

USER MANUAL

Illuminated Handrail Round, Square & Rectangle



Table of Contents

Warning	2
Product Information	2
Technical Specification	2
Required Tools & Products	2
Product Dimensions	3
Product Specifications	4
Installation	6
Installation 3 or More Handrails	7
Interconnecting Handrails	8
Expansion Joint	9
liniLED Cutting Instructions	10
Indoor Connection Assembly (IP40)	11
Outdoor Connection Assembly	12
(IP65) Wall Mount	13
Post Mount	14
General	20
Symbols	21

**PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION & LEAVE
A COPY FOR THE END USER/ MAINTANANCE ENGINEER FOR FUTURE REFERENCE.**



Warning

This product comes with a 5 year warranty.

Warranty void if:

1. The installation guide has not been consulted (installation mistake).
2. The installation is not done by a certified installer.
3. Local rules and guidelines are not respected.
4. The invoice cannot be shown and/or has been altered.
5. Damage is caused by negligence, abnormal use or improper handling, use, maintenance and/or cleaning of the product.

This product is intended for professional use only! This product must be installed by a qualified and certified installer according to local rules and guidelines. Organic Lighting Systems, Inc. cannot be held liable for (consequential) damage and/or injuries due to unintended use and/or installation errors.

Product Information

The liniLED® LED strip (IP40) is a high quality, flexible LED strip with a unique co-extrusion technology. Designed for an endless range of indoor and outdoor applications.

** For use in wet environments, use mirror welded connectors or IP68 waterproof kits.*

Technical Specifications

Handrail & Mount Materials:	AISI 316
Internal Profile Material:	Aluminium 6060-T6
Power Supply:	24 V DC
Water resistance LED strip:	IP40, IP67 upon request
Accessories:	Several accessories (See Datasheets)

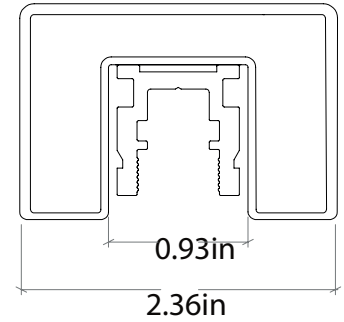
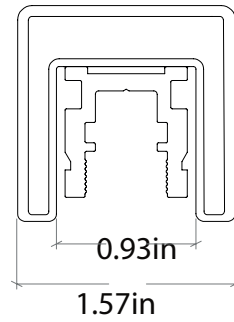
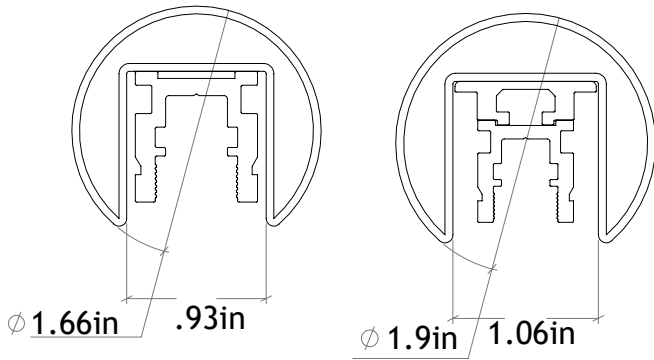
Required Tools & Products

Depending on the project, standard tools and metal working tools should be present at the location. Make sure the following tools and products are present:

Metal saw
Grinding tool
Metric Allen key 3, 4 and 5
Torx 20 screwdriver
Screwdriver
Stripping tool
Anaerobic adhesive suitable for stainless steel
Degreaser
Welding equipment (when performing welding on site)
liniLED® Roller
liniLED® Pliers.

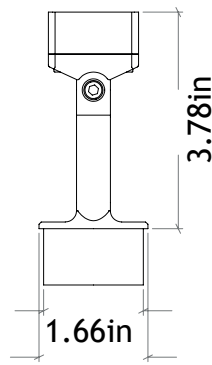
Product Dimensions

1.6" Round, 1.9" Round, Square & Rectangle Cross Dimensions:



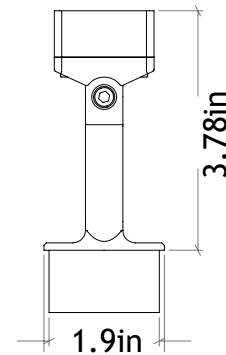
Post Mounting

- 1.6" Round
- Square
- Rectangle



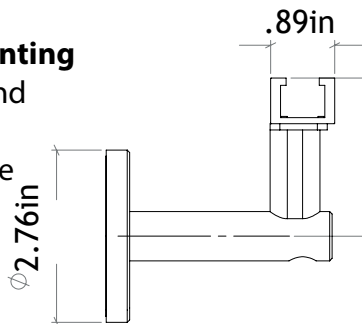
Post Mounting

- 1.9" Round



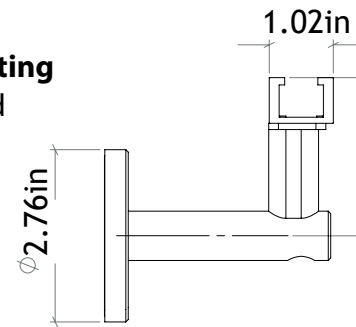
Wall Mounting

- 1.6" Round
- Square
- Rectangle



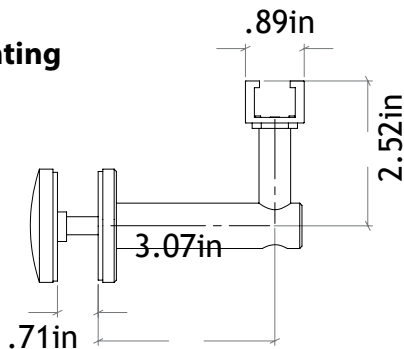
Wall Mounting

- 1.9" Round



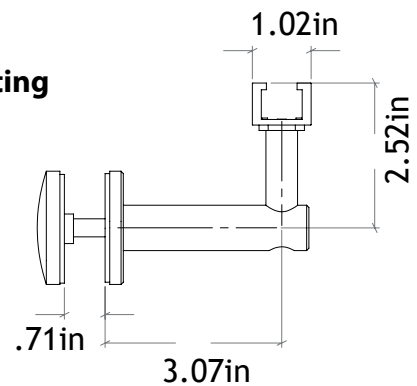
Glass Mounting

- 1.6" Round
- Square
- Rectangle



Glass Mounting

- 1.9" Round



Product Specifications

liniLED[®] Top Deco LED strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	.33	27	65.6'
2700K	24	.33	32	65.6'
3000K	24	.33	31	65.6'
4000K	24	.33	34	65.6'
6500K	24	.67	34	65.6'
Red	24	1.3	16	65.6'
Green	24	.7	41	65.6'
Blue	24	.5	8	65.6'
Amber	24	1.4	12	65.6'

liniLED[®] Top Power LED strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	1.3	116	32.8'
2700K	24	1.4	126	32.8'
3000K	24	1.3	116	32.8'
4000K	24	1.2	125	32.8'
6500K	24	1.2	129	32.8'
Red	24	2.5	31	32.8'
Green	24	1.5	46	32.8'
Blue	24	2.2	20	32.8'
Amber	24	2.5	28	32.8'

liniLED[®] Top High Power Strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	2.7	190	32.8'
2700K	24	2.7	214	32.8'
3000K	24	2.5	188	32.8'
4000K	24	2.6	216	32.8'
6500K	24	2.6	211	32.8'

liniLED[®] Top Photon 1200 Strips

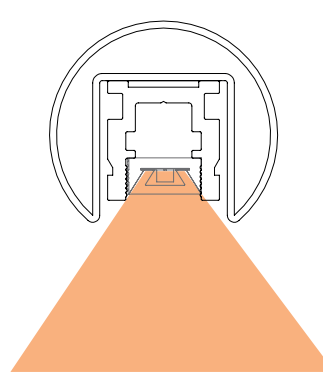
Color	V DC	W/ft	lm/ft	Max. Length
2000K	24	3.2	247	29.5'
2400K	24	3.2	292	29.5'
2700K	24	2.7	303	29.5'
3000K	24	2.7	311	29.5'
4000K	24	2.4	307	29.5'
6500K	24	2.4	305	29.5'

liniLED[®] Top Tunable White 1200 Strips

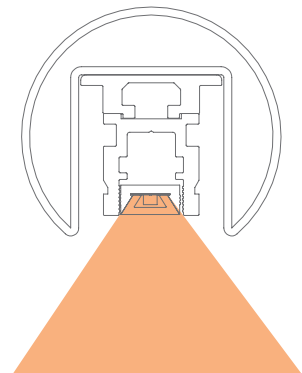
Color	V DC	W/ft	lm/ft	Max. Length
2700K/6500K	24	3.2	255	29.5'

liniLED[®] Top RGB 160/240 LED Strips

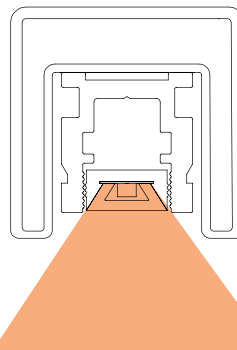
Color	V DC	W/ft	lm/ft	Max. Length
RGB 160	24	1.46	42	32.8'
RGB 240	24	2.26	71.65	16.5'



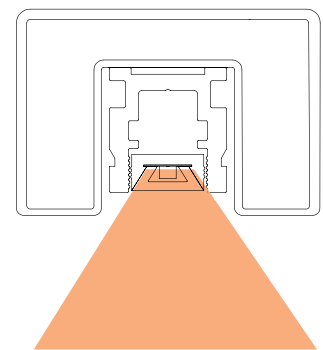
1.6" OD Handrail



1.9" OD Handrail



Square Handrail



Rectangle Handrail

Product Specifications

liniLED[®] Side Deco LED strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	.33	24	65.6'
2700K	24	.33	25	65.6'
3000K	24	.33	24	65.6'
4000K	24	.33	28	65.6'
6500K	24	.67	28	65.6'
Red	24	1.3	11.59	65.6'
Green	24	.7	28.35	65.6'
Blue	24	.5	3.69	65.6'
Amber	24	1.4	9.14	65.6'

liniLED[®] Side Power LED strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	1.3	96	32.8'
2700K	24	1.4	97	32.8'
3000K	24	1.3	88	32.8'
4000K	24	1.2	98	32.8'
6500K	24	1.2	90	32.8'
Red	24	2.5	32	32.8'
Green	24	1.5	41.2	32.8'
Blue	24	2.2	12.5	32.8'
Amber	24	2.5	23.5	32.8'

liniLED[®] Side High Power Strips

Color	V DC	W/ft	lm/ft	Max. Length
2400K	24	2.7	152	32.8'
2700K	24	2.7	166	32.8'
3000K	24	2.5	154	32.8'
4000K	24	2.6	170	32.8'
6500K	24	2.6	170	32.8'

