AUTEL ENERGY EUROPE

Full Range of EV Charging and Service Solution

POWERING THE PLANET

Why Energy Load Management

Real World Problems

01

No Energy Management

Artificially limiting charging power results in slow charging and bad user experience.

02

Cloud Energy Management

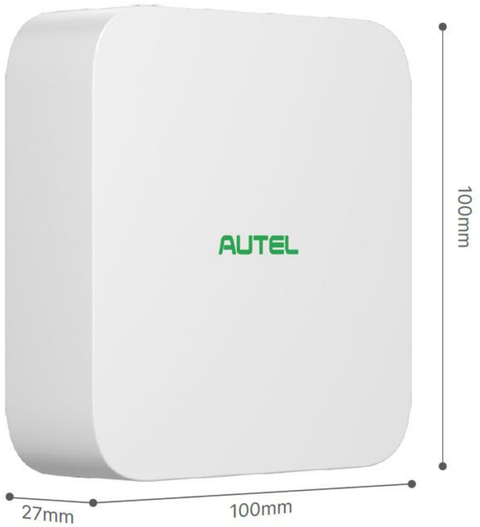
High latency and unstable signal connections result in security risks.

03

Limited Grid Load

A single site cannot deploy a large number of chargers, resulting in missed business opportunities.

SmartBox Kit Introduction



SmartBox

SmartSensor

Enhance Safety and Efficiency

- Swift load adjustment in **seconds** to prevent overloads;
- Seamless coordination between station and Autel cloud for effortless transition between online and offline energy management;
- Compatibility with three-phase switching regulation for efficient grid electricity utilization.

Optimize Operations and Costs

- Long-distance networking, extending to a maximum of **1000m** without wiring;
- Support for managing networks of **200+** chargers;
- Smart algorithms to minimize demand chargers.

Future-Proof Your Investment

- Compatible with solar energy, energy storage and oil engine;
- Ideal for long-term investment growth.

Products Specs

Smart Sensor

Smart Box

SmartBox + SmartSensor + CT = SmartBox Kit

	SmartBox	SmartSensor
Supply	12VDC,0-380mA	100-305VAC, 50/60HZ
CT Channels	-	1~6
Current Collection Range	-	0-5000A
Voltage Collection	-	Supported
Dimension (HxWxD) (mm)	100*100*27	90*65*33
Weight	165 g	120 g
Operating Temperature	-30C~50C	-30C~50C
Storage Temperature	-40C~70C	-40C~70C
Enclosure Ratings	IP20	IP20
Fire Class	UL94-V0	UL94-V0
Operating Humidity	<95%. Non-Condensing	<95%. Non-Condensing
Operating Altitude	≤3000m	≤2000m
Connectivity	WiFi. Ethernet, Wi-SUN (EU:868MHz, US:915MHZ) RS-485, NFC reader	Wi-SUN (EU:868MHz, US:915MHz), P1 smart meter communication (EU only)
Safety and Compliance	UL/CE/UKCA	UL/CE/UKCA

CT Range

CT clamps (diameter):

100A: 16 mm

200A: 26 mm

Rogowski coils (diameter):

1000A: 80 mm

2500A: 100 mm

5000A: 150 mm

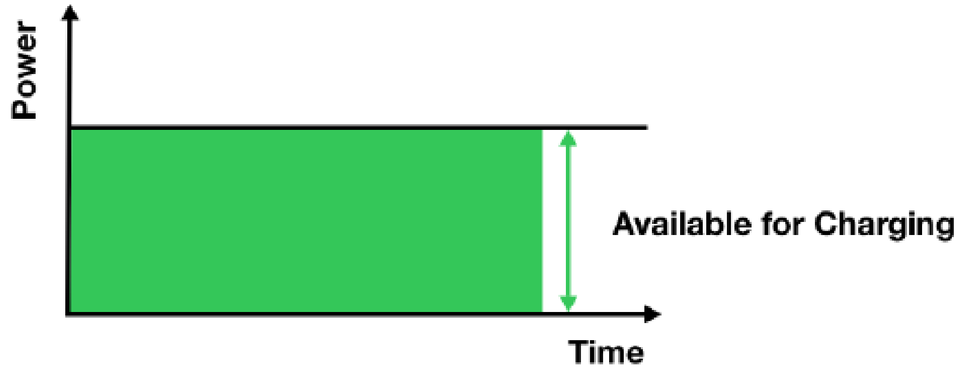
Key factor:

1. wi-sun support range up to 1km, but <300m is recommended.
2. SmartBox Kit can be set up wireless with chargers through wi-fi router (or wi-sun when with 2nd GEN AC).

DLB (dynamic load balancing) or ALM(Adaptive Load Management)

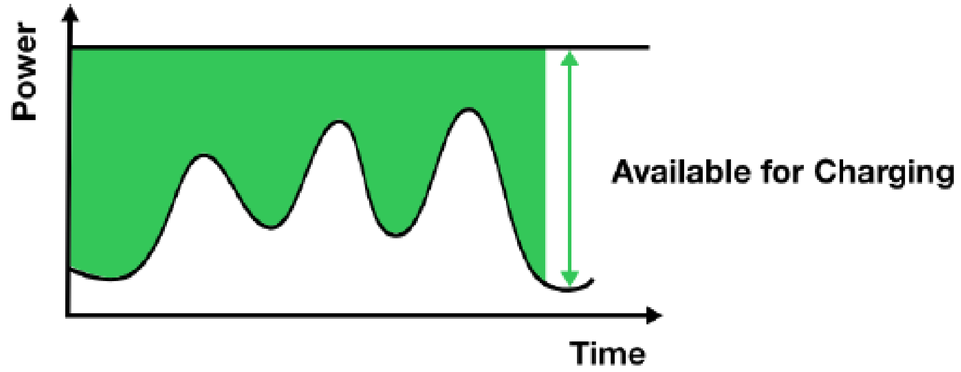
A. DLB Mode

The purpose of DLB mode is to achieve the fastest charging by maximizing power efficiency for the power allocated to the chargers and keeping the system power within a specific range.

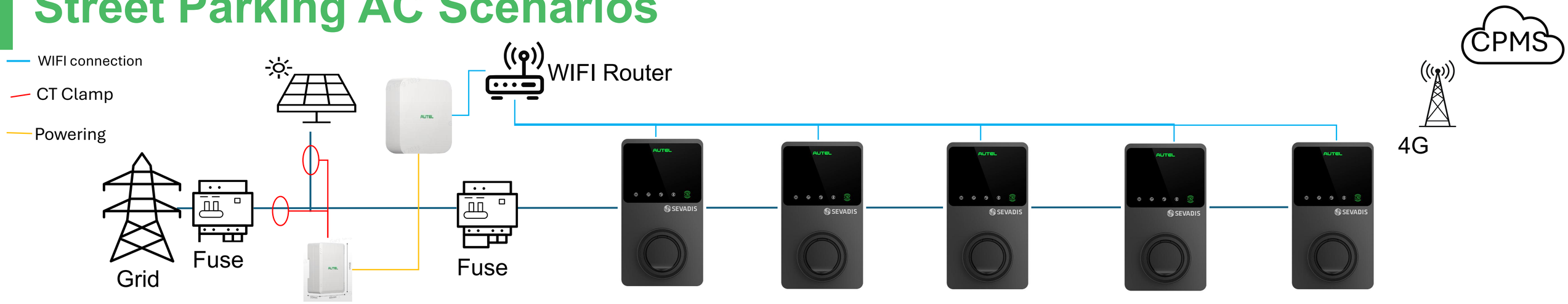


B. ALM Mode

ALM mode provides consistent charging of chargers and other loads. The difference between ALM mode and DLB mode is that ALM mode manages load power and charger power at the same time using an external energy meter.



