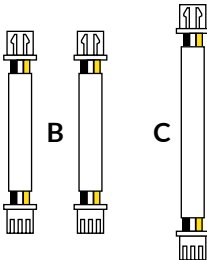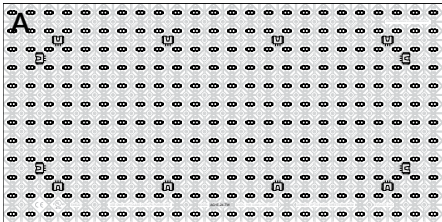
Package contents

Not to scale

Single Color White (SCW) • AG1E-24-XX (XX= 27, 30, 35, 40, 50)

NAME	DESCRIPTION	QTY
A) Auragami Elements Flexible Light Sheet	Light sheet: 24VDC, 11W, 9.45" x 18.9", 3M adhesive backing, 12 integrated XHP connection blocks.	1
B) Short Sheet Connectors	Short sheet-to-sheet connectors, 20AWG	2
C) Long Sheet Connector	Long sheet-to-sheet connector, 20AWG	1

Tunable White (TW) • AG1E-24-TW

NAME	DESCRIPTION	QTY
A) Auragami Elements Flexible Light Sheet	Light sheet: 24VDC, 11W, 9.45" x 18.9", 3M adhesive backing, 12 integrated XHP connection blocks.	1
B) Short Sheet Connectors	Short sheet-to-sheet connectors, 20AWG	2
C) Long Sheet Connector	Long sheet-to-sheet connector, 20AWG	1

