

JUNE 2020

Terra AC Wallbox

Loadmanagement

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Document ID.: Rev.:

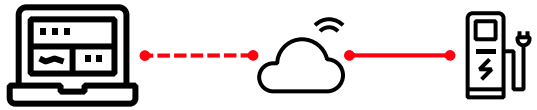
Terra AC Load Management

Overview

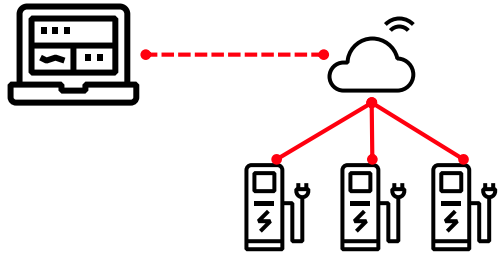
Static w/ single charger



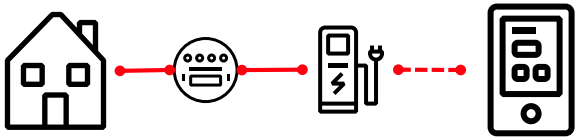
Static w/ single charger



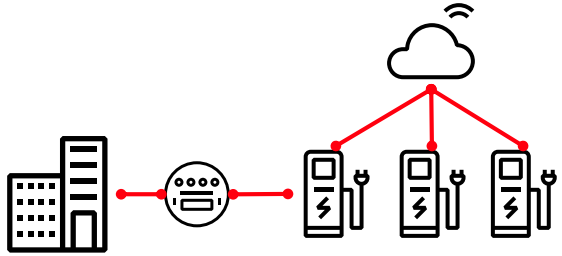
Hybrid w/ multiple chargers



Dynamic w/ single charger

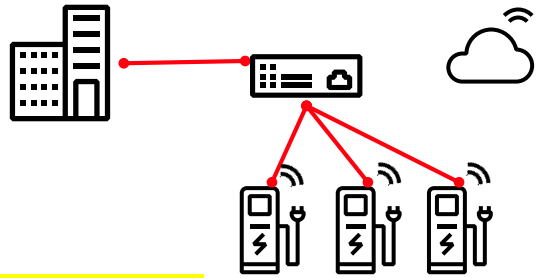


Dynamic w/ multiple chargers



Ab März verfügbar

Dynamic w/ multiple chargers via local controller



Ab März verfügbar

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Static load management with Terra AC

Terra AC Load Management

Static w/ single charger



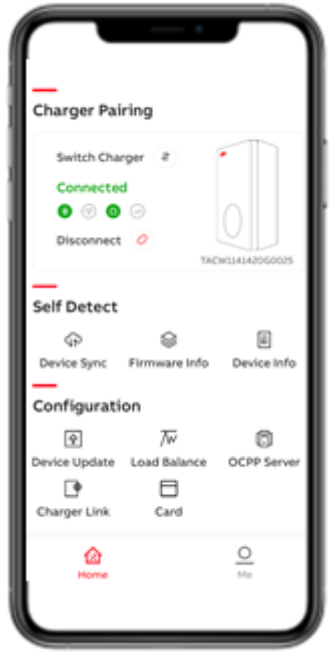
Home / Single use case scenario

- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on TerraConfig App (Installer / Technical support)
- Configuration done when commissioning
  Setting the current limit in accordance with the grid's remaining capacity for the charger
- Goal is to protect the fuse
- Solid configuration that can only be changed by another installer/ technical support engineer, therefore cannot be changed by the end user



no extra hardware needed

TerraConfig App



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Terra AC Load Management

Static w/ single charger



Home / Single use case scenario

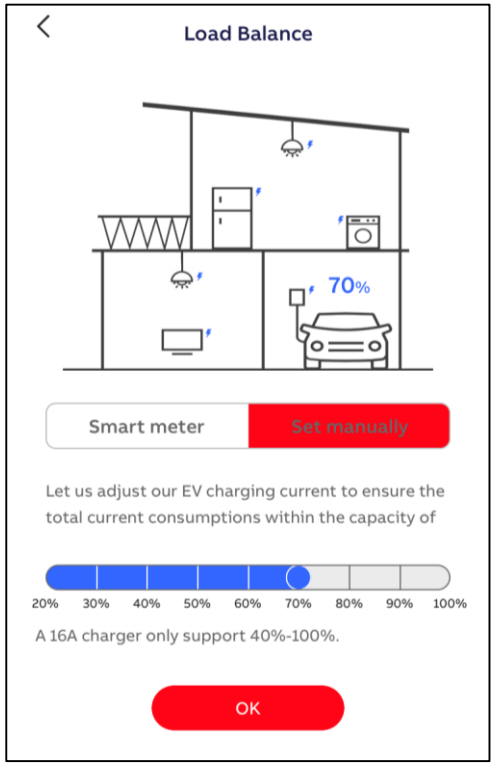
- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on the ChargerSync App (EV driver)
- Configuration can be done at any time (even while there is an ongoing charging session)
- Goal is to let the EV driver decide the maximum value of current the EV will charge with*

