150 HOLBORN

DISCHARGE OF CONDITIONS

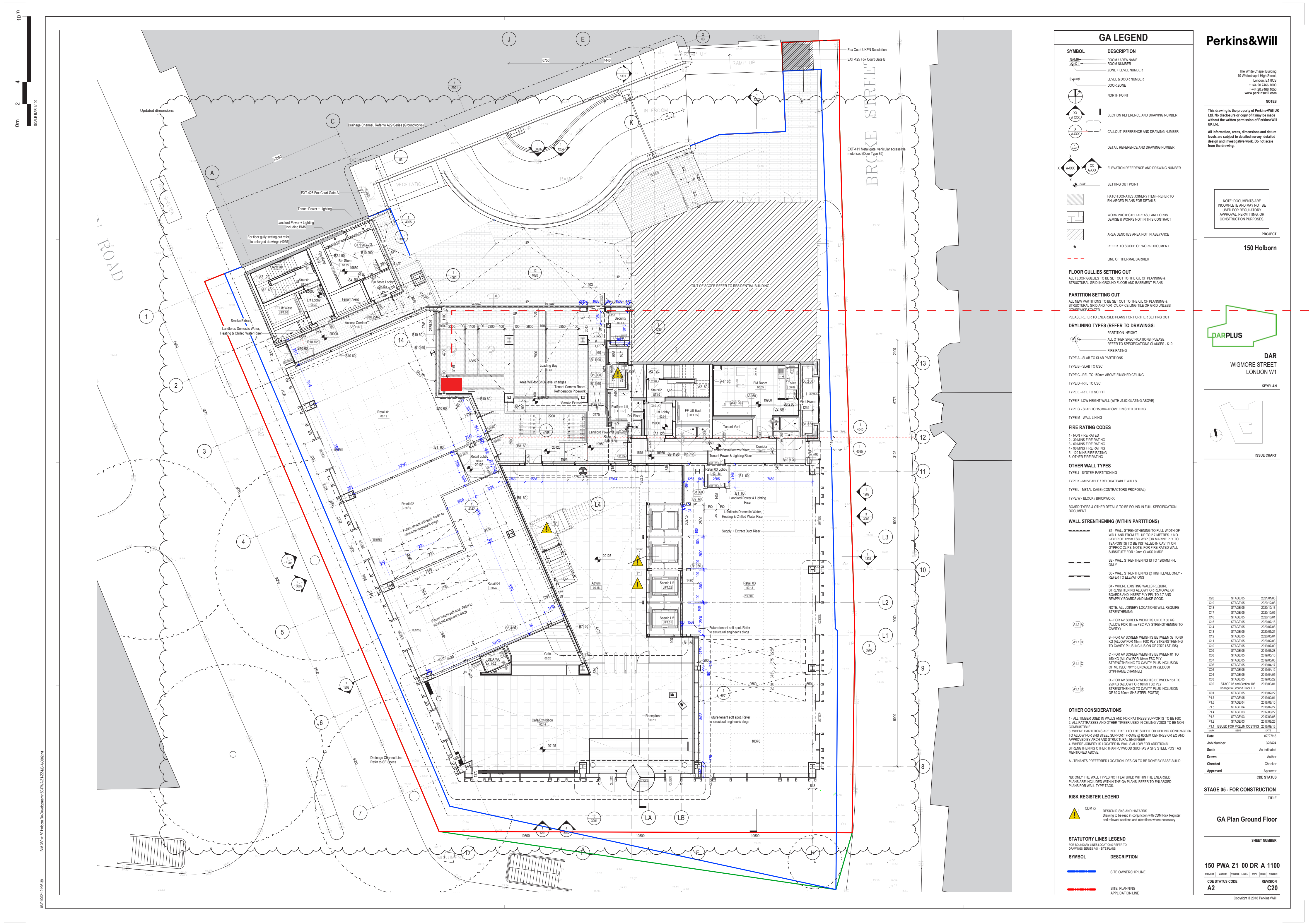
CONDITION REFERENCE - 44

February 2021

DARPLUS

DISCHARGE OF CONDITIONS - REF 44

Prior to the first occupation of any part of the development, confirmation of the necessary measures to secure 1 active electric vehicle charging point within the development shall be submitted to and approved in writing by the local planning authority. Such measures shall be completed prior to first occupation and shall be thereafter be retained and maintained.