Street Parking AC Scenarios



All Set as Secondary Charger

Scene Description

1.Any DC and AC chargers' total quantities less than 200.

2.The distance between the main device and all chargers is ≤ 50m. With AC Elite Generation 2, it can support WISUN connection to the chargers for load management for 300m, Router will only be used for CPMS/Cloud communication.

3.Charge points ≤ 40. (for chargers' quantity between 41 to 200, need to be divided into separate circuits)

4.In the case of between 41 to 200 charge points and /or chargers were mounted on a separate main circuit, multiple smart box to separate circuits required.

Suitable for on street parking, hotel parking, apartment parking, forecourts, supermarkets, workplace etc.

Solution

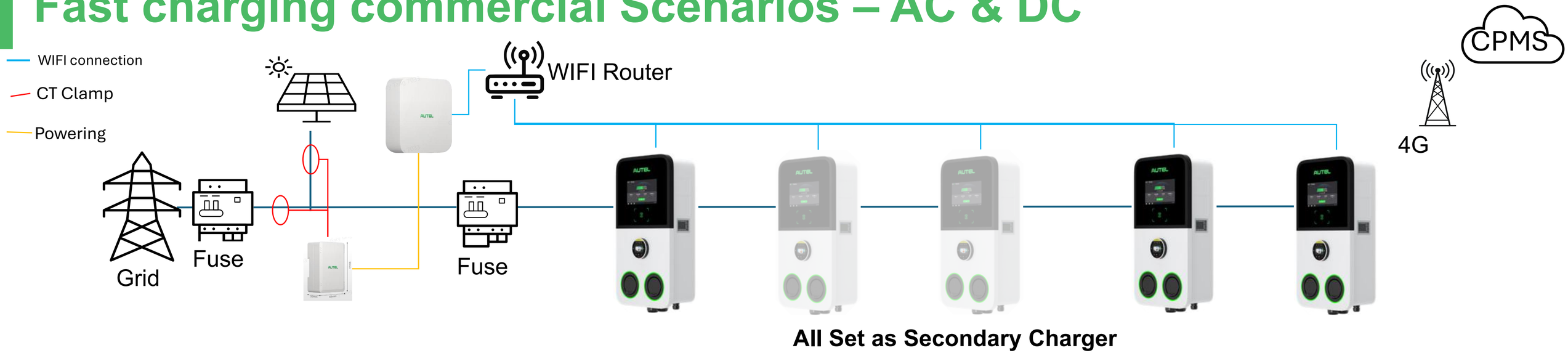
Smart slow charging Commercial package - 200A Three phase, when AC only.

when expansion needed, change the clamp to 1000A - 5000A and simply add new chargers

And Separate purchased WIFI Router required.

If PV required, separated purchase of 3x CT clamp is needed.

Fast charging commercial Scenarios – AC & DC



Scene Description

1.Any DC and AC chargers.

2.Charge points ≤ 40. (for chargers' quantity between 41 to 200, need to be divided into separate circuits)

3.The.

4.In the case of between 41 to 200 charge points and /or chdistance between the main device and all chargers is ≤ 50margers were mounted on a separate main circuit, multiple smart box to separate circuits required.

Suitable for hotel parking, apartment parking, forecourts, supermarkets, workplace etc.

Solution

Smart slow charging Commercial package - 200A Three phase

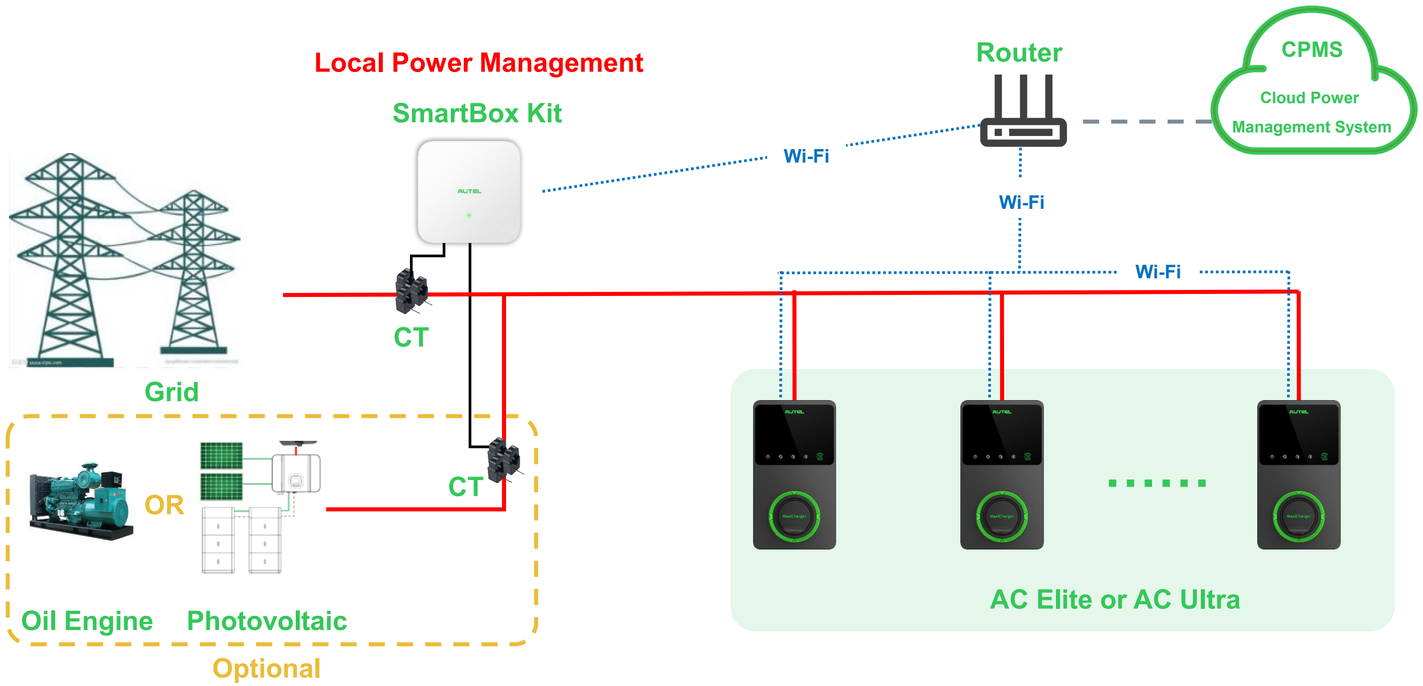
Smart fast charging Commercial package - 3000A Three phase.