RGBW 5000K (RGBW) • AG1E-24-RGBW

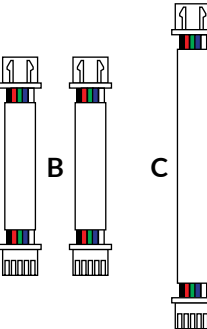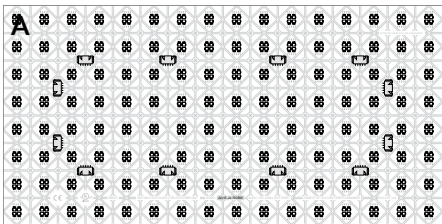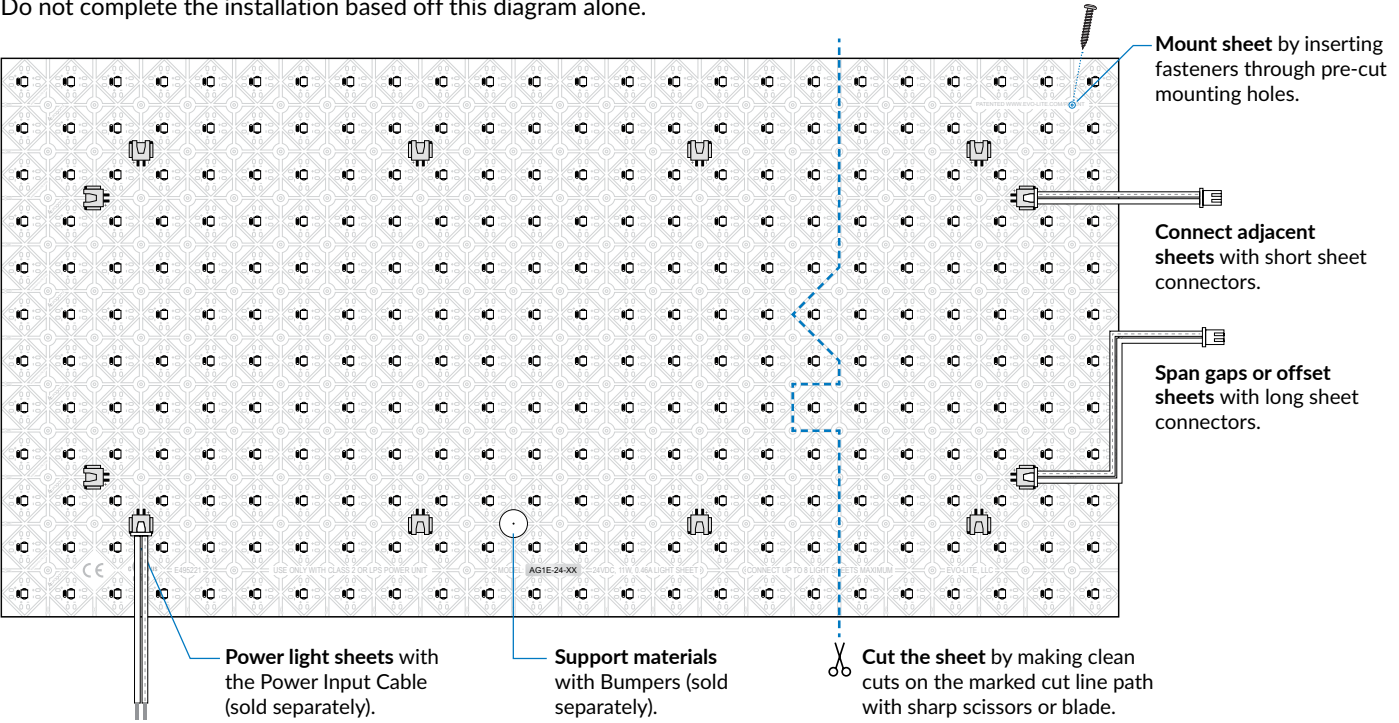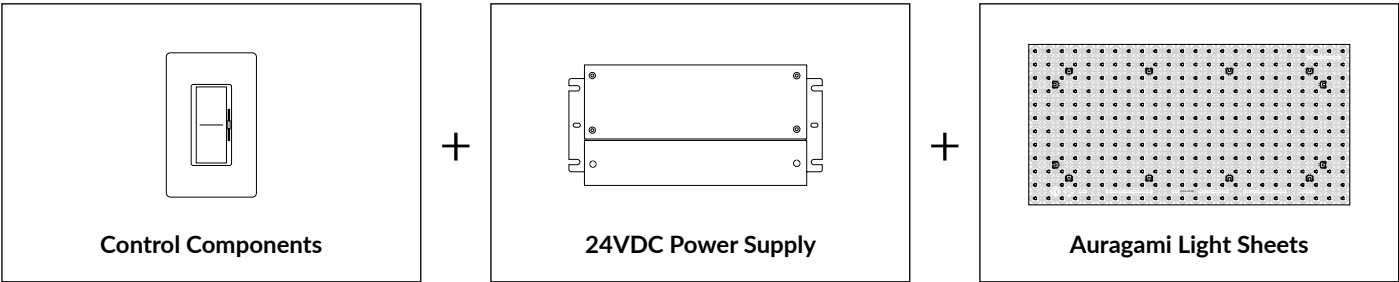| NAME	DESCRIPTION	QTY
A) Auragami Elements Flexible Light Sheet	Light sheet: 24VDC, 11W, 9.45" x 18.9", 3M adhesive backing, 12 integrated XHP connection blocks.	1
B) Short Sheet Connectors	Short sheet-to-sheet connectors, 20AWG	2
C) Long Sheet Connector	Long sheet-to-sheet connector, 20AWG	1

Sold separately

NAME	PART NUMBER	DESCRIPTION
Power Input Cable (required, powers one 24VDC, 96W Class 2 circuit / 8 full AG1E Light Sheets)	AG1E-24-SCW-PIC AG1E-24-TW-PIC AG1E-24-RGBW-PIC	Contains 1 single color white power input cable (48"). Contains 1 tunable white power input cable (48"). Contains 1 RGBW power input cable (48").
Short Sheet Connector Pack	AG1E-24-SCW-SCP AG1E-24-TW-SCP AG1E-24-RGBW-SCP	Contains 4 short single color AG1E connectors. Contains 4 short tunable white AG1E connectors. Contains 4 short RGBW AG1E connectors.
Long Sheet Connector Pack	AG1E-24-SWC-LCP AG1E-24-TW-LCP AG1E-24-RGBW-LCP	Contains 4 long single color AG1E connectors. Contains 4 long tunable white AG1E connectors. Contains 4 long RGBW AG1E connectors.
Light Sheet Bumpers	AG-SB-P08	Contains 8 bumpers. Each bumper supports up to 400lbs.
Cable Management Clips	AG-CMC-P04	Contains 4 cable management clips with adhesive backing and recessed fastener slot.
Wago Splicing Connectors	221-412	Wago 2-conductor, same polarity connector / splice.
Electronic Grade Silicone Sealant	ASI-388CL-EVO	Acid-free, non-conductive electronic grade silicone for fortifying a light sheet's cut edges.
Auragami Installation Roller	AG-RLR-EVO	Specially designed roller to help adhere sheets to the mounting surface.