liniLED[®] Side Photon 1200 Strips

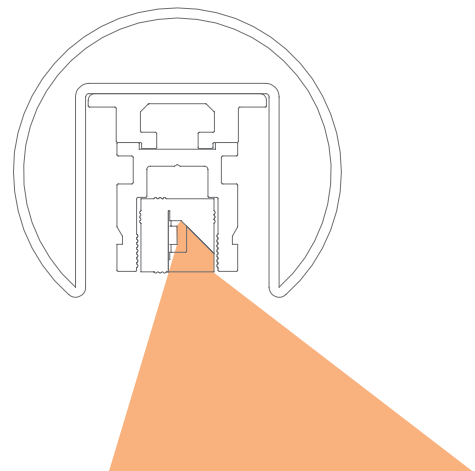
Color	V DC	W/ft	lm/ft	Max. Length
2000K	24	3.2	212	29.5'
2400K	24	3.2	243	29.5'
2700K	24	2.7	252	29.5'
3000K	24	2.7	254	29.5'
4000K	24	2.4	253	29.5'
6500K	24	2.4	253	29.5'

liniLED[®] SideTunable White1200 Strips

Color	V DC	W/ft	lm/ft	Max. Length
2700K/6500K	24	3.2	207.6	29.5'

liniLED[®] Side RGB 160/240 LED Strips

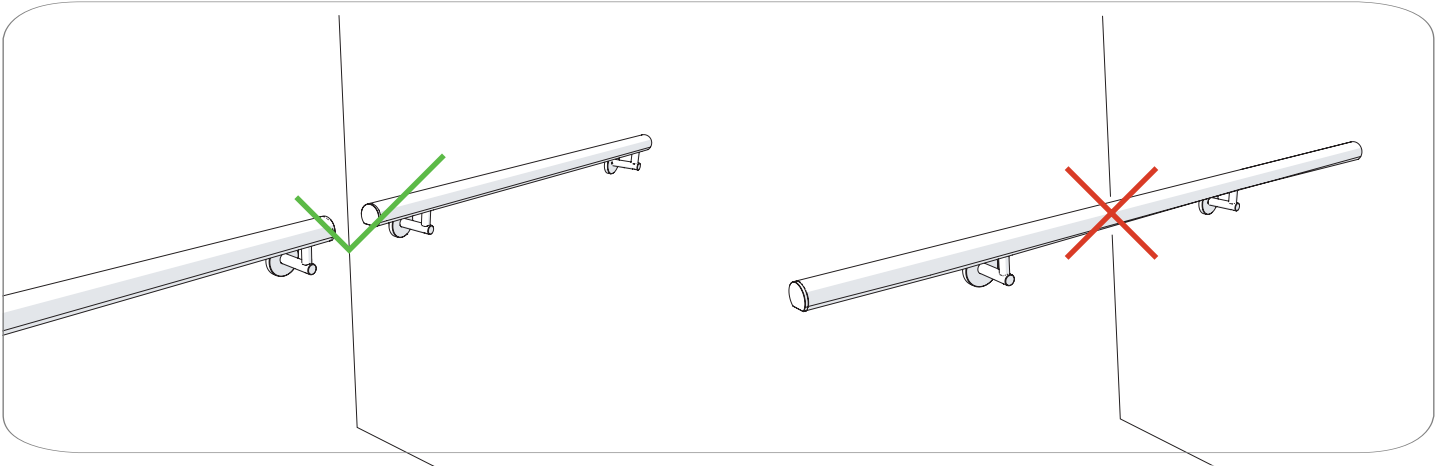
Color	V DC	W/ft	lm/ft	Max. Length
RGB 160	24	1.46	29.5	32.8'
RGB 240	24	2.26	51.2	16.5'



1.9" OD Handrail

Installation

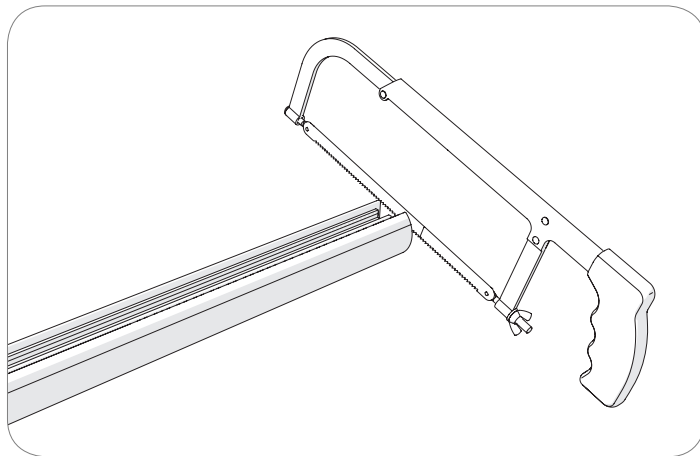
This chapter is described in the correct installation order: We advise you to follow this order.



Right Construction

During the installation of long lengths, take into account the expansion joints of the constructions, buildings or surface on which or against the liniLED® Handrail is mounted. Determine whether there are expansion joints in the wall or floor. The handrail needs to end at an expansion joint, to prevent any pressure on the liniLED® LED strip and possible damage.

Wrong Construction



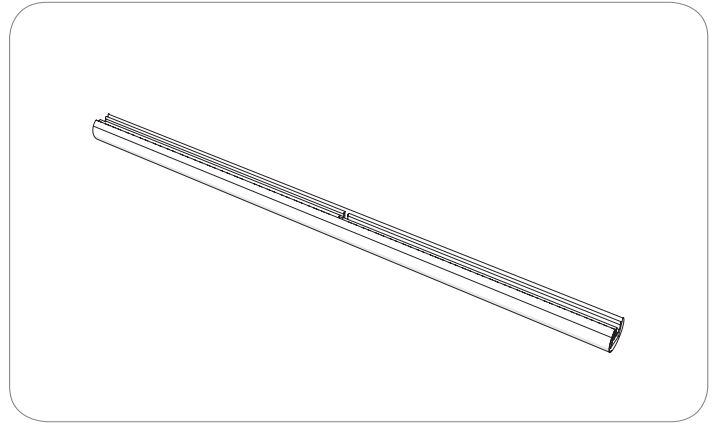
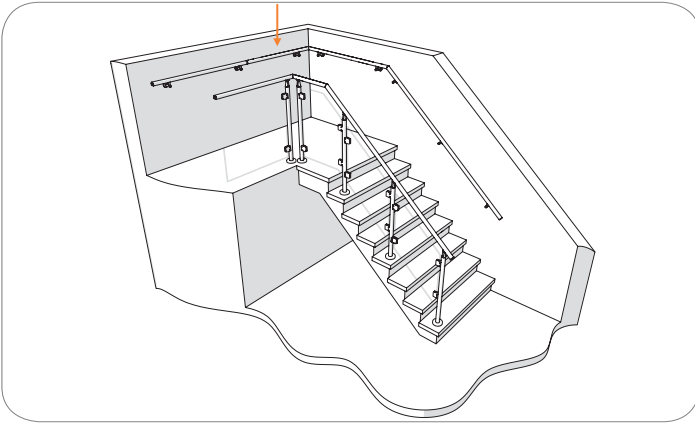
Cut the stainless steel handrail in the correct length

* Correct positions power supplies:

Deco:	Connector every 65.6ft
Power:	Connector every 32.81ft
High Power:	Connector every 32.81ft
Photon 1200:	Connector every 29.53ft
Tunable White:	Connector every 29.53ft
RGB 160:	Connector every 32.81ft
RGB 240:	Connector every 16.4ft

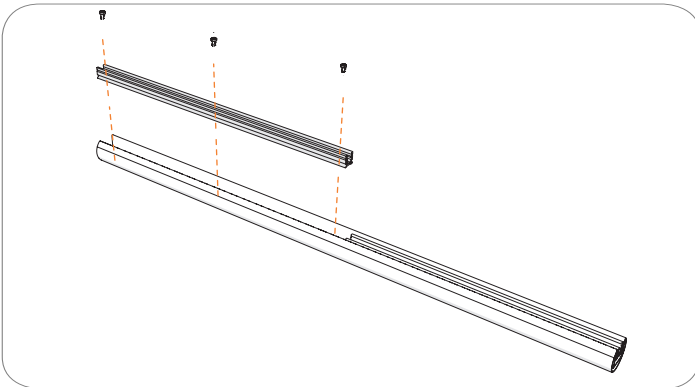
Installation 3 or More Handrails

Connecting 3 or more Handrails? Then you have to intermediate handrails. In case you don't need to connect intermediate handrails you can skip this installation pages. Go to page 8.

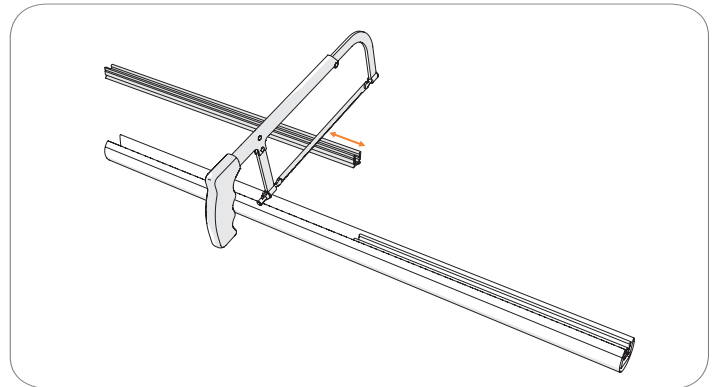


To be able to place the mounts in the profile, you need to make space in the intermediate handrail.

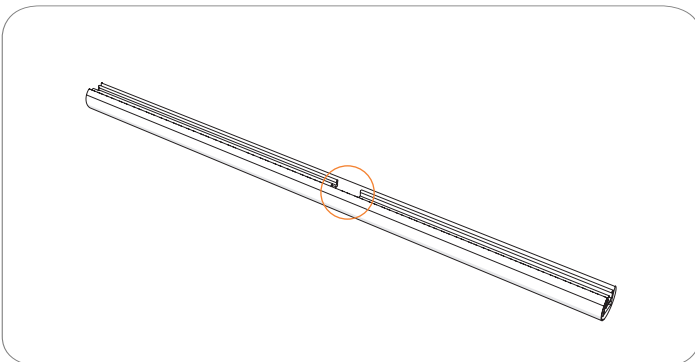
⚠ Because the aluminum profile is missing on this position, it is not possible anymore to place a wall mount.



Disassemble one of the aluminum mounting profiles. To do this, unscrew all hex screws of the aluminum mounting profile and remove it.



Cut a 1.57in (+/- 0.04in) piece off the disassembled aluminum profile. This step is critical to create space to place the mounting clamp of the stainless steel adapter.

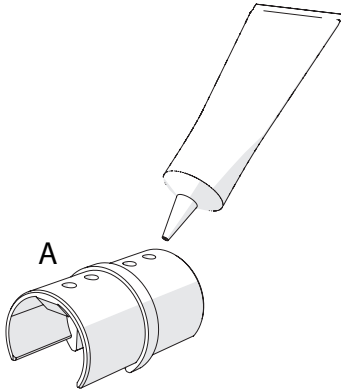


Place the aluminum mounting profile back in its original position and fasten with the hex screws.

