

VIRIDIAN 

~ CHARGING AHEAD ~

Install manual Viridian EV EcoLite® Basic charge point



This manual is intended to instruct in the proper installation of a Viridian EV EcoLite® charge point. Please note that when installing this equipment care must be taken to ensure that all local and national safety and planning requirements are met.

INSTALLATION OF THIS EQUIPMENT SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED INDIVIDUAL. VIRIDIAN EV ACCEPTS NO RESPONSIBILITY FOR DAMAGE CAUSED BY IMPROPERLY INSTALLED EQUIPMENT.

THIS CHARGE POINT IS PROTECTED BY WEATHERPROOF COAT THAT WILL BE COMPROMISED IF HOLES ARE DRILLED. DRILLING ANY HOLES FOR MAINS INLET WILL VOID THE WARRANTY.

Cautions and Dangers

This guide contains several instructions to which the following symbols have been attached. Failure to comply with instruction could result in:



DANGER Indicates where failure to comply with instructions will cause death or serious injury.



WARNING Indicates where failure to comply with instructions could lead to death or serious injury.



CAUTION Indicates where failure to comply with instructions could lead to damage and/or minor or moderate injury.

Understanding the part number

(2019 onwards)

Example:

E07-T2S-32A-1P-R-W-NN

Part number section	E07	T2S	32A	1P	R	W	NN
Description	Series indicator & Approx. maximum available power in kW	Connector Type and format	Maximum Available Current per phase	Number of phases	Major feature revision	Style	Minor feature variant & electrical protection config



WARNING

The EcoLite® charge point range is designed for electric vehicle (EV) charging only. It is designed to only allow the flow of electricity once an EV is connected and correct communication is established. Any tampering of the charge point to allow the flow of electricity at any times other than this will present a risk of electric shock.



CAUTION

The charge point is covered by a manufacturer’s parts and labour warranty. Alterations to the charge point that are not permitted will invalidate this warranty. See viridianev.co.uk/resources for further warranty information

Fig. A - Charge point external features



- 1. Socket outlet (for Free/Socket versions)
- 2. Status LED text and halo
- 3. Identification label (side) (illustrated Fig b)
- 4. Electrical protection access panel & key-lock
- 5. Socket weather drain tube (bottom) or tethered cable outlet