And Separate purchased WIFI Router required.

If PV required, separated purchase of 3x CT clamp is needed.

Commercial Scenario Solution——Model 1

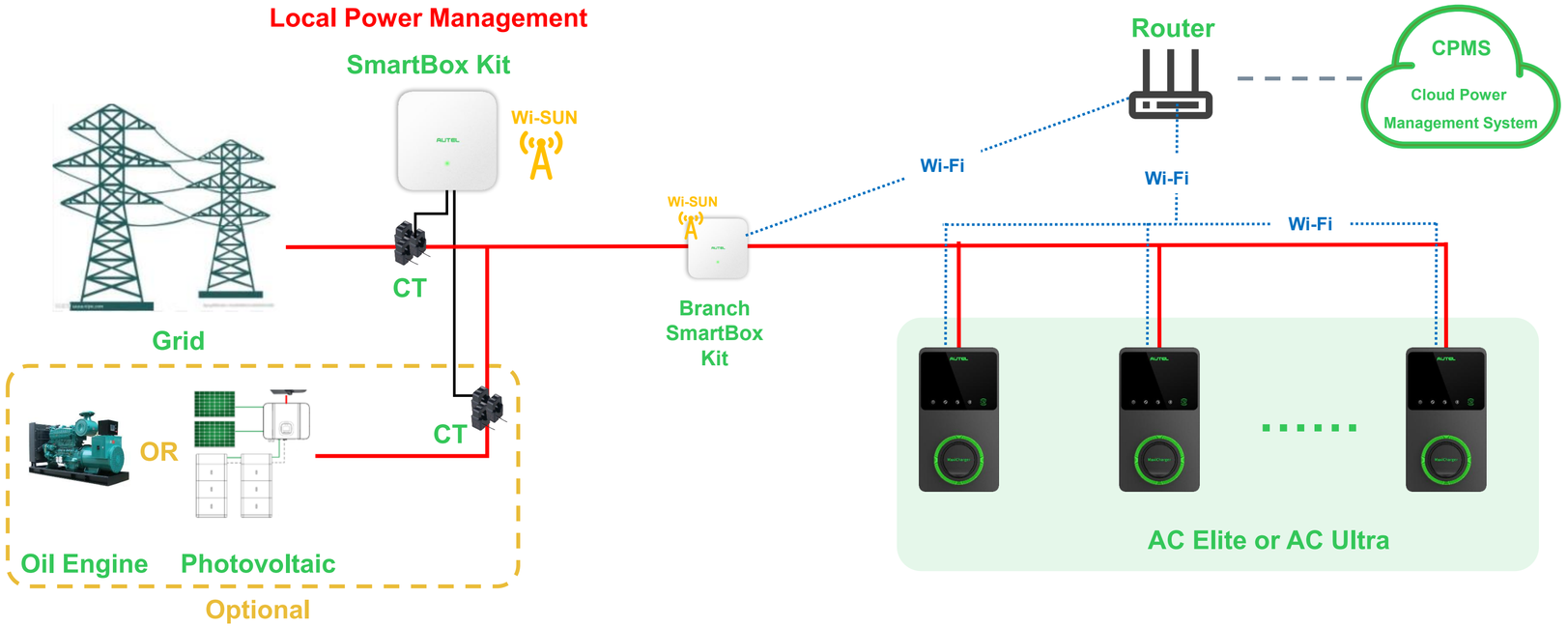
Model Num	Scenario Description				Solution			
	Name of charger	Num of charger	Distance between SmartBox and charger	Num of Circuit	Num of SmartBox	Num of SmartSensor	Num of Router	Num of CT or Rogowski Coil
Model 1	AC Elite, AC Ultra	≤40	0m-300m	1	1	1	Base on site area	Up to 6



1. SmartSensor collects current data from grid and oil engine or photovoltaic by CT or Rogowski coil, and send the data to SmartBox.
2. SmartBox and chargers are networked through Wi-Fi. (Router is needed as using AC Elite or AC Ultra)
3. As the master device, SmartBox performs local power management on the charger based on the data collected by SmartSensor.

Commercial Scenario Solution——Model 2

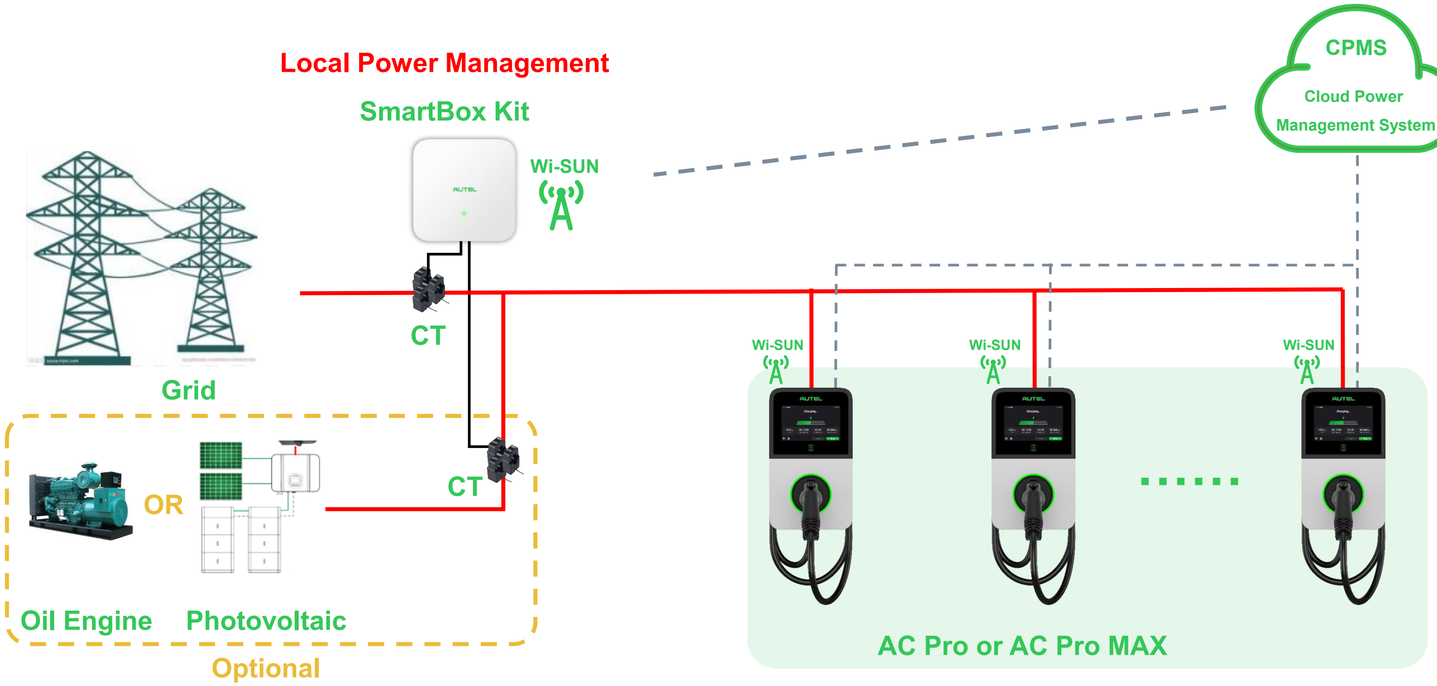
Model Num	Scenario Description				Solution			
	Name of charger	Num of charger	Distance between SmartBox and charger	Num of Circuit	Num of SmartBox	Num of SmartSensor	Num of Router	Num of CT or Rogowski Coil
Model 2	AC Elite, AC Ultra	≤40	0m-300m	1	2	2	Base on site area	Up to 6



1. SmartSensor collects current data from grid and oil engine or photovoltaic by CT or Rogowski coil, and send the data to SmartBox.
2. Two SmartBoxs are networked through Wi-SUN.