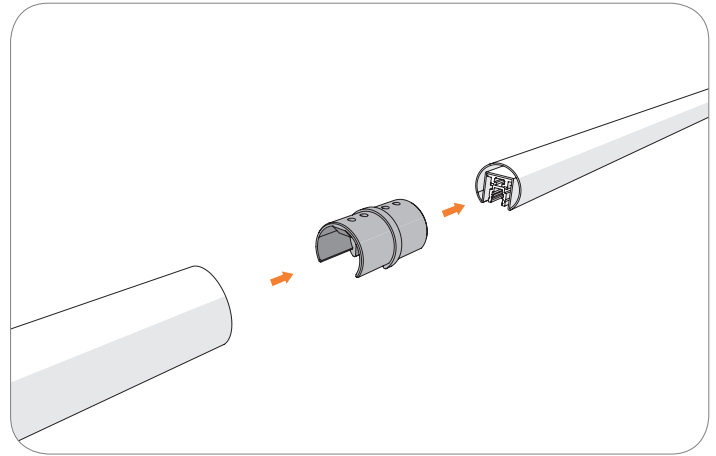
Interconnecting Handrails

The Handrails can be connected in two ways, by gluing or by welding.

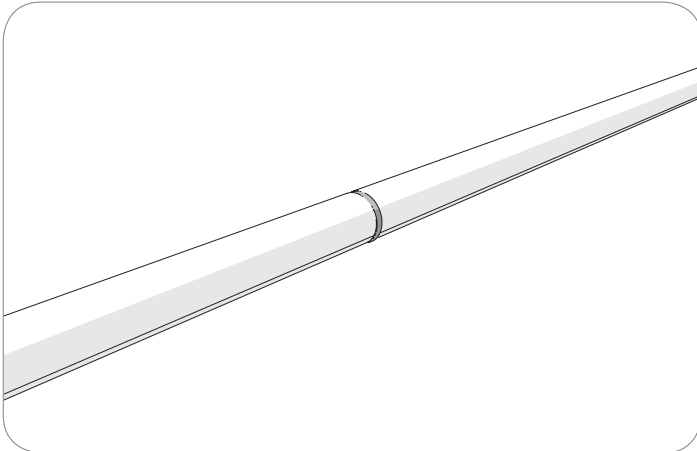
Gluing



Degrease the contact surfaces (A). Apply the glue on the contact surface (A) of the coupler.



Place the coupler in the stainless steel handrail, which you would like to extend.



Slide the second handrail on the other side of the coupler.

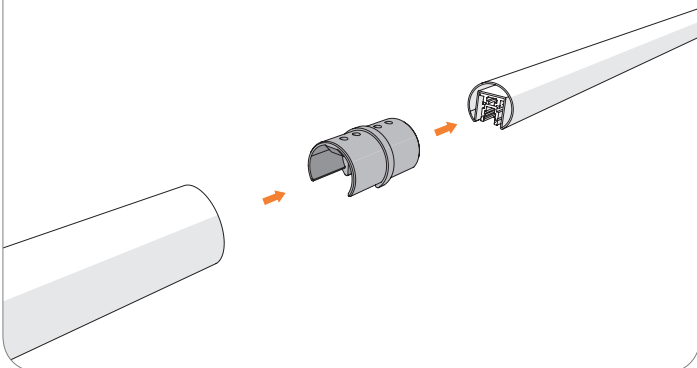
Are there expansion joints present?

Yes
No

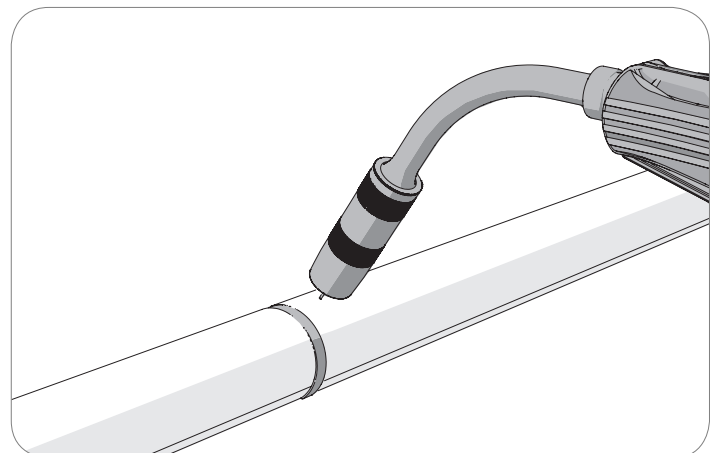
Go to page 7
Go to page 8

Use this step also after welding the coupler.

Welding



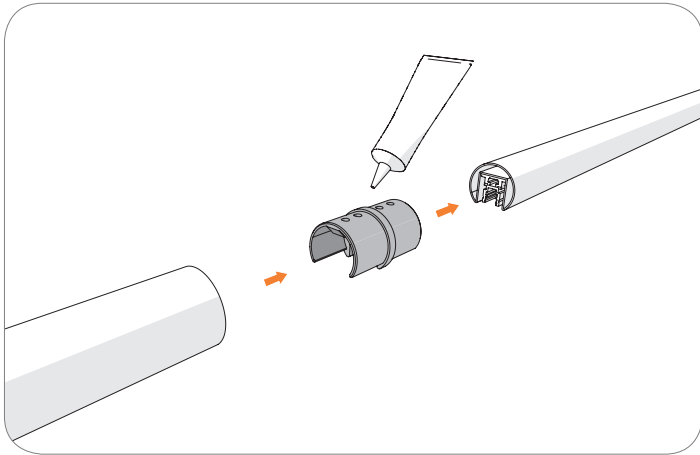
Place the aluminum mounting profile back on its original position and fasten with the hex screws. (1.57in)



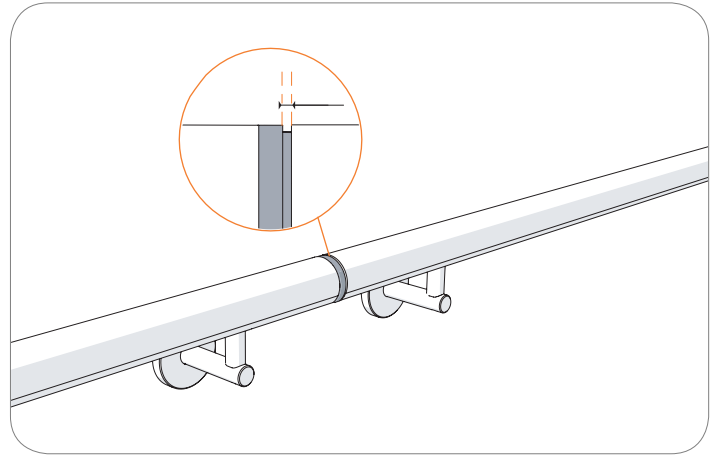
Slide the second handrail on the other side of the coupler. Weld the parts together.

Expansion Joint

To prevent possible pressure and damage on the liniLED® LED strip, the handrail and LED Strip needs to end at an expansion joint. The handrail can end with a **coupler** (step 1 and 2) or with **end caps** (step 3). For more information about placing/interrupting the LED strip, see page 12.

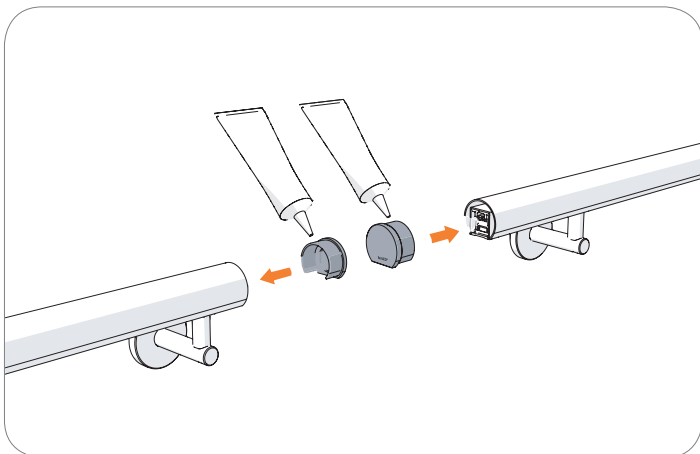


Apply the glue on one side of the coupler. Place the coupler between the two handrails.



Make sure there is enough space between the handrail and the coupler, to deal with possible expansion and shrink by change in temperature of the construction.

⚠ Warning: The liniLED® LED strip and the liniLED® Cover do not go through, in each handrail profile comes a new LED strip and Cover.



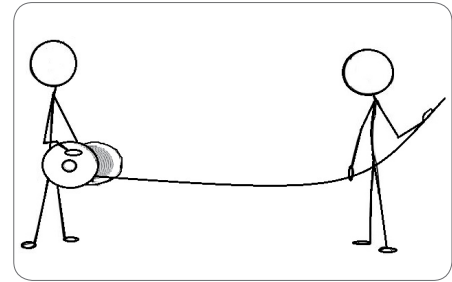
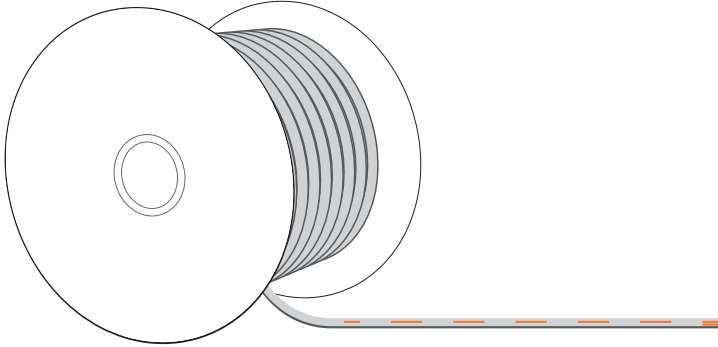
Place the end caps at the ends of the handrails.

⚠ Temperature influences

In case of large temperature fluctuations, expansion and retraction of the LED strip and covers should be taken into account. The expansion and contraction of the covers in the longitudinal direction of at least .2in at a length of up to 59.06in. Provide a clearance of .1in on both sides so this can be absorbed.

liniLED Cutting Instructions

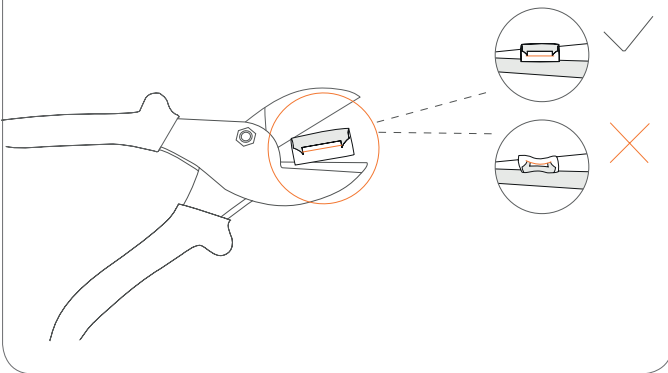
1



⚠ 10ft lengths require a second person's assistance.

⚠ The LED strip has to be unreeled on a horizontal surface at the time of installation. Do not unreele the spool of LED strip before installation. Lengths over 10ft should be installed with the help of a second person to support the strip to ensure that the connector is not stressed.

2

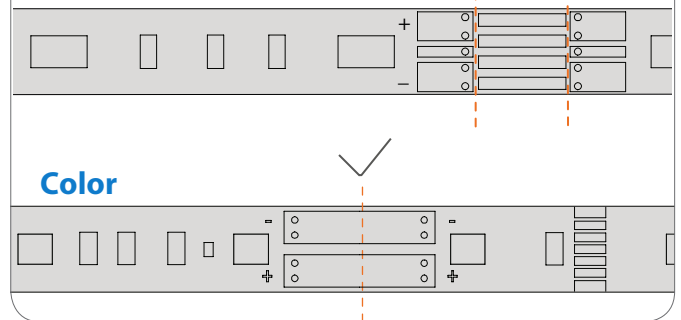


Place the liniLED® LED strip on the base of the cutting tool. Not doing so may result in a deformed LED strip.