Quick start diagram

Attention: Refer to the detailed sections found within this manual for complete installation guidance.
Do not complete the installation based off this diagram alone.

Mount sheet by inserting fasteners through pre-cut mounting holes.

Connect adjacent sheets with short sheet connectors.

Span gaps or offset sheets with long sheet connectors.

Power light sheets with the Power Input Cable (sold separately).

Support materials with Bumpers (sold separately).

Cut the sheet by making clean cuts on the marked cut line path with sharp scissors or blade.

System setup

**Control Components** + **24VDC Power Supply** + **Auragami Light Sheets**

01. Plan the layout & test

A well-planned layout will save you time and materials. Dry fit and test the light sheets and connection wires before permanently mounting them to the installation surface. Test your system at various stages to ensure the best experience.

This important step will help:

- Reduce waste and mistakes.
- Place light sheets in the most optimized configuration.
- Identify where to make cuts to the light sheets.
- Place sheet and power connections in the best positions.
- Ensure proper operation by testing each lighting circuit.

Cutout
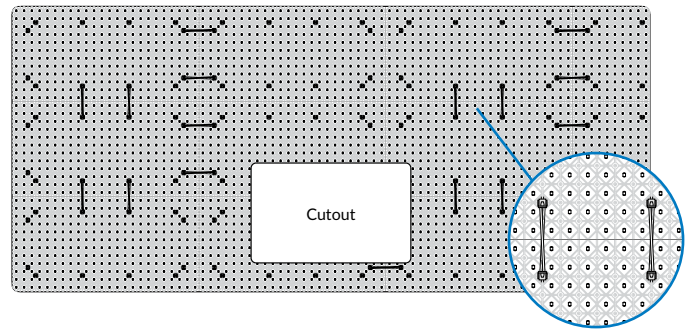
02. Shaping the light sheets

⚠ Disconnect power at the source prior to making cuts or other modifications to the light sheets or lighting system.

Auragami Light Sheets are cuttable down to a single LED / LED group. They are UL Listed, even after being cut.

To cut the light sheet:

- Cut within the double cutline path (figure 1).
- Use *sharp* scissors, utility knives, or precision craft knives to cut the light sheet. High-quality scissors make cutting easy.
- When using blades, score and make multiple light passes to create a clean cut.
- Make clean, straight, and precise cuts (figure 2).
- **Warning:** do not stray outside of the cut line path or make rough, jagged cuts. Poor cuts may affect operation.
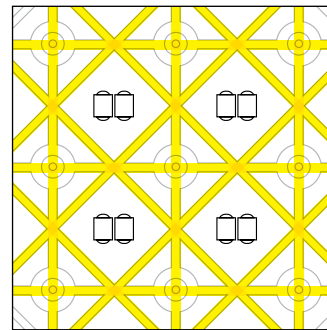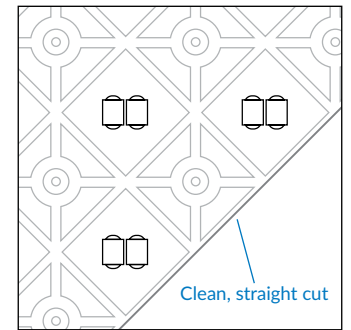
Figure 1

Clean, straight cut

Figure 2

Diagonal cutting advisory:

- Avoid using independent, diagonally cut strips (figure 3).
- Include at least two contiguous diagonal rows of LEDs when cutting the sheet diagonally (figure 4).
- If a single strip of LEDs is required, plan to make the cut vertically or horizontally.
- **Note:** removing a diagonal strip from a light sheet will not affect the function of the remaining sheet (figure 5).
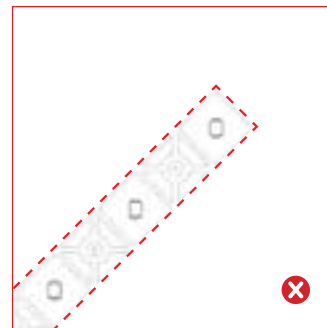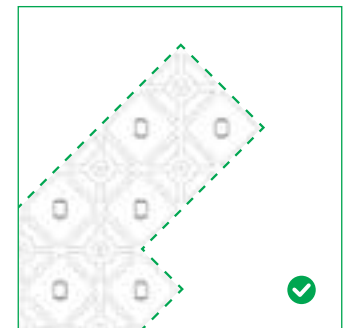
Figure 3

