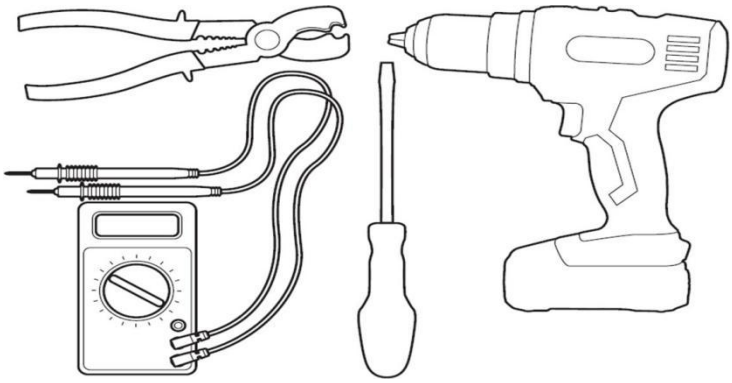
Load Balancing and Solar Matching Introduction

1. Tools Needed:

Electric screw driver, slot type screwdriver, multimeter and wire stripper



2. Products Involved

EV Charger

CT Clamp

Smart Meter

Router

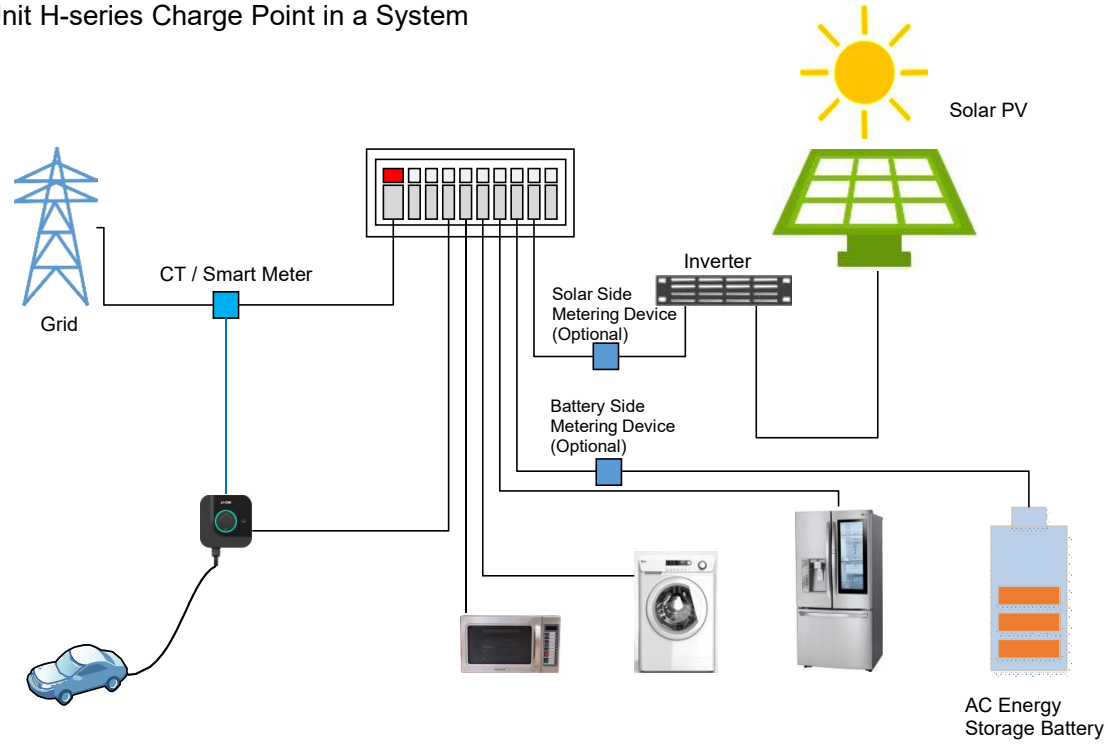
Ethernet Cable

3. Wiring Diagram

Note:

- As shown in below diagram, there are 3 metering devices used to detect the changes of current in the system, the grid side metering device(CT clamp/Smart Meter) is must, the solar side metering device and storage battery side metering device are optional.
  These metering devices are used to to detect the changes of the current, and transfer the data to the Master charger for calculation for load balancing.
- If solar energy is not involved, it is workable to realize load balancing with a CT clamp; if solar energy involved, you have to install a smart meter instead of CT clamp.
- Both of the current from grid side and solar panel side will go through the three phase smart meter, but they are from opposite side, the current from grid side will be recognized as positive value and the current from solar energy side will be recognized as negative value, by this means, the smart meter can recognize which power comes from solar panels and grid

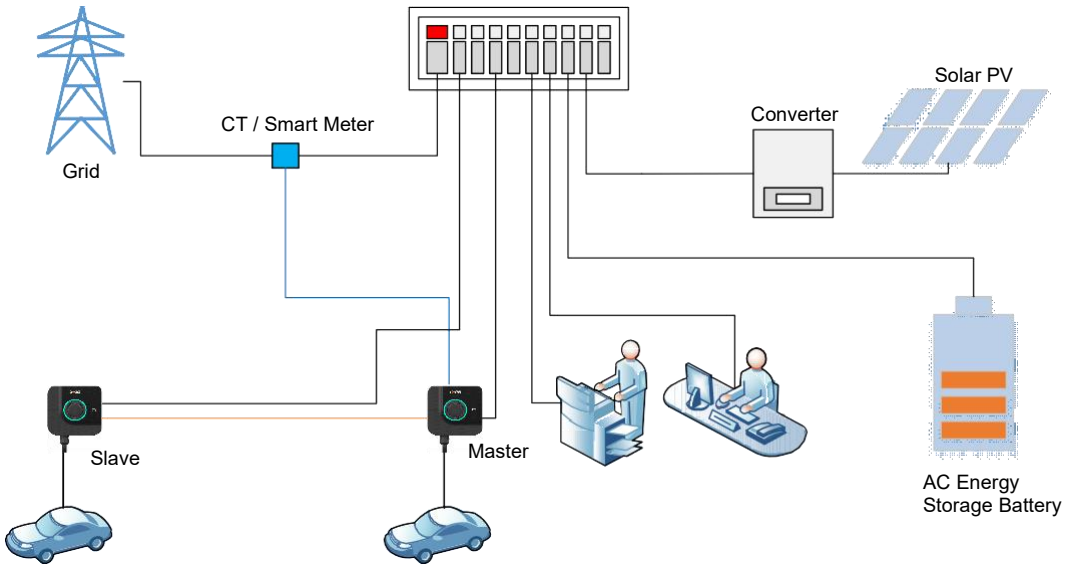
(1) One Unit H-series Charge Point in a System



(2)Two Units H-series Charge Point Networking(**Ethernet)**

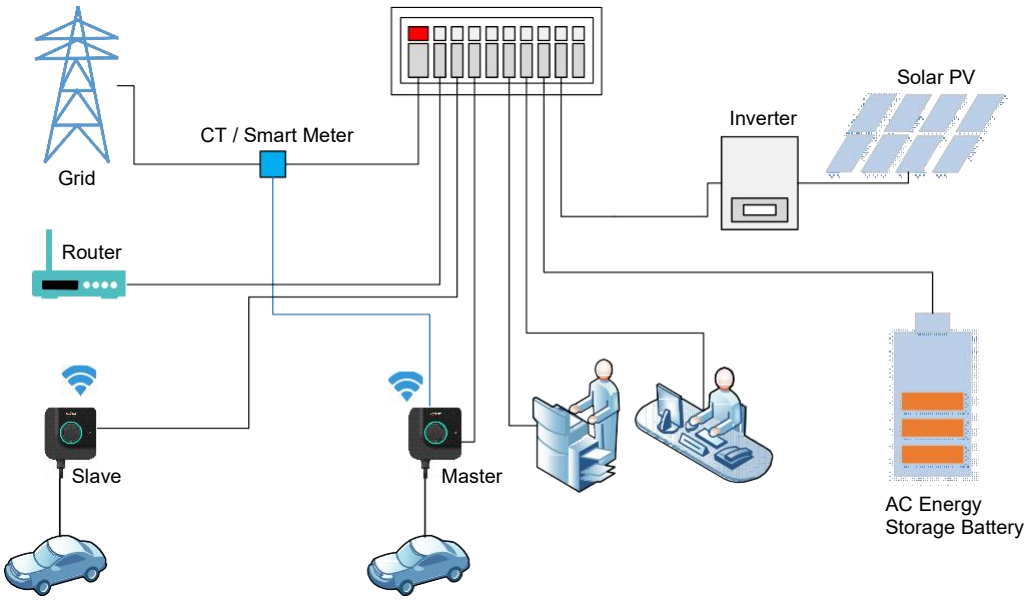
If you install 2 units H-series charge point in a system, and want to use ethernet cable for networking, you have to enable the Load Balancing function from your APP, and set up the “Networking Mode” as Static IP, and the 2 units charge point have to be set in same network segment with different IP addresses, then use an Ethernet cable to connect them, if no any networking failure notice from the APP

