

LUMINO

ZEN LED MODULE

INSTALLATION MANUAL

IMZ10S_R2203

TECHNICAL SUPPORT

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Installers must read this document and any other referenced documents in full before commencing installation work. Failure to observe all installation guidance in this document may result in unsafe installation, cause permanent product damage and void product warranty.

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HANDLING PRECAUTIONS

DO NOT BEND

Due to its small cross section, the product can be damaged by flexing, bending or twisting. Take care when handling the product to not cause damage.

STRESS

Never stand or place weighted items on the product. The product is not vandal resistant and has no IK rating. Do not subject the product to impact forces.

POWER CABLES

The product end caps, power cables and connectors must not be pulled or twisted. Never pull the product by its power cables or hang it from its power cables or connectors.

CUTTING AND SAWING

The product must not be sawn, drilled or otherwise modified in any way.

DAMAGES

Inspect the product. If you see any damage upon unpacking, report to LUMINO immediately and do not install the product.

LOCATION

Suitable in dry locations only. This product is unsuitable for wet or damp locations. **IP20 rated for protection against objects 12.5mm or larger.**

Protect product from dust, paint and harmful substances during installation and use. Ensure product is not exposed to VOC gases. Do not obstruct the product and its light output.

SAFETY GUIDANCE

LED MODULE

The product is classed as a built-in, non-integrated LED module and therefore must be mounted into an enclosure, box, luminaire or the like. Do not use the product mounted directly to a wall, ceiling or other surface without some kind of enclosure.

WIRING GUIDE

Follow the guidance shown in the provided wiring guide, including max cable lengths, cable sizes and other wiring instructions. When running cables through an enclosure, ensure cables are protected from damage, separated from mains voltage cables and anchored against being pulled.

QUALIFIED INSTALLER

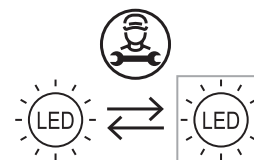
Installation must be carried out by a qualified person and conducted in accordance with local regulations and applicable standards.

THERMAL MANAGEMENT

Ensure ambient temperature (T_a) does not exceed 25°C (77°F) and case temperature (T_c) does not exceed 70°C (158°F). Exceeding max T_c will cause permanent damage and void the product warranty. Allow sufficient clear air space for the LED drivers, and suitable access to the drivers as specified on installation instructions.

REPAIR AND REPLACEMENT

If the product is not functioning, contact LUMINO to register a Service Call for factory repair or replacement. Product's light source is replaceable by a qualified professional. See page 7 for Ecodesign and end of life information.



DRIVERS

POWER OFF

Product and driver must not be live wired. Switch off power before work begins. Follow instructions and guidance for the make and model of driver being used.

24VDC SELV

Only use drivers with a maximum output of 24VDC. Drivers must be SELV, constant voltage with both overload and short-circuit protection.

DIMMERS

Check dimmer is compatible with the driver and certified to local regulations.

INRUSH CURRENT

Many constant voltage LED drivers can have high inrush current at power-on. Driver's inrush current can be many times the normal operating current. Use a suitable MCB. Type C MCBs are normally suitable but if inrush current is a persistent problem an inrush suppressor may be required.

PROTECTION

Use only with 24VDC Class 2 power unit to UL1310 standard with overload and short-circuit protection. Rate drivers for at least 10% above load. Driver protection circuitry must not be relied upon to protect secondary 24VDC electrical circuits from damage caused by over-current or short circuit. DC fuses or DC electronic circuit breakers are recommended for full protection. Allow for access to drivers for maintenance and sufficient clear air space for ventilation.

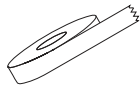
CABLING

Do not overload the driver. Damage will be caused by incorrect input voltage, reverse polarity or short circuit. Plan for loads, driver locations, dimming and cabling prior to start of work. Ensure basic insulation is maintained between mains and dimming control wires.

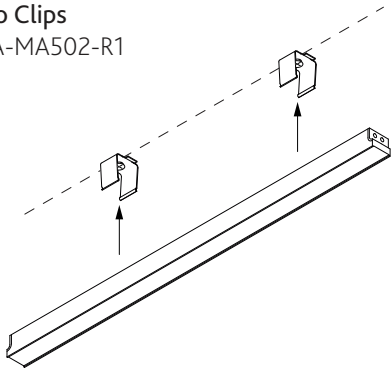


MOUNTING METHODS

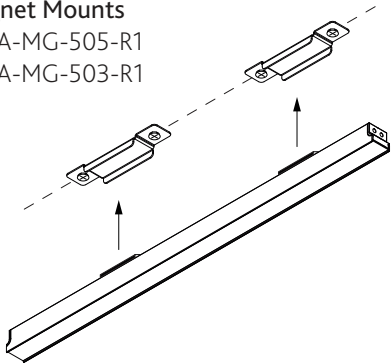
Self Adhesive Tape VECA-MA550-R1



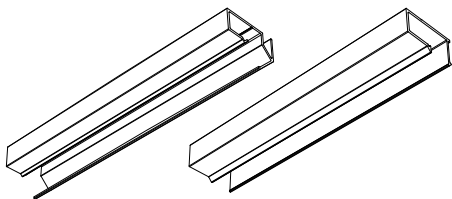
Micro Clips VECA-MA502-R1



Magnet Mounts VECA-MG-505-R1 VECA-MG-503-R1



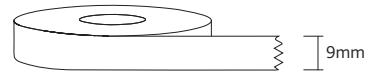
Mounting Channels VECA-MC145-2050-R1 VECA-MC190-2050-R1



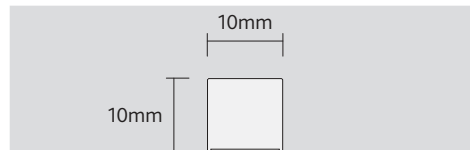
SELF ADHESIVE TAPE VECA-MA550-R1

The self-adhesive tape can be used to fix the ZEN profile or the mounting channels into routed slots or onto other surfaces.