Location of electrical charging point
(Detail techical detail below)

EVB1A22P4RI EVlink Smart Wallbox - 7.4W - T2S – Plug & Play Characteristics

Range	EVlink
Product name	EVlink Smart Wallbox
Product or component type	Charging station
Device short name	EVB1
Poles description	3P + N for power circuit 1P + N for power circuit
Mounting mode	Pedestal mount Wall-mounted
Offer type	Standard
[Us] rated supply voltage	380...415 V AC 50/60 Hz 220...240 V AC 50/60 Hz

Complementary

Socket outlet type	T2S
Socket number	1
Output type	Right side T2 with shutter socket-outlet / silver plated contacts
Earthing system	TN-S Compatible IT with additional isolation transformer on the power supply TT
Number of inputs	6
Connector type	RS485 for metering Modbus 3 RJ45 for Ethernet LAN connection
Input type	Binary power limitation closing contact Binary delayed charging closing contact
Control type	1 remote control 1 illuminated push-button multi-colour stop/restart
Local signalling	1 LED multi-colour function: status indication

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1

Communication port protocol	OCPP 1.5
Operating mode	Standalone Clustured architecture
Function available	Diagnosis capabilities Load management Charge detail records
Web server	Embedded
Ethernet service	Configuration via web server

Environment

Standards	IEC 61851-22 IEC 61851-1 IEC 62196-1 IEC 62196-2
Product certifications	CE CB
IP degree of protection	IP54 IEC 60529
IK degree of protection	IK10 IEC 62262
Ambient air temperature for operation	-30...50 °C
Ambient air temperature for storage	-40...80 °C
Relative humidity	5...95 %
Height	480 mm
Width	331 mm
Depth	170 mm
Product weight	6.2 kg
Colour	Grey RAL 7016 White RAL 9003

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1622 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available

Main

How to manage loads of electrical vehicle within energy availability of the building infrastructure?

Product application sheet - EVLINK LOAD MANAGEMENT SYSTEM

Benefits

Peace of mind
Maximized continuity of service with load balancing setup, for a reliable infrastructure, all while maximizing EV charging and managing user access

Install & Commission
in a faster way a large number of charging stations

Ergonomic
with an installation wizard and a user interface easing configuration thanks to features such as automatic network scan

Scalable & sustainable
charging infrastructure via software updates

Cost effective
load management
- No subscription
- No infrastructure upgrade
- Adaptation to time of use electricity tariffs

Easy remote management
via screen, CPO platform, EcoStruxure™ BMS or other BMS (via webservices)

Connected offer
enabling update of all charging stations at the same time

Local supervision
centralising Charge Data Record and badge management

Benefits of EVlink Load Management System

EVLMS is a solution to manage electric vehicle supply while ensuring building continuity.

Requiring no subscription, it is one ideal solution for fleets, private company parking, condominium, ect.

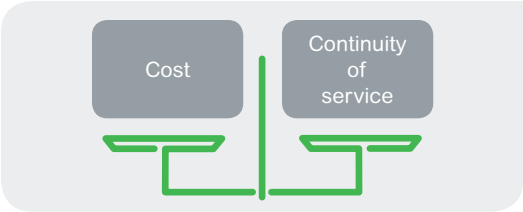
We help our customers optimize their energy use, and operate more sustainably and cost-effectively.

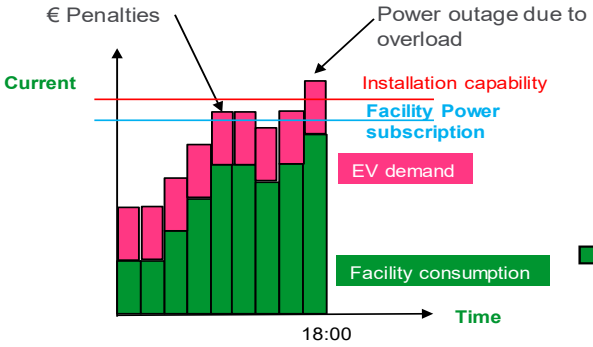
We empower our customers to both achieve their energy and sustainability goals and compete in today's electromobility economy.

Energy Management

Energy management: why do it ?

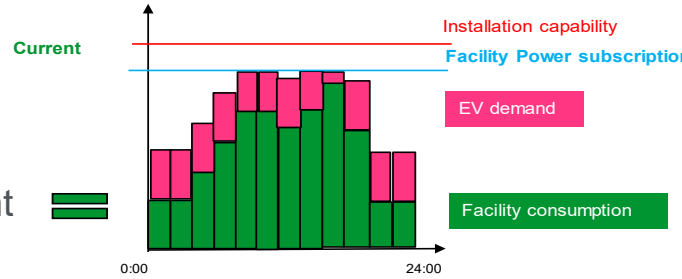
- Avoids facility disruption, causing operating losses
- Reduces energy and electrical infrastructure costs
- Makes operations more efficient
- Increases driver satisfaction





Load current profile of the building with EV charging stations

Load Management System



+ No overloading
+ No blackout
+ No penalties

And...