Figure 4

Seal cut light sheet edges:

- If the cut edge has the possibility of making contact with a conductive surface, or another light sheet's cut edge, cover the cut edge with RTV sealant (Item #: ASI-388CL-EVO) or another non-conductive conformal coating (figure 6).
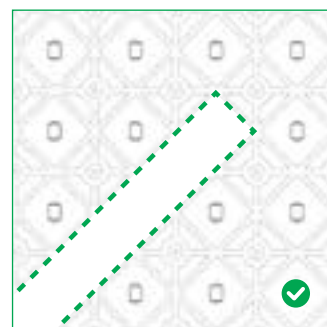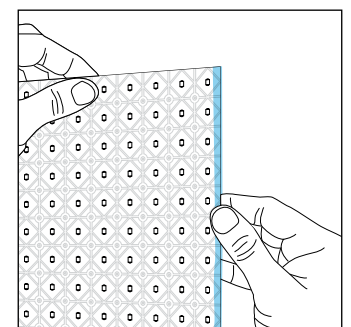- This action will help mitigate any potential short circuiting issues now and in the future.

Figure 5

Figure 6

Folding light sheets

- It is best to fold the light sheet along its cut lines.
- Bend the light sheet where needed, making a gentle crease.
- Relax the fold to the desired position.
- **Warning:** do not fold the product where any rigid structures (LEDs, connection blocks, resistors) are present.
- **Warning:** do not repeatedly fold and unfold the sheet as it may weaken the product's circuitry.
- **Warning:** do not fold a light sheet back on itself. Instead two separate light sheets may be attached back to back.
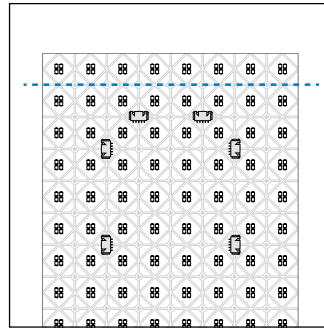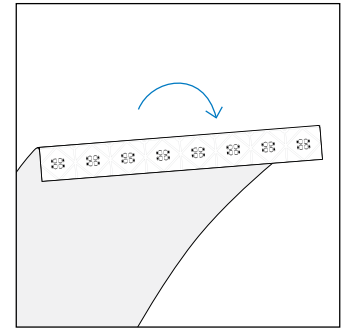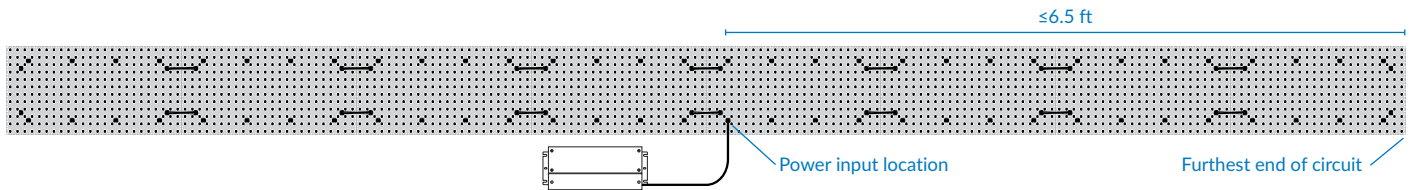

Figure 7

Figure 8

03. Sheet & power connections

≤6.5 ft

Power input location   Furthest end of circuit

Each light sheet comes with one long and two short sheet connectors. Use short sheet connectors to connect adjacent sheets (figure 9). Use long sheet connectors to connect offset sheets or span gaps (figure 10). Power cables are sold separately.

Make sheet to sheet connections:

- Locate the desired light sheet terminal block and insert one end of the sheet connector into the terminal until fully seated.
- Insert the remaining end into the other light sheet.
- **Note:** we recommend using two sheet connectors to connect sheets to better assist the flow of electricity.
- **Note:** plug-in connectors can only be inserted into the terminal one way. Single color white connectors (2-wire) will need to be twisted in order to be plugged in and correctly match light sheet polarity. Tunable White and RGBW connectors are pre-twisted within the cable jacket.
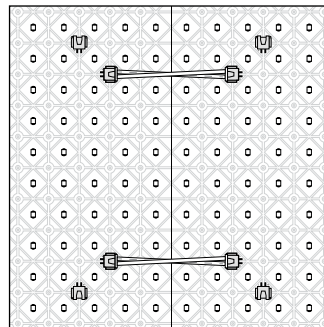
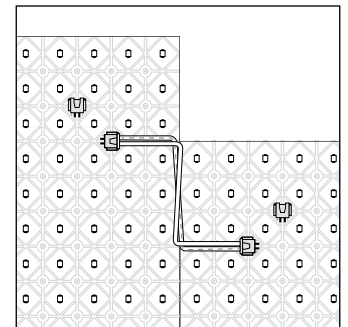**Make power connections:**