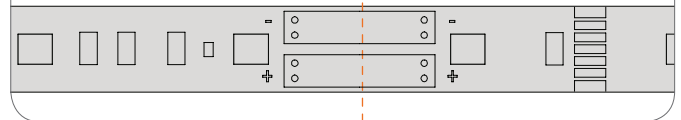
3a

liniLED Deco, Power

White

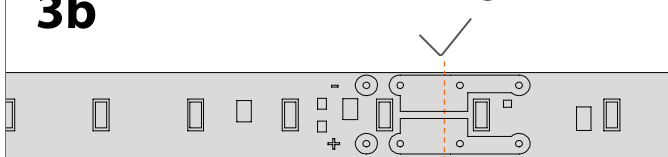


Color

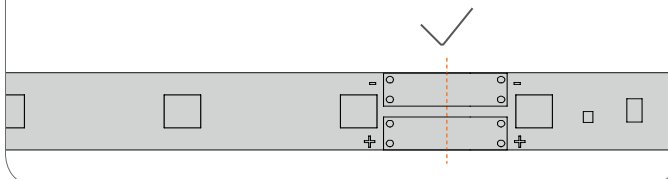


3b

liniLED High Power

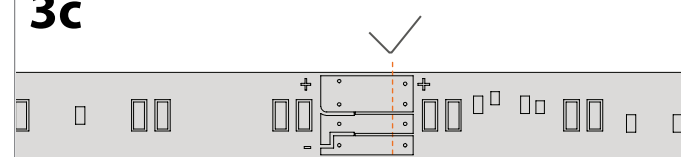


liniLED Photon

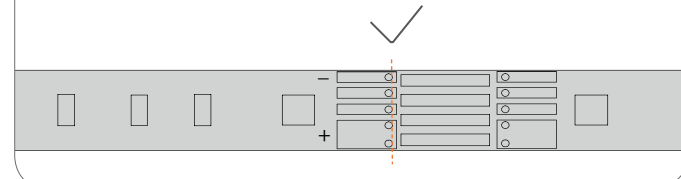


3c

liniLED Tunable White

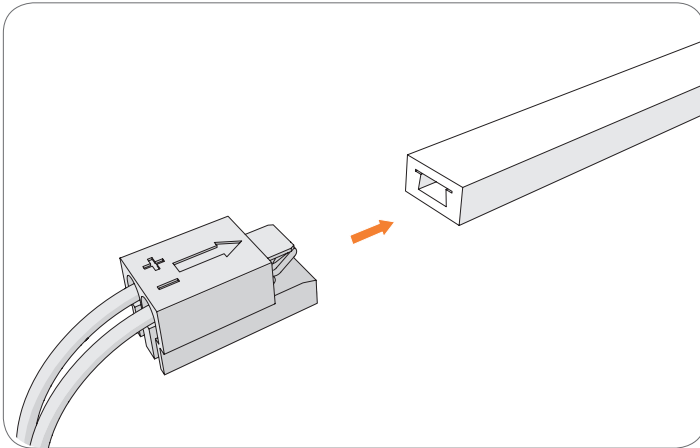


liniLED RGB



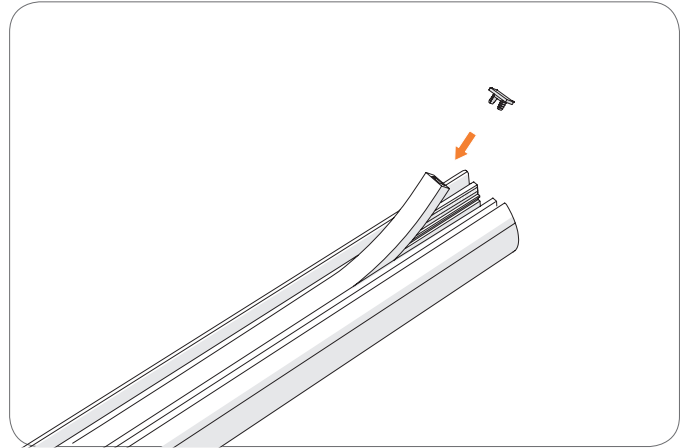
⚠ Dispose of the unnecessary material through waste recycling of electrical and electronic equipment.

Indoor Assembly (IP40)

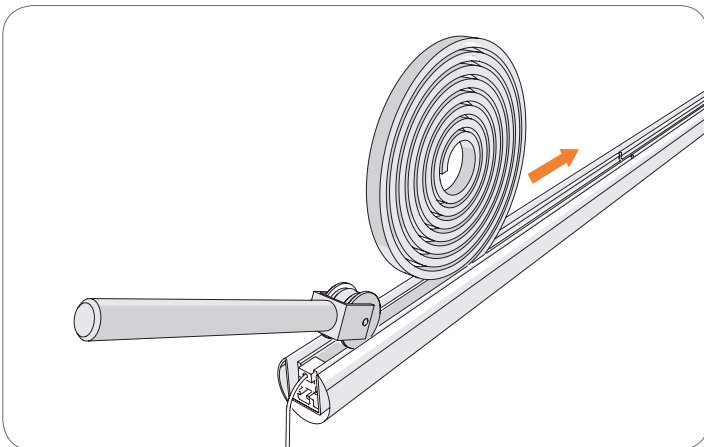


Gently insert the connector in the hollow chamber of the liniLED® Top LED strip.

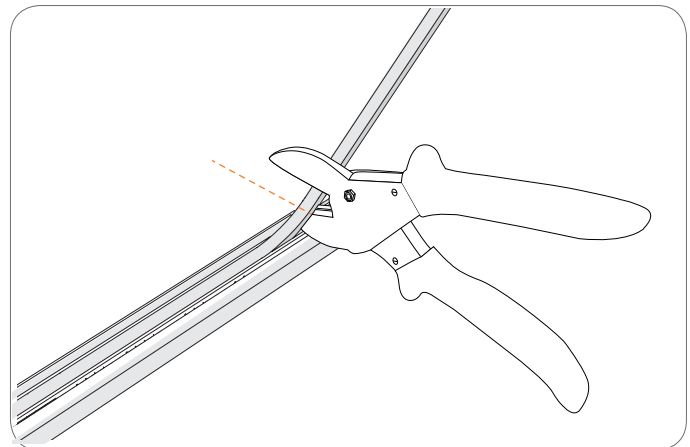
⚠ The arrow on the connector needs to be placed in the same direction as the arrow on the liniLED® LED strip.



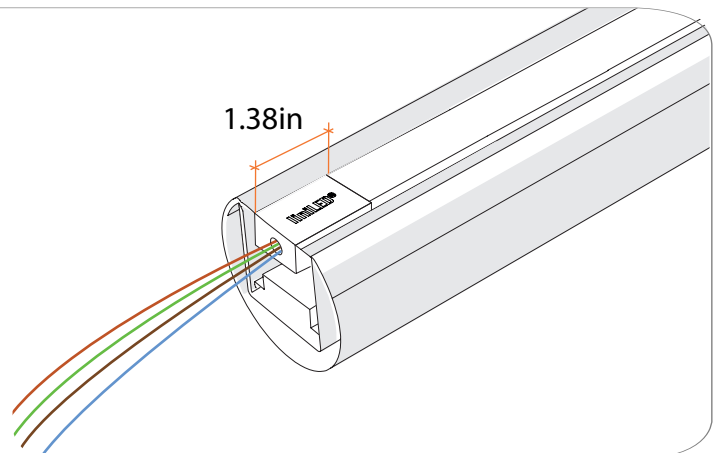
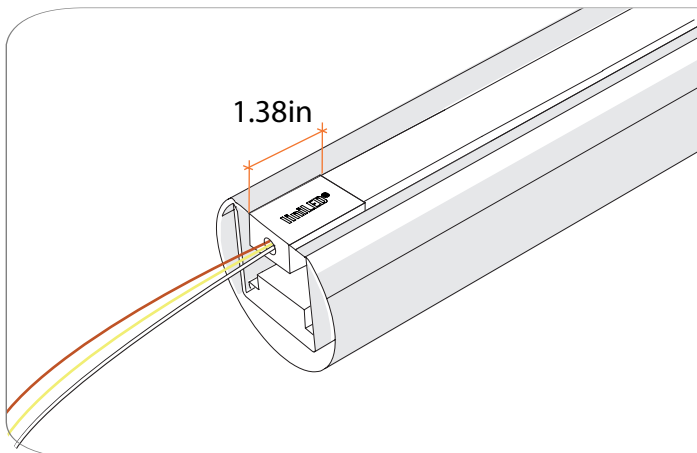
Place the end caps in the ends of the handrails and push the last part of the LED strip in the aluminum mounting profile.



Gently push the liniLED® Top LED strip into the aluminum profile. Start from the position where you placed the connector.

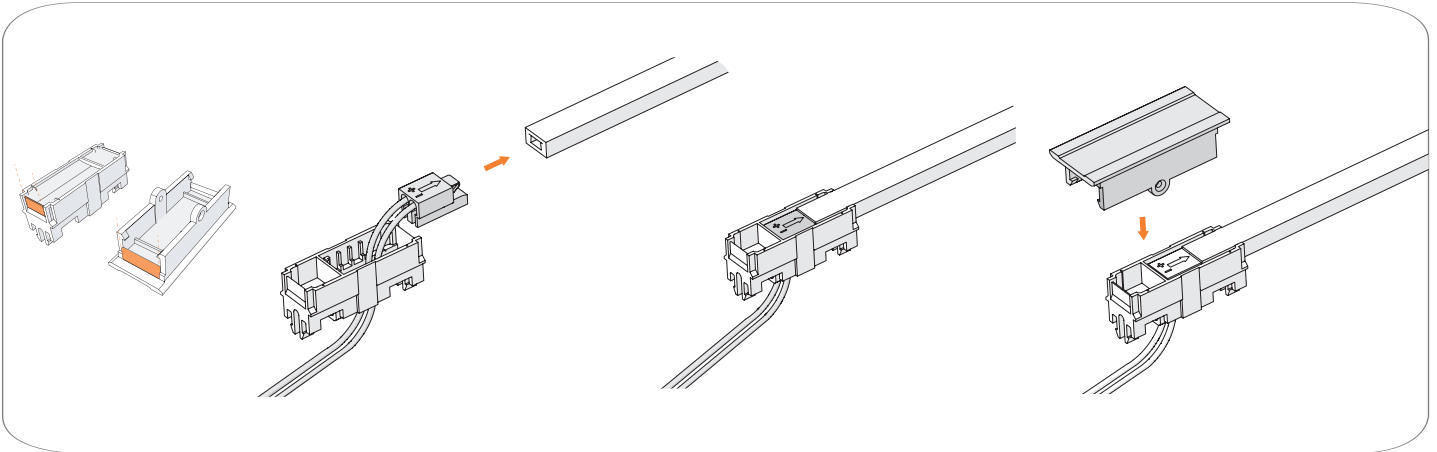


Cut the liniLED® Top LED strip. Place the End Cap at the end of the LED strip.