CAPEX	No replacement of existing electrical devices (Transformer, CB, RCD, power cables..)
OPEX	No increase of power subscription fees to Utility
	Maximization of EV charge when energy billing rate is lower

And for charging stations, how does it work?

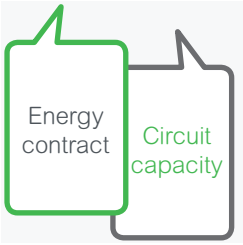
Allow **simultaneous charging** of the largest number of vehicles as quickly as possible ...

... while maintaining **charging priority privileges**, if necessary.

How to implement load management?

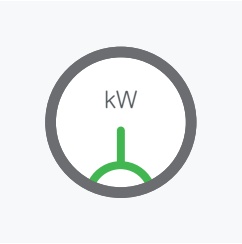
Power limit

The **"power subscription"** with the energy supplier, or the maximum power supply capacity (depending on cable cross section, circuit breakers rating, etc).



Measurements

The total power demand of each load.

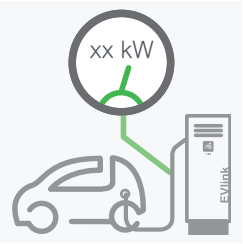


Controller

The controller performs data acquisition and runs the algorithms to control total demand and power allocation to the vehicles.

Actuators

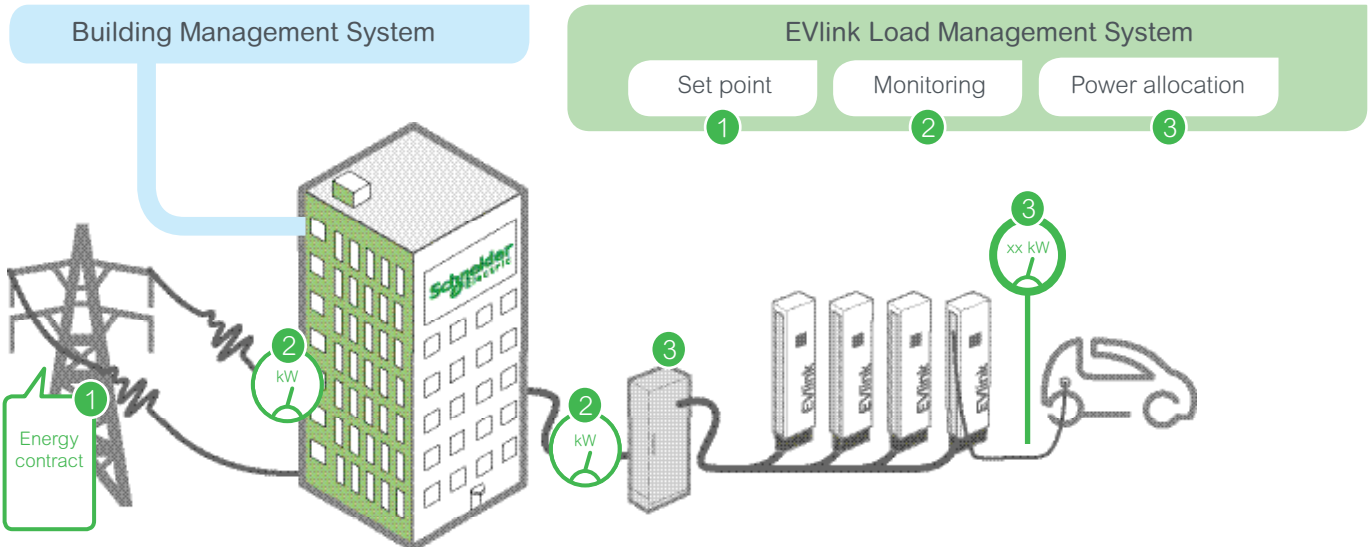
The charging stations that can execute an order and temporarily limit the current supplied to the vehicle.



2 Possible Modes :

Dynamic Load management with dynamic setpoint

To optimize the energy allocation, the remaining energy at the building is allocated to EV infrastructure in real time

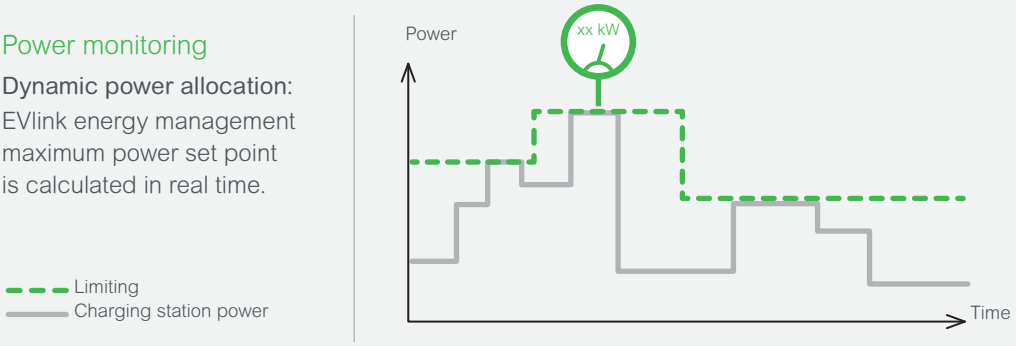


1. Selecting maximum power
2. Metering the facility and charging stations consumptions
3. Real-time algorithms to allocate power to electric vehicles