Before applying the tape, it is essential that surfaces being adhered to are clean, flat, smooth and free of any dust or debris. Tape should be applied at room temperature and handled with care so not to stretch, tear or cause other damage. Tape is not water resistant and should not be used in damp locations or exposed to high humidity. Tape is suitable for most wood or metal surfaces but may not be suited to some material types. Check with LUMINO for material compatibility.



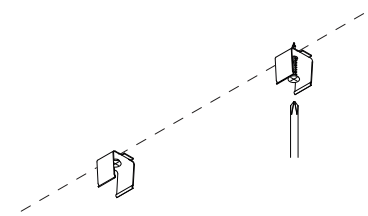
Apply the tape along the full length of the back face of the profile ensuring it is centred. Ensure the tape is fully adhered by pressing firmly or using a rubber roller wheel. Peel away the backing and adhere the product in position. Allow 24hrs for the tape to fully bond to maximum strength.



Routed slots for recessing must be 10mm wide. 10mm depth will fully recess the profile, while shallower depth will give a semi-recessed fit. Ensure the slot is 5mm longer than the product to allow for removal access.

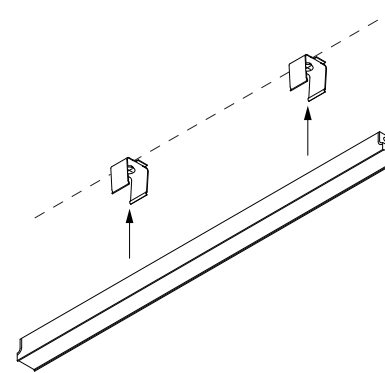
MICRO CLIPS VECA-MA502-R1

Fix all the clips securely to the mounting surface. The supplied screws are № 4 gauge wood screws. If necessary, use alternative fixings of similar gauge and size suitable for the material being fixed into.



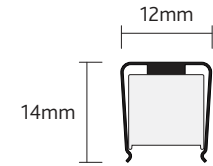
Products should be held by at least 3 equally spaced clips per metre. Products shorter than 505mm may be held by just 2 clips. There must always be a clip within 100mm of each end of the product.

Align clips and carefully push the product into the clips. Ensure the product is fully clipped in place and check it is not misaligned or misplaced due to for example screw heads or wires.

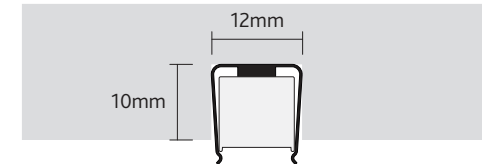


Micro-clips can be fixed inside a recessed slot or rebated channel.

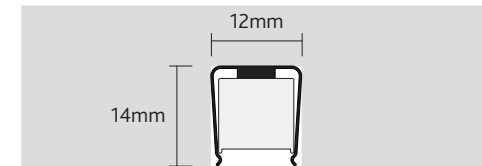
The slot must be at least 5mm longer than the product to allow ~2.5mm at each end of the slot for product removal access.



PARTIAL RECESS



FULL RECESS



90° MOUNTING CHANNEL VECA-MC190-2050___-R1

The 90° Mounting Channel is supplied in bespoke lengths up to 2050mm and in a range of finishes.

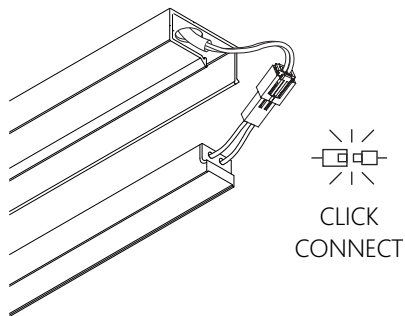
The channel can be cut down to fit using a fine toothed metal saw. Channel length should always be at least 5mm longer than the product to allow 2.5mm at each end for product removal access.

Plan for cable entry positions. Cables can be fed into the channel either through the open end of the channel or through Ø10mm holes drilled along the channel's predefined groove line.

De-burr all cable entry holes and use protective sleeving over all cables going through the holes.

Channels can be recessed or surface mounted. Follow the guidance and dimensions shown according to the mounting type.

Once the channel has been fitted, feed the power cables into the channel and connect the CLICK-CONNECT connectors to the ZEN profile.



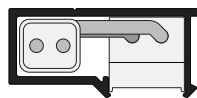
Install drivers and cables in accordance with the wiring guide. Observe maximum wiring distances and cable sizes as shown.

Additional Cable & Connectors

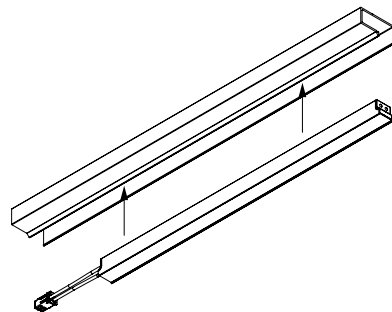
VECA-CA025-R1 (250mm cable M&F)
VECA-CA100-R1 (1000mm cable M&F)

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Ensure all cables and connectors are fully pushed into the side space within the channel to leave a clear space for the ZEN profile.

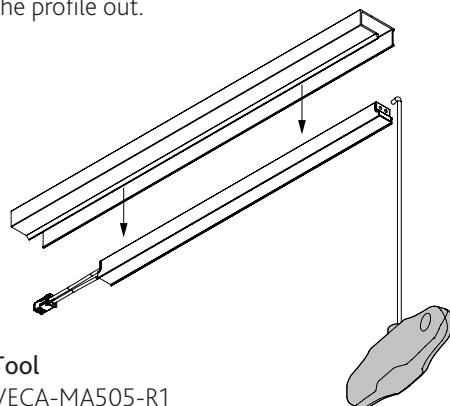


Push the ZEN profile into the mounting channel until it clicks securely into place. Make sure to leave at least a ~2.5mm gap at each end.