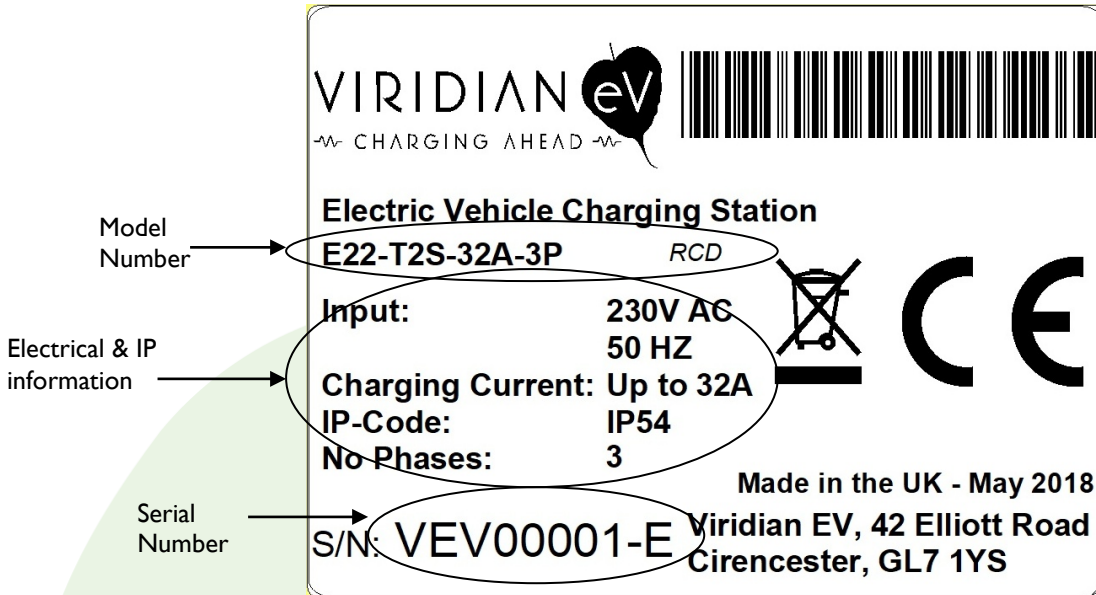


Fig. B – Identification/serial label breakdown

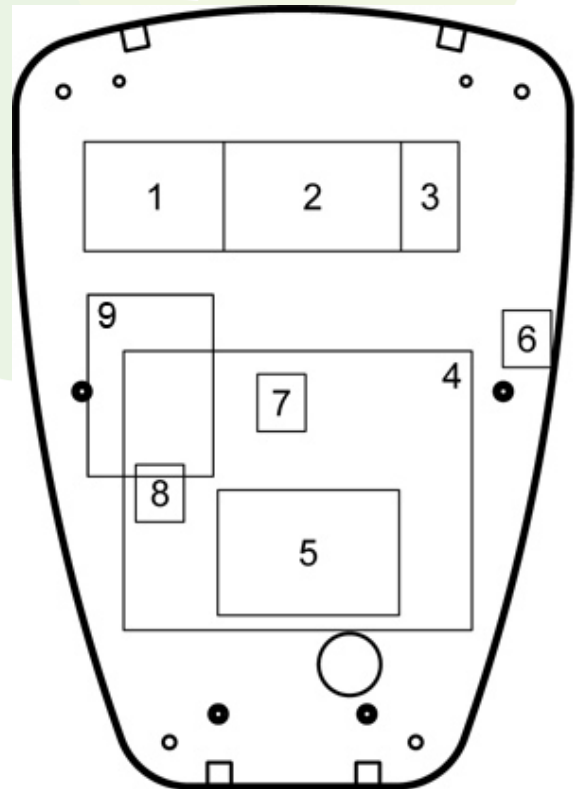
Mounting of the charge point

The charge point should be mounted vertically on either a post or a wall. The position of the charge point should allow all main functions of the charge point to be accessible between 750mm and 1200mm of the ground in accordance with BS8300:2009, unless otherwise instructed not to. The charge point has four mounting holes (See Annex 3) that are accessible by removing the enclosure lid. Ensure sealing washers (provided) are using between the charge point and the mounting surface to create a sealed enclosure. An A3 drill template, available online viridianev.co.uk/resources, can be used to aid in preparing mounting points.

Fig. C - Internal components *

- 1. Contactor
- 2. Electrical protection / mains terminal block
- 3. Mains input Earth terminal block
- 4. EcoLite controller board
- 5. Socket outlet (Free/Socket versions)
- 6. Main enclosure earth tag
- 7. Brightness & SLS config. DIP switch (SW3)
- 8. Current config. DIP switch
- 9. RCM (6mA DC sensor)

*contents may vary depending on unit configuration



Installation method



DANGER

Installation requires access to the properties electrical consumer unit. Ensure that power to it is isolated before commencing any work.



WARNING

Due to the high and constant current draw, the charge point must be installed on a dedicated spur within the consumer unit.



CAUTION

*The charge point must be installed in accordance with all current safety and legislative requirements relevant to the location to which it is being installed. If any of the actions listed by the installation method described below contravene current safety and legislative requirements, they **MUST** be adjusted to meet the required standard. If that is **NOT** possible they **MUST NOT** be done.*

THE INSTALLER MUST ENSURE THE CHARGE POINT IS CORRECTLY EARTHED

It is recommended but not required that an isolation switch should be located near the charge point.

The enclosure lid is removed by removing the 4 black external security-torx screws. A **T20 security-torx driver is required**. When the lid is removed, be sure to remove the earth wires from the tabs inside.