Commercial Scenario Solution——Model 3

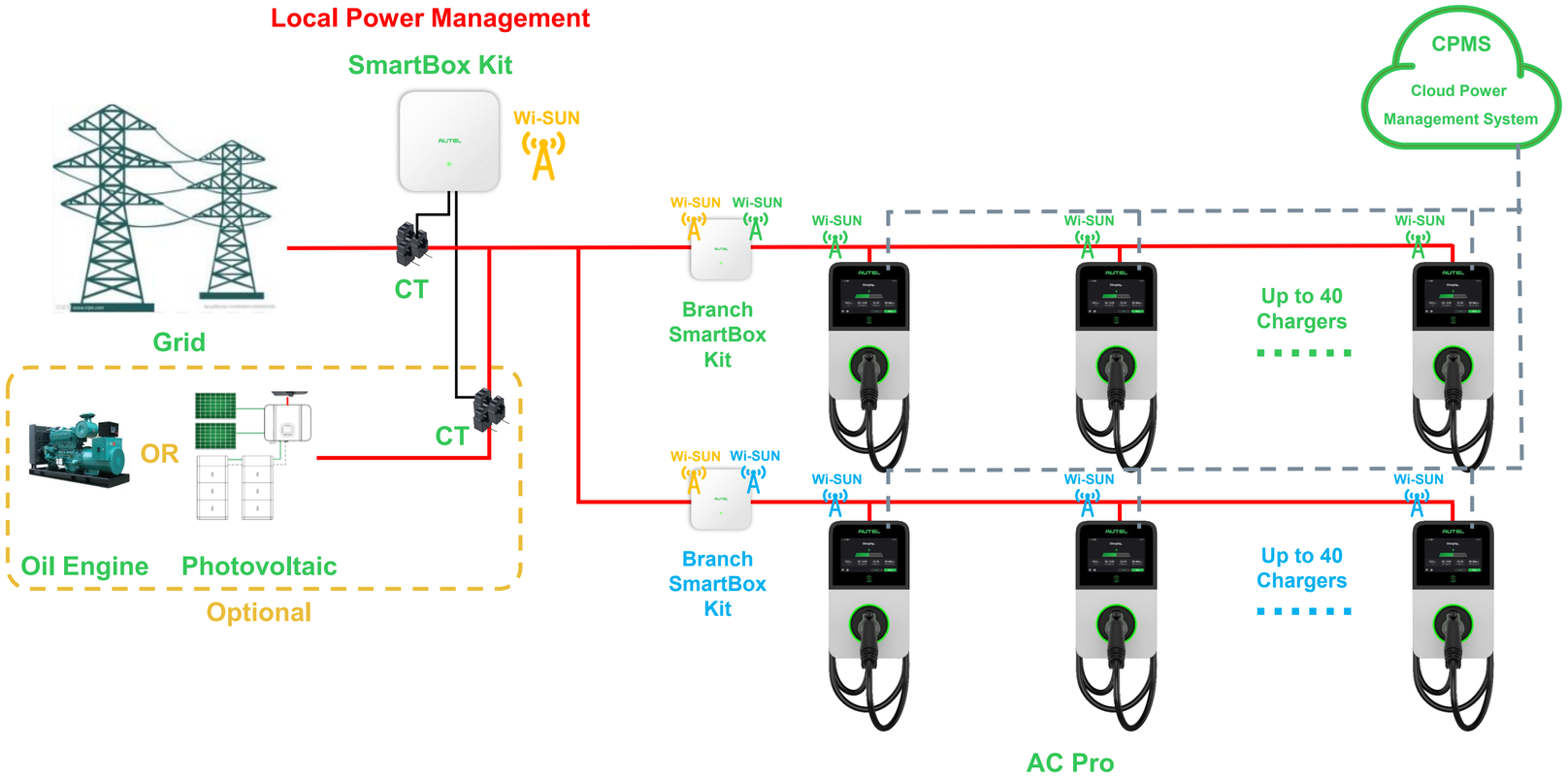
Model Num	Scenario Description				Solution			
	Name of charger	Num of charger	Distance between SmartBox and charger	Num of Circuit	Num of SmartBox	Num of SmartSensor	Num of Router	Num of CT or Rogowski Coil
Model 3	AC Pro	≤40	0m-300m	1	1	1	N.A.	Up to 6



1. SmartSensor collects current data from grid and oil engine or photovoltaic by CT or Rogowski coil, and send the data to SmartBox.
2. SmartBox and charger are networked through Wi-SUN. (No need router as using AC Pro)
3. As the master device, SmartBox performs local power management on the charger based on the data collected by SmartSensor.

Commercial Scenario Solution——Model 4

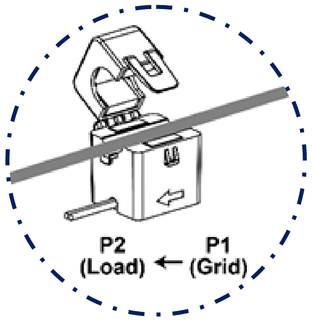
Model Num	Scenario Description				Solution			
	Name of charger	Num of charger	Distance between SmartBox and charger	Num of Circuit	Num of SmartBox	Num of SmartSensor	Num of Router	Num of CT or Rogowski Coil
Model 4	AC Pro	≤200	0m-1000m	N	N+1	N+1	N.A.	Up to 6



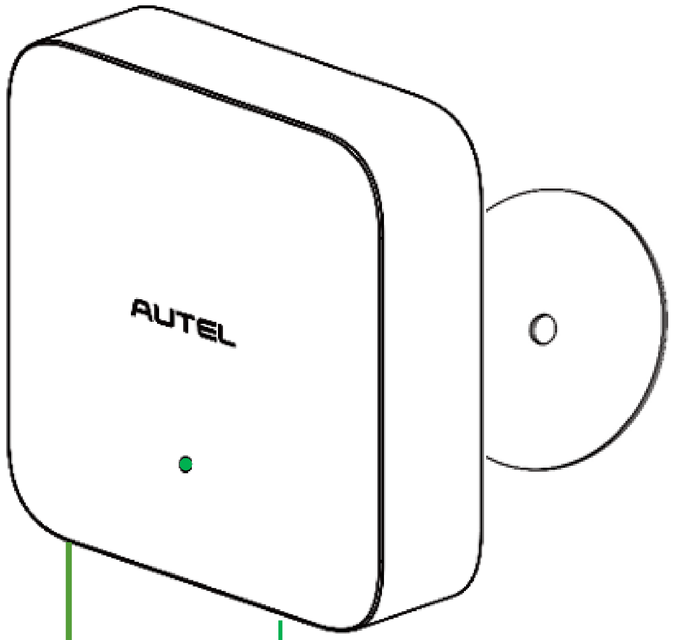
1. SmartSensor collects current data from grid and oil engine or photovoltaic by CT or Rogowski coil, and send the data to SmartBox.
2. SmartBox and charger are networked through Wi-SUN.
3. In a multi-branch circuit scenario, each branch is managed by a branch SmartBox Kit. A master SmartBox Kit mange all branch SmartBox Kits to perform local power management.
4. If any branch SmartBox Kit far away from master SmartBox Kit over 300m, other branch SmartBox Kit between them within 300m should be a relay SmartBox Kit.