Control charging station with EVlink Load Management System

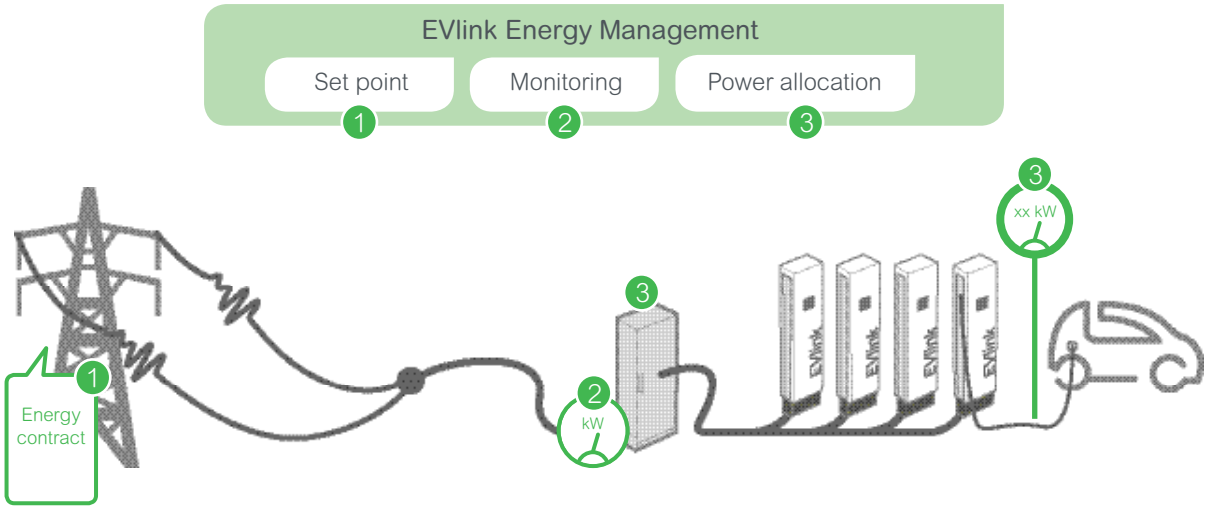
Power monitoring

Dynamic power allocation:
EVlink energy management maximum power set point is calculated in real time.



Dynamic Load Management with static setpoint

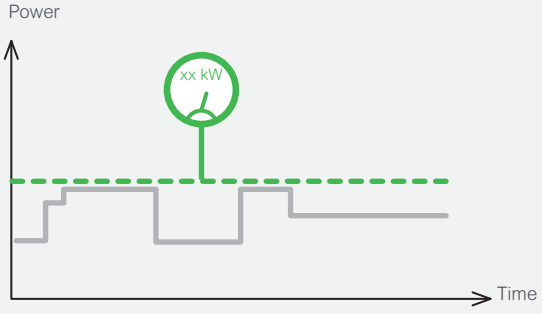
A minimim level of energy is guaranteed to load electric vehicles



1. Selecting maximum power
2. Metering the facility and charging stations consumptions
3. Real-time algorithms to allocate power to electric vehicles

Power monitoring

With 'Static power allocation' the maximum power set point value is equal to the subscribed demand or any fixed value.
This mode can also be adopted when the charging station is supplied by a facility network. In that case the set point depends on the electrical sizing of the charging station's power supply circuit, or operational needs.



EVlink Load Management System power allocation scenarios

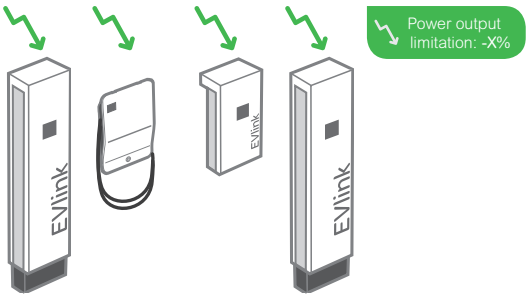
> Load Management System power allocation scenarios

By performing the load management, the controller can reduce the charging station's power by sending orders to the charging points at any time.