- Electrical protection must be installed within the consumer unit that is suitably rated for the charge point(s) being installed – reference the identification label or DIP switch setting & current configuration annex to confirm. The type of electrical protection required will depend on what is fitted in the charge point (different options are available), the installation arrangement and the local regulations.
- Choose one of the entry points (rear or bottom) and remove blind grommet for wiring mains into the unit. Ensure suitable cable gland is used for the application/location of charge point.
- The charge point should be secured to a wall or post as described on page 4. Ensure sealing washers are placed between charge point and mounting surface.
- On leaving the factory the default maximum charge level will be configured to the maximum rated current as per the identification label on the unit. Where appropriate; if a lower rating is required for the installation; the current configuration of the unit must be set to match the installation requirements. Suitably rated protective devices should be placed upstream. If required; set the current configuration DIP switch (Fig. C - 8) as per the configuration table on Annex I. N.B This function is only to be operated by qualified personnel / installers (not user configurable).
- Pass a suitably rated cable for the current draw, cable length and cable chasing method directly* from the consumer unit through an M25 gland in the chosen entry point.

- Connect the LIVE(s) and NEUTRAL to the correct terminals of the fitted electrical protection or mains terminal block (Fig. C - 2), observing colours and/or markings on the electrical protection. The terminals should be tightened to 2Nm (ensure correct orientation of crimp if using crimps with orientation).
 - If using 3-phase electrical protection for a single phase install, ensure the test button on any electrical protection is wired in and functioning

*If you are carrying out an OLEV approved install for WCS, then considerations may need to be made for installation of WCS supporting hardware

- Connect the EARTH to the mains input earth terminal (Fig. C - 3). **THE INSTALLER MUST ENSURE THE CHARGE POINT IS CORRECTLY EARTHED.**
- Inspect all other connections as these may have become loose in transit.
- Replace enclosure lid (ensuring earth leads are reconnected to lid) and secure using the four supplied screws being careful not to cross thread. Apply force to the lid, compressing the gaskets, whilst inserting the screws.
- Ensure all cables connected to the charge point are suitably secured.
- Re-establish the electrical connection and, if fitted, test the RCBO/RCD for correct operation.
- After an initial start-up sequence, the LED arrangement should settle and indicate that the charge point is ready to charge; Halo = blue, Text = white
- Test the operation of the charge point on an EV simulation box/tester and an EV if available. (Observe Status LED arrangements as below)
- It is recommended that you notify the local DNO that you have completed a charge point install. This **MUST** however be done for an install under any OLEV schemes as the guidance for installers indicates.
- If at any time during the install the charge point and/or its internal components are damaged, you must stop the current installation and restart it using a new charge point.
- On completion of the install, please ensure
 - The customer receives or is made aware of where to obtain a *User Guide*.
 - The customer receives a demonstration on how to use the charge point and its features.
 - If fitted, the RCBO/RCD test function is demonstrated and an instruction to test monthly is passed on.
 - The customer knows how to isolate the power to the charge point in the event of an electrical fault.
 - The customer receives information on the warranty and what to do in the event of a claim.
 - The customer receives your contact details in case of any issues that may arise within the warranty period.
 - For WCS installations please follow additional steps outlined in the addendum for WCS.

LED Brightness Configuration



WARNING

This is not user configurable and must be set by a qualified electrician / installer as it requires isolating power to the unit and removing the enclosure lid.

The brightness of the LEDs can be configured if the end user requests. This setting can be configured using the brightness configuration DIP switch SW3 (Fig. C – 7) and the brightness configuration table in Annex I

Procedure

1. Ensure power to the unit is off and has been isolated
2. Remove the enclosure lid
3. Carefully adjust the settings of DIP switch SW3 (Fig. C – 7)
4. Replace enclosure lid and restore power the unit

Using Simple Load Share (SLS)



WARNING

This is not user configurable and must be set by a qualified electrician / installer. Installing and configuring SLS for EcoLites need to be done with consideration for other components and infrastructure. Misuse of this could cause fire and injury.

Two EcoLites installed near each other can make use of Simple Load Share functionality. This integrated functionality, once enabled, will allow two EcoLites to safely share one supply. When two EVs are plugged in, the SLS system will engage and share the total available power (nominally half to each to vehicle). If one EV is plugged in or charging, then all power will be made available again.

SLS works in conjunction with the current configuration dip switch (Fig. C - 8), which sets the maximum available current for the whole system and **must** be set the same for both EcoLites.