SmartBox Kit Set Up

Using Ethernet Cable

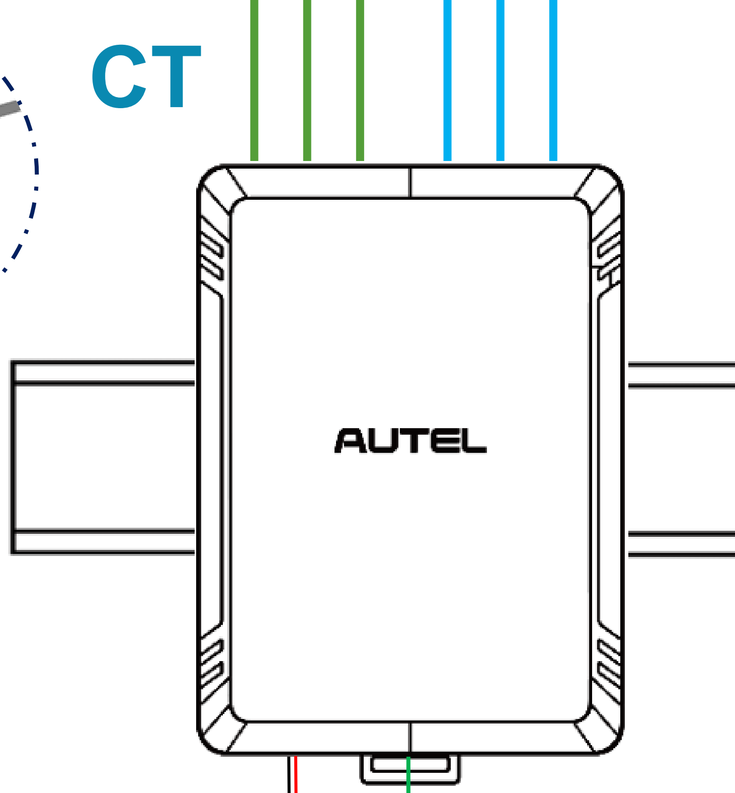


CT



Magnet

DIN Rail



RJ12 – RJ12 power supply to SmartBox

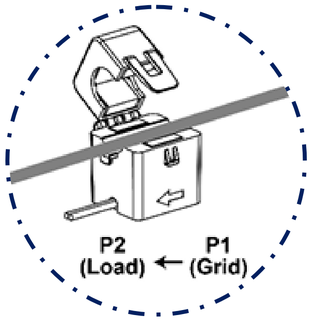
SmartBox

SmartSensor

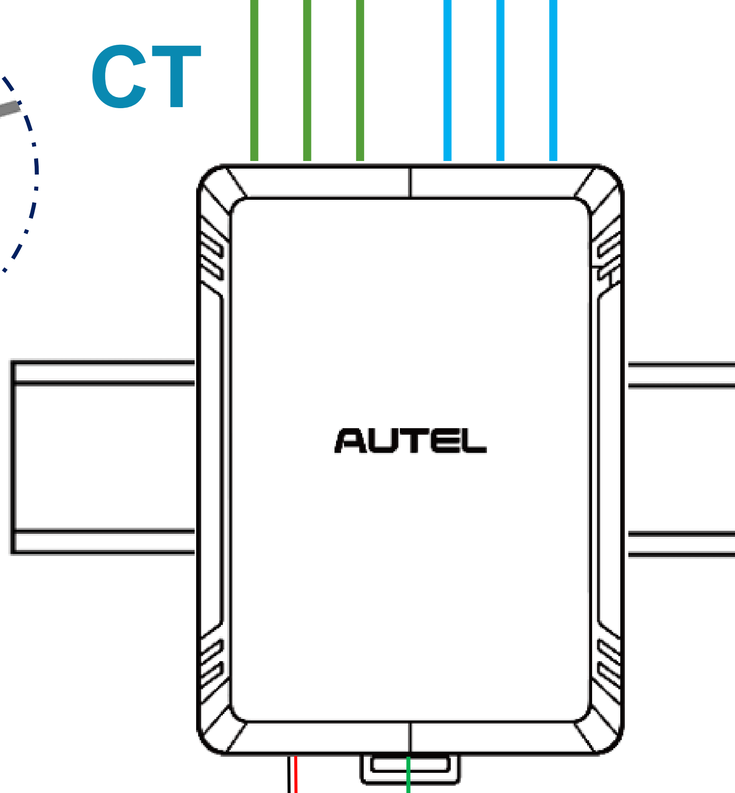
RJ45 Ethernet cable (not provided)