REMOVAL

To remove the ZEN profile, use the Vector removal tool to hook one end and gently ease the profile out.

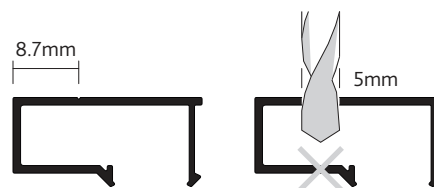


Tool
VECA-MA505-R1

SURFACE MOUNTING

Pre-drill the mounting channel screw fixing holes, at least 3 holes equally spaced per metre. Ensure a hole is within 100mm of each end.

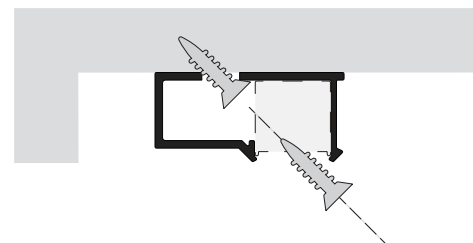
Ø5mm screw holes may be drilled along the groove line, 8.7mm in from the channel edge.



Take care not to drill too far and go through the front face of the channel.

Fix channel with countersunk N° 4 gauge screws or similar screws suitable for the surface material. It may be helpful to hold the channel in place using self adhesive tape prior to screw fixing.

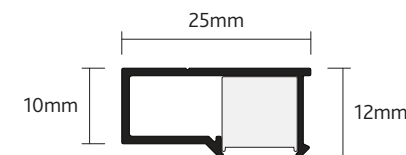
Screw must be inserted at a 45° angle as shown below. A pilot hole may be helpful with alignment.



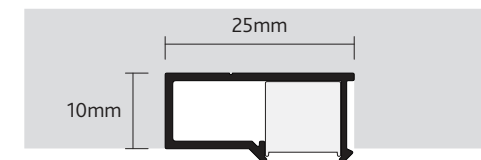
Ensure the screw head is clear of the ZEN profile.

RECESSING

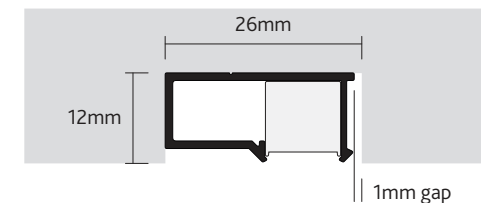
Micro-clips can be fixed inside a recessed slot or rebated channel. The slot must be at least 5mm longer than the product to allow ~2.5mm at each end of the slot for product removal access.



PARTIAL RECESS



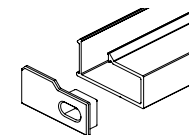
FULL RECESS



END CAPS

End caps may be supplied with the channels. Note that each end cap used will add 1mm to the overall length of the channel. End caps will push-fit into place. A small amount of super glue can be used to secure in place.

End Caps (Left or Right)
VECA-MC190-EC___-R1



45° MOUNTING CHANNEL VECA-MC145-2050___-R1

The 45° Mounting Channel is supplied in bespoke lengths up to 2050mm and in a range of finishes.

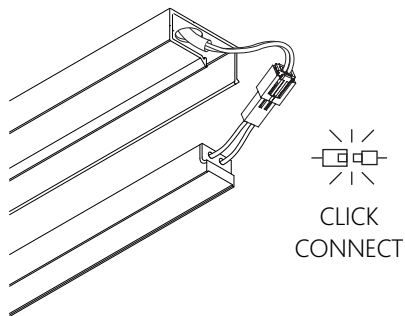
The channel can be cut down to fit using a fine toothed metal saw. Channel length should always be at least 5mm longer than the product to allow 2.5mm at each end for product removal access.

Plan for cable entry positions. Cables can be fed into the channel either through the open end of the channel or through Ø10mm holes drilled along the channel's predefined groove line.

De-burr all cable entry holes and use protective sleeving over all cables going through the holes.

Channels can be recessed or surface mounted. Follow the guidance and dimensions shown according to the mounting type.

Once the channel has been fitted, feed the power cables into the channel and connect the CLICK-CONNECT connectors to the ZEN profile.



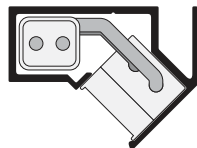
Install drivers and cables in accordance with the wiring guide. Observe maximum wiring distances and cable sizes as shown.

Additional Cable & Connectors

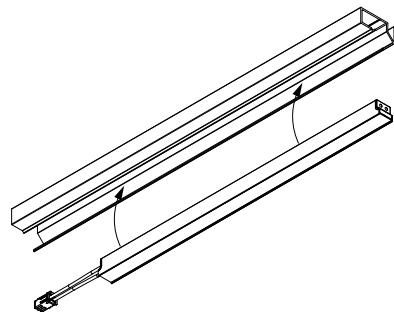
VECA-CA025-R1 (250mm cable M&F)
VECA-CA100-R1 (1000mm cable M&F)

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Ensure all cables and connectors are fully pushed into the side space within the channel to leave a clear space for the ZEN profile.

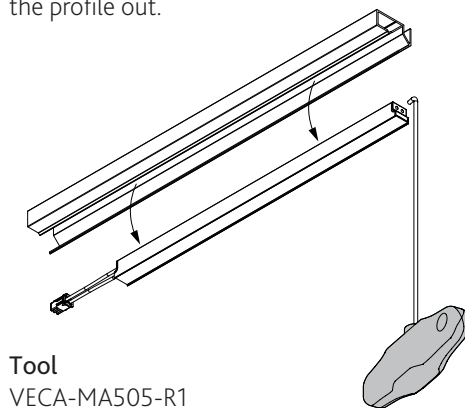


Push the ZEN profile into the mounting channel until it clicks securely into place. Make sure to leave at least a ~2.5mm gap at each end.