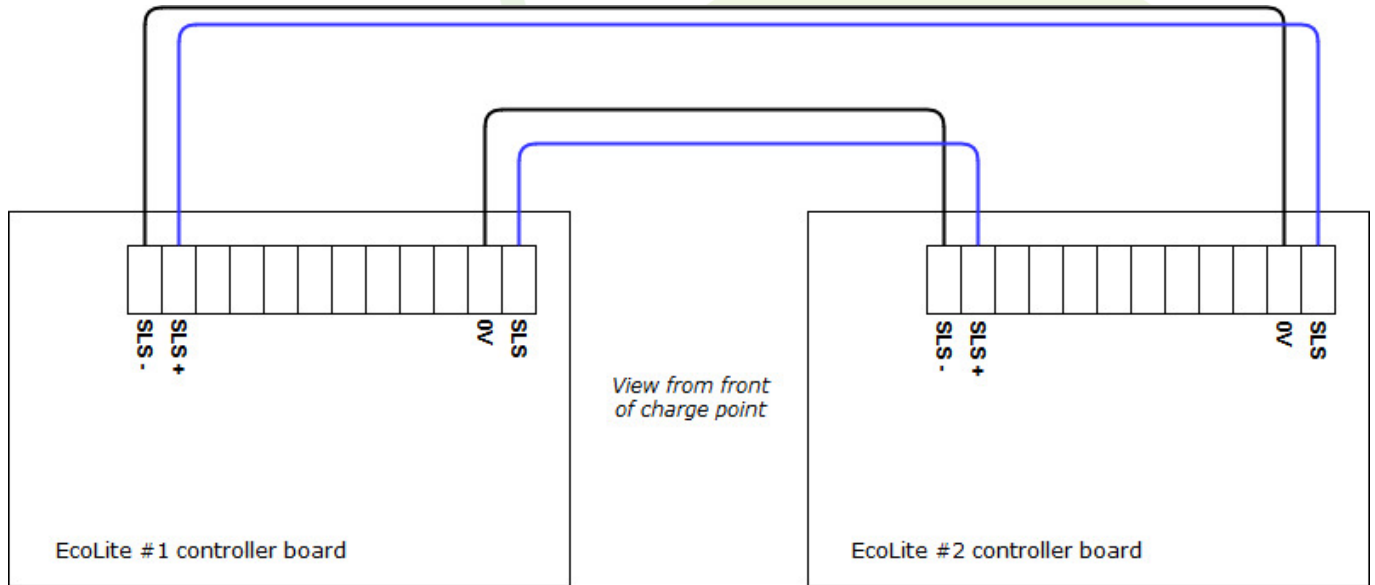
Procedure

1. Ensure power to the unit is off has been isolated
2. Remove the enclosure lid
3. Connect the correct terminals together on each EcoLite as per connection diagram below
4. Use appropriate grommets to bring the chosen wire into and out of the units
5. Carefully adjust the settings of DIP switch SW3 (Fig. C – 7) using the table on Annex 2 as reference (this table is also printed on the circuit board)
6. Replace enclosure lid and restore power the unit
7. Test the correct operation of the functionality

Note: We suggest using 2 x twisted pair of around 24AWG. Ethernet cable is suitable for this reason.

Primary SLS Configuration

This primary / recommended configuration is for boards using a common SLS wiring type, released from March 2019 (PCB Issue G onwards). It uses an isolated 4 wire system to improve reliability in certain environments.



EcoLite #1 'SLS-' connects to EcoLite #2 '0V'

EcoLite #1 'SLS+' connects to EcoLite #2 'SLS'

EcoLite #1 '0V' connects to EcoLite #2 'SLS-'

EcoLite #1 'SLS' connects to EcoLite #2 'SLS+'

See table on Annex 2 for configuration of the SLS mode. SW3 (Fig. C – 7) on both EcoLites must be set to the same.

We advise that a suitably rated MCB equalling the maximum available for the system be placed upstream of the two EcoLites. This will protect the system & infrastructure in the event of an accidental miss-configured DIP switch.

Alternative SLS Configuration (for backwards compatibility)

It is possible to utilise SLS with different issues EcoLites; where a previous issue EcoLite has been installed and wants to be upgraded to use SLS with a newer EcoLite being installed alongside it.

Older issue boards are noted by their terminals labelled IN and SLS, rather than SLS-, SLS+ and SLS.

Alternative wiring and legacy configuration table for older issue controller boards is included on Annex 5.