A choice of scenarios is set during commissioning, making it possible to consider the various needs related to the use of the vehicles that will be charged.

Proportional scenario

The output of each charging station is reduced by an identical percentage.
Case of charging stations for vehicles and drivers having equal privileges.



2 load shedding scenarios, to define during commissioning

>Energy: Proportional to the energy consumed (kWh)
• The system suspends the charging of vehicles which have consumed the highest amount of energy since the beginning of the charging process. This option is set by default.

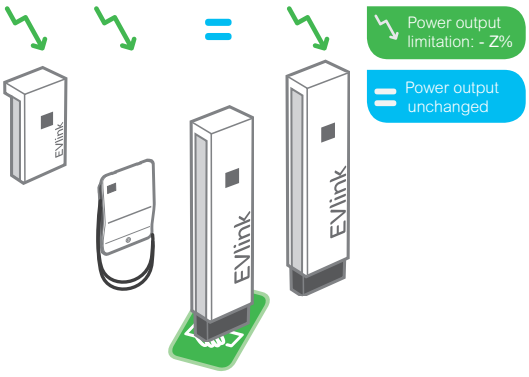
>Duration: Proportional to the charging time
• The system suspends the charging of vehicles which have charged for the longest duration since the beginning of the charging process.

The goal of the load shedding is to favor those who have received less energy in amount or in time.
In both options, the algorithm updates charging rights every 15 minutes.

VIP badge or VIP charging station privileges

The station charging a vehicle identified by a priority badge does not apply the requested reduction or only partially.

Case of charging stations with RFID badge authentication. Charging of certain vehicles is not penalized for service reasons or to give priority to customers.



References

EVlink Load Management System	Static set point (1)	Dynamic set point (1-2)
5 charging stations		HMIBSCEA53D1EDB
15 charging stations	HMIBSCEA53D1ESS	HMIBSCEA53D1EDS
50 charging stations	HMIBSCEA53D1ESM	HMIBSCEA53D1EDM
100 charging stations	-	HMIBSCEA53D1EDL

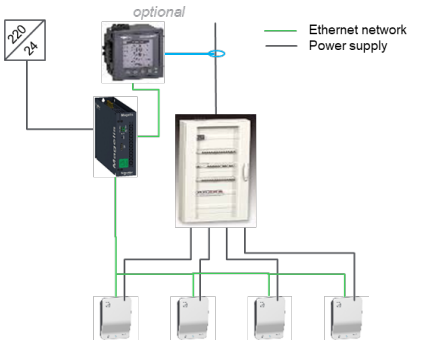
Your EV charging needs are evolving? Your EVLMS evolves with them.
Get in touch with your Schneider Electric contact to upgrade to an upper license.

(1) In addition of a switch ethernet
(2) In addition of a power meter
For more than 100 charging stations, please consult us