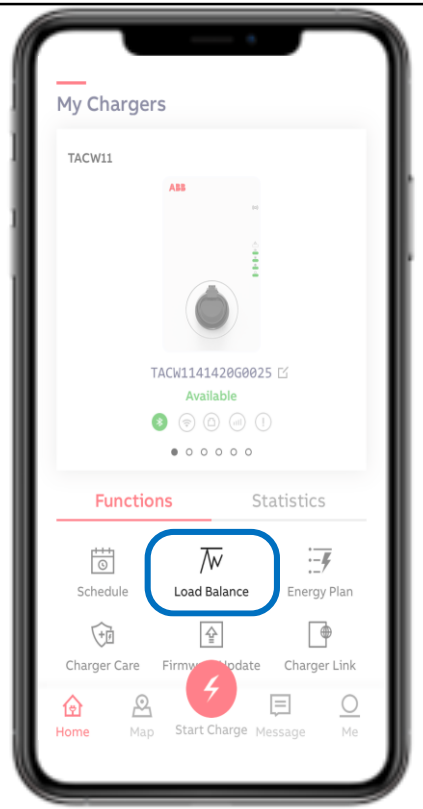


no extra hardware needed

*Depends on the EV's SoC

ChargerSync App

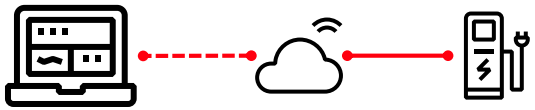




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Terra AC Load Management

Static w/ single charger



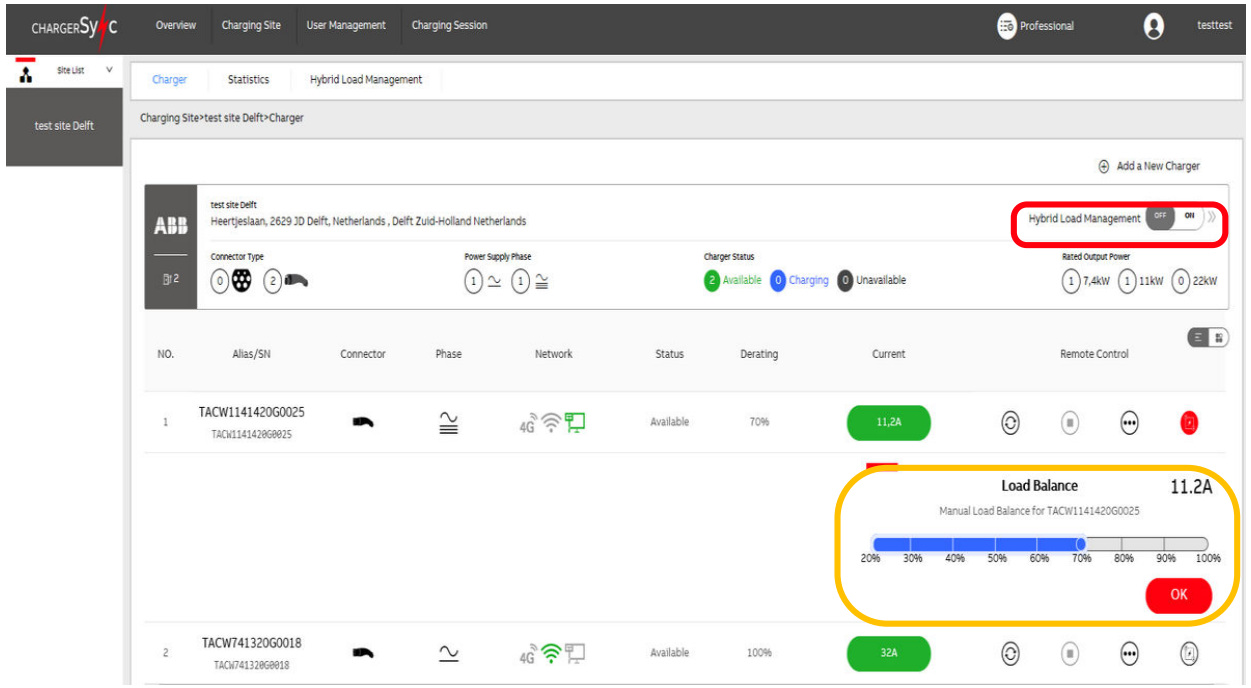
Local business use case scenario

- x number of Terra ACs
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via internet on the ChargerSync Essentials Operational Portal
- Configuration can be done at any time (even while there is an ongoing charging session)
- Goal is to let the operator(s) of these accounts handle the maximum current of their chargers individually
- If hybrid load balancing feature is on, (static) load balance cannot be used anymore (it becomes grey)



no extra hardware needed

ChargerSync Essentials Operational Portal

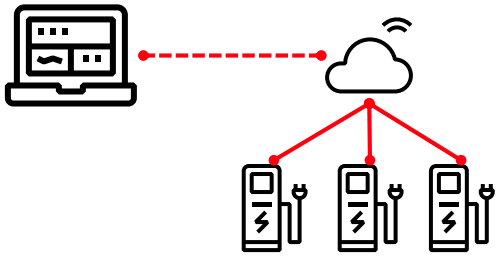


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Hybrid load management with Terra AC