Status LED arrangement

The operating state of the EcoLite is communicated to the user via two LED arrangements. An illuminated 'Charge Point' text and an illuminated halo on the front.

LED		Operating State and description
Text	Halo	
OFF	OFF	Charge point is not active, Switched off Possible Cause of issue: <ul style="list-style-type: none"> • No mains power present • Electrical protection/isolator switched off • Fault with charge point
WHITE	BLUE	A - Charging station is waiting ready to be connected to an electric vehicle
BLUE	BLUE	B - An electric vehicle is connected but not charging
GREEN	BLUE	RCM self-test (pre-State C mode for units with RCM fitted)
GREEN	GREEN	C - An electric vehicle is connected and charging
RED	BLUE	D - An electric vehicle is connected but ventilation is required. This mode is not supported by Viridian EV charge points so will not charge.
RED (Pulsing)	OFF	Fault detected, charging is not allowed. See troubleshooting or seek technical support.
RED (Pulsing)	BLUE	RCM self-test fail or DC fault. See troubleshooting or seek technical support.

Should the brightness of the LEDs need to be changed see section on LED Brightness Configuration in this document.

Service and maintenance



DANGER

Contact with live components can result in serious injuries. Isolate the power before commencing any work and removing the enclosure lid.

THERE ARE NO USER SERVICEABLE COMPONENTS WITHIN THIS CHARGE POINT.

Please note that even though every care has been taken to select high quality components, in the event that you should experience problems with this unit, servicing should only be carried out by a suitably qualified individual. As the charge point is mostly modular in design, often the affected component can be replaced on site with the defective part being sent back to the manufacture for analysis.

Procedure

- Isolate all power to the charge point.
- Disconnect the wiring from the affected component.
- If it's a DIN rail mounted component, remove the device by pulling the locking slider and swivel the device away from the DIN rail.

- If it is the controller board, remove the 4 mounting screws and carefully remove board observing ESD handling procedures.
- Install a new device by either placing it over the DIN rail and firmly pushing it down or screwing a new board into place (ensure board mains cover is re-fitted)
- Reconnect all wiring and check that **all** connections are tightened to the required torque (see Annex 4 or manufacturer's technical data).
- Re-establish the power supply to the charge point.

Cleaning

If necessary, it is recommended to use a damp cloth and a mild cleaning solution to clean the external of the charge point only.



CAUTION

Cleaning the charge point with a high-pressure water hose is not permitted and could cause water build up within the charge point.

The charge point should not be opened and cleaned internally.

Warranty

Charge points installed under OLEV EVHS and WCS schemes are supplied with a 3-year warranty. Terms apply.

Charge points supplied outside of OLEV schemes are supplied with a 3-year return to base warranty which covers replacement of defective components. Terms apply.

Further information on warranty terms are available here: viridianev.co.uk/resources

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Annex I: EcoLite Current Configuration



WARNING

This is not user configurable and must be set by a qualified electrician / installer. Any changes to the maximum advertised current of the unit need to be done with important consideration for other components and infrastructure. Misuse of this could cause fire and injury.

On leaving the factory the default maximum charge level will be configured to the maximum rated current as per the identification label on the unit.

If a different rating is required for the installation; the current configuration of the unit must be set to match the installation requirements, and the identification label updated. Suitably rated protective devices should be placed upstream and fitted in the unit and signed off by a qualified professional.

A minimum current setting of 12A on either EcoLite is required for SLS to operate correctly.

To change the current set the current configuration DIP switch (Fig. C - 8) as per the configuration table below.

DIP switch position				Current Level
1	2	3	4	
OFF	OFF	OFF	OFF	32
ON	OFF	OFF	OFF	6
OFF	ON	OFF	OFF	9
ON	ON	OFF	OFF	10
OFF	OFF	ON	OFF	11
ON	OFF	ON	OFF	14
OFF	ON	ON	OFF	15
ON	ON	ON	OFF	16
OFF	OFF	OFF	ON	18
ON	OFF	OFF	ON	20
OFF	ON	OFF	ON	22
ON	ON	OFF	ON	24
OFF	OFF	ON	ON	25
ON	OFF	ON	ON	28
OFF	ON	ON	ON	30
ON	ON	ON	ON	Demo mode

Annex 2: EcoLite LED Brightness and SLS Configuration



WARNING

This is not user configurable and must be set by a qualified electrician / installer as it requires isolating power to the unit and removing the enclosure lid.