REMOVAL

To remove the ZEN profile, use the Vector removal tool to hook one end and gently ease the profile out.

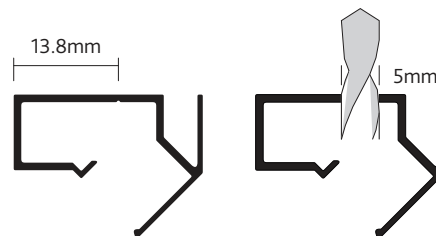


Tool
VECA-MA505-R1

SURFACE MOUNTING

Pre-drill the mounting channel screw fixing holes, at least 3 holes equally spaced per metre. Ensure a hole is within 100mm of each end.

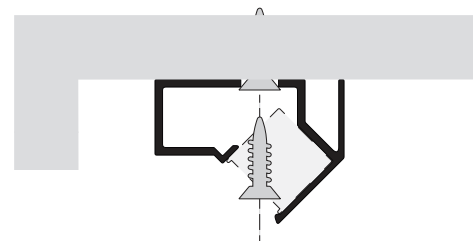
Ø5mm screw holes may be drilled along the groove line, 13.8mm in from the channel edge.



Take care not to damage the front of the channel while drilling.

Fix channel with countersunk N° 4 gauge screws or similar screws suitable for the surface material. It may be helpful to hold the channel in place using self adhesive tape prior to screw fixing.

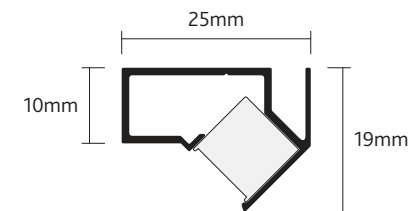
Screw should be inserted carefully to avoid scratching the front of the profile. A pilot hole may be helpful with alignment.



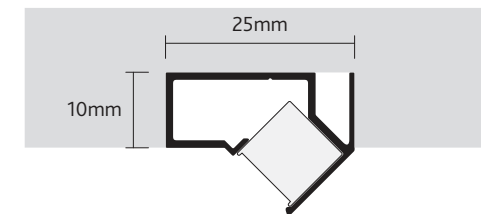
Ensure the screw head is clear of the ZEN profile.

RECESSING

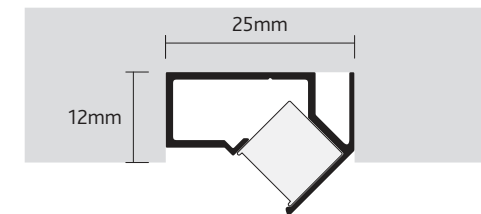
The channel can be fully or partially recessed. Use the dimensions shown below to rout a suitable slot. Non-flammable adhesive or self-adhesive tape can be used. When relying on adhesive or tape, it is recommended to also use one fixing screw at each end.



PARTIAL RECESS



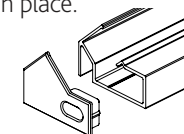
FULL RECESS



END CAPS

End caps may be supplied with the channels. Note that each end cap used will add 1mm to the overall length of the channel. End caps will push-fit into place. A small amount of super glue can be used to secure in place.

End Caps (Left or Right)
VECA-MC145-EC___-R1



90° MAGNETIC MOUNT VECA-MG503-R1

90° Magnet Mounts can be used together with self-adhesive neodymium magnets to provide a strong, re-positionable fixing.

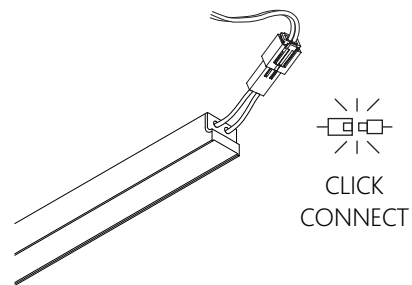
Before handling magnets, read and familiarise fully with the Magnet Safety Guide. Magnets can be dangerous and children must never be allowed access to magnets.

Fix the mounts securely to the mounting surface. The supplied screws are N° 4 gauge wood screws. If necessary, use alternative fixings of similar gauge and size suitable for the material being fixed into.

Mounts can be recessed or surface mounted. Follow the guidance and dimensions shown according to the mounting type.

Allow space for cables and connectors adjacent to or behind the ZEN profile.

Once the mounts have been fitted, connect the CLICK-CONNECT connectors to the ZEN profile.



Install drivers and cables in accordance with the wiring guide. Observe maximum wiring distances and cable sizes as shown.

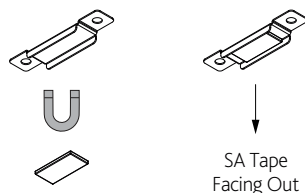
Additional Cable & Connectors

VECA-CA025-R1 (250mm cable M&F)

VECA-CA100-R1 (1000mm cable M&F)

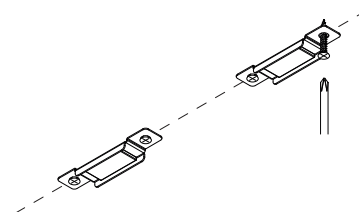
Separate each magnet by sliding off the stack as described in the Magnet Safety Guide.

Allow each magnet to pull and attach itself to a mount with the self adhesive tape facing out.

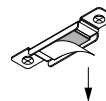


Align the magnets so they are centrally positioned on each mount. Do not remove the SA tape backing yet. Leave the magnets on the mounts until the mounts are fixed in place and ready to accept the ZEN profile.

