EVlink Load Management System

User Guide

10/2019
Legal information

The Schneider Electric brand and any registered trademarks of Schneider Electric Industries SAS referred to in this guide are the sole property of Schneider Electric SA and its subsidiaries. They may not be used for any purpose without the owner's permission, given in writing. This guide and its content are protected, within the meaning of the French intellectual property code (Code de la propriété intellectuelle français, referred to hereafter as "the Code"), under the laws of copyright covering texts, drawings and models, as well as by trademark law. You agree not to reproduce, other than for your own personal, noncommercial use as defined in the Code, all or part of this guide on any medium whatsoever without Schneider Electric's permission, given in writing. You also agree not to establish any hypertext links to this guide or its content. Schneider Electric does not grant any right or license for the personal and noncommercial use of the guide or its content, except for a non-exclusive license to consult it on an "as is" basis, at your own risk. All other rights are reserved.

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.
About this guide

Document scope

The purpose of this guide is to provide installers, maintenance personnel and users with the technical information necessary to install, commission and use the EVlink Load Management System (EVLMS).

Introduction

- EVLMS main features:
  - allocate a current setpoint to the charging stations in operation
  - see in real time the status of the charging stations through the dashboard
  - manage user authentication for charging authorization
  - get the charging sessions history and data from the charging stations in the network
- EVLMS is compatible with remote supervision from a Charge Point Operator in OCPP 1.6 Json.
- EVLMS allows two access profiles:
  - **Admin**: Access to all configuration parameters and features, dashboard operation and badges management.
  - **User**: Dashboard operation and badges management.

Related documents

<table>
<thead>
<tr>
<th>Title of documentation</th>
<th>Reference number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVlink Parking - EVlink Smart Wallbox - EVlink City - Charging station Commissioning Guide (English)</td>
<td>DOCA0060EN</td>
</tr>
<tr>
<td>EVlink Parking - EVlink City - EVlink Smart Wallbox - Charging Stations - Troubleshooting Guide (English)</td>
<td>DOCA0117EN</td>
</tr>
<tr>
<td>Instruction sheet - EVP2MM - Modem (English, French)</td>
<td>QGH5298301</td>
</tr>
<tr>
<td>Instruction Sheet for the Acti9 Smartlink SI D A9XMWA20 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)</td>
<td>NVE60007</td>
</tr>
<tr>
<td>Instruction sheet for power meter METSEPM5320 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)</td>
<td>HRB69887</td>
</tr>
<tr>
<td>Instruction sheet for power meter A9MEM3250 (English, Dutch, French, German, Italian, Portuguese, Spanish, Chinese, Russian)</td>
<td>NHA15795</td>
</tr>
<tr>
<td>Installation guide for EVLMS (English)</td>
<td>DOCA0164EN</td>
</tr>
</tbody>
</table>

You can download these technical publications and other technical information from our website at [https://www.se/en/download](https://www.se/en/download)
Safety information

Important information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation and has received safety training to recognize and avoid the hazards involved.
Table of contents

Chapter 1. SYSTEM ENVIRONMENT ................................................................. 8
  1.1 EVlink Load Management System ...................................................... 9
    1.1.1 Overview ...................................................................................... 9
    1.1.2 EVLMS communication devices ............................................... 14
    1.1.3 EVLMS network architecture .................................................... 16
  1.2 EVLMS characteristics ........................................................................ 17
    1.2.1 General characteristics ................................................................ 17
    1.2.2 Environmental characteristics .................................................... 17
    1.2.3 Power supply characteristics ....................................................... 17
    1.2.4 Communication modules .............................................................. 18
  1.3 Set up of EVLMS system environment ............................................. 19
    1.3.1 EVLMS installation ...................................................................... 19
  1.4 Zone definition ....................................................................................... 21
  1.5 Commissioning of remote connection to EVLMS ................................ 24
    1.5.1 Initial condition ............................................................................ 24
    1.5.2 Example of selection of the modem port: .................................... 24
    1.5.3 Commissioning of the EVlink modem (EVP2MM) ....................... 25