SLS will only operate when positions 3 & 4 of DIP-switch SW3 (Fig. C – 7) on both EcoLites are set to the same, as per below table.

Should there be a requirement to change the brightness of the status indicator LEDs, or to turn off the halo completely, then set the brightness configuration DIP switches SW3 (Fig. C – 7) as per the settings in the below table.

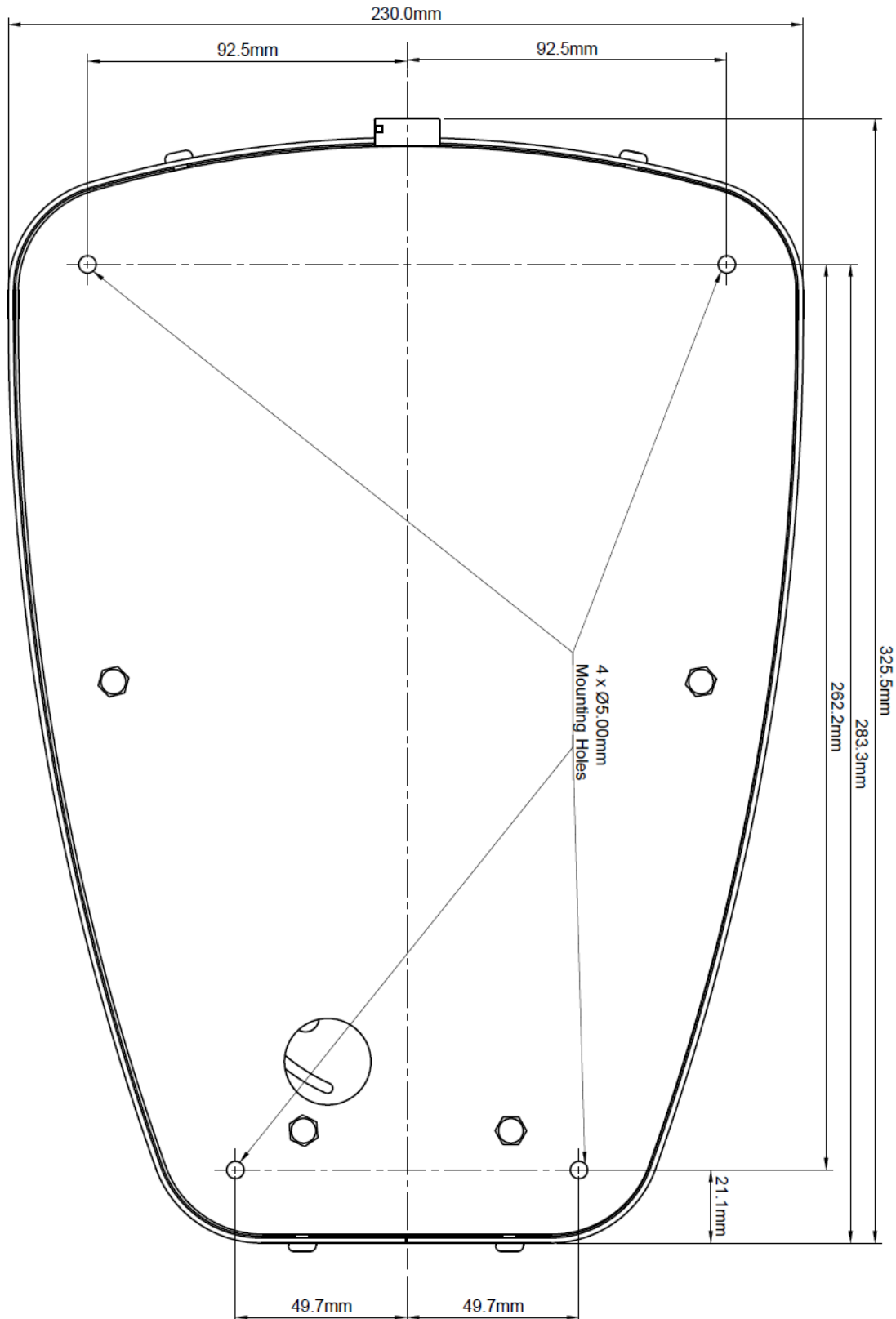
X = Irrelevant / does not matter

1	2	3	4	Brightness	SLS
OFF	OFF	X	X	MAX	X
OFF	ON	X	X	MEDIUM	X
ON	OFF	X	X	LOW	X
ON	ON	X	X	HALO OFF	X
X	X	ON	ON	X	SLS OFF
X	X	OFF	ON	X	SLS ON