- Insert the power cable's sheet connector end into the light sheet's terminal block.
- Use UL approved wire connectors to make the connection between the power cable's bare wire ends and a compatible power source, control component, or additional lead wire (figures 11, 12, 13).
- Mount Cable Management Clips (sold separately) and route the power cable so that the wires do not cover any LEDs (figure 14).
- **Warning:** the total distance from the light sheet's power input location to the furthest end of the connected light sheet circuit should be less than 6.5 feet (see diagram above). Further distances may cause brightness variances due to voltage drop. Learn more about voltage drop online at evo-lite.com/library.
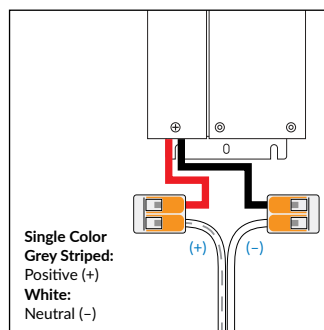

Figure 9

Figure 10

**Single Color
Grey Striped:**
Positive (+)
White:
Neutral (−)

(+)   (−)

Figure 11

OUTPUT					
W	W	W	W	W	V+
C	W	C	W	/	V+
R	G	B	W	Y	V+

**Tunable White
White:** Cool
White LEDs (−)
Yellow: Warm
White LEDs (−)
Black: Positive (+)

Figure 12

OUTPUT					
W	W	W	W	W	V+
C	W	C	W	/	V+
R	G	B	W	Y	V+

**RGBW
Red:** (−)
Green: (−)
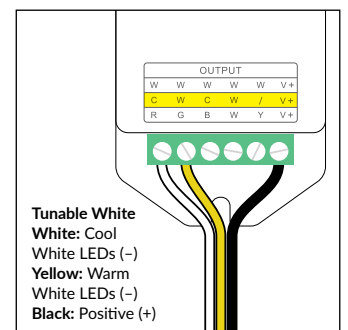**Blue:** (−)
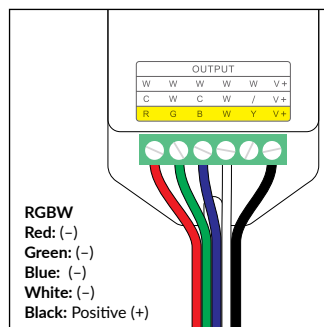**White:** (−)
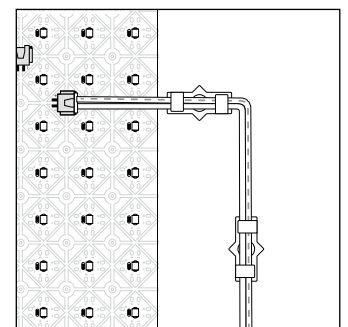**Black:** Positive (+)

Figure 13

Figure 14

04. Mounting & orientation

Before getting started:

- Complete a dry fit layout, ensuring each contiguous light sheet is oriented identically.
- Test light each sheet and circuit before permanently mounting.
- Clean the mounting surface to remove any dust or debris.
- We recommend using both the adhesive backing and mechanical fasteners for best results.
- Light sheets should be mounted to an appropriate substrate that is designed to support the weight of the forward-facing materials and/or project components.

Light sheet orientation

- We recommend mounting all light sheet types in the same orientation across contiguous surfaces.
- Tunable white and RGBW light sheets have orientation arrows printed on them (figure 15).
- Install these products with the orientation arrows pointing the same direction across all contiguous surfaces.
- **Warning:** failure to mount light sheets in the same orientation will cause adverse color and brightness shifts.