Chapter 2. EVLMS COMMISSIONNING ......................................................... 30
  2.1 Getting started with EVLMS ............................................................... 31
    2.1.1 Computer configuration ............................................................... 31
    2.1.2 Login to the EVLMS (Wizard) .................................................... 31
  2.2 EVLMS commissioning ......................................................................... 33
    2.2.1 Firmware update ......................................................................... 33
    2.2.2 Administration and User password configuration ....................... 34
  2.3 Network configuration .......................................................................... 36
    2.3.1 Ethernet configuration .................................................................. 36
    2.3.2 DHCP server configuration ......................................................... 37
  2.4 Power meter configuration .................................................................... 38
    2.4.1 Prerequisites ................................................................................. 38
    2.4.2 Power meters landing page .......................................................... 38
    2.4.3 Power meter setting ..................................................................... 39
  2.5 Zone configuration ................................................................................. 41
    2.5.1 Prerequisites ................................................................................ 41
    2.5.2 Zones configuration ..................................................................... 41
    2.5.3 Zone creation ............................................................................... 42
    2.5.4 Zone settings ............................................................................... 42
  2.6 Remote supervision configuration ...................................................... 43
    2.6.1 Remote supervision configuration .............................................. 43
  2.7 Authentication mode configuration .................................................... 45
    2.7.1 Authentication mode with remote supervision ............................. 45
    2.7.2 Authentication mode without remote supervision ....................... 46
  2.8 Charging station commissioning ......................................................... 47
    2.8.1 Prerequisites ................................................................................. 47
    2.8.2 Charging station landing page ..................................................... 47
    2.8.3 Description .................................................................................. 47
    2.8.4 Charging station configuration ..................................................... 47
Chapter 3.  OPERATION INTERFACE ......................................................... 52

3.1  Login to the EVLMS (Webserver) .............................................. 53

3.2  Menu and status bar ............................................................... 53

3.2.1  Bar items ................................................................... 53

3.3  Dashboard ........................................................................ 54

3.3.1  Global view ................................................................. 54

3.3.2  Zone view .................................................................. 55

3.3.3  Charging station view .................................................. 56

3.3.4  - charging station name ............................................. 56

3.4  Badge management ............................................................ 57

3.4.1  Prerequisites ............................................................... 57

3.4.2  Badge management configuration page ....................... 57

3.4.3  Badge addition ........................................................... 58

3.4.4  Badges file export ....................................................... 59

3.4.5  Badge removal ............................................................ 59

3.4.6  Badge update .............................................................. 59

3.5  Network configuration .......................................................... 60

3.5.1  Ethernet configuration .................................................. 60

3.5.2  Proxy configuration ........................................................ 61

3.5.3  DHCP server configuration .......................................... 61

3.6  Remote supervision configuration ........................................ 62

3.6.1  Remote supervision configuration .................................. 62

3.7  Zones configuration .............................................................. 64

3.7.1  Prerequisites ............................................................... 64

3.7.2  Zones landing page ..................................................... 64

3.7.3  Description ................................................................. 65

3.7.4  Zone settings .............................................................. 65

3.8  Power meters configuration .................................................. 66

3.8.1  Prerequisites ............................................................... 66

3.8.2  Power meters landing page ........................................... 66

3.8.3  Power meter setting ....................................................... 66

3.9  Time of use (TOU) ............................................................... 68

3.9.1  Definition ................................................................. 68

3.9.2  Prerequisites ............................................................... 68

3.9.3  Tariff periods configuration tab .................................... 68

3.9.4  Zone configuration tab .................................................. 71

3.9.5  Summary tab .............................................................. 71

3.9.6  Disable TOU feature ..................................................... 72

3.10  Advanced configuration ....................................................... 72

3.11  User management .............................................................. 73

3.11.1  User management landing page ................................. 73
3.11.2 Add a user ..............................................73
3.11.3 Change the user password..........................74
3.11.4 Delete a user ...........................................74

3.12 Charging station commissioning ........................75
  3.12.1 Prerequisites .........................................75
  3.12.2 Charging station landing page .....................75
  3.12.3 Update the charging stations discovery...........75
  3.12.4 Definition of authentication mode ..................76

3.13 Load shedding strategy and degraded mode ............78
  3.13.1 Definition ...........................................78
  3.13.2 Prerequisites .........................................78
  3.13.3 Degraded mode configuration page ..................78

3.14 Maintenance ..............................................79
  3.14.1 Download the maintenance report ..................79
  3.14.2 Read EVLMS Logs ....................................79

3.15 EVLMS firmware update ...................................79

3.16 Reboot and back to factory settings ....................81
  3.16.1 Reboot and back to factory settings from the webserver ....81
  3.16.2 Hardware back to factory settings ...................81

Chapter 4. EVlink LMS Maintenance ........................82

4.1 Hardware back to factory settings ........................83
  4.1.1 Definition ...........................................83
  4.1.2 Prerequisites .........................................83
  4.1.3 Hardware back to Factory Settings procedure .......83

4.2 Regular cleaning and maintenance ........................84
  4.2.1 Introduction ...........................................84
  4.2.2 Cleaning solutions ....................................84
Chapter 1.
SYSTEM ENVIRONMENT
1.1EVlink Load Management System

1.1.1 Overview

1.1.1.1 Power management functions

The power available for the charging stations will be distributed among the vehicles that are charging.