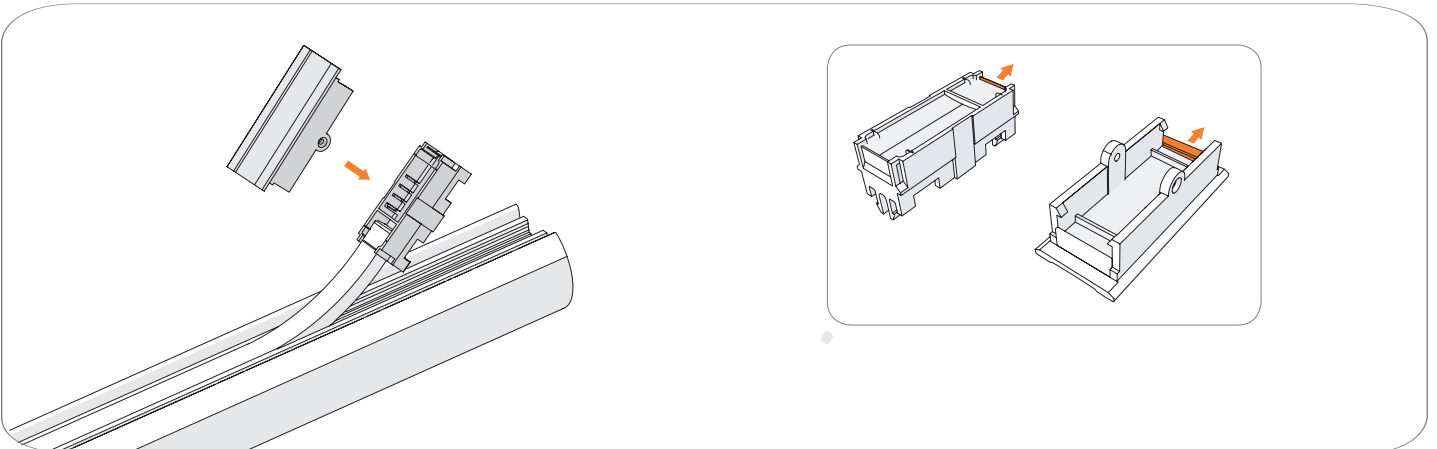


Remove 1.38in from the aluminum profile to provide space for the connector in the Handrail. Next, strip the cables up to the connector.

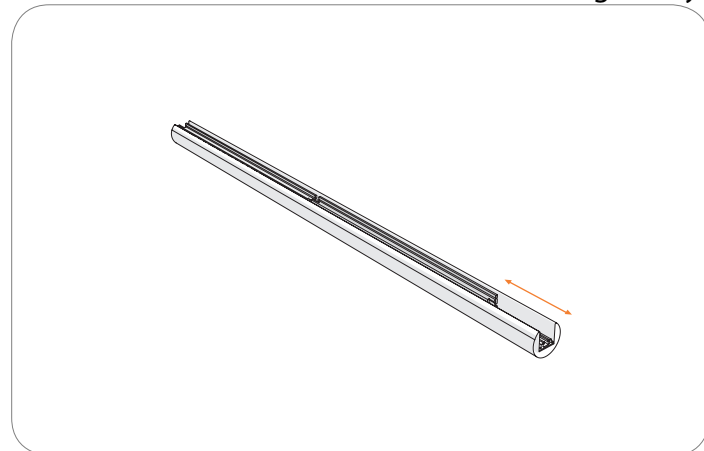
Outdoor Assembly (IP65) - 1.9" Handrail ONLY



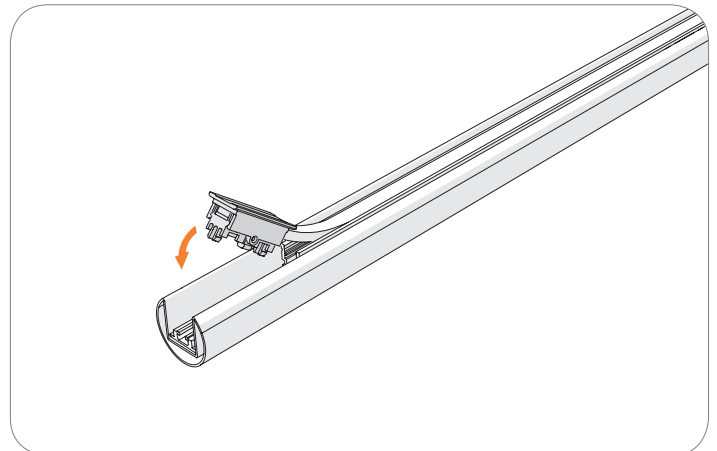
Connection: Remove the dams from the bottom and top of the IP65 Connector set. Use a sharp knife and cut the sides. Gently insert the first IP65 Connector in the hollow chamber of the liniLED® LED strip. The arrow on the connector needs to be placed in the same direction as the arrow on the liniLED® LED strip. Place the Connector and the liniLED® LED strip in the IP65 Housing, push the cap of the IP65 housing until you hear a 'click'.



End Cap: Remove the dams from the bottom and top of the IP65 Connector set. Use a sharp knife and cut the sides. Push the cover on the IP65 housing until you hear a 'click'.



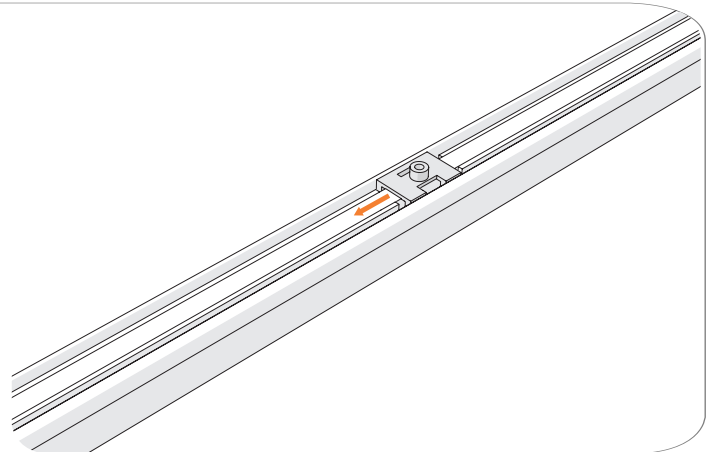
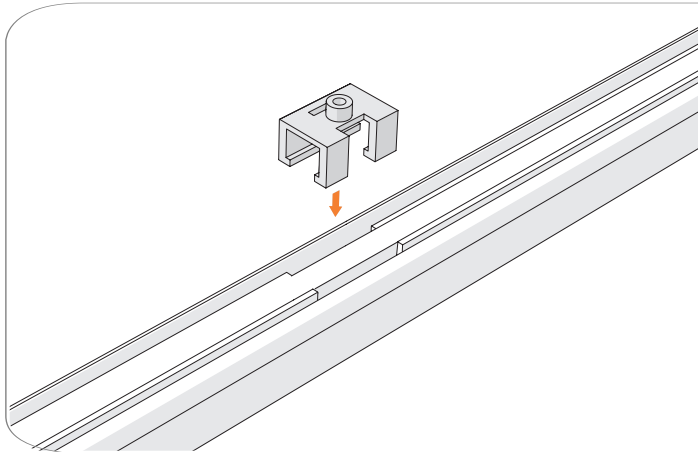
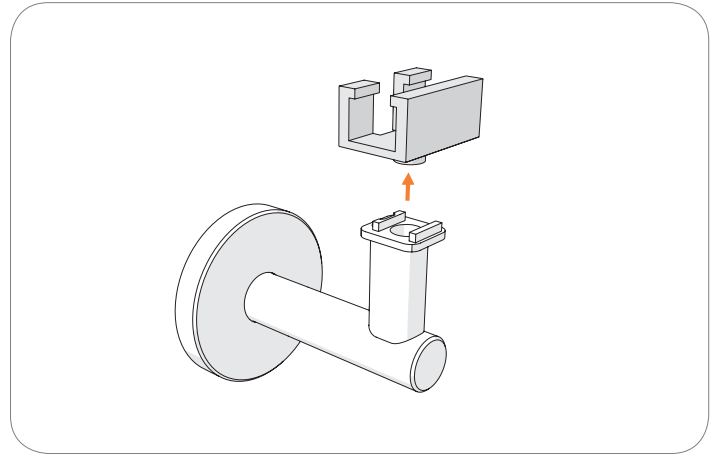
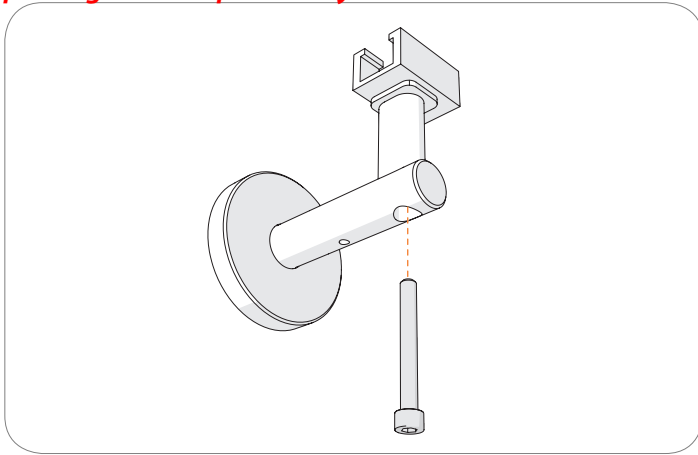
Put the aluminum mounting profile back in position and tighten the hex screws. You have now created some space to install the IP65 housing.



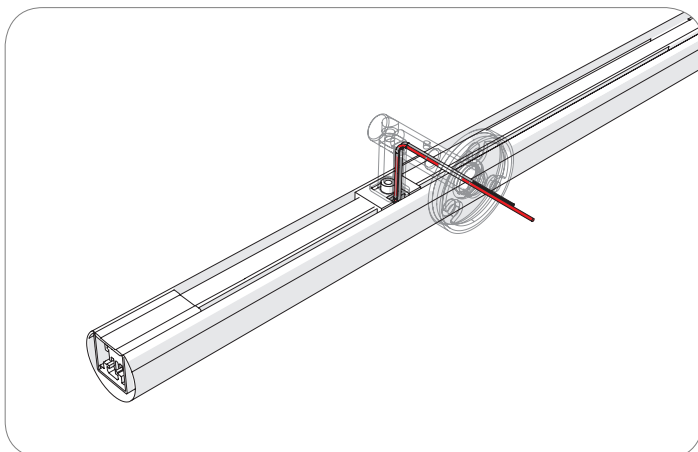
Push the IP65 housing on the aluminum basic profile until you hear a 'click'. The liniLED® Handrail is now IP65.