Mounting light sheets:

- First, peel back an edge of the light sheet's adhesive backing film.
- Next, line up this edge to the desired mounting surface location.
- Peel the backing film away while applying the sheet to the mounting surface with firm consistent pressure (figure 16).
- Last, insert fasteners directly through the marked mounting holes at several points across the light sheet (figure 17).
- **Pro tip:** use the Auragami Installation Roller (sold separately: AG1-RLR-EVO), to assist with mounting (figure 18).
- **Warning:** only insert fasteners through the pre-cut, marked mounting holes (figure 19).
- **Warning:** only use flat head screws when inserting fasteners directly through the light sheet. Bugle head screws may be used with Cable Management Clips (figure 20).
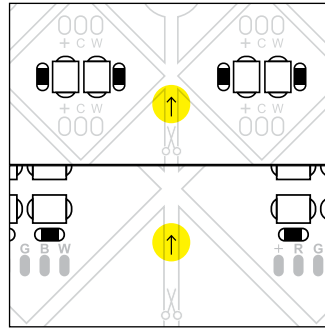- **Warning:** do not over-tighten fasteners and damage the light sheet. Do not use tapered or self-tapping screws when directly fastening the light sheet (figure 21).
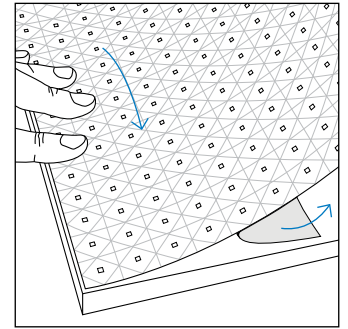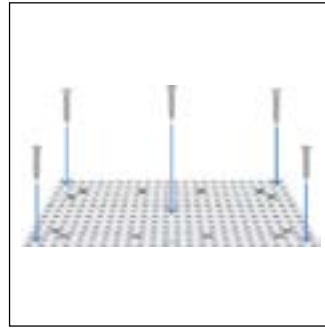

Figure 15

Figure 16

Figure 17

Figure 18

0.12" (3mm) Fastener shank should not exceed this inside dimension

0.28" (7mm) Fastener head should not exceed this outside dimension

Figure 19

Flat Head Screws Use these when directly securing light sheets

Bugle Head Screws Use with Cable Management Clips.

Figure 20

Correct | Tapered Screw | Overtightened | Self Tapping Screw
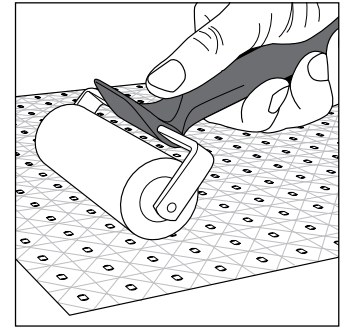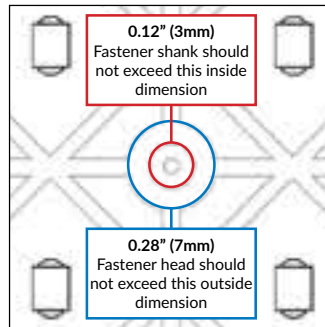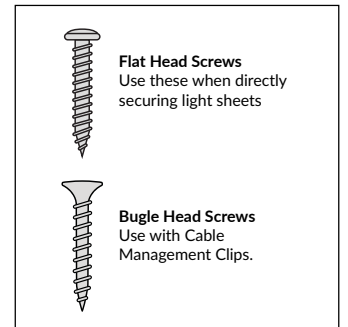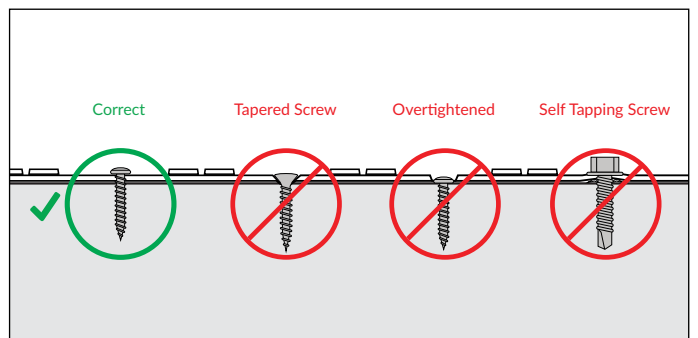
Figure 21

05. Material support

Use Auragami Bumpers (sold separately) to uniformly support forward-facing materials and prevent damage to the light sheets (figure 22). Always use protective bumpers to bear the weight of any forward-facing material in horizontal applications and to act as a safeguard to protect the light sheet in vertical applications.