in 3 minutes, it means that the load balancing networking is workable.



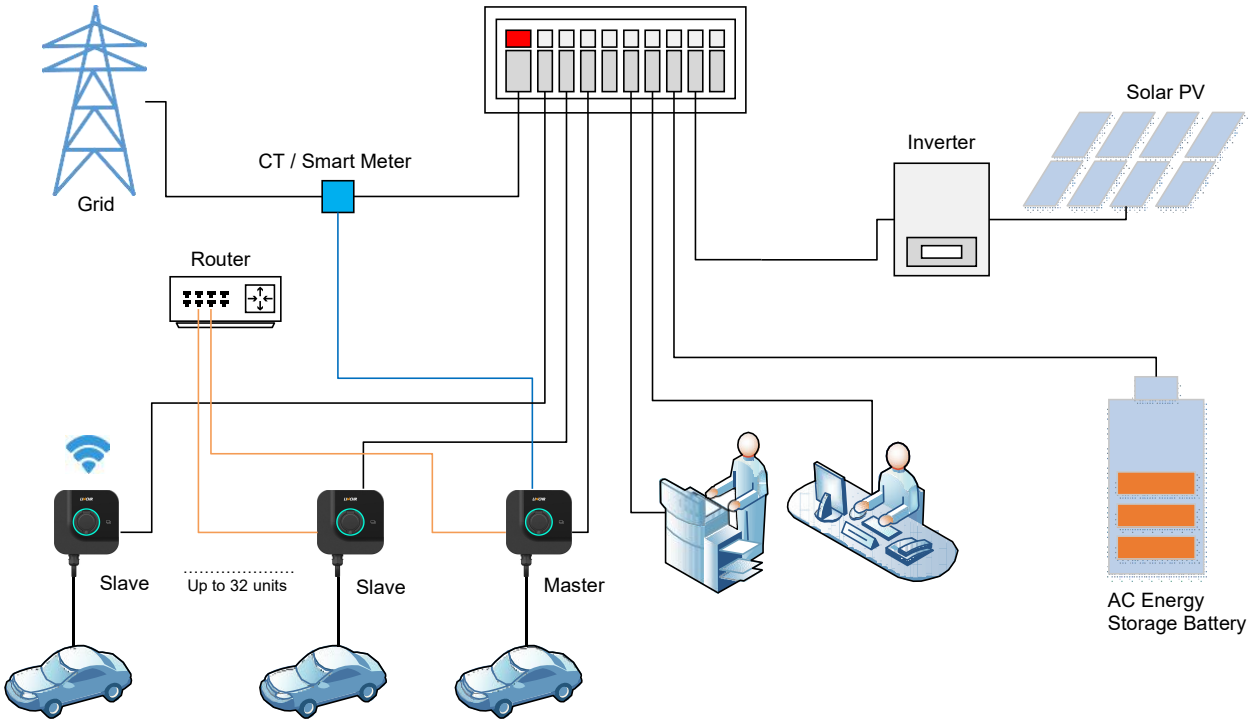
(3)Two Units H-series Charge Point Networking(**WIFI**)

If you install 2 units H-series charge point, and you want to use the WIFI signal from the router in your house, then you have to enable the load balancing function from your APP, and set up the “Networking Mode” as “WIFI”, if no any networking failure notice from the APP in 3 minutes, it means that the load balancing networking is workable.