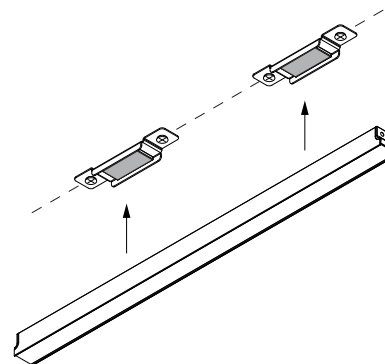
Products should be held by at least 3 equally spaced mounts per metre. Products shorter than 505mm may be held by just 2 mounts. There must always be a mount within 100mm of each end of the product.



Now remove the backing on each magnet to expose the self-adhesive tape.

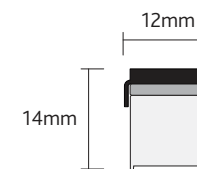


Align the ZEN profile and carefully push onto the magnets, adhering to the self-adhesive tape. Pull the ZEN profile away and the magnets should be adhered to the back of the profile in the correct positions to align with the mounts. Push the magnets firmly to ensure the adhesive bond is secure and replace the profile onto the mounts.

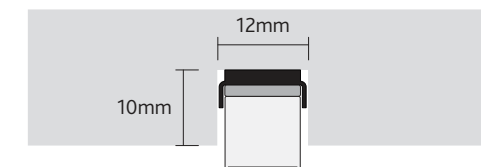


RECESSING

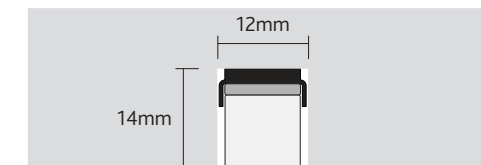
Magnet mounts can be fixed inside a routed slot. Slots must be at least 12mm wide. A depth of 14mm will fully recess the profile, while a shallower depth will give a semi-recessed fit. Ensure the slot is 5mm longer than the product to allow for removal access.



PARTIAL RECESS



FULL RECESS



45° MAGNETIC MOUNT VECA-MG505-R1

45° Magnet Mounts can be used together with self-adhesive neodymium magnets to provide a strong, re-positionable fixing.

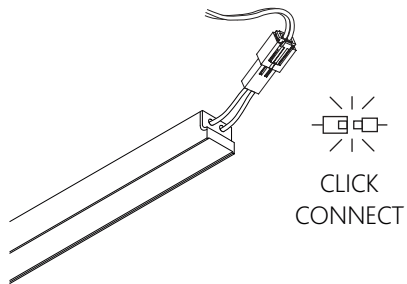
Before handling magnets, read and familiarise fully with the Magnet Safety Guide. Magnets can be dangerous and children must never be allowed access to magnets.

Fix the mounts securely to the mounting surface. The supplied screws are N° 4 gauge wood screws. If necessary, use alternative fixings of similar gauge and size suitable for the material being fixed into.

Mounts can be recessed or surface mounted. Follow the guidance and dimensions shown according to the mounting type.

Allow space for cables and connectors adjacent to or behind the ZEN profile.

Once the mounts have been fitted, connect the CLICK-CONNECT connectors to the ZEN profile.



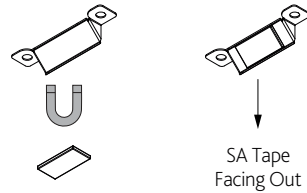
Install drivers and cables in accordance with the wiring guide. Observe maximum wiring distances and cable sizes as shown.

Additional Cable & Connectors

VECA-CA025-R1 (250mm cable M&F)
VECA-CA100-R1 (1000mm cable M&F)

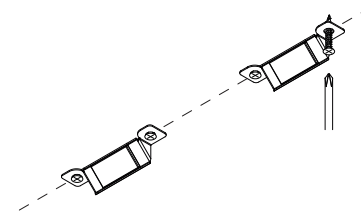
Separate each magnet by sliding off the stack as described in the Magnet Safety Guide.

Allow each magnet to pull and attach itself to a mount with the self adhesive tape facing out.

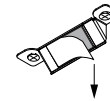


Align the magnets so they are centrally positioned on each mount. Do not remove the SA tape backing yet. Leave the magnets on the mounts until the mounts are fixed in place and ready to accept the ZEN profile.

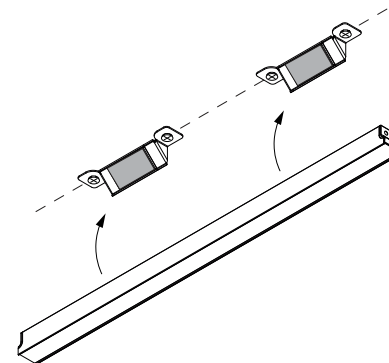
Products should be held by at least 3 equally spaced mounts per metre. Products shorter than 505mm may be held by just 2 mounts. There must always be a mount within 100mm of each end of the product.



Now remove the backing on each magnet to expose the self-adhesive tape.

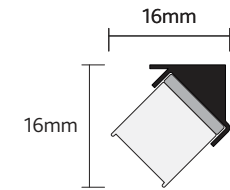


Align the ZEN profile and carefully push onto the magnets, adhering to the self-adhesive tape. Pull the ZEN profile away and the magnets should be adhered to the back of the profile in the correct positions to align with the mounts. Push the magnets firmly to ensure the adhesive bond is secure and replace the profile onto the mounts.

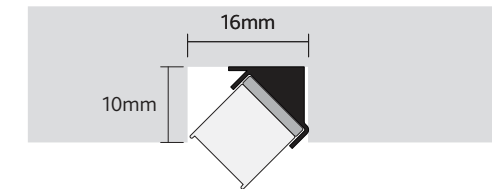


RECESSING

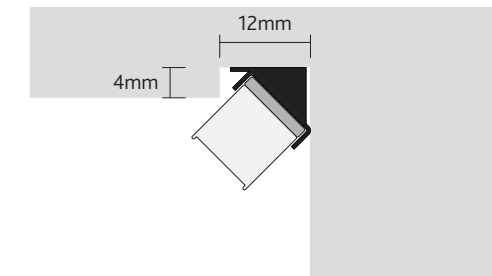
Magnet mounts can be fixed inside a routed slot. It is recommended that the maximum depth the slot is 10mm; deeper slots will restrict the light output. Ensure the slot is 5mm longer than the product to allow for removal access.