Terra AC Load Management

Hybrid w/ multiple chargers 1/4

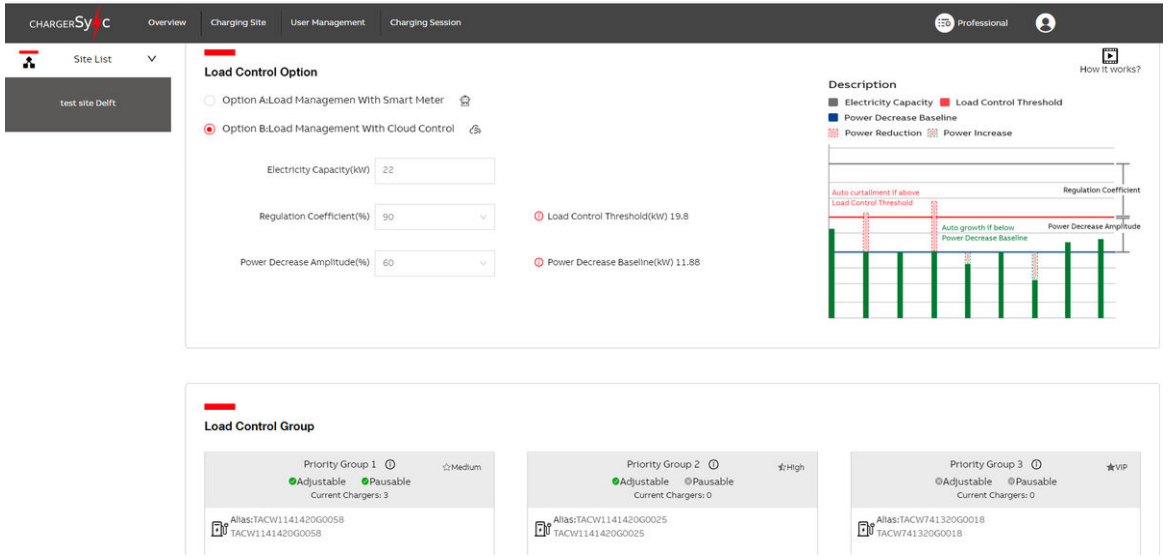


Big accounts use case scenario

- x number of Terra ACs in a charging site
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via internet on the ChargerSync Network Webportal
- 3 Priority groups for the chargers:
  Medium (first to decrease current/power, delayed start charging);
  High (second to decrease current/power, immediately start charging);
  VIP (could not decrease, immediately start charging)
- Configuration can be done at any time
  All chargers in a charging site must be entered in a priority group
- Goal is to let the operator(s) of big accounts handle their charging sites

*Not a free feature

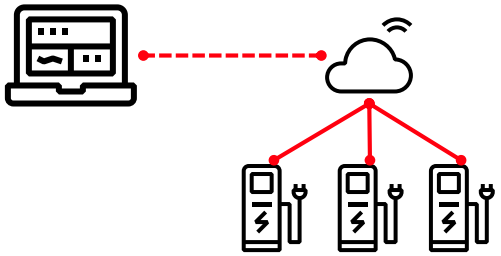
ChargerSync Network* Webportal
Hybrid Load Management