Annex 3: EcoLite dimensions and mounting information

The drawing below indicates dimensions of the EcoLite charge point and the position of the mounting holes to aid in mounting the unit to a wall or post. Note; drawing is not to scale.

A 1:1 scale version that can be used as a drill template is available online and from your distributor but will need to be printed on A3 to be 'actual size'.



Annex 4: Recommended torque settings for terminals & fixings

The below terminal torque settings apply to the switchgear specified for assembly at the time of writing and is correct as per the manufacturers specifications. It is always recommended to check the manufacturer's specifications if fitting any other switchgear than that supplied by Viridian EV.

M5 terminals on all switchgear: 2NM

M3 terminals on contactor (A1 + A2): 0.8NM

4 x M3 fixings for PCB: 0.8NM

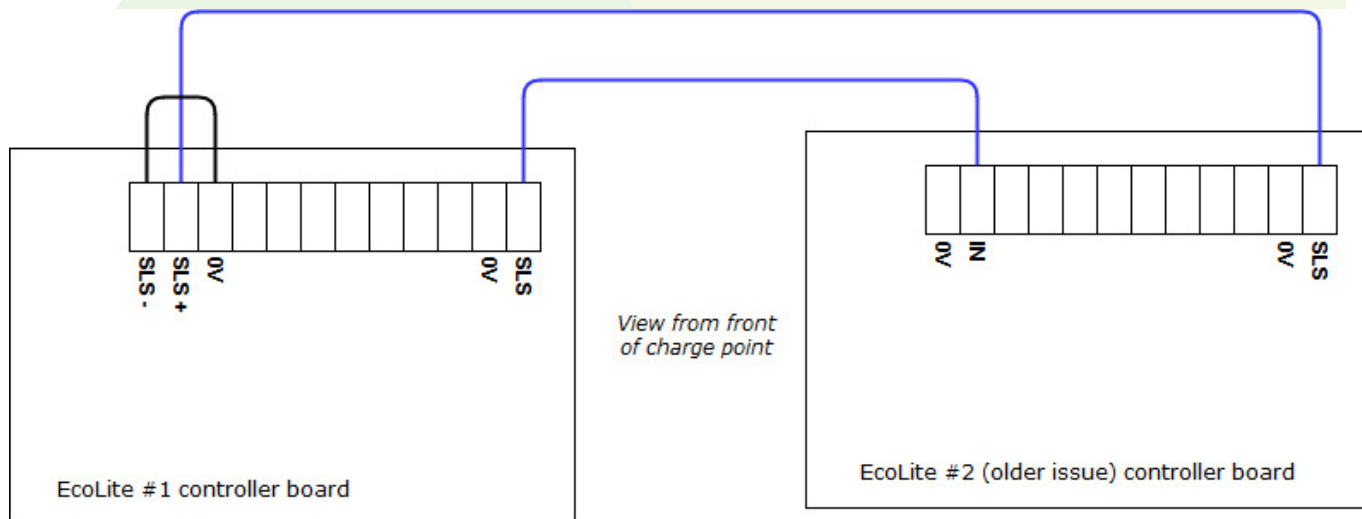
Annex 5: Legacy EcoLites and SLS backwards compatibility



WARNING

This is not user configurable and must be set by a qualified electrician / installer. Any changes to the maximum advertised current of the unit need to be done with consideration for other components and infrastructure. Misuse of this could cause fire and injury.

Below is the alternative wiring configuration for two uncommon EcoLite controller boards that use different SLS wiring types.



Refer to the table on Annex 1 for the current configuration of SW1 on the older issue EcoLite controller board. They both need to be set to the same current level for correct operation. Only current levels of 14A or more are compatible with SLS.