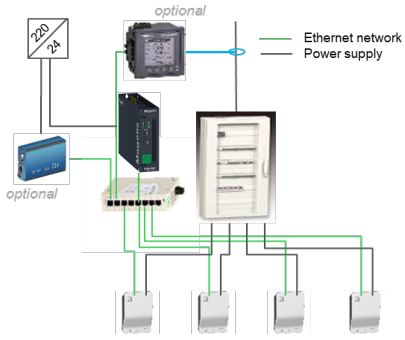
Architectures

Hardware architecture

DAISY CHAIN

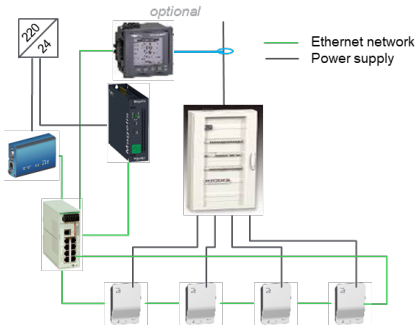


STAR



Star connection using basic switch
TCSESU083FN0
Non manageable

RING



Ring Connection
with manageable switch
TCSESB083F23F0 or
TCSESL043F23F0

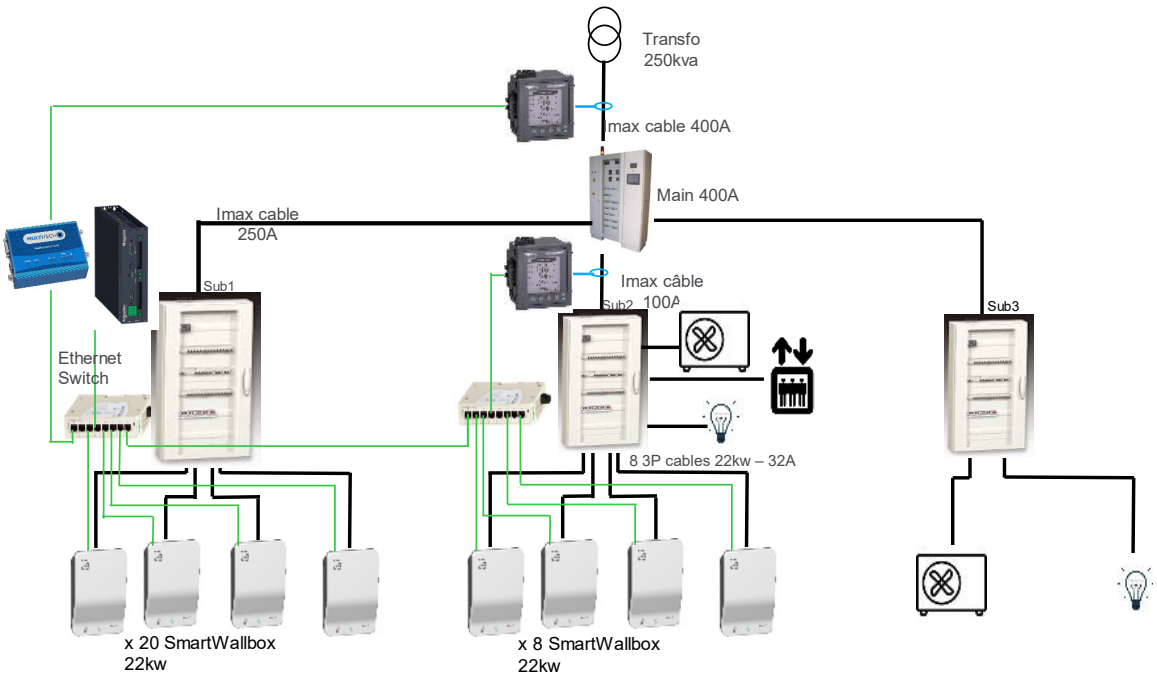
EVlink charging station compatibility

Smart Wallbox | Parking | DC Fast Charge

Power meter compatibility

IEM 3x5x	PM5320	POWERTAG	COMPACT NSX	MASTERPACT MTZ
MODBUS RTU/TCP	MODBUS RTU/TCP	Via gateway (Zigbee to MODBUS TCP)	MODBUS TCP	MODBUS TCP

Installation example :



EVlink LMS
Performs data acquisition and runs the algorithms to control total demand and power allocation to the vehicles.

Power Meter
real-time measurement of total building consumption in order to dynamically communicate the energy available