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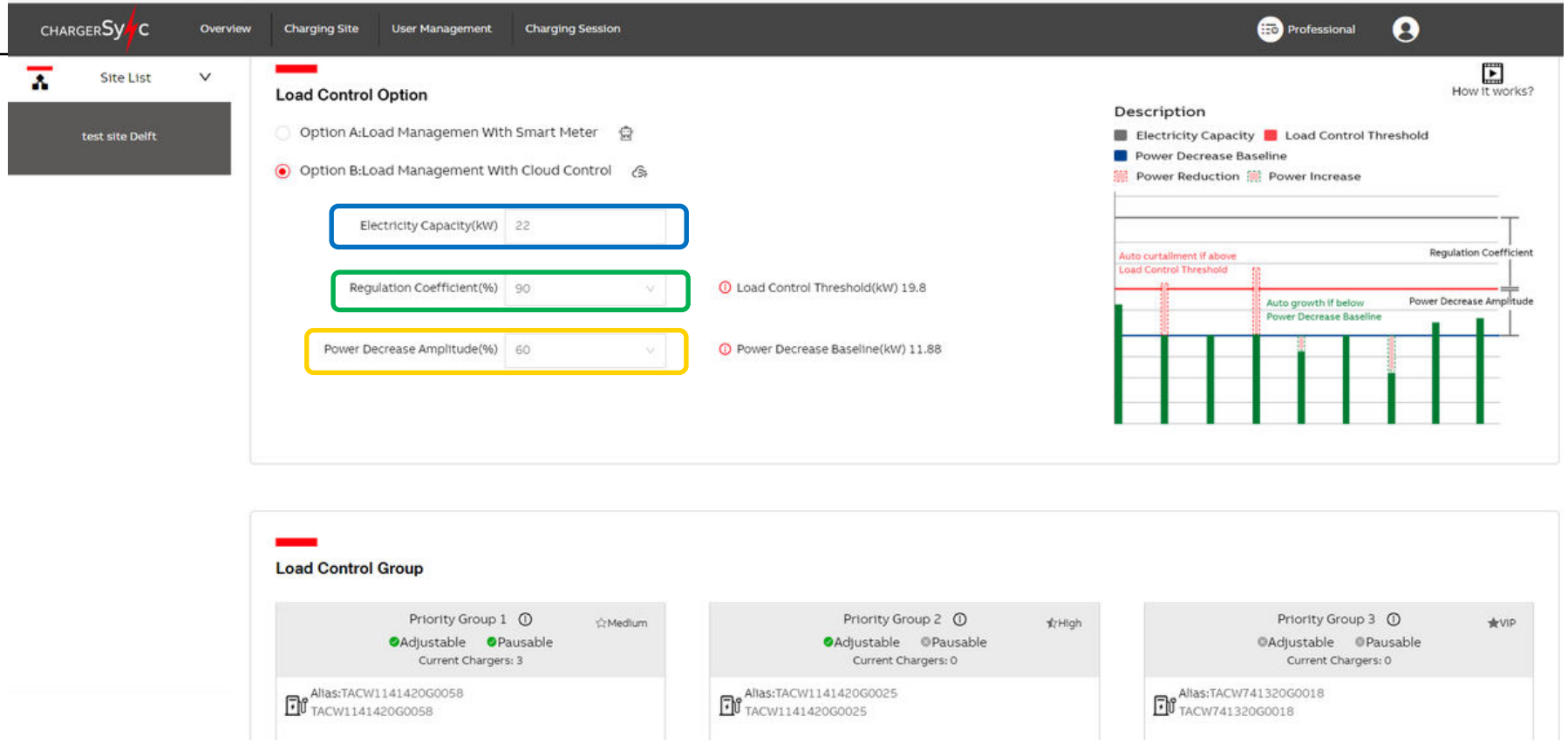
Terra AC Load Management

Hybrid w/ multiple chargers 2/4



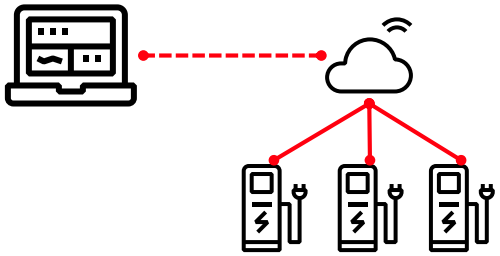
ChargerSync Network* Webportal Hybrid Load Management

- Electricity capacity:
  The capacity of this charger site
- Regulation Coefficient:
  To regulate the upper limits of the total output power of the chargers
- Power Decrease Amplitude:
  To regulate the baseline of the total output power of the chargers



Terra AC Load Management

Hybrid w/ multiple chargers 3/4

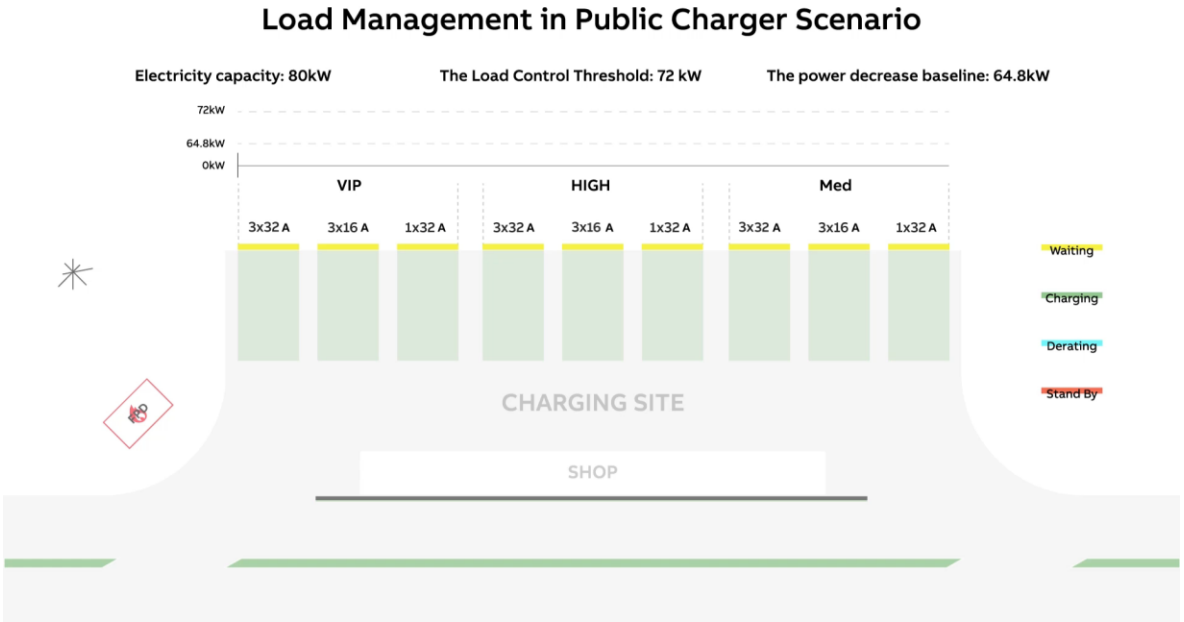


Big accounts use case scenario

- Main function: Cloud acts as master, chargers as slaves.
  It's a hybrid way of balancing because it acts as static to the grid limitation but as dynamic to the cluster itself