(4) Multiple H-series Charge Points in A System

When you have 3 units H-series EV charger in your system, you have to enable the load balancing function from your APP, and set up the “Networking Mode” for load balancing, if no any networking failure notice from the APP in 3 minutes, it means that the load balancing networking is workable.



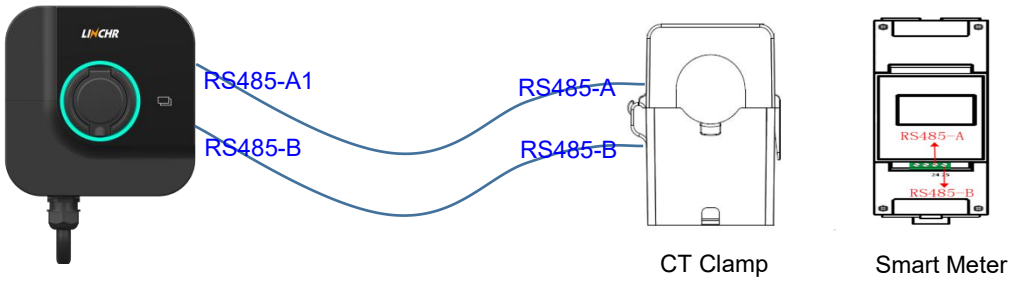
4. Load Balancing Configuration

(1) Installation of Grid Side Metering Device

If your household grid system is single phase, you are suggested to use DDSU666 single phase smart meter or VDG035 CT clamp; if your household grid system is three phase, you are suggested to use DTSU666 three phase four cables smart meter or 3 units VDG035 CT clamps.

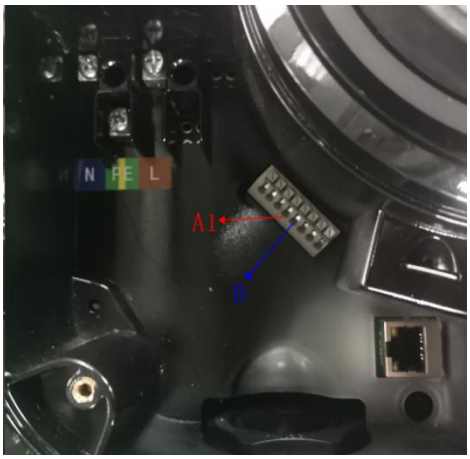
(2) The connection of H-series EV charger and Metering Device

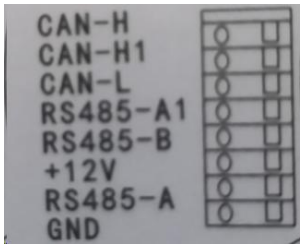
Please refer below drawing and instructions to connect the charge point with the CT clamp or smart meter



Connect the H-series Charger and CT Clamp with RS485 cable, the RS485 wiring sequence as shown in below picture:

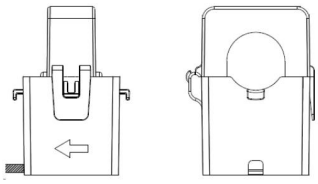
a. H-series Charge Point Wiring Terminals:





The terminal “4” is RS485 A1（as shown in above red arrow）;
The terminal “5” is RS485 B（as shown in above blue arrow）;
The 120Ω terminal resistance had been added to RS485 A1 for anti-interference.