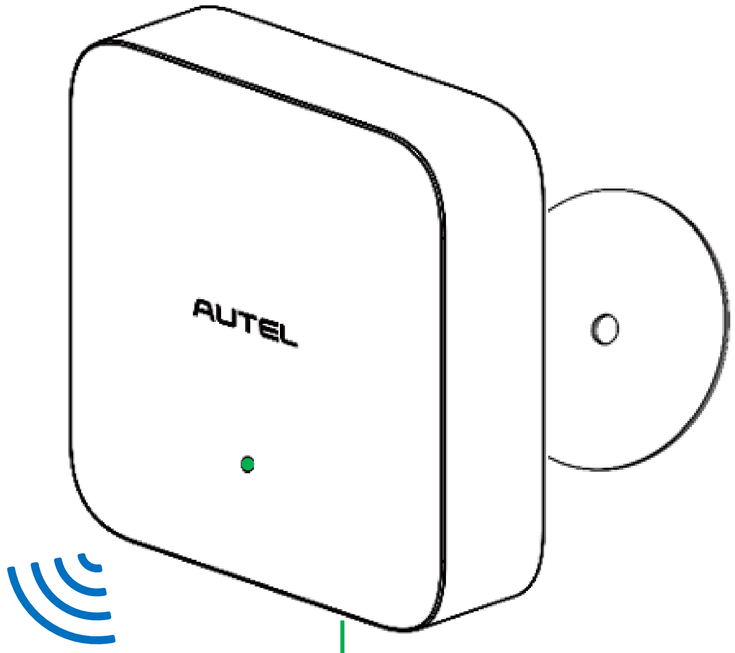
12-24 VDC power supply to SmartSensor

Using Wi-Fi



CT





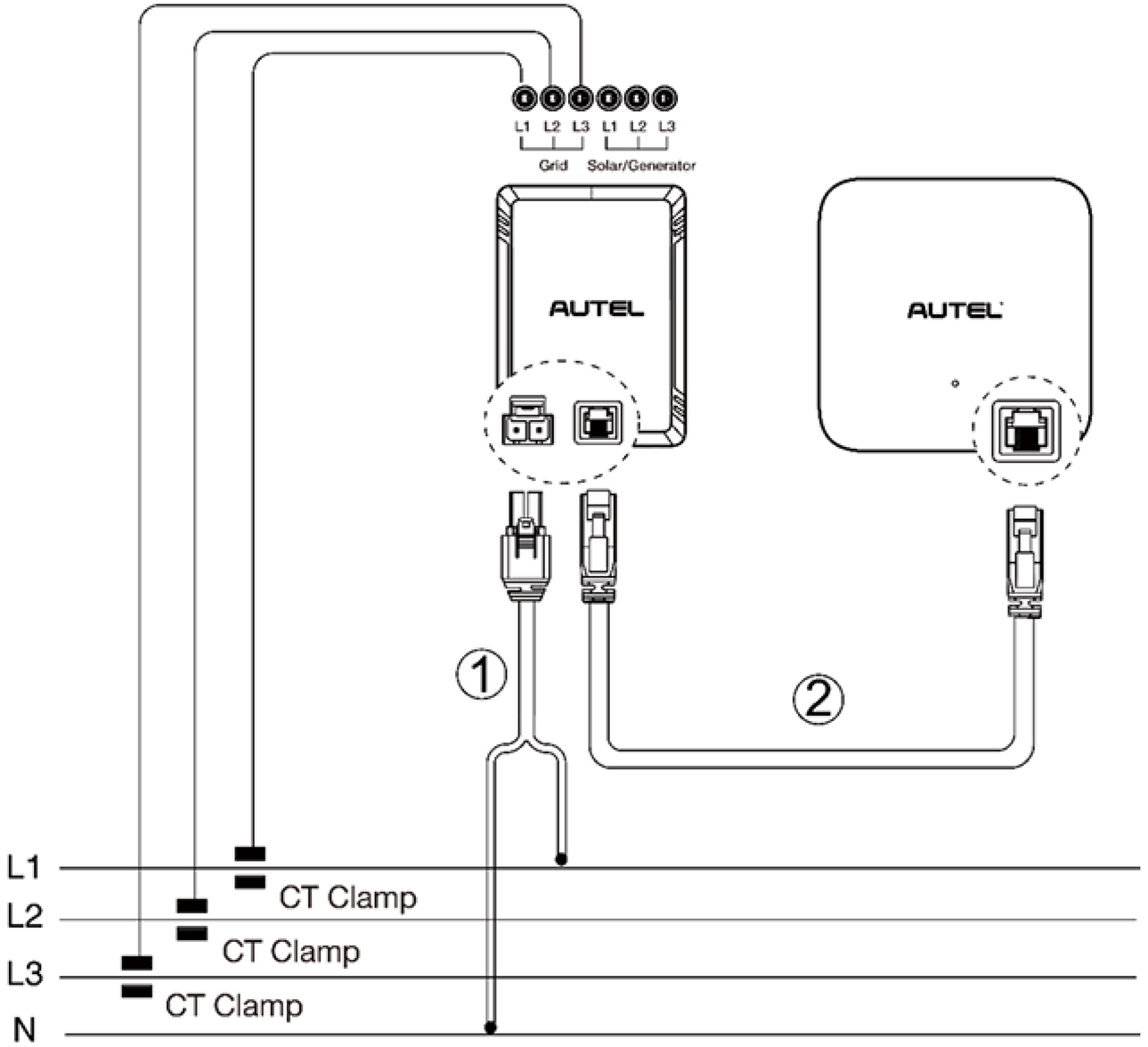
RJ12 – RJ12 power supply to SmartBox

SmartBox

SmartSensor

Wi-Fi communication

12-24 VDC power supply to SmartSensor

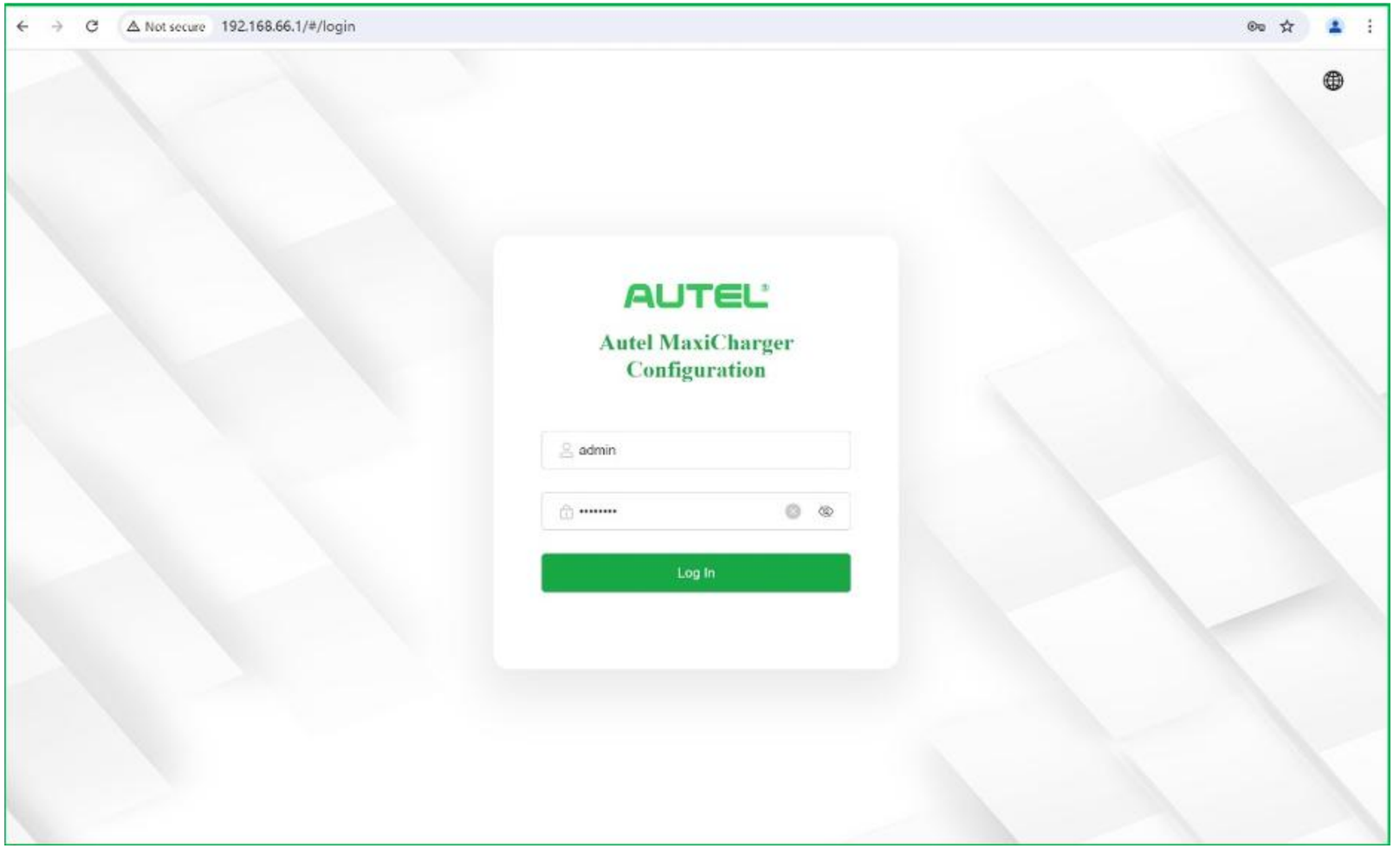

L1 L2 L3 L1 L2 L3
Grid
Solar/Generator
AUTEL
AUTEL
1
2
L1
L2
L3
N
CT Clamp
CT Clamp
CT Clamp

