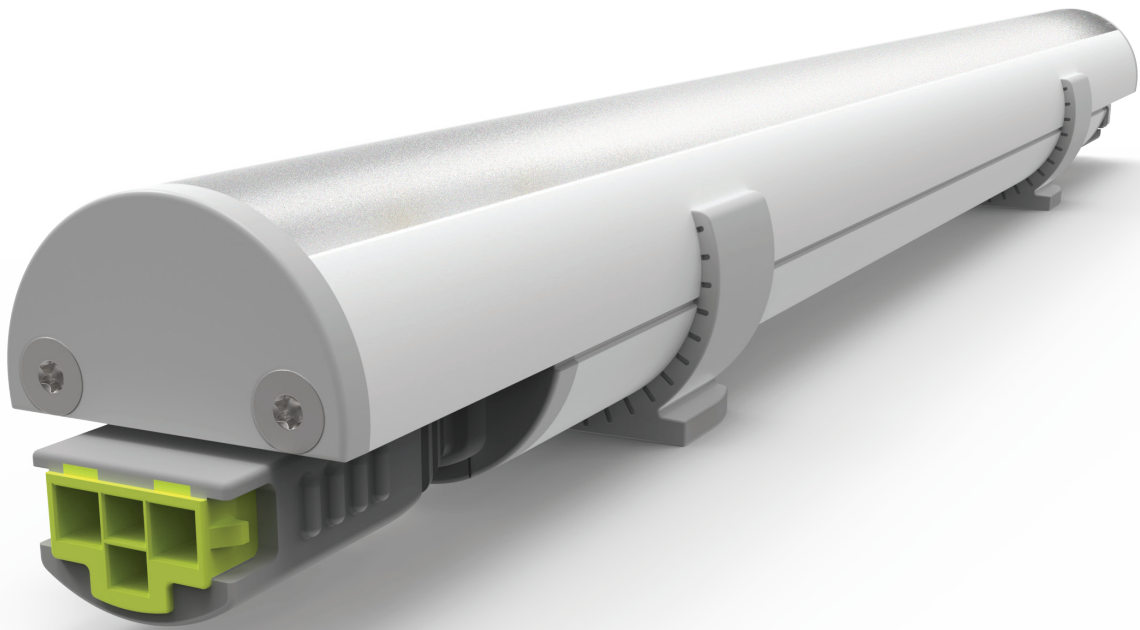


ECOSENSE®



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TROV Slim®

101 Handbook

Complete Guide to Trov Slim L30 including an extensive list of Frequently Asked Questions

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1. WHAT'S THE IDEA BEHIND THE TROV SLIM DESIGN?

A. The design philosophy for TROV Slim was to create a simple, clean looking luminaire that will disappear in any space. It's small form factor and high output make it ideal for any cove application.

2. WHAT OTHER COMPONENTS ARE NEEDED TO INSTALL TROV SLIM?

A. Each fixture will come with mounting clips needed to mount them to a flat surface. One leader cable will be needed per run of fixtures. No other components are needed to complete a TROV Slim installation. Optional mounting and wiring methods are available. Please see the accessory section for more details.

3. HOW MANY TROV SLIM FIXTURES CAN BE CONNECTED IN ONE RUN?

A. The maximum run length is determined by the wattage of the fixtures and by the voltage by which they are connected. One leader cable will be needed per maximum run length. If the run is longer than the maximum run length, a new leader cable must be added in the middle of the run. See the max run length chart below:

	4.5W/ft		8.5W/ft	
VOLT	MAX RUN (FEET)	MAX RUN (METERS)	MAX RUN (FEET)	MAX RUN (METERS)
120	90	27.5	60	19.8
220	170	51.8	125	38.1
277	200	60.9	150	45.7

4. CAN TROV SLIM BE USED IN CURVED COVES?

A. Yes, TROV Slim can be used in curved coves using its integrated flexible connector. TROV Slim flexible connectors can bend 90° to go around curves and corners. If large bend angles are required, jumper cables can be used to bend 180°.

5. WHAT MATERIALS ARE USED FOR THE LENS? HOW WILL THEY HOLD UP TO CRACKING AND FADING?

A. The lens is made of Polycarbonate (Sabic LUX7) and has better UV resistance than standard UV-stabilized PC, which results in lower haze over longterm exposure and better strength against impact. This superior UV stabilization will prevent yellowing for up to 10 years depending on UV exposure.

6. ARE THE FIXTURES PAINTABLE?

A. No, TROV Slim is not paintable.

7. WHAT IS THE FINISH ON THE HOUSING AND HOW DOES IT HOLD UP TO THE ELEMENTS?

A. TROV Slim housing and end caps are made from Polycarbonate which does not require any other finish to protect it. Polycarbonate material can withstand exposure to most corrosive chemicals.