An electric vehicle needs a minimum setpoint to accept charging and, if this minimum is not available, the charge will momentarily be suspended. The Load Management System allows the Admin profile to choose between two thresholds (floor values):

- 8A by default for single phase charging and 14A by default for three-phase charging (based on EV/ZE ready)
- 6A by default for both single phase and three-phase (based on IEC 61851)

When a new vehicle connects and there is not enough available power, the system will suspend the charging of another vehicle to allow the new vehicle to charge.

Two options of charging prioritization are available during the configuration of the load management system:

- Energy:
The system suspends the charging of vehicles which have already consumed the highest amount of energy.
This option is set by default.

- Duration:
The system suspends the charging of vehicles with the longest charging time.

In both options, the EVLMS checks the values every 15 minutes and updates charging rights accordingly

Only the Admin profile can change this parameter.

According to the EVLMS reference (only available for commercial references HMIBSCEA53D1ESM, -EDM, -EDL), the EVLMS can manage:

- VIP badges, that make it possible for the user to get the maximum available* power at any time no matter the charging station.
- VIP charging stations, that make it possible for any user badge to get the maximum available* power at any time on that specific VIP charging station.

The VIP status (badge or charging station) can be added or deleted with the Admin or User profiles.

*The maximum available power for VIP status may be lower than the charging station rating depending on the number of VIP charging at the same time.
1.1.1.2 Power management: two possible implementations

Static mode

The maximum current setpoint for the whole charging infrastructure is a fixed value depending on the subscribed power supply and on the consumed power in the rest of the building. This current is distributed between all connected vehicles to limit the risk of installation tripping.

Consumption profile in static mode:

For example, ten 22kVA charging points can be used at the same time with a total consumption not exceeding 100kVA.

Dynamic mode

The maximum current setpoint for the whole charging infrastructure is dynamically changing according to the building consumption while considering the subscribed power supply. The remaining available current is distributed between all connected vehicles to limit the risk of installation tripping.

Consumption profile in dynamic mode:

For example, ten 22kVA charging points can be used at the same time within an installation designed to provide 150kVA for both the building and all the charging stations. Depending on the building consumption, the maximum current setpoint for the whole charging infrastructure can theoretically reach 150kVA.

In dynamic mode, the EVLMS must be connected to power meters measuring the consumption of the building and the charging stations.
### 1.1.1.3 EVLMS product range & features

<table>
<thead>
<tr>
<th>Features / Licences</th>
<th>STATIC MODE</th>
<th>DYNAMIC &amp; STATIC MODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPACITY</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Power Management</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Multi Zone</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Badge Management</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Power Meter</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Station</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: The maximum number of zones includes zones and sub-zones (refer to chapter “Zones configuration”).

Contact your sales representative if you wish to upgrade your existing EVLMS to an upper version.

### 1.1.1.4 User profile features

**Operate EVLMS Dashboard**

At a glance the user can:
- see the status of all charging stations or part of them
- track the power consumption per phase

**Remote control of charging station**

Remote start, remote stop, reboot (automatic charging resume), reset (charging stopped), access to maintenance report

*Access through “Station” tab.*
Add, remove badges in a list

When the EVLMS is set in authentication mode, the following features are available: add, remove, update badges and modify credentials (ex: VIP badges).

Access through “Badges” page from the dashboard.

Export Charging Data Records (CDR)

On the EVLMS Dashboard, the user can see the ongoing charging sessions or all the sessions since the commissioning of the EVLMS.

The charging data records can also be exported to an external file in CSV format for all the charging stations.

It is possible to select the period before exporting the file.

Access through “Export transaction” from the dashboard.

1.1.1.5 Admin profile features

In addition to the user profile features, the Admin profile can change the configuration of the charging stations, and upgrade EVLMS firmware.

EVLMS commissioning

All the parameters are accessible via the Admin page.

The Admin profile sets configuration parameters for:

• Network configuration
• Remote supervision
• Zone operating mode (static or dynamic)
• Current limitation per zone
• Charging stations
• Load-shedding strategy and degraded mode (communication lost)
• Time of use

EVLMS maintenance

The Admin profile can:

• Update the EVLMS firmware
• Operate a “back to factory”
• Manage users accounts and passwords
• Download EVLMS maintenance report