1. Once the SmartBox is properly installed and powered on, the user can connect the device via Wi-Fi hotspot on a mobile device or computer. Select the network and enter the password.

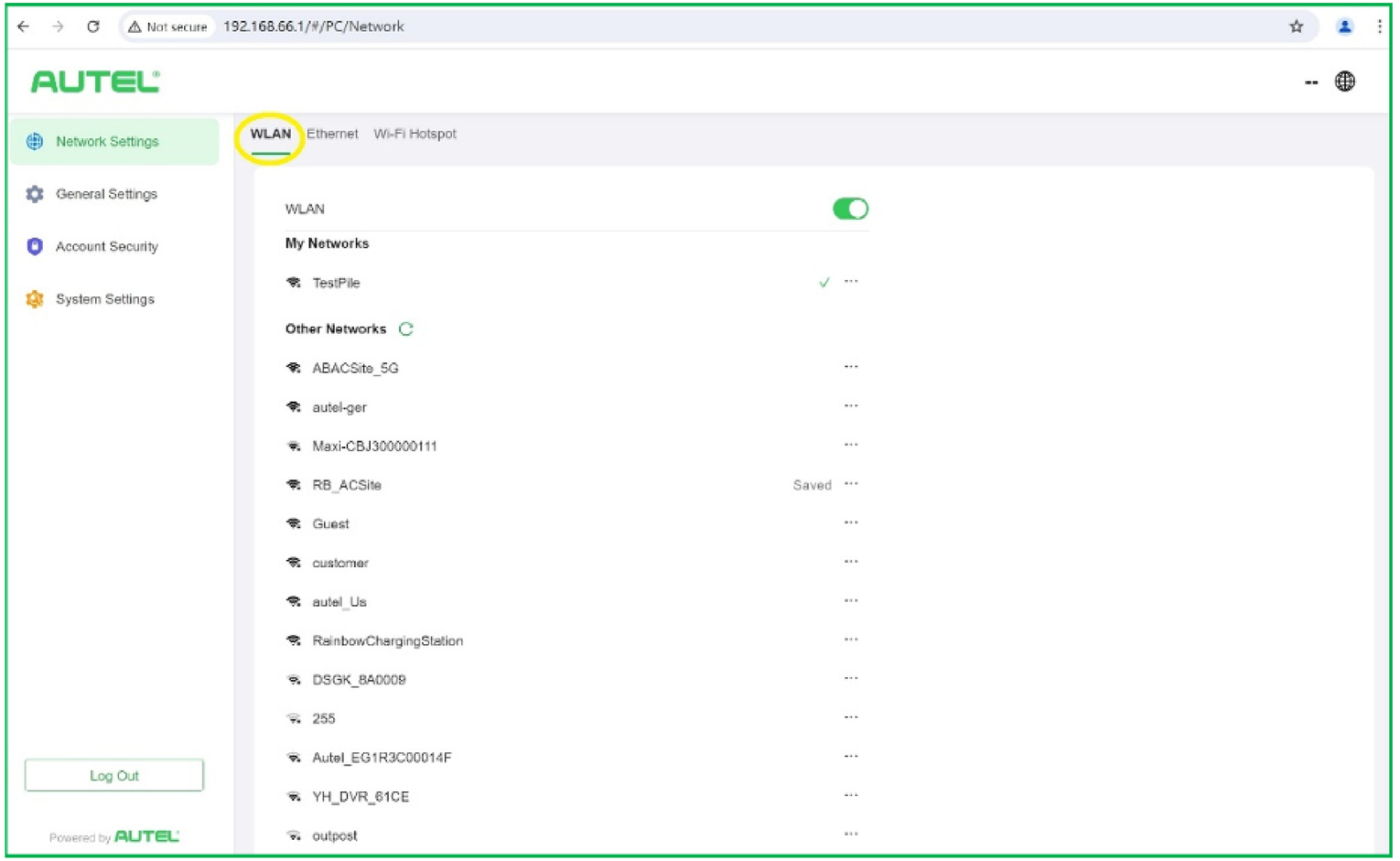
— The network name (SSID): Autel suffixed with the device’s serial number (can be found on the name plate)
— The password (security key): last 6 digits of SN + “autel”

2. After the Wi-Fi hotspot is connected, input the URL 192.168.66.1 on a mobile device or computer and log in to the Autel MaxiCharger Configuration Platform (AMCP) using the following information:

— Username: admin
— Password: the device’s PIN code (can be found on the Quick Reference Guide)