8. WHAT IS THE IP RATING FOR TROV SLIM?

A. TROV Slim is rated for IP40 which means it can keep solid contaminants larger than 1mm from ingress. It will not protect against any water ingress. TROV Slim is UL Damp Location listed.

IP FIRST NUMBER - PROTECTION AGAINST SOLID OBJECTS

0	No special protection
1	Protected against solid objects over 50mm, e.g. accidental touch by person's hand
2	Protected against solid objects over 12mm, e.g. person's fingers
3	Protected against solid objects over 2.5mm (tools and wires)
4	Protected against solid objects over 1mm (tools, wires, and small wires)
5	Protected against dust limited ingress (no harmful deposit)
6	Totally protected against dust

IP SECOND NUMBER - PROTECTION AGAINST LIQUIDS

0	No protection
1	Protected against vertically falling drops of water, e.g. condensation
2	Protection against direct sprays of water up to 15° from the vertical
3	Protection against direct sprays of water up to 60° from the vertical
4	Protection against water sprayed from all directions - limited ingress permitted
5	Protected against low pressure jets of water - limited ingress
6	Protected against temporary flooding of water, e.g. for use on ship deck - limited ingress permitted
7	Protected against the effect of immersion between 15cm and 1m
8	Protects against long periods of immersion under pressure

9. WHAT KIND OF BEAM ANGLE DOES TROV SLIM HAVE AND HOW DOES IT COMPARE TO TROV?

A. TROV Slim has a 120° beam.

10. WHAT MATERIALS ARE USED FOR THE LENS AND HOW ARE THEY DIFFUSED?

A. The lens is made by mixing 80% clear Polycarbonate with 20% diffuse Polycarbonate materials.

11. WHY IS THE LENS DIFFUSED?

A. TROV Slim was designed to create the best quality of light possible for a linear cove product. Diffusing the lens creates a soft, more even light output than can be achieved with a clear lens. The diffusion eliminates color-over-angle changes created by the LEDs and removes any visible striations caused by the mechanical features of the lens and housing.

12. WILL THE UNPAINTED SURFACE OF MY COVE AFFECT THE LIGHT OUTPUT?

A. It will depend on the color of the unfinished surface. If the surface is white, it will not affect the light in the cove. If the surface is raw wood or any other non-white color, that color might be reflected back into the pocket of the cove. We recommend painting the in-side of the cove with a matte white finish.

POWER SUPPLY / DRIVER

13. WHAT IS MULTI-VOLT AND WHY IS IT BETTER?

A. Multi-Volt allows TROV Slim to operate on any input voltage from 120VAC to 277VAC. The same fixtures can be used almost anywhere in the world. This prevents mix ups that are common with ordering and installing the incorrect voltage and prevents massive fixture failure.

14. WHY ISN'T THERE A GROUND WIRE AND WHAT UL CODE DOES IT COMPLY WITH?

A. TROV Slim fixtures do not require a ground wire because the fixture has been designed with double insulation around the circuit—one of the safest methods available and certified by UL for designing a light fixture. Double insulation is a more complex design so other manufacturers tend to opt-out and go straight to a single insulation and ground wire design. This method leaves electrical safety in the hands of a properly connected ground wire. Ecosense has spent extra time and resources to ensure we deliver the safest fixture to the market and so we have double-insulated the fixture and eliminated the ground wire, guaranteeing a safe fixture out of the box. See UL1598 Section 6.12 or IEC 60598-1 Section 7.2.1 for more information.

15. WILL TROV SLIM WORK ON AN EMERGENCY INVERTER?

A. TROV Slim will not work on older square-wave emergency invert systems. If the system uses a pure sine wave, then TROV Slim should work.

16. IS THE CABLE PLENUM-RATED?

A. No, none of the cables are plenum rated. Typically, an electrical inspector will allow fixture power cords to go approximately 1'- 2' into the plenum before it has to be terminated into a junction box. In stricter municipalities, the cord will have to be terminated as soon as it enters the plenum space. Plenum rated line-voltage cable or cords do not exist for use in commercial applications.

17. WHY DOES THE LEADER CABLE OF A BUMP ON IT?

A. The bump is a ferrite bead which is used to reduce electromagnetic interference, or EMI. The FCC and IEC limit the amount of EMI a fixture can radiate. The ferrite bead helps the fixture pass FCC and IEC EMI limits.

18. HOW LONG DO THE DRIVERS LAST?

A. TROV Slim drivers are designed to last longer than the L70 of the fixture at elevated ambient conditions. TROV Slim is warranted for five(5) years.