PARTIAL RECESS

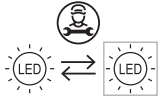


CORNER RECESS



REPAIR & REPLACEMENT

VERY IMPORTANT! PLEASE READ BEFORE CARRYING OUT ANY WORK!



This product's light source is only replaceable by a qualified professional.

If the product has stopped working, please review the following before replacing the light source. It is important to identify why the product has stopped working first, as replacing the light source might not fix the cause of the failure.

When installed correctly, LEDs have a long service life, with light output gradually decreasing over time (L70 60k hrs, 70% light output after 60,000 hours of use).

Check the lighting circuit.

Was the correct power sourced used?
Check product label for requirements.

Are there nearby heat sources that might overheat the product? See first page for maximum Ta and Tc details.

All work must be done by a qualified professional, and carried out in accordance with local regulations. All tools required to replace the light source are commonly found tools. Please contact LUMINO if further assistance is required.

It is the full responsibility of the professional carrying out the repair work to ensure that after the work is complete, the repaired product still complies with all relevant safety standards and is safe to use. LUMINO cannot accept liability for any harm resulting from an unsafe repair. If in any doubt, do not carry out repair work and contact LUMINO for support.

TOOLS & PARTS LIST

Tools & Consumables Required

- Isopropyl alcohol
- Pick
- Plastic pry tools
- Scissors
- Slotted/Flat screwdriver
- Soldering iron
- Solder (lead-free)
- Wire cutters

Spare Parts

The following spare parts are available to order. Please contact LUMINO if any spare parts are required.

Diffuser / Lid

End Caps

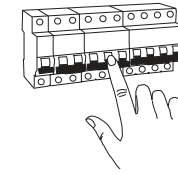
- Zen end caps with cable exit
- Zen end caps without cable exit

Cable & Connector

- 2 Pole male connector
- 2 Pole female connector

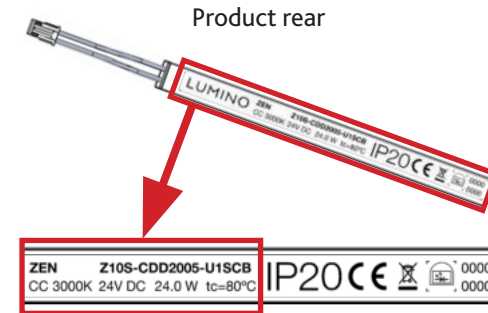
1. Turn off the power.

Make sure no electricity can reach the LED power supply.

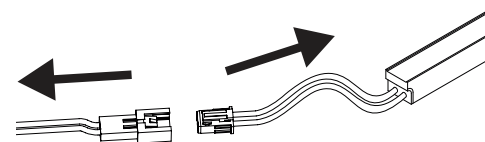


2. Check Product Label

See product label and check specification of LED tape inside. Replacement power output should match or be no greater than that of the original LED tape.



3. Disconnect ZEN from LED driver.



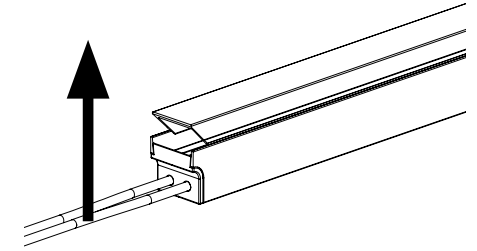
4. Move the Product

Move ZEN to an ESD safe workspace. Take all necessary ESD precautions where appropriate.



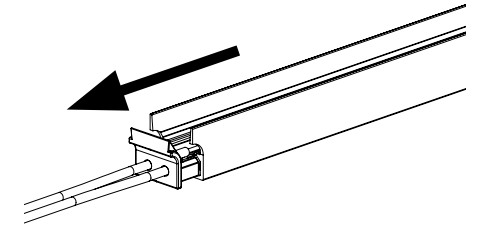
5. Remove Diffuser / Lid

Carefully lift off the diffuser/lid from ZEN. Work slowly, the lid is brittle! Prying tools can assist for this step.



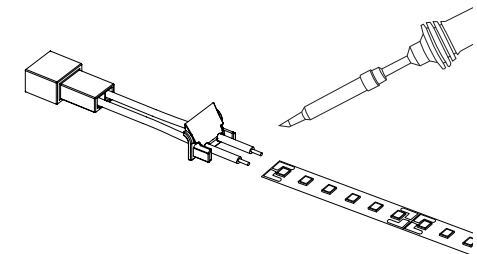
6. Remove End Caps

Carefully prize off the end caps from ZEN. Use a flat head screwdriver if required.



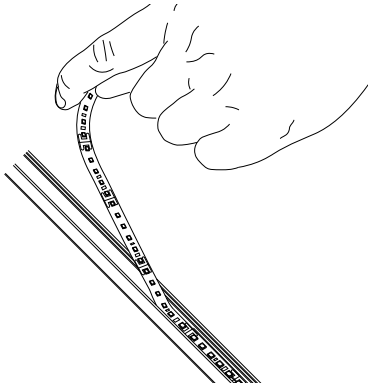
7. Remove Cables

Unsolder the wires from the LED tape. Put to one side, these can be reused.



8. Remove LEDs

Remove the original LED tape. Lift one end of the LED tape and unpeel from the ZEN profile.



9. Recycling

Dispose of electronic waste in accordance with local environmental regulations. Do not send to landfill.