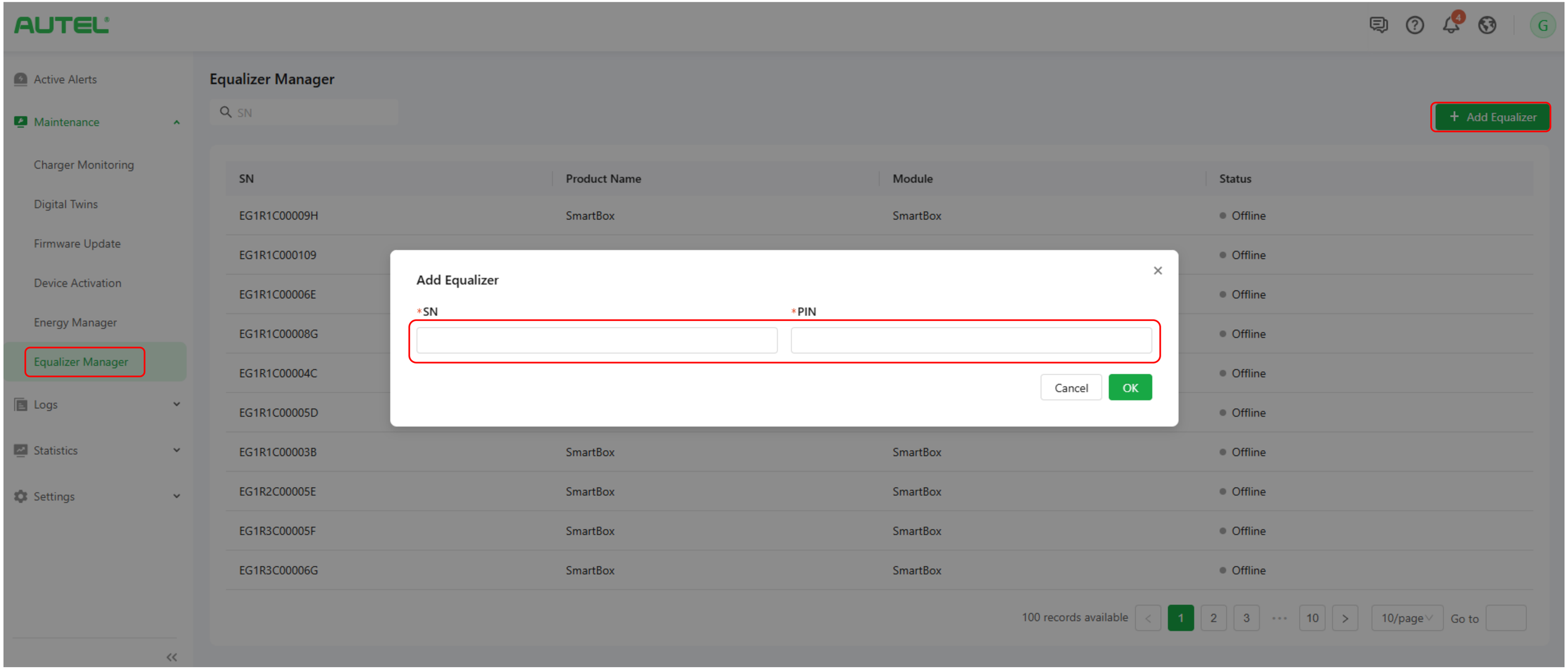


3. Select Network Settings > WLAN and connect to your local network.
The SmartBox now is connected to the Internet.



Register SmartBox On The Autel Maintenance

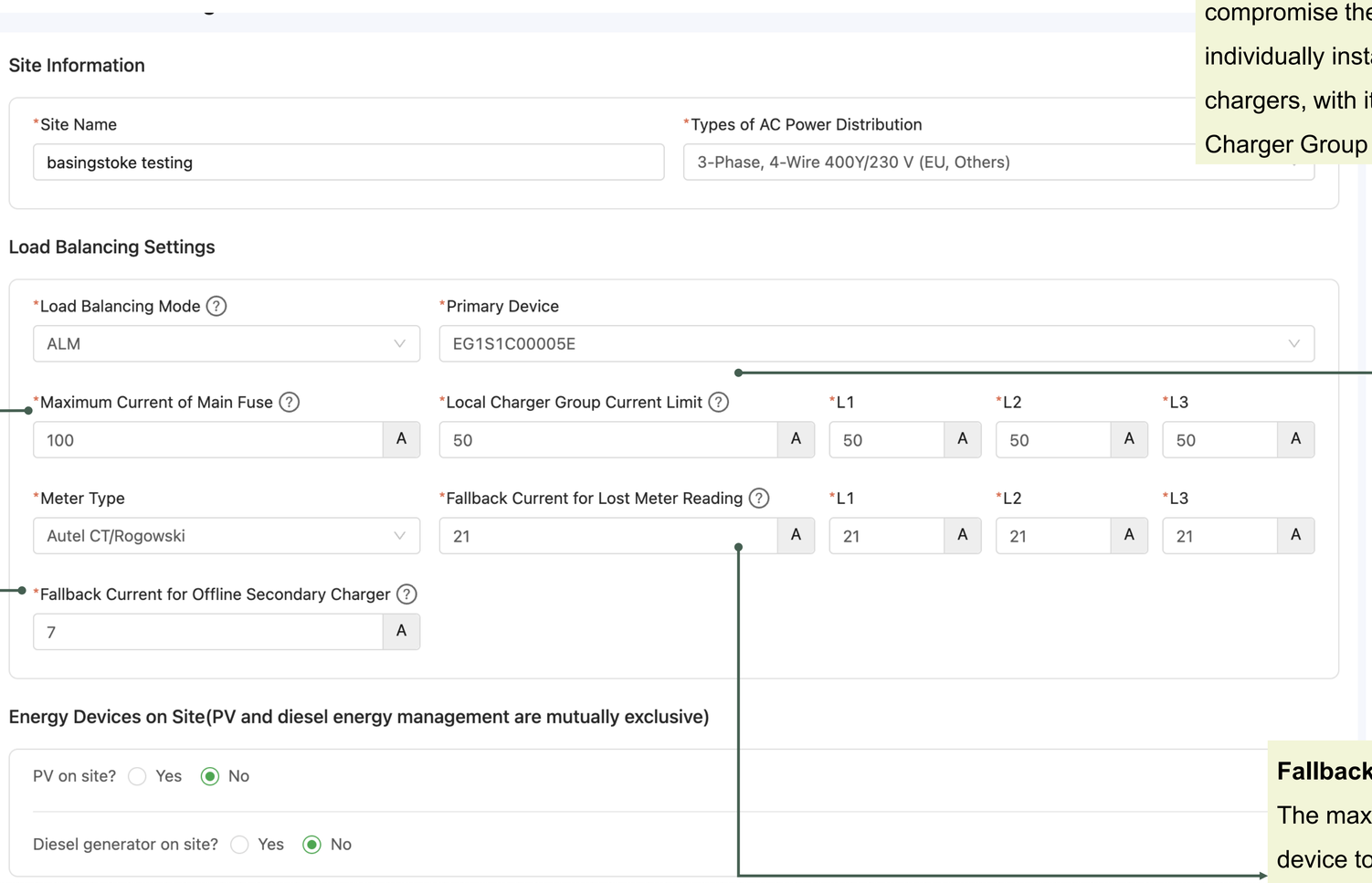
Register SmartBox On The Autel Maintenance



Set Up Mesh

Maximum Current of Main Fuse:
refers to the maximum current allowed by the main fuse on the main circuit.

Local Charger Group Current Limit:
To ensure the charging current of chargers does not compromise the main circuit fuse, a dedicated fuse is individually installed at the incoming power line of all chargers, with its current limit configured as the Local Charger Group Current Limit.



Fallback Current for Offline Secondary Charger:
Refers to the automatically enforced current limit on secondary chargers to prevent circuit overload when communication is lost between a secondary charger and the primary device.

Fallback Current for Lost Meter Reading:
The maximum current allocated by the primary device to the chargers to prevent circuit overload when the primary device fails to collect real-time current data from the main circuit (e.g., due to meter malfunction)

Secondary Charger

SN

Batch Delete

+ Add Secondary Charger

No.	Charger S/N	Wiring Method	IP Address	Subnet Mask	Default Gateway	Port	Maximum Chargi Current (A)	Action
1	AE[redacted]	L1/L2/L3	192.168.1.238	--	--	502	50	
2	AE[redacted]	L1/L2/L3	192.168.1.233	--	--	502	50	
3	AE[redacted]	L1/L2/L3	192.168.1.110	--	--	502	50	
4	AE[redacted]	L1/L2/L3	192.168.1.196	--	--	502	50	
5	AE[redacted]	L1/L2/L3	192.168.1.194	--	--	502	50	

The IP address for secondary chargers would automatically assign