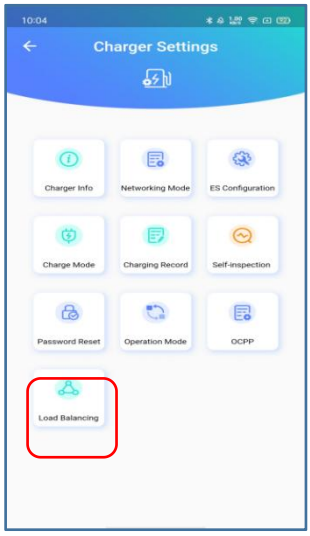
b. CT Clamp Wiring Terminals:
The EV charger terminal “4”（RS485 A1）have to connect with the terminal “A”（RS485 A）of the CT clamp.
The EV charger terminal “5”（RS485 B）have to connect with the terminal “B”（RS485 B）of the CT clamp.

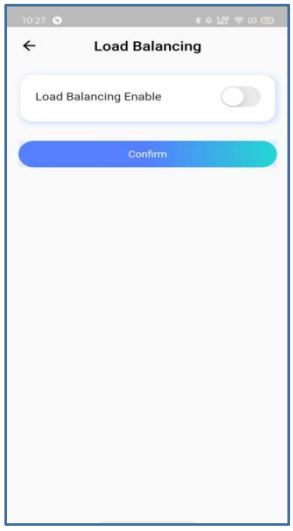


Wire color	code	function	remarks
green	B	communication line (RS485B)	
yellow	A	communication line (RS485A)	
black	G	working power-ground	0V
red	+	working power-positive	12V DC