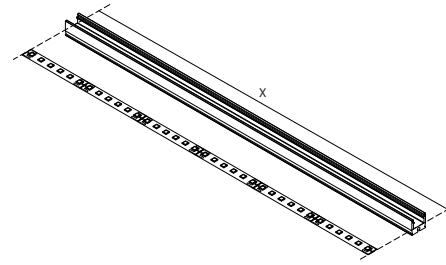


10. Clean

Remove any remaining adhesive residue inside the ZEN profile. Use isopropyl alcohol if necessary and allow to air dry.

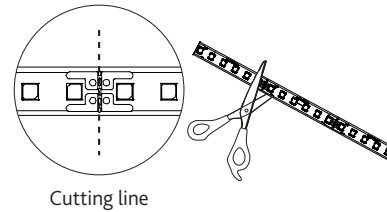
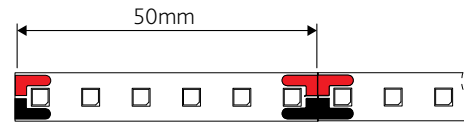
11. Measure LED Tape

Lay out the new LED tape, measuring how much is required. ZEN profile's length should closely match the cut increments of the LED tape.



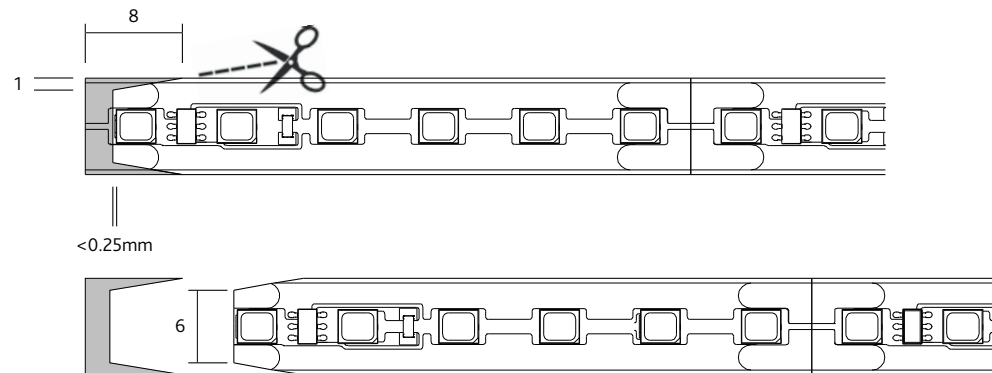
12. Trim LED Tape

Cut between solder pads using scissors. LED tape cut increments shown below.



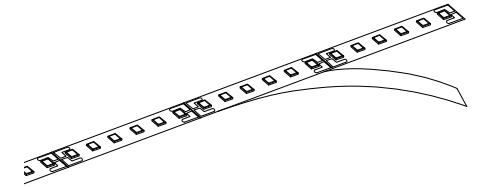
13. Trim ends

With the LED tape cut to the correct length, the ends must be trimmed/shaped as shown below. **This step must be observed to avoid damaging the LED tape when installing the end caps.** Remove almost all of the tape before the first and last LEDs using a straight scissor cut to leave <math><0.25\text{mm}</math> of tape in front of the LED (see below). Trim away angled pieces on both sides. The newly trimmed end should be 6mm wide.



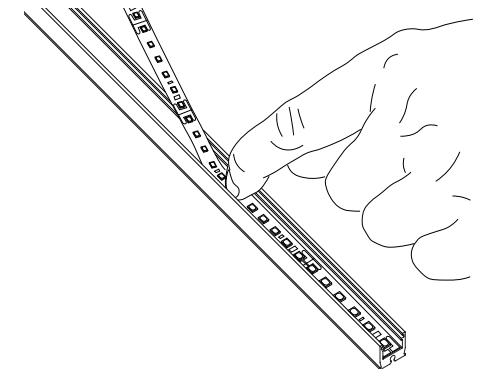
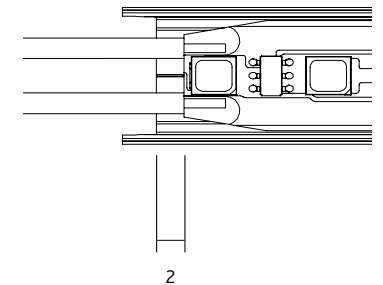
14. Peel Backing

Peel off the self adhesive tape from the back of the LED tape. For tape lengths longer than 500mm, peel the first 50mm of the backing from one end.



15. Install LED Tape

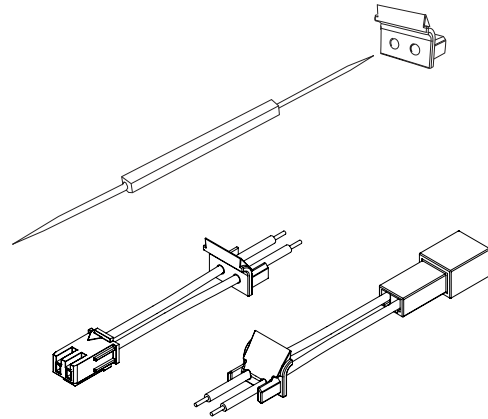
Offset start of the LED with the beginning of the profile by 2mm. For longer lengths, simultaneously unpeel backing and press down on the LED tape, working along the length of the profile.



16. End Caps

Using an appropriately sized pick tool, gently open up the cable entry on the end cap/s.