no extra hardware needed

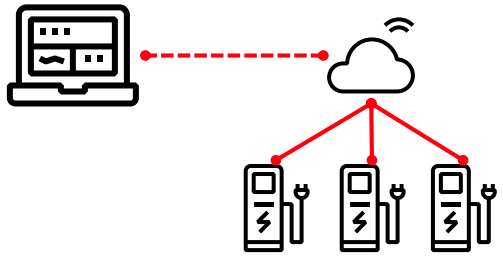
Hybrid Load Management



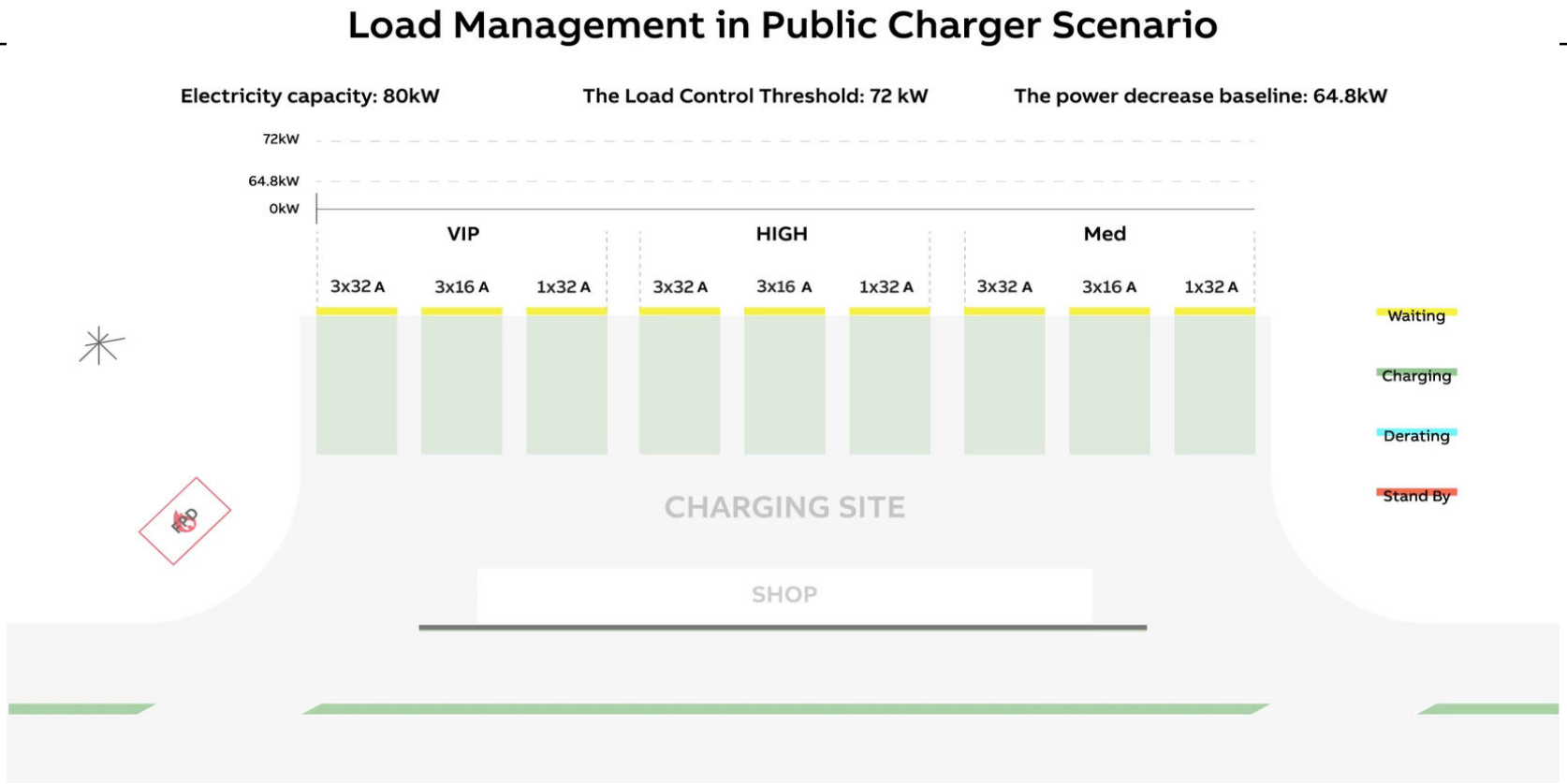
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Terra AC Load Management

Hybrid w/ multiple chargers 4/4



Hybrid Load Management

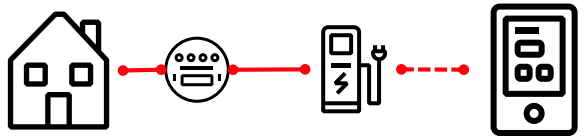


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Dynamic load management with Terra AC

