

entelligent™ TLC_{EV}T₁

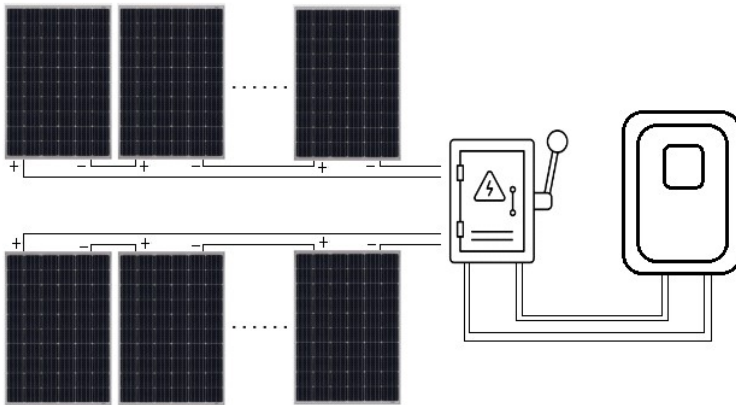
FAQs (1 of 4)

How is the charger operated?

Plug in the charging cable nozzle to a supported EV. The top LED array on the charger gives indication as to the amount of solar power available to charge. The bottom LED array indicates the status of the current charging session.

How is the charger connected to PV modules (solar panels)?

Connect one or two strings of PV modules wired in series directly into each of the two PV inputs of the charger. It is best practice to install a PV disconnect box (sold separately) between the PV strings and the charger. Do not exceed 10 wire gauge diameter wiring. Each PV string input can support a range of 340-600 volts and a maximum of 20 amps. Consult the PV module specifications for open voltage and amperage values. The stripped end of the PV string is inserted into the terminal connection in the charger's wiring box.



How is the charger connected to an existing home solar installation?

The charger can be connected to an existing home PV string inverter solar installation, but not to a microinverter installation. In an existing home PV string inverter installation, one or two PV strings can be manually diverted from the PV inverter to the charger using a double throw switch. As long as the strings are within the 340-600V and maximum 20A range, connect the PV strings to the input of a double throw switch. One set of the outputs from the switch is wired to the charger, while the second set of outputs is connected to the PV inverter as wired before this installation. The user can direct the output of these one or two PV strings to either the charger or the PV inverter as to the position of the switch. Note that the double throw switch also acts as a PV disconnect box.

Please pay attention that if the original installation has rapid shutdown functionality with a permission-to-operate signal transmitter for regulatory safety compliance, the wire connection between the double throw switch box and the charger must be either physically wired to a coupling transformer or pass through the core of the current transformer of the existing or a newly installed transmitter. Please refer to the instructions of the respective rapid shutdown system provider.

FAQs (2 of 4)

Where can I find a PV disconnect box or double throw switch?

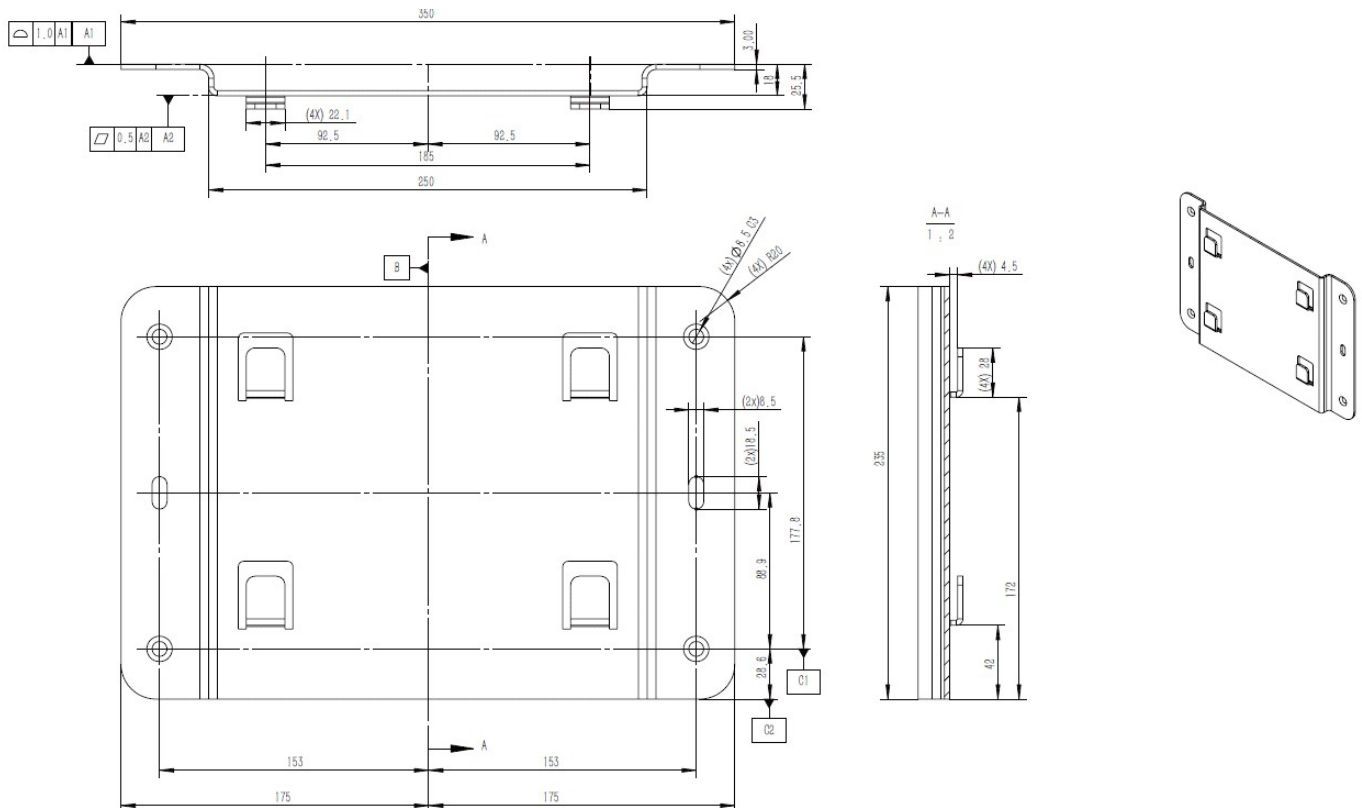
All major electrical suppliers, such as Siemens and Eaton, etc., offer such products. Below are part numbers for Schneider Electric's Square D products:

https://www.se.com/us/en/download/document/998-22308345_GMA-US/

Schneider Square D Double Switches				
Model Number	Description (3 pole, 600V, 30A)	PV Disconnect	Double Throw Switch	Indoor or Outdoor
VH361	fused, Type 1	Y		Indoor
VHU361R	non-fused, Type 3R	Y		Outdoor
VH361R	fused, Type 3R	Y		Outdoor
VHU361	non-fused, Type 1	Y		Indoor
DT361	Double throw, fused, Type 1	Y	Y	Indoor
DTU361	Double throw, non-fused, Type 1	Y	Y	Indoor
DT361R	Double throw, fused, Type 3R	Y	Y	Outdoor
DTU361R	Double throw, non-fused, Type 3R	Y	Y	Outdoor

How is the charger installed and mounted?

The included mounting bracket is fastened to mounting surface using wall anchors or other means (not included). The EVSE charger is fastened to the mounting bracket and secured with bolts (included). The drawing of the included mounting bracket is shown below:



entelligent™ TLCEV_{T1}

FAQs (3 of 4)

What cables and connectors are included and what must be purchased separately?

Items included: the NACS or CCS-1 charging cable (as per model number ordered; bolts to secure EVSE to mounting bracket; mounting bracket).

Not included: PV wiring (10 wire gauge maximum); fastening anchors or equivalent; PV disconnect box (recommended); PV panels; MLPE rapid shutdown devices and transmitters (if required – check your particular code requirements, although parking shade structures, carports, solar trellises and similar structures are often excluded).

Do I need rapid shutdown equipment with the connected solar panels?

As always, check your national, regional and local code requirements as to the necessity of required safety equipment such as MLPE RSD modules; however, parking shade structures, carports, solar trellises and similar structures are often excluded.

What are the dimensions of the charger?

The height x width x depth is 21.9x17.6x7.7 inches or 556x447x196mm without the mounting bracket, and 21.9x17.6x8.5 inches or 556x447x215mm with the mounting bracket.

What is the weight of the charger?

The charger unit is 64lbs (68lbs with the NACS & 71lbs with the CCS-1 charge cables respectively), or 29kg for the unit (31kg with the NACS & 32kg with the CCS-1 charge cables respectively).

Does it have built in MPPT?

Yes, each PV input has its own independent MPPT functionality.

Are there minimum voltage and amperage requirements?

For each of the two PV string inputs, a minimum of 340V_{DC} & a maximum of 600V_{DC}, and a maximum of 20A per input.

With which EVs is the charger compatible?

The charger supports EVs with CCS-1 ports, or with EV OEM -recommended CCS-1 to NACS adapter if required for using the NACS charge cable.

The charger also natively supports Tesla models produced since October 2020. Older Tesla cars have a charging ECU (electronic control unit) that is not compatible with the Entelligent TLCEV charger without a hardware retrofit of the EV. For any Tesla model, please check the VIN number of your Tesla at <https://shop.tesla.com/product/ccs-combo-1-adapter> to determine if a retrofit is required.

There are currently no known CHademo to CCS-1 or NACS adapters, although development is in the works. Please contact your EV OEM for their recommendation.

What is the minimum PV array size required to operate the charger

The charger requires one string PV input of at least 340V_{DC}. The minimum amperage required to charge is dependant on the state of charge of the EV's battery; the EV itself will attempt to charge with the voltage and amperage available to it.

FAQs (4 of 4)

How many individual strings of solar panels can be used?

It supports one or two PV strings, each of which provides 340V_{DC} to 600V_{DC} and no more than 20A.

Can the charger operate with PV and batteries?

While this version of the charger is meant to be powered directly by PV strings, it can accept any DC input between 340V_{DC} and 600V_{DC}, to a maximum of 20A per input. A dedicated battery connected solution is expected later in 2024.

Can the charger operate with a dedicated DC bus?

While this version of the charger is meant to be powered directly by PV strings, it can accept any DC input between 340V_{DC} and 600V_{DC}, to a maximum of 20A. The two PV inputs can be connected in parallel to the DC bus as long as each input is within these electrical constraints.

What is the timing for your 25kW hybrid inverter connected chargers?

We are working with hybrid PV inverter partners for solutions available by the end of 2024.

Where can I purchase a charger?

From Entelligent directly at www.entelligent.com

Do you have a list of local installers?

We do not have a current list of recommended installers but plan to create one shortly. Please periodically consult our website for updates.

What agency, safety, and regulatory requirements will the charger meet?

Safety: UL 2202, UL 2231, UL 1998, FCC Part 15, IEC 61851-23

Certifications: ISO 15118-2, ISO 15118-20, OCCP 1.6 & 2.0.1, DIN 70121

What are the wiring inputs and outputs of the charger?

The connections include:

two (2) DC MPPT input pairs of 340-600V & 20A max each

one (1) power out to charging cable

earth ground out

EVSE charge cable control lines out

CANbus/modbus RJ45 keystone

Ethernet RJ45 keystone