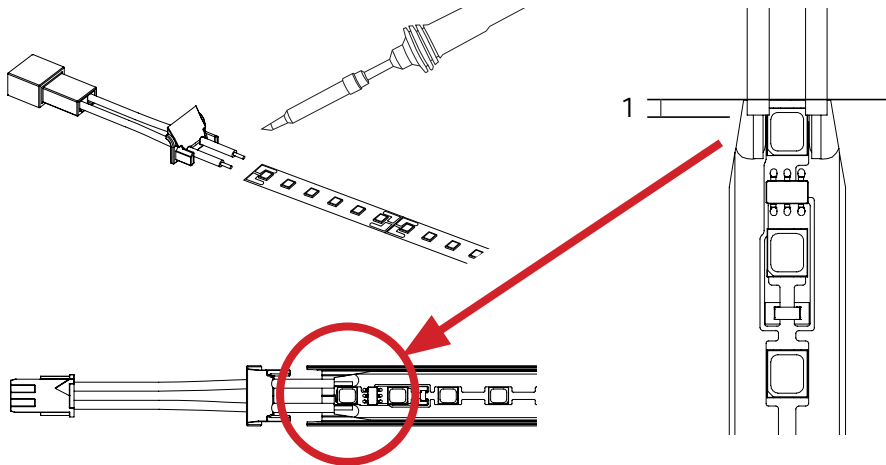
Then feed end caps on to the previously removed cables. Ensure they are the correct way round, relative to the cable and solder pad polarity.



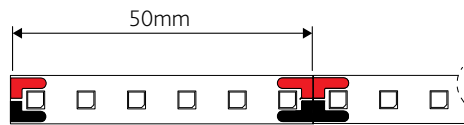
17. Solder Cables

Reattach the cable/s to the LED solder pads. Take care not to over heat the pads. Ensure wire tips are soldered onto pads close to the sides of the LED (without touching the LED). The wire insulation must end 1mm in from the end of the PCB as shown below.

IMPORTANT: Observe LED tape's polarities!



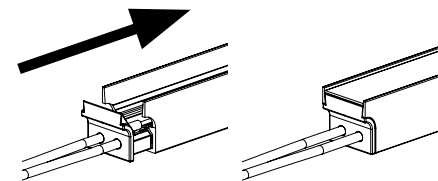
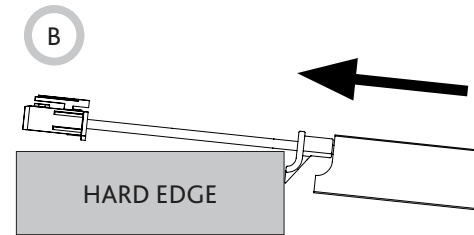
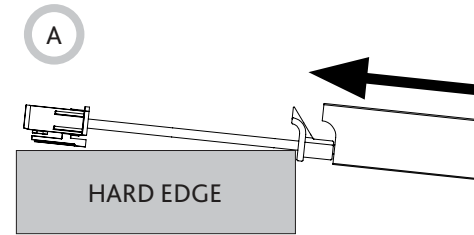
Wiring Diagram



18. Attach End Caps

Use a hard, fixed edge (such as a bench) to push the end caps on to the ZEN's profile.

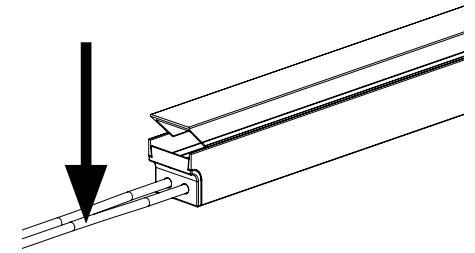
Start upright as shown, then turn the profile over and repeat to ensure the end cap is secured in place.



Check that the end caps align with the end of the ZEN profile is securely held by friction-fit.

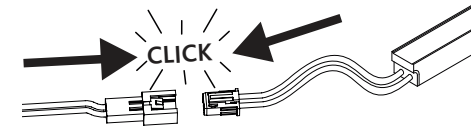
19. Install Diffuser

Push-fit the diffuser fully into the ZEN's profile, making sure to align the ends exactly with the profile ends. The diffuser is brittle, use thumb pressure to carefully push the diffuser in place.



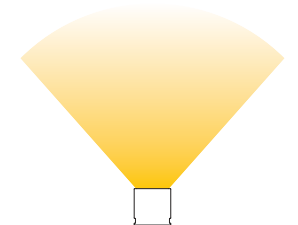
20. Reconnect

With the power off, reconnect the ZEN to the LED driver.



21. Power Up

Test the ZEN. If the product does not function as expected, turn power off and inspect all connections.



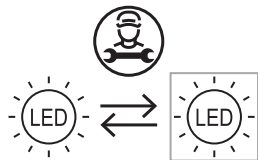
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LED MODULE

This product is classed as a built-in, non-integrated LED module in accordance with the LED Modules for General Lighting standards BS EN 62031:2008, AMD1:2012, AMD2:2014, AMD2:2015 and BS EN 62031:2020. Therefore, it must be mounted into an enclosure, box, luminaire or the like. Do not use the product mounted directly to a wall, ceiling or other surface without some kind of enclosure.

ECODESIGN REGULATION

This product is considered to be a "containing product" in the sense of Regulations (EU) 2019/2020 and (EU) 2019/2015. The contained light source is replaceable only by a qualified professional. This product contains a light source of energy efficiency class as shown in the Energy Rating table. Replacement light sources must be of equal or higher energy rating. Full electrical, mechanical, thermal and optical functionality must be restored by a qualified professional when light source is replaced.



DISMANTLING

Dismantling at the end of life:

The product shall be disassembled in accordance to the provided instructions.

Containing products shall be separated from building material and/or from other additional mounting accessories by means of a professional installer.

Separate control gear and light sources must be disposed of at certified disposal companies in accordance with Directive 2012/19/EU (WEEE) in the EU and with Waste Electrical and Electronic Equipment (WEEE) Regulations 2013 in the UK.

LUMINO is a member of the WEEE producer compliance scheme.
Registration number: WEE/MM8138AA

ENERGY RATING

This product is a light source of energy efficiency classes as shown:

LED	CCT	6W/m	12W/m
ColorCORE	4000K	F	F
	3500K	F	F
	3000K	F	F
	2700K	F	F
	2500K	F	F
	2200K	F	F
EQ	4000K	F	F
	3000K	G	G
	2700K	G	G