Terra AC Load Management

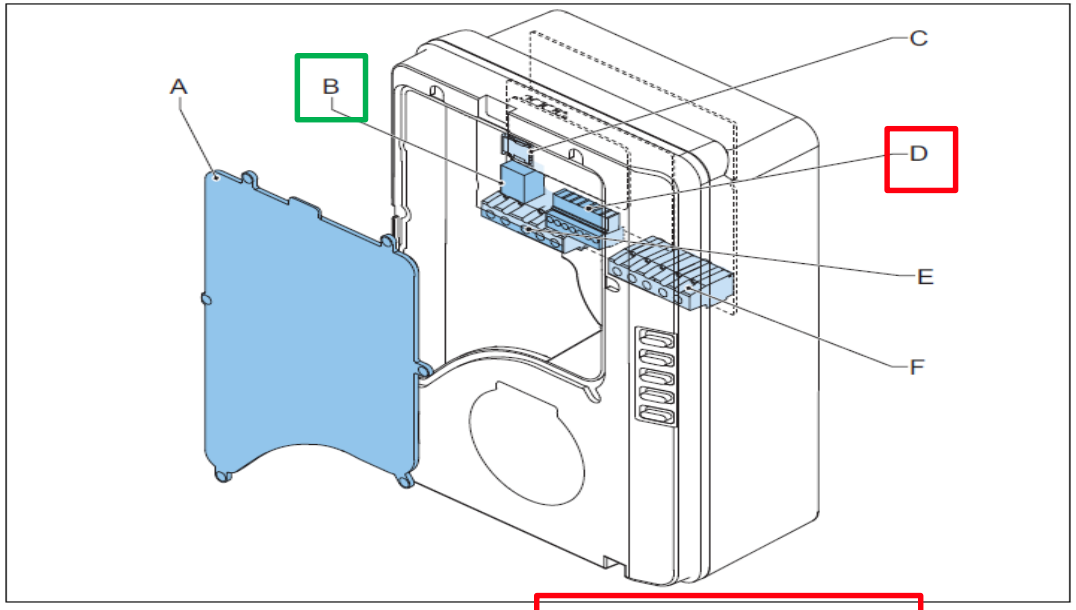
Local Dynamic w/ single charger 1/2



Home / Single use case scenario

- 1 Terra AC
- No connectivity (WiFi, LAN, 4G) needed
- Connection via Bluetooth on TerraConfig App (Installer) for setting the parameters of smart meter
- Connection via Bluetooth on Chargersync App (EV driver) for setting the parameters of the specific use case

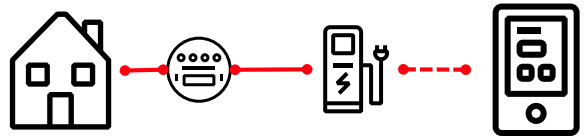
Overview of the EVSE, inside



A Maintenance cover
B Ethernet connection
C Socket for a Nano-SIM card
D Smart meter connection
E Terminal block for the AC input
F Terminal block for the EV charge cable or the socket

Terra AC Load Management

Local Dynamic w/ single charger 2/2

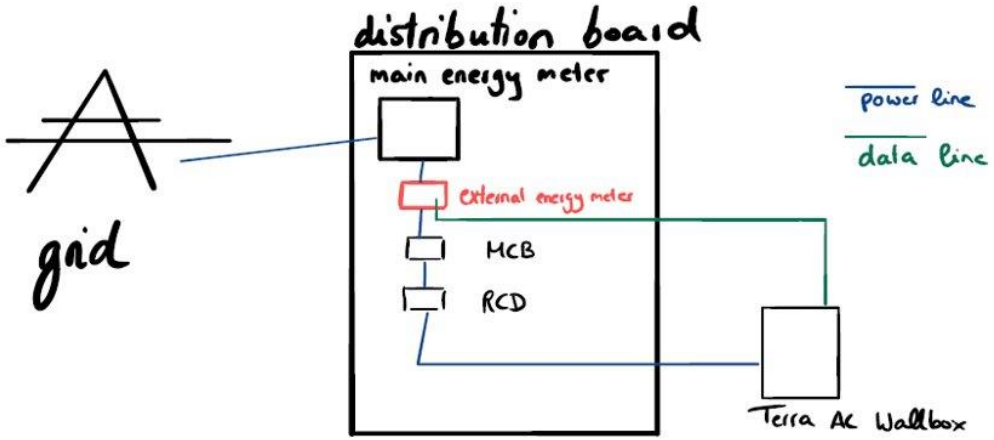


Home / Single use case scenario

- The meter values are transmitted via the RS485 cable from the smart meter to the Terra AC and the charger acts accordingly