Installing light sheet bumpers

- First, locate the area you'd like to place the bumper. The ideal placement is directly over the circular, pre-cut mounting holes (figure 23).
- Next, remove the adhesive backing film from the bumper (figure 24).
- Last, stick the bumper to the light sheet by applying firm pressure for several seconds (figure 25).
- **Note:** Use at least 8 bumpers per light sheet or 6 per square foot. Apply bumpers evenly across the light sheet installation (figure 26).
- **Warning:** do not use generic or off-brand bumpers to support your material. Auragami Bumpers are specifically engineered for use with Auragami Light Sheets.
- **Warning:** do not slide materials across these bumpers. Doing so may cause them to roll and result in potential damage to the material and/or light sheets.
- **Pro tip:** place a layer of acrylic on top of the bumpers to create more height, space, or diffusion. Acrylic is commonly available in multiple thicknesses and transparencies (figure 27).
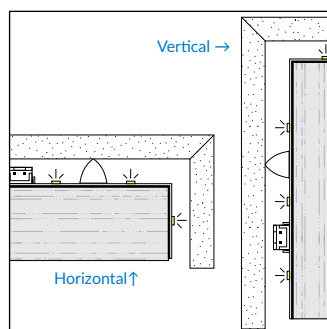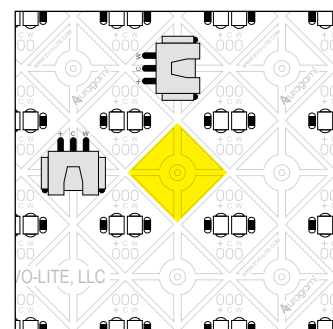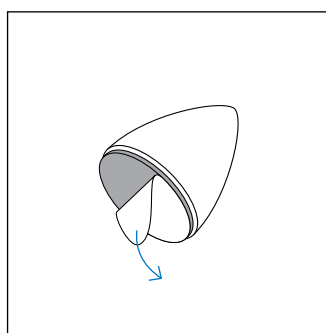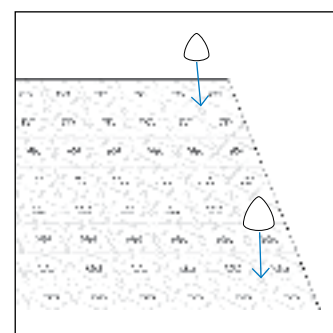

Figure 22

Figure 23

Figure 24

Figure 25
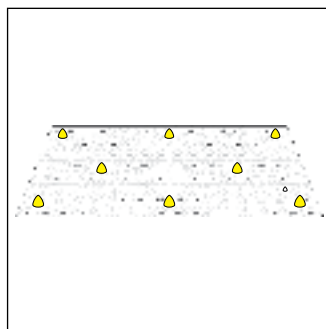
Figure 26
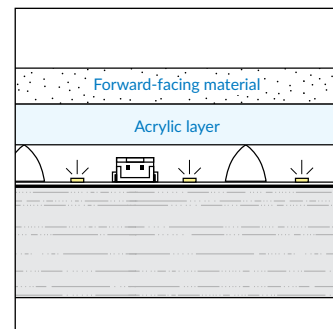
Figure 27

06. Troubleshooting

ISSUE	CAUSE	SOLUTION
Light sheets are not illuminating.	1. Not plugged in 2. Incorrect power supply voltage or load 3. System is wired incorrectly 4. Short circuit is tripping power supply safety features	1. Check power at the source and ensure all connections are made securely and correctly. 2. Check your circuit's wattage load and power supply's wattage and voltage. Ensure they support the product's requirements. 3. Double-check that all connections are properly secured and matching polarity. Review the instruction manual to verify correct setup. 4. Remove cut light sheets from your circuit and re-test. Test each light sheet individually until the problem is presented. Apply non-conductive electronic grade silicone to cut edges (see section 02) or replace the light sheet. Check that all wires are safely connected to each component.
Tunable white or RGBW color channels are not working as expected.	1. Short circuit 2. Wrong controller type or incorrect wiring	1. Test each light sheet, one at a time, in the circuit to locate the sheet causing the issue. Apply non-conductive electronic grade silicone to cut edges (see section 02) or replace the light sheet. 2. Verify that the control type is compatible with products. Double-check all wire connections. Verify correct polarity. Ensure all connections are wired securely.
Light sheet brightness is not consistent across the install.	1. Voltage drop	1. Long runs of low voltage wiring are subject to voltage drop, causing brightness variations. Use the appropriate gauge of wire and/or shorten the distance from power source to lighting products. Reference the diagram in section 03. Learn more about voltage drop at evo-lite.com/library.
Connection block in way of a fold or cut.	–	Connection blocks may be removed if they are not required for a sheet connection. Use pliers to gently twist the block back and forth until it unseats from the light sheet.
No terminal where I need to connect light sheets.	–	You may create a custom solder connection using the contact pads near any LED / LED group. Reference the back page where this is described in more detail.