Wall Mount

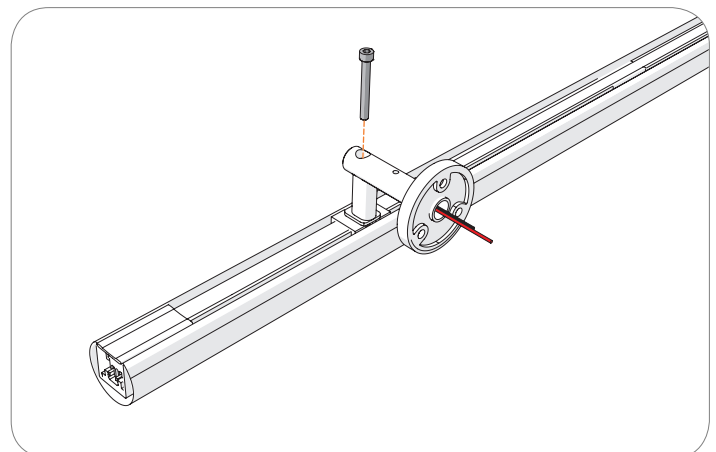
This chapter explains how to insert the wall mounts and post adapters in the handrail. **We recommend placing one adapter every 4-5ft.**



Place the clamp on the aluminum profile and slide the adapter to the desired position
Is the adapter the transit to your power supply? Yes = 1 or No = 2



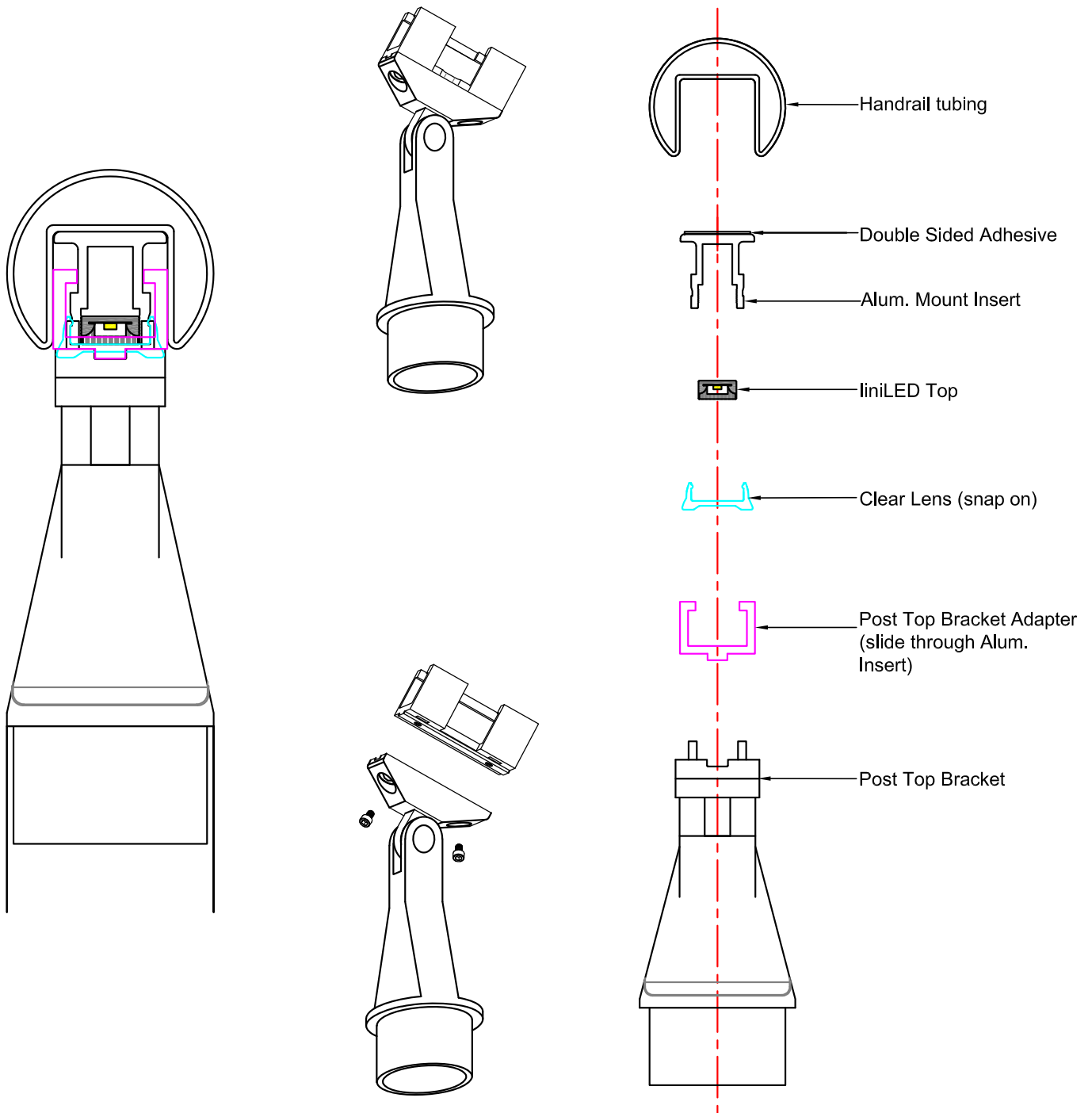
1 | Pull the wires through the clip first and then through the axes of the stainless steel handrail carrier. 24 V DC



2 | Turn the hex bolt clockwise, using a Metric Allen Key No. 5 to fix the wall mounts to the aluminum profile. Connect the cable to the connection from the wall. 24 V DC