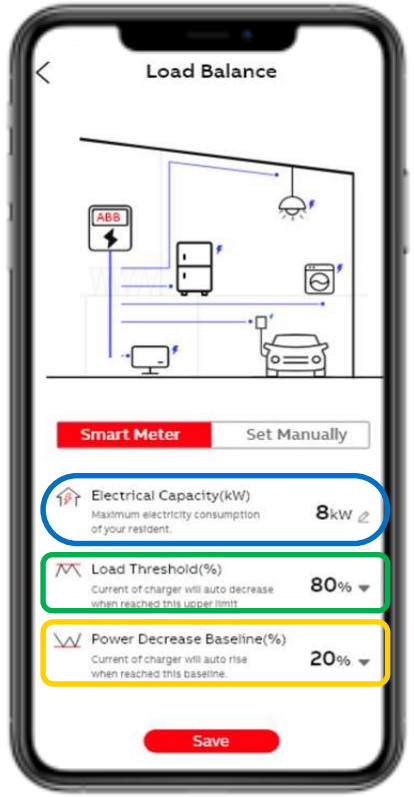
extra hardware needed (smart meter)

Example of a Terra AC with a smart meter



Feature of ChargerSync App

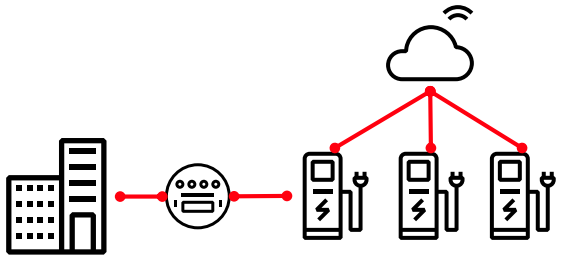
- Electricity capacity:
  Maximum electricity capacity of your residence
- Load Threshold:
  Current of charger will decrease when this limit is reached
- Power Decrease Baseline (%):
  Current of charger will increase when this baseline is reached



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Terra AC Load Management

Remote Dynamic w/ multiple chargers 1/2

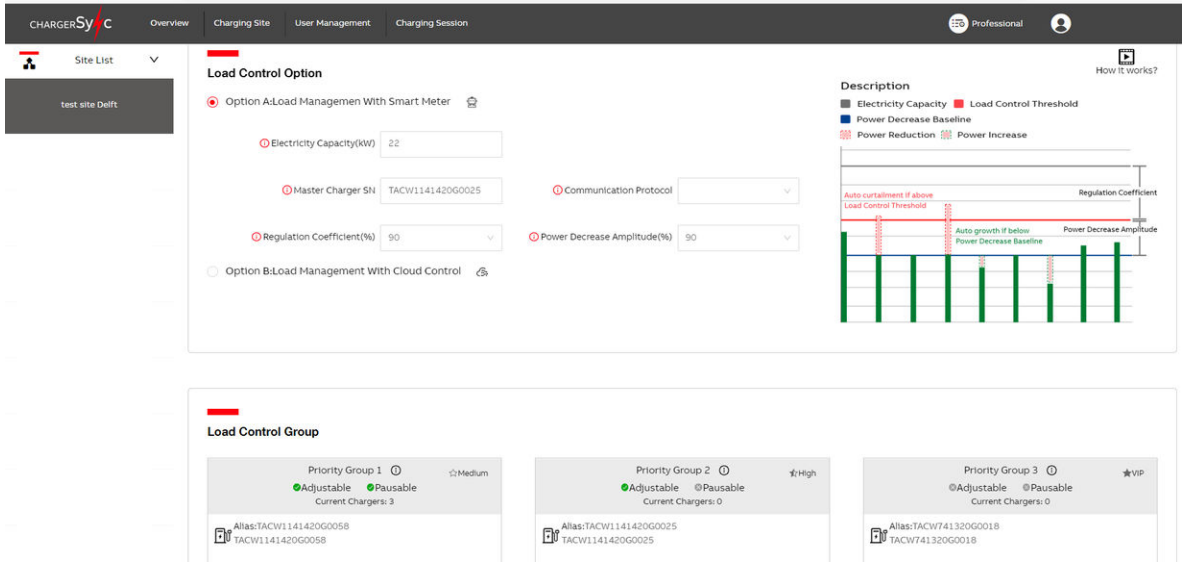


Big accounts use case scenario

- x number of Terra ACs
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Connection via Bluetooth on TerraConfig App (Installer) for setting the parameters of smart meter
- Connection via internet to Chargersync Network Web portal for setting the parameters of the specific use case
- Only 1 charger is connected to the smart meter.
  The meter values are transmitted via the RS485 cable from the smart meter to the paired Terra AC and then to the cloud, which acts like a “master” and the Terra ACs as “slaves” (algorithm on cloud).
- Allocation of the chargers to priority groups (load control group)

extra hardware needed (smart meter)