5. Load Balancing Configuration in APP

（1）Enable Load Balancing

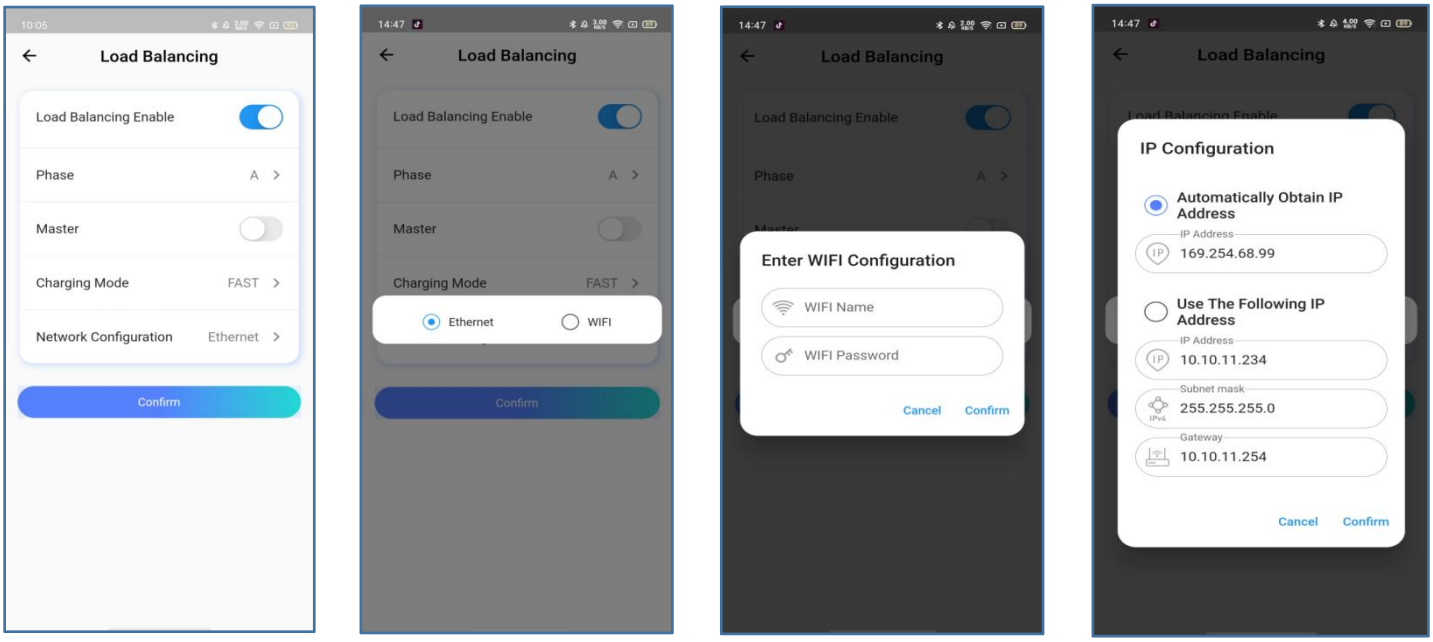




（2）Load Balancing Configuration（Slave）

Phase: select the phase of the grid, A/B/C phase are available for choice.
Master: set up the master and slave charger, the charger which enabled the load balancing function is the master, if not, it is slave.
Charging Mode: Setting up FAST, ECO and ECO+ charging modes.
FAST: the charger works with the maximum power consumption.
ECO: when the solar energy is enough, the charger use the solar energy, if not efficient, the charger will work with the minimum power consumption.
ECO+: When the solar energy is enough, the charger use the solar energy, if not,the charger will suspend the charging sessions.
Network Configuration: Configure the network parameters
Ethernet: you can choose static IP or dynamic allocate IP address;
WIFI:input the right WIFI name and password.

Note: Make sure all the network settings in all the chargers same, otherwise, it will leads



(3) Load Balancing Configuration（Master）

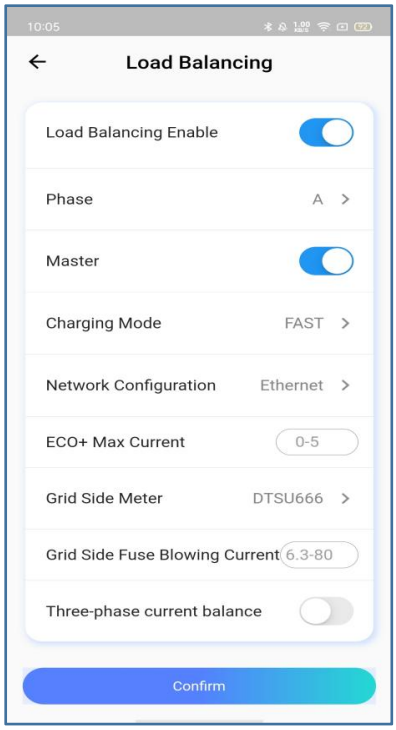
Besides above mentioned configuration, you also have to set up the ECO+ current, the address of the grid side metering device, fusing current and three phase balancing on the Master.

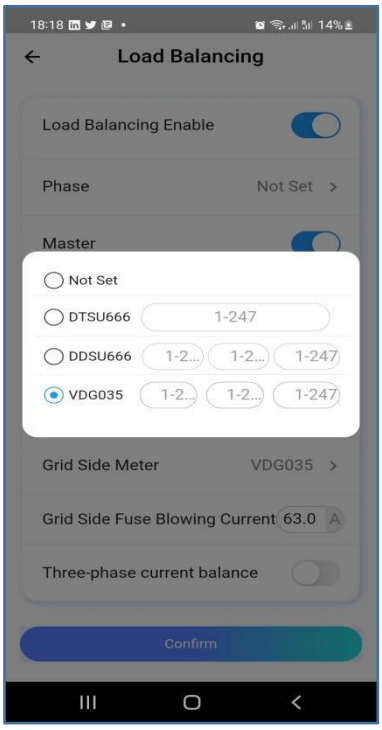
ECO+ Max Current : ECO+ current range is 0-5A，it means that when the solar energy is not enough,the charger will use the current from the grid, when the current from the grid is exceed the ECO+ Max current, the charger will suspend the charging session.

Grid Side Meter: setting up the address of grid side smart meter or CT clamp.

Grid Side Fuse Blowing Current: the maximum fusing current/main breaker rated current.

Three phase current balance: adjust the three phase current balancing as per specific situation after enabling.





Note:

1.For all the charge points in a networking, if use WIFI or Ethernet (DHCP) to network, they have to connect with same router; If use the Ethernet, and configure the IP manually, all the IP addresses have to be different and be in same network segment.

2.The maximum detection current of DTSU666/DDSU666 smart meter is 80A,and they can detect the current bidirectionally.

The maximum detection current of VDG035 CT clamp is 200A, but not support bidirectional detection, so if the solar energy involved in your system, then you have to use DTSU666/DDSU666 smart meter.