Modem 3G/4G
connects to remote OCPP monitoring

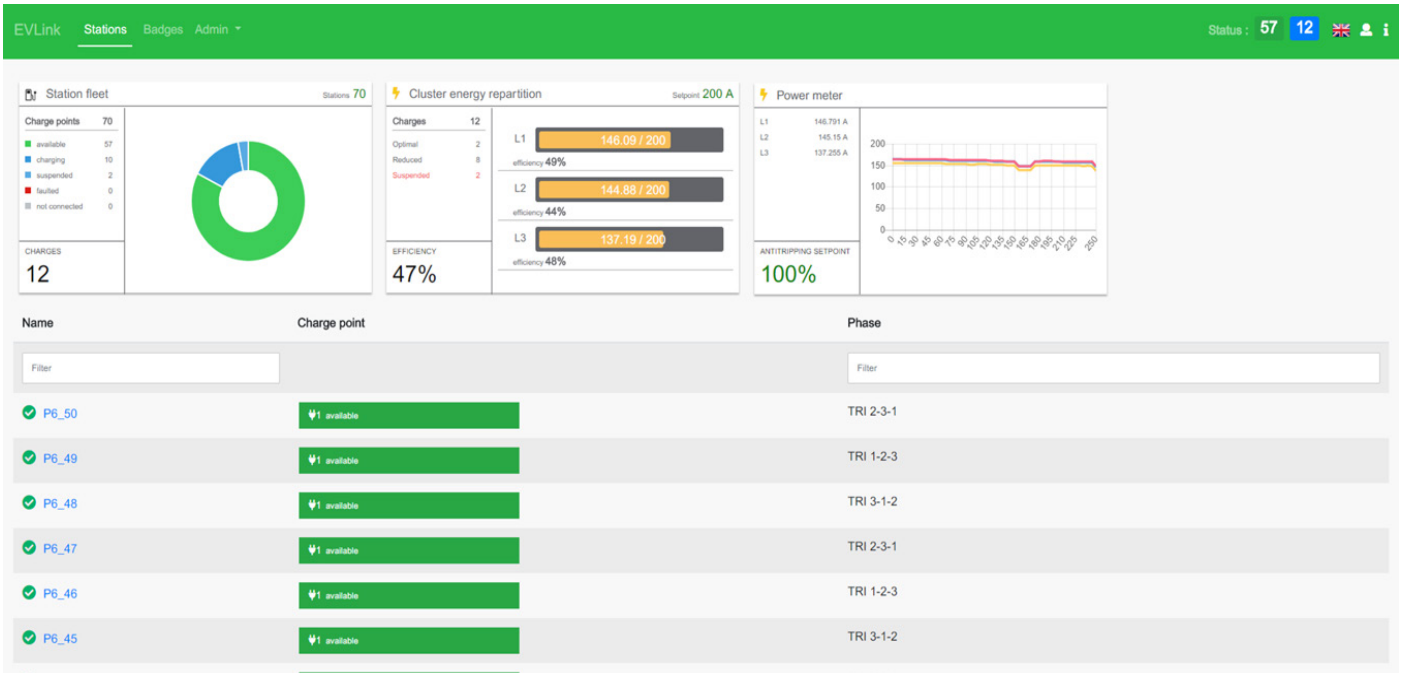
Switch ConneXium Ethernet

MONITORING: AN INTUITIVE USER INTERFACE

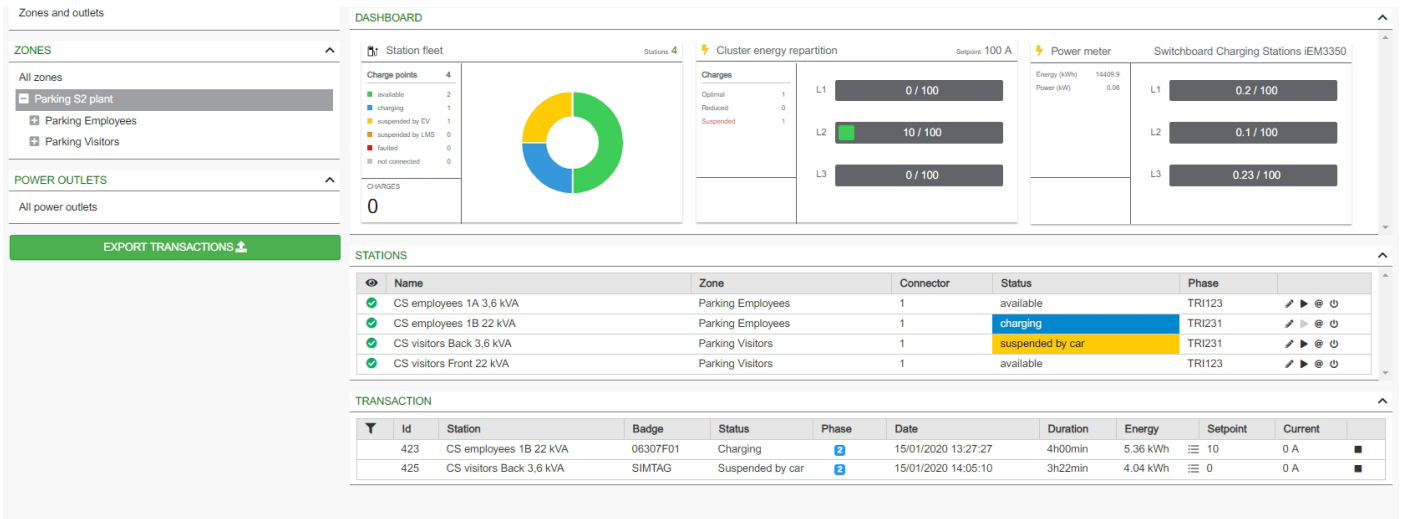
The monitoring can be local, with no cloud subscription requested. The EVLink Load Management System centralizes the data from all chargers and allows to:

- Visualize a dashboard showing in real time the status of each charger
- Start/stop a load
- Manage badges (local addition, import, export) and user rights
- Monitoring of transaction history per charging station or concatenated for the infrastructure
- Consult the maintenance data
- Configure connection to remote supervision
- Set parameters : Add/Remove chargers, update them and change their configuration
- Save and restore commissioned configuration