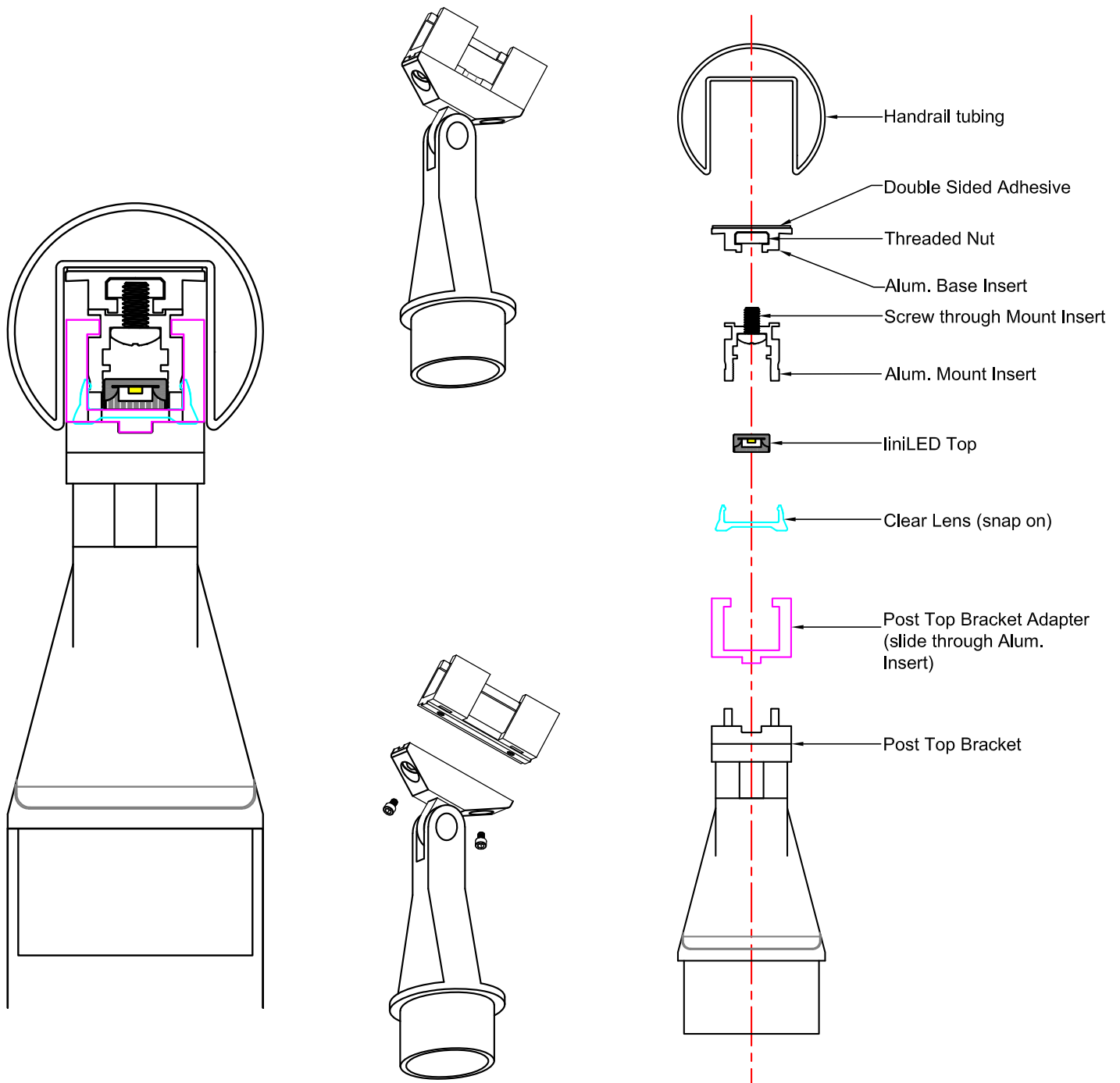
Post Mount - 1.6" Round Handrail

User Manual | liniLED® Illuminated Handrail

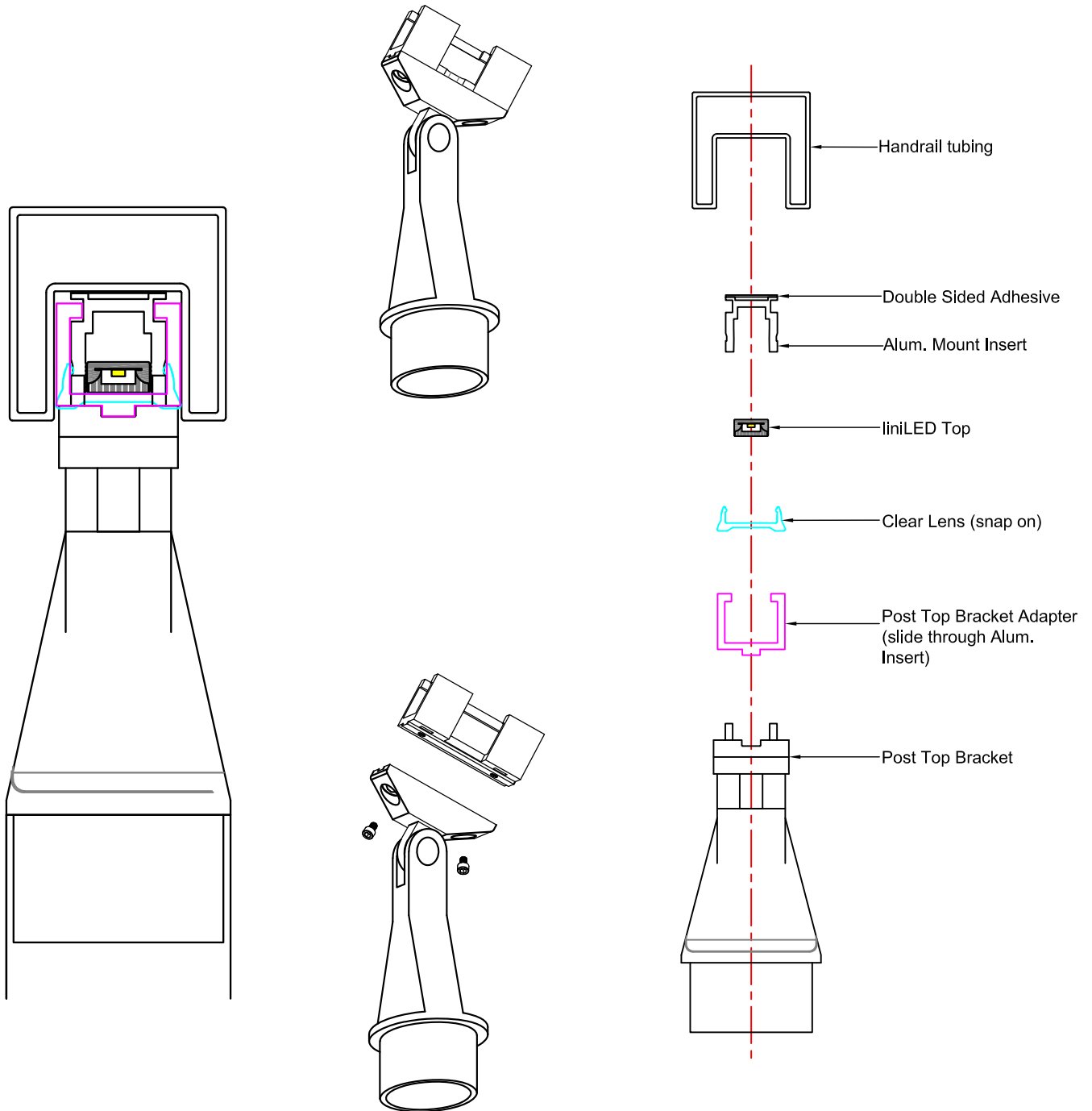


Post Mount - 1.9" Round Handrail

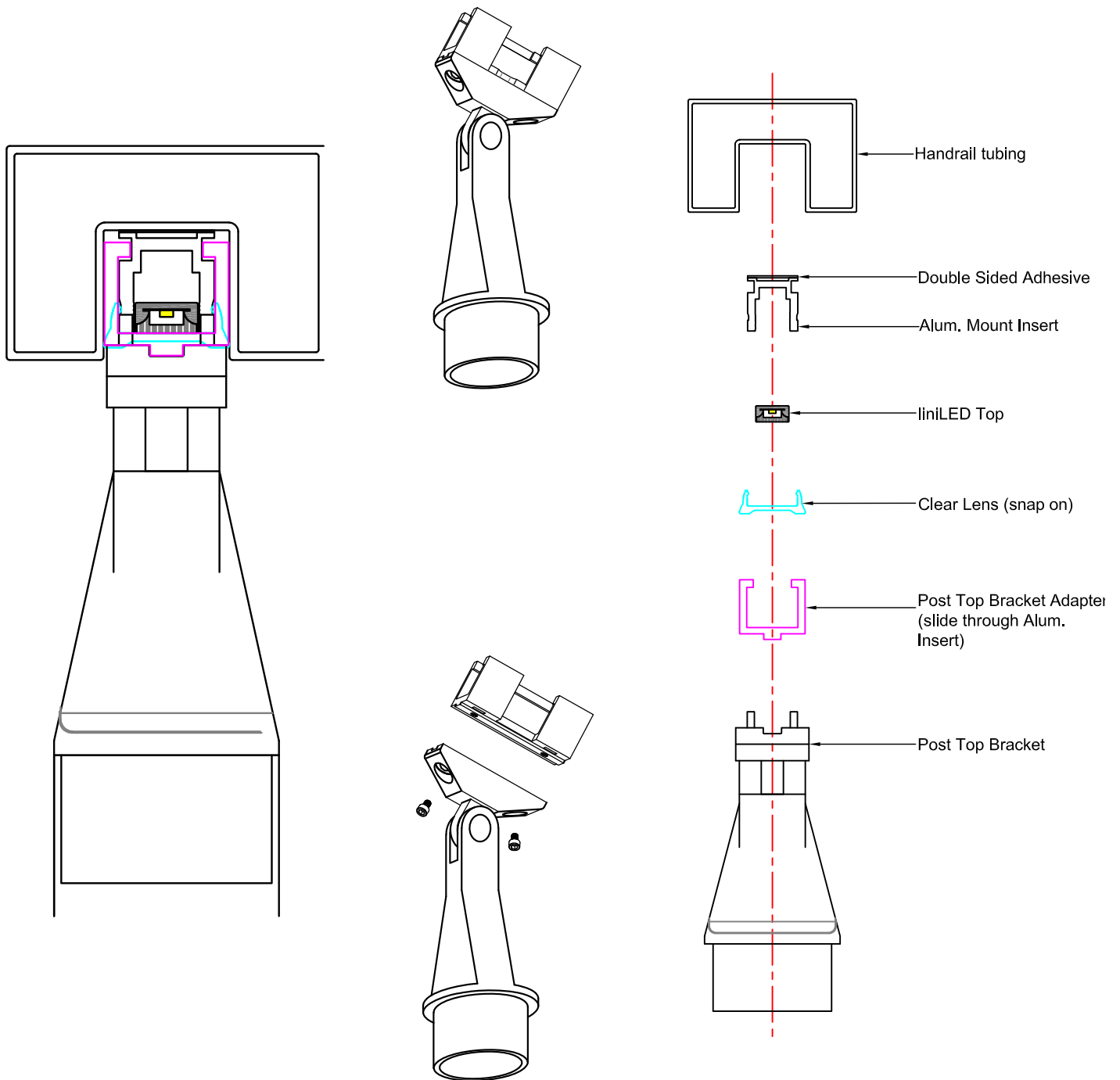
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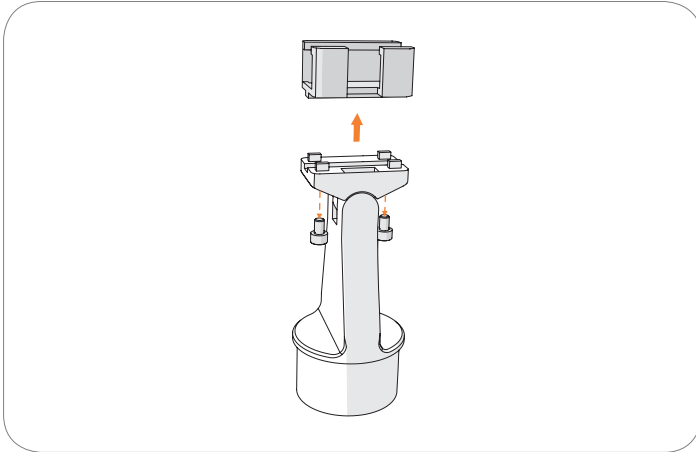
Post Mount - Square Handrail



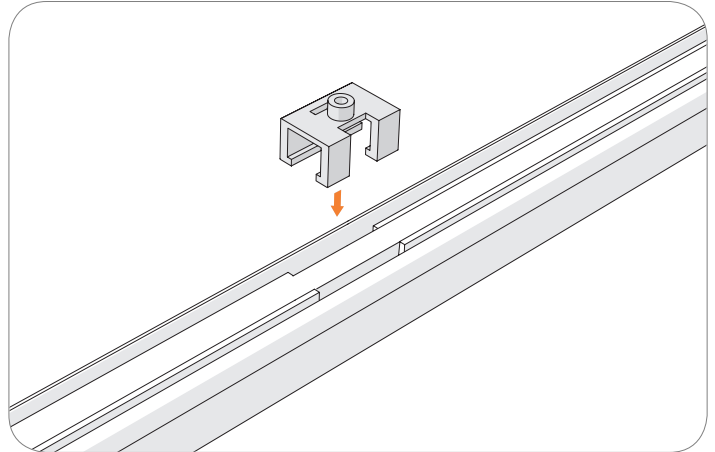
Post Mount - Rectangle Handrail



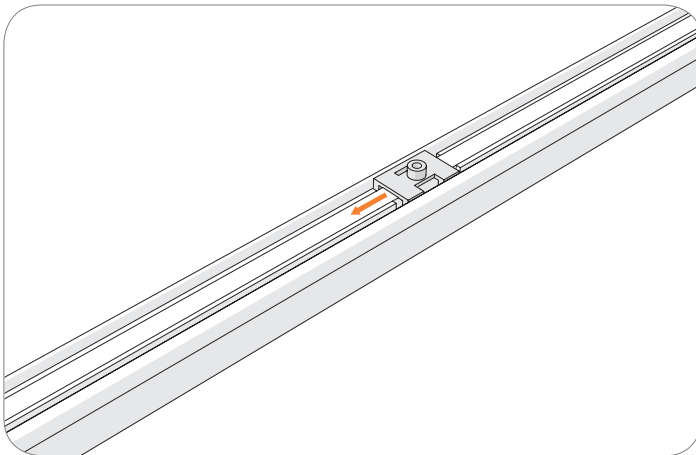
Post Mount



Remove the clamp from the post adapter.



Slide the clamp of the post adapter over the aluminum mounting profile of the handrail.

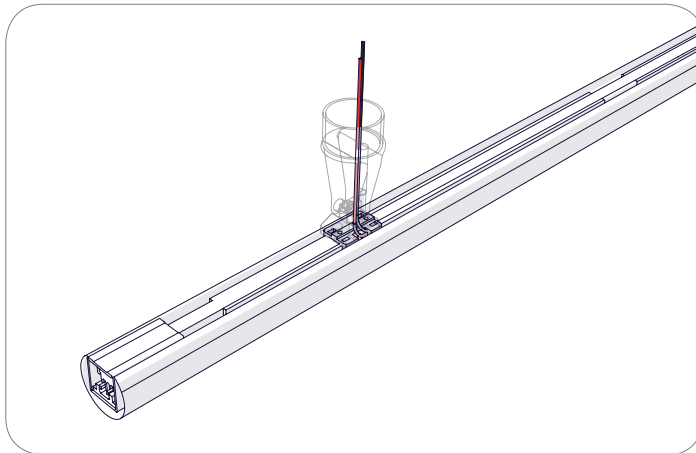


Slide the clamp to the desired position.

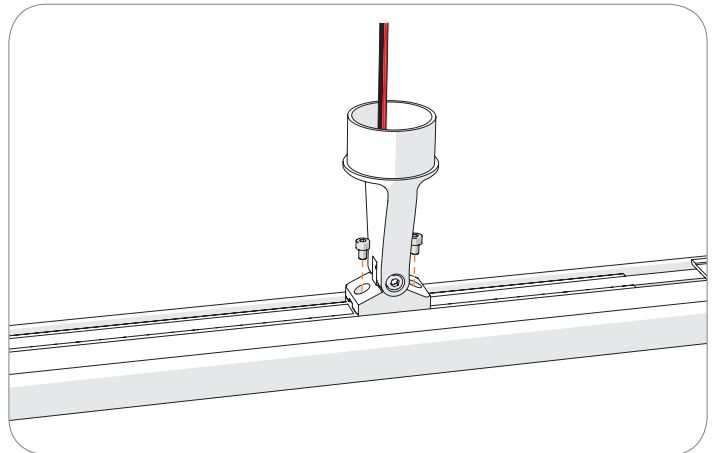
Is the post adapter a transit to your power supply?

Yes [Go to step 1](#)

No [Go to step 2](#)



1 | Pull the cables through the clamp first and then through the post adapter.