19. WHY DID ECOSENSE CHOOSE FOURTEEN (14) LEDS PER FOOT?

A. The pitch and number of LEDs was purposely selected in order to enable the best quality of light. The pitch, or distance from LED to LED, is optimized to reduce scalloping on the wall and eliminate socket shadow. Having a higher LED count also increases efficacy since they do not have to be driven as hard to achieve the desired lumen output.

20. WHAT IS THE BINNING STRATEGY ON TROV SLIM?

A. EcoSense has an exclusive contract with Lumileds that provides us with a single-bin strategy for all of our CCTs. This exclusive binning strategy guarantees that we will always get the same color bin of CCT every time, eliminating the need to mix LED bins for color consistency. Most other manufactures use a mixed-bin LED strategy in order to achieve a desired CCT and the result is often inconsistent colors within the same product. Using a single-bin strategy results in uniform and consistent light that falls within the 2-Step MacAdam El-lipse and ensures all EcoSense products have the same color consistency.

21. HOW WELL DOES TROV SLIM MATCH THE COLOR CONSISTENCY OF OTHER ECOSENSE PRODUCTS?

A. TROV Slim, like Slim Cove Dim, RISE and TROV, use the same single bin strategy to ensure every fixture in the space matches the others.

22. WHY DID ECOSENSE CHOOSE LUMILEDS LEDS?

A. We chose Lumileds LEDs because they are one of the top LED manufactures in the world and trusted for their high-performing, high-quality LEDs.

23. WHAT HAPPENS WHEN ONE(1) LED GOES OUT? DOES THE FIXTURE TURN OFF?

A. No, one LED failure will not prevent other LEDs from working.

24. CAN I REPLACE THE LED BOARD IF AN LED GOES OUT?

A. No, the LED board is not field replaceable.

25. HOW LONG DO THE LEDS LAST?

A. See the lumen maintenance table below for lifetime information.

WATTS	CALCULATED**		REPORTED*		CALCULATED**		REPORTED*	
	L90 @ 25C	L90 @ 45C	L90 @ 25C	L90 @ 45C	L70 @ 25C	L70 @ 45C	L70 @ 25C	L70 @ 45C
4.5W	63,926	61,704	60,000	60,000	204,155	197,821	60,000	60,000
8.5W	51,021	50,226	51,021	50,226	166,410	166,105	60,000	60,000

*Reported hours comply with TM-21 guidelines that extrapolations cannot exceed six times LM-80 tested led hours.
 **Calculations for led fixtures are based on measurements that comply with IES LM-80 testing procedures and IES TM-21 calculator.

26. WHAT KIND OF DIMMERS ARE COMPATIBLE WITH TROV SLIM?

A. TROV Slim is dimmable with any 0-10V current sinking controller.

27. WHAT IS 0-10V DIMMING?

A. Unlike line voltage dimming (ELV and TRIAC), which regulates the input voltage of the fixture to dim, 0-10V uses two additional low voltage wires to control light output. A DC voltage from 0VDC to 10VDC is controlled by the dimmer to tell the fixture what light level to dim to.

28. WHAT HAPPENS IF I CONNECT TROV SLIM TO A NON-COMPATIBLE DIMMER?

A. TROV Slim will not operate correctly if connected to any type of phase dimmer, 0-10V current sourcing dimmer, DALI or DMX controller.

29. WHAT IS THE DIFFERENCE BETWEEN 0-10V CURRENT SOURCING AND SINKING?

A. There are two types of 0-10V control systems used for theatrical or architectural applications. Theatrical fixtures receive 0-10V current from the dimmer, so theatrical 0-10V is called current sourcing. Architectural fixtures provide 0-10V current to the dimmer and the dimmer sends the controlled current back, so it is called current sinking. All architectural 0-10V fixtures, drivers, and dimmers use current sinking.

30. HOW LOW CAN TROV SLIM BE DIMMED TO?

A. TROV Slim can dim to 5% of its maximum light output.

31. DOES RUN LENGTH AFFECT 0-10V CONTROL VOLTAGE AND DIMMING?

A. Yes, the longer the run the greater the voltage drop. This can cause the first fixture in a run to be slightly brighter than the last since control voltage at the last fixture will be lower than the first. This difference is minimal and unnoticeable in most applications. The worse case of brightness differential is at the longest run length, 200ft, when the fixtures are dimmed below 10%. In this case, if the first fixture is next to the last fixture, the average person might see the difference. To avoid this scenario long runs should be fed from the middle of the run using the Y-splitter or layout the run so the first and last fixtures are not next to each other.