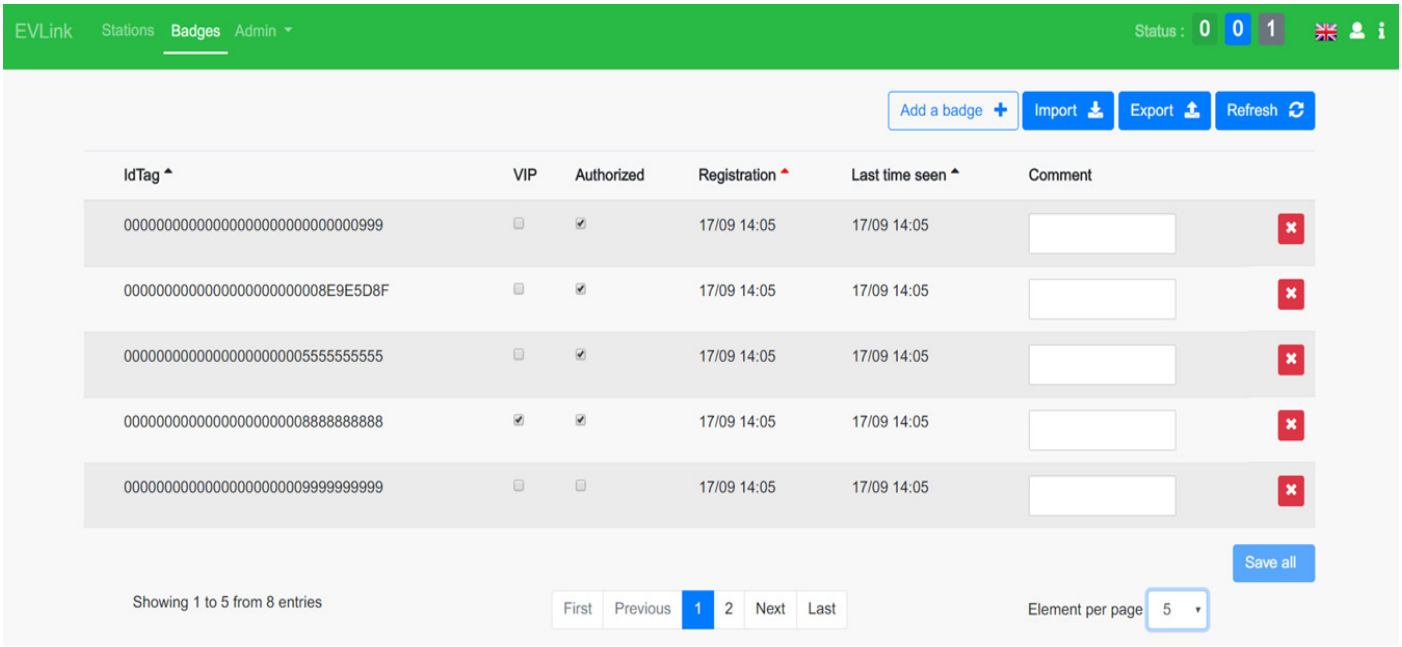
"I can manage the charging station individually thanks to EVLMS use as a portal"



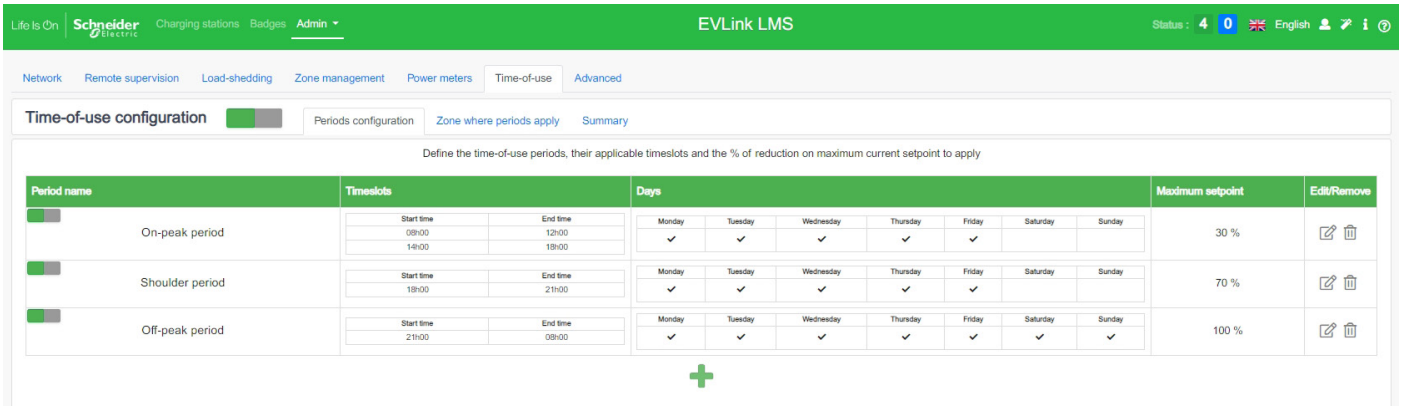
"I can have a holistic view of my charging stations, their status, their transactions and I can launch remote actions on each of them"



“I can easily manage users access rights”



“I can limit EV charging when electricity prices are high and maximize it when they are low”



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