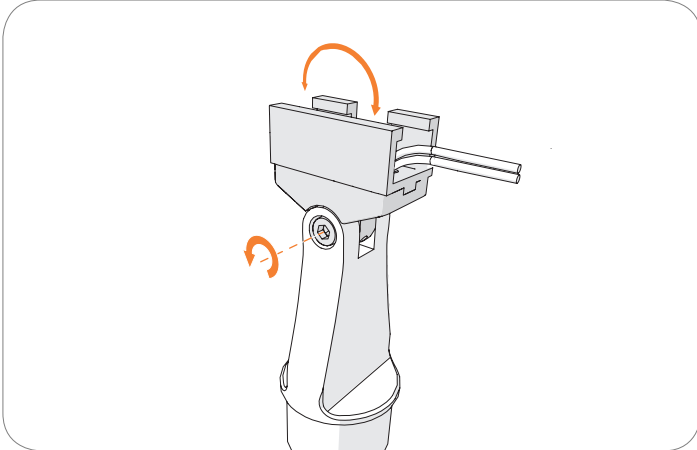


2 | Fix the post adapter onto the clamp. To tighten the clamp, turn the hex bolts in the post adapter clockwise using a Metric Allen Key No.5.

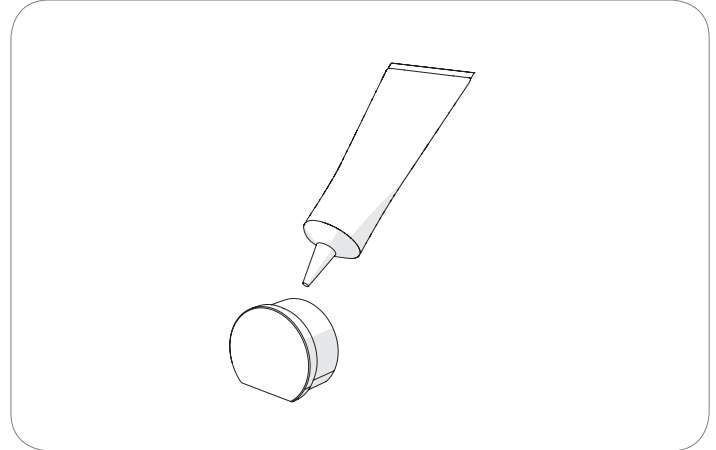


The clamp can twist up to 55° to one side. Verify if the angle post adapter can reach the correct angle prior to fixing it.

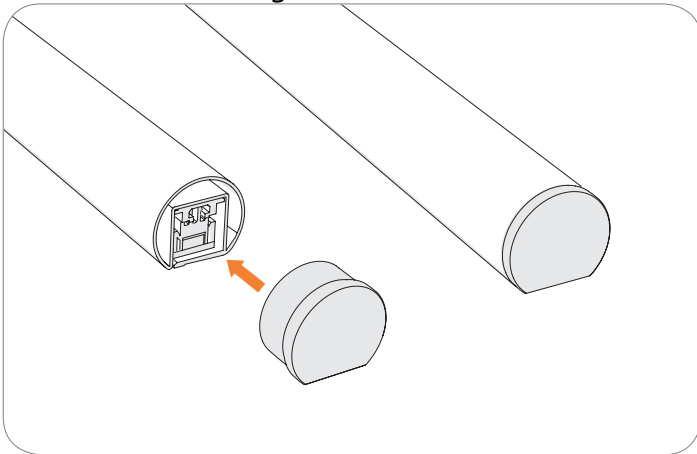
Post Mount



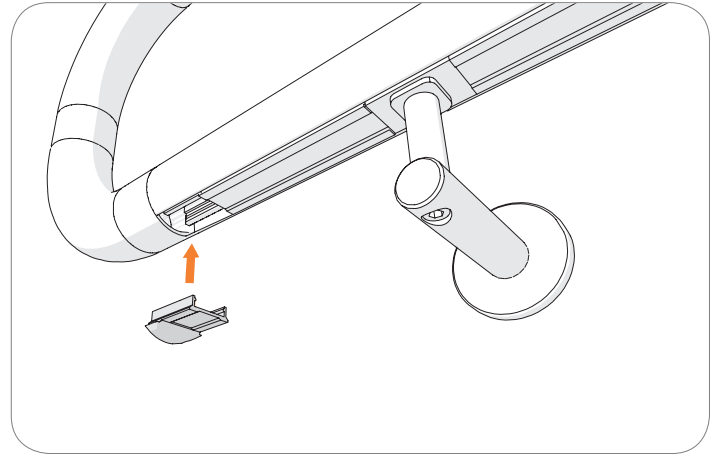
If the handrail is tilted, rotate the support of the liniLED® Handrail. Turn the hex bolt counterclockwise. Rotate the clamp and tighten the hex bolt clockwise again.



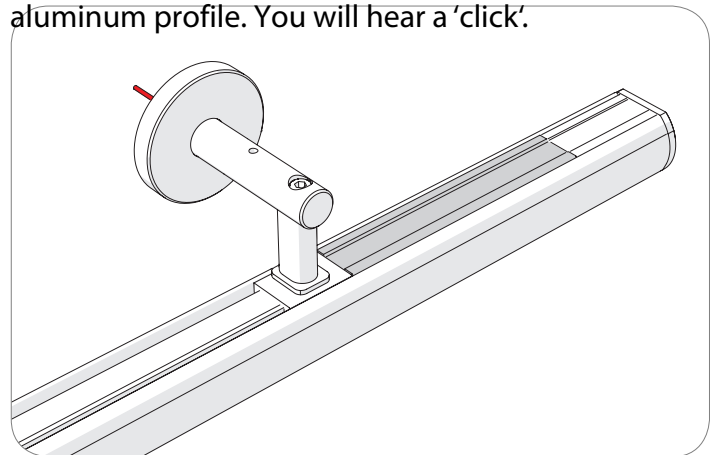
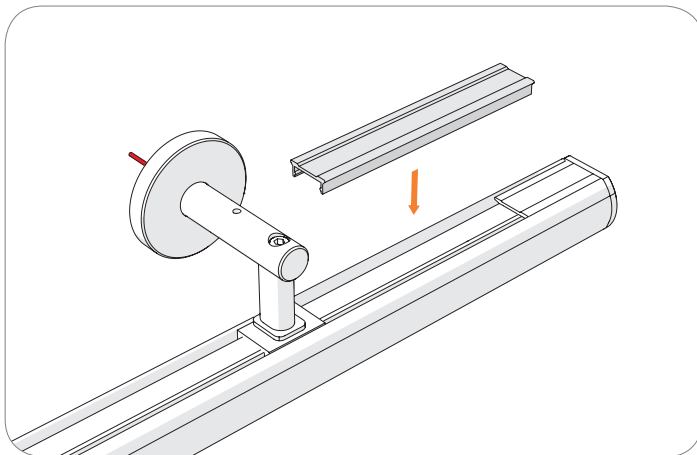
Degrease the end cap before applying glue on the contact surface.



Insert the end cap into the end of the handrail.



When the liniLED® Handrail merges into a round tube, you can finish it with the plastic transition profile. Press the transition profile on the aluminum profile. You will hear a 'click'.



Secure the liniLED® LED strip by using the cover. Close the open spaces between wall mounts with a cover. Cut the covers to the right size and push them over the aluminum mounting profile.

General

Read the instructions and safety precautions before installation, usage and storage of the products to secure safety of the user and reliability of the product. Hand over the instructions to the end-user and/or those responsible for installation, maintenance and usage.

- Organic Lighting Systems, Inc. cannot be held responsible for improper handling, product installation, usage or storage.

Handling

- Handle with care.
- The product may not be modified or converted otherwise than prescribed.
- Products are transported in proper packaging. Products should remain packed until installation.

Installation

- Attention: The power has to be switched off the main power supply or the connection before installation. Not doing so may damage the product.
- Use a suitable LED power supply/driver: 24 V DC constant voltage. Do not drive the product on other voltages than described in their datasheet/products specifications.
- Installation has to be done by a certified professional with knowledge of electrical circuits or a specialised maintenance person known with valid directives.
- General and local construction, safety- and installation regulations should be respected.
- Use only supplied parts, accessories and required tools as prescribed in the installation manual to guarantee a safe installation and use of the product.
- Products may solely be installed in the areas according to their prescribed IP-rating, IK-rating, temperature range and chemical resistances.
- Do not fasten anything on the product, same applies for hanging.
- Do not install the product in the following cases:
 - Damage is visible on the product or its cables.
 - The inside of the product is moistened or dirty.
 - The product or its cables have been modified. It could lead to an electrical shock or a short circuit may occur.
- Children may not play unsupervised with electrical products as they cannot judge the dangers in dealing with electrical circuits correctly.

Operation and Use

Solely use the product when its working correctly. If not, switch the power off immediately and advise an electrical specialist in the following case.

- Damage is visible on the product.
- The product does not function.
- Smoke or steam rises from the product.
- Crackling sounds are noticeable.
- The product is overheating.
- Repairs on the installation may only be performed by qualified electricians. Product repairs may solely be done by Organic Lighting Systems, Inc.













Cleaning and Maintenance

- Attention: Disconnect the power before maintenance and cleaning.
- Dust and dirt accumulated over time should be removed from the light-emitting surface to assure optimal functioning of the product.
- Paints, solvents and corrosive cleaning chemicals may not contact and thus affect the product.

Environment and Waste

- Exterior decorative lighting should only be used after sunset.
- This product may not be treated as household waste. Dispose of the material through the waste recycling of electrical and electronic equipment.

Symbols

-  UL is a world leader in product safety testing and certification. UL sets standards and tests products to make sure they meet standards.
-  The ETL Listed mark indicates that your product has been tested by Intertek and found in compliance with accepted UL standards.
-  Electro Static Discharge (ESD) sensitive device, apply standard ESD precautions when handling the product.
-  Manufacturer's declaration that the product meets the applicable EC directives.
-  Suitable for mounting on all surfaces and suitable to cover with insulating material.
-  Restriction of Hazardous Substances (RoHS): product complies with the RoHS directive and each homogeneous material does not exceed the limits for the materials mentioned under the RoHS directive (Pb, Hg, Cd, Cr6+, PBB and PBDE).
-  This product can be both IP40 and IP68 depending on the configuration and application. See the documentation for the exact IP rating.
-  Bending of the LED strip is possible with a radius of ≥ 1.2 inches in the specified direction.
-  Electrical appliance class III: this product is designed to be supplied from an extra-low voltage (≤ 60.0 V DC or ≤ 42.4 V AC).
-  System guarantee of 5 years when the complete system consist of liniLED® products with the 5 year system warranty logo.
-  Product is resistant against ultraviolet (UV) light or sunlight. Non-UV resistant products can degrade or discolor fast when exposed to UV.
-  Product can be cleaned with normal cleaning agents as specified in the datasheet under 'chemical compliances.'
-  This product can be stored and used below 32 degrees Fahrenheit. Verify the minimum storage and operation temperature in the datasheet for the lowest temperature allowed.
-  This product can be applied in seawater and its environment. Elements in seawater will have no harmful effect on the product. For chemical specifications see datasheet. Verify the IP rating for proper use.
-  This product can be applied inside swimming pool environments. Elements in the air will have no harmful effect on the product. For chemical specifications of these elements see datasheet. Verify the IP rating for proper use.
-  This product is available on request and can be submerged n swimming pools and their environments. Disinfectants will have no harmful effect on product. For chemical specifications of these elements see datasheet. Verify the IP rating for proper use.
-  The CRI value of this product is 80 or higher.
-  The binning tolerance of this product is 2 MacAdam.

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