32. CAN TROV SLIM BE DIMMED TO 0% IF A SPECIAL DIMMER IS USED?

A. No, TROV Slim can only dim to 5% regardless of the dimmer being used.

33. WHAT HAPPENS IF THE DIMMER CONTROLLING TROV SLIM GOES BELOW 5%?

A. TROV Slim will hold at 5% while the dimmer is lowered below 5%. The fixture cannot be turned off by the 0-10V dimmer. Input power needs to be turned off for the fixture to turn off.

34. IS TROV SLIM COMPATIBLE WITH THE ECOSENSE LDCM (0-10V-ELV LINEAR DIMMING CONTROL MODULE)?

A. No, Trov Slim has integral 0-10V dimming and will not operate on ELV dimmer, which the LDCM is.

35. WHAT IS THE LOWEST LEVEL TROV SLIM WILL TURN ON AT?

A. TROV Slim will start up at 5%.

CERTIFICATIONS & COMPLIANCE

36. IS TROV SLIM UL OR ETL LISTED?

A. TROV Slim is UL listed to UL 1598 standards for damp locations on surface mount applications.

37. IS TROV SLIM DLC LISTED?

A. No, DLC does not cover cove lighting products. Energy Star is covers coves and L30 has an Energy Star listing.

38. WHAT OTHER CERTIFICATIONS DOES TROV SLIM HAVE?

A. TROV Slim is ULc, NOM, IEC, CE, RoHS, Title 24 JA-8, and Energy Star. See the spec sheet for a complete list.

OPERATIONS

39. CAN WE SAY, “MADE IN AMERICA,” FOR TROV SLIM?

A. No, 50% of the fixture has to be made in the USA to meet this requirement and TROV Slim does not meet this requirement.

40. WILL WE MEET THE “BUY AMERICAN” AND “BUY AMERICA” ACTS?

A. No, the fixture has to be “Made in America” to meet the requirements for these acts.

41. WILL THE FIXTURES AND BOXES BE LABELED “MADE IN CHINA”?

A. No, L30 will be manufactured in Malaysia. The box will say “Designed in the US, Made in Malaysia.”

42. WILL WE MEET NAFTA STANDARDS?

A. No, TROV Slim fixtures do not meet NAFTA requirements.

ACCESSORIES

43. DOES THE FROSTED LENS CHANGE THE CRI OR CCT?

A. No, the frosted lens will not affect the CRI or CCT.

44. HOW MUCH LIGHT IS LOST WHEN USING A FROSTED LENS?

A. The frosted lens reduces light output by 20%.

45. WHEN IS THE WIRE BOX NEEDED?

A. The wire box is only needed in applications where the building inspector will reject the use of flexible cords. In most cases the leader cable will comply with local building codes.

46. DOES THE MOUNTING TRACK COME IN SHORTER LENGTHS?

A. No, the mounting track only comes in 48" length, but it is field cuttable. The installer can cut the track to any length needed.

47. WHEN SHOULD MOUNTING CLIPS BE ORDERED?

A. If the original mounting clips are lost and replacements are needed. 2 clips ship with the 12" fixture and 4 clips ship with the 48" fixture.

B. If additional clips are needed to increase holding strength for applications with high vibration or other factors that might cause the fixture to become removed from the clips that shipped with the fixture.

48. WHY WOULD I NEED A MOUNTING TRACK AND HOW DOES THE TRACK WORK?

A. The mounting track serves two purposes. The first is an alternative mounting method when the fixture mounting holes do not align with application mounting like trying to ensure screws go into studs.

B. Secondly, the mounting track is also useful if you want to rough-in the mounting and then go back later and mount fixtures. In this case, the track is mounted in a cove before the lip of the cove is added, making it easier to install. The lip is added, and the cove is finished. Then the mounting clips are twisted and locked onto the track, then the fixture is snapped into the clips without tools.

49. WHAT IS THE Y-SPLITTER CABLES USED FOR?

- A. The y-splitter can be used to split long runs in half to reduce voltage drop. The y-splitter is connected to a single leader cable and then connects to two separate fixtures which will start two separate runs.
- B. The y-splitter can also be used to split one run into two for applications that have T or Y shaped coves.

50. CAN MULTIPLE Y-SPLITTERS BE CONNECTED TOGETHER TO SPLIT RUNS INTO 3 OR MORE RUNS?

- A. Yes, multiple y-splitters can be used together as long as the total run length on one leader cable does not exceed the maximum run length.
- B. For example, there is an X shaped cove being feed from the center for the X which requires 4 runs. Instead of hard wiring 4 leader ca-bles into a junction box, a single leader can be wired, then split with 3 y-splitters to bring power to 4 separate runs. If the fixtures are 4W/ft and the voltage is 277V, each of the 4 runs can be 50ft max.