07. Product handling, installation, & integration advisory

1. Do not connect to AC power. Any direct connection of this product to AC current will damage the LEDs and void warranty. Be sure to use a UL Listed or UL Recognized Class 2, LPS or LVLE low voltage power supply that conforms to the voltage requirements of the product.

2. Product inspection & testing: Our production, packaging, and shipping processes are accompanied by a rigorous quality control procedure. All Auragami Light Sheets are subjected to a burn in period and tested before packaging to ensure operation of the highest quality. Due to potential unforeseen issues with shipping and handling, we advise that all products be inspected at time of delivery and dry-fit tested for proper illumination prior to mounting. Test light the products again before, during, and after the forward-facing material is installed.

3. Power, control, & wiring: For optimal power distribution and to minimize voltage drop, only use multi-strand, high-strand count wiring for all low voltage DC connections. Wire gauge should be appropriate based upon system voltage and wire length to further minimize voltage drop. For voltage drop information and guidance visit us at www.evo-lite.com/library#general. Solid core wire is not recommended for low voltage connections. Power supplies, drivers, and controls should be installed in well ventilated enclosures and/or per manufacturers' recommendations. It is the installer's responsibility to ensure all components and installation practices meet or exceed local codes and requirements.

4. Fragile connection blocks: The product's integrated connection blocks are made of plastic, which can be damaged if made to bear weight. Always use protective bumpers to bear the weight of any forward-facing material in horizontal applications and to act as a safeguard to protect the light sheet in vertical applications. See section 05 for more information.

5. Installation temperature: Due to the characteristics of the 3M adhesive backing, installation environments and locations should be taken into consideration. Colder temperatures may cause longer cure times for permanent adhesion. We recommend always using mechanical fasteners in addition to the adhesive backing.

6. Folding & minimum radius: Do not fold a single sheet back on itself, which may disrupt the flow of electricity. Two separate light sheets may be attached back-to-back as the 3M adhesive will act as a non-conductive barrier. We do not recommend this product for applications with a radius of less than 2" (51mm).

7. Storage: Store Auragami Light Sheets in a clean, dry area on a flat, horizontal surface. Do not open the anti-static envelope until ready to install. Ideal storage conditions: 68° – 77° F (20° – 25° C), 50% humidity. Do not allow dust or debris to settle on the opened light sheet, as this may affect the color temperature and quality of light diffusion.

8. Soldering: Auragami Elements Light Sheets have been engineered with + and – solder pads near every LED or LED group. Create a solder connection when sheet connection block terminals are absent or inaccessible. Solder pads are engineered with a 4A at 24VDC rating. To create a custom soldered connection, first locate the marked conductive pads. With care, lightly scratch away the conformal coating and the white top layer of the light sheet until the conductive solder pad is revealed. Complete the soldering process using lead-free, flux-core solder.

9. Wet location use

Unaltered Auragami Elements Light Sheets are IP65 rated per the standardized International Protection Code testing and rating system. It is essential to understand that this testing is performed in a controlled environment and does not necessarily reflect real-world conditions or scenarios over extended periods of use. As defined, an IP65 rating offers protection against dust ingress and temporary water jets from any direction.

As with most lighting systems and products, Auragami is not recommended for applications where the light sheet or associated components may be directly subject to frequent exposure to liquids or moisture. Failure to follow this recommendation may void the warranty. Please contact your Evo-Lite System Integration Specialist for additional resources and information on this subject.

PATENTED: Auragami® is a patented product of Evo-Lite, LLC. For more information please visit www.evo-lite.com/patent.

WARRANTY: This product has a 3-year warranty. For complete warranty information please visit www.evo-lite.com/legal-documents section 19.