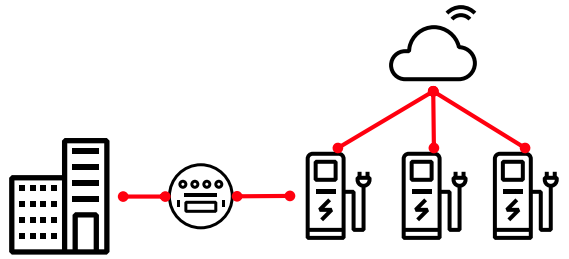
ChargerSync Network Web portal



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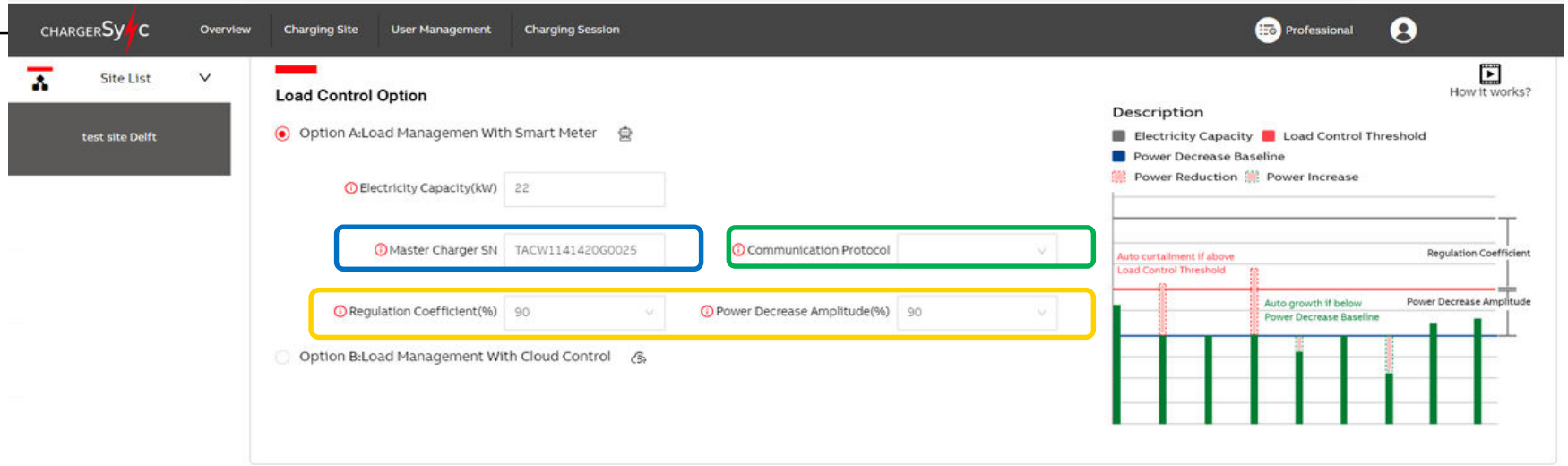
Terra AC Load Management

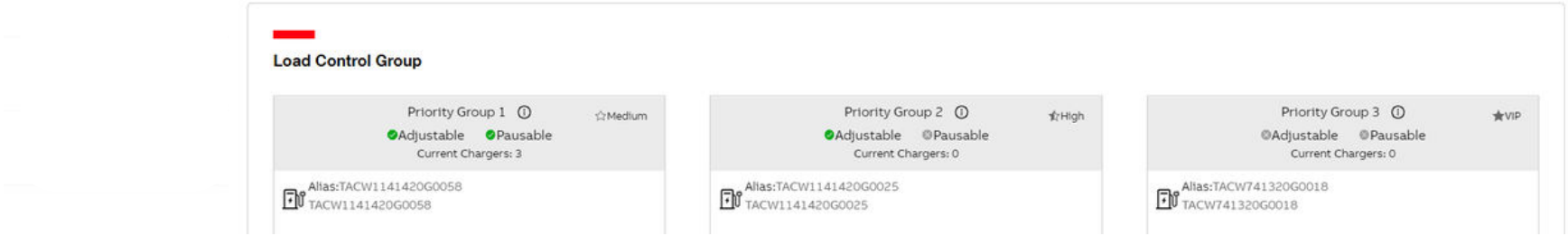
Remote Dynamic w/ multiple chargers 2/2



ChargerSync Network Web portal

- Master Charger SN:
  The serial number of charger that is paired with smart meter
- Communication protocol:
  Modbus RTU or TCP/IP
- Parameters' defintions:
  (see slide 18)

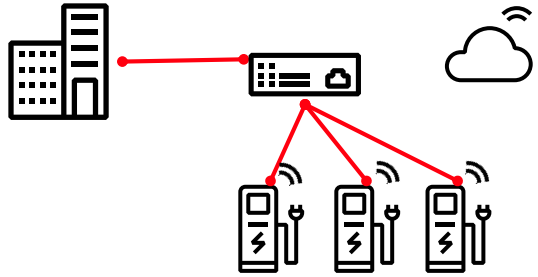




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Terra AC Load Management

Dynamic w/ multiple chargers via Local Controller (external device)



Big accounts use case scenario

- x number of Terra ACs
- Connectivity (WiFi, LAN, 4G) to ABB backend/server needed
- Chargers and controller need to be at the same local network
- Configuration done when commissioning by the installer
- The local controller acts like a “master” and the Terra ACs as “slaves”.
  A set of chargers which are connected to a local load management controller as slave(s), receive an assigned current budget to be used. The assigned budget can be applied ad-hoc or with a dedicated start and end time. The charger sends back actual charging current and status of the charger.

extra hardware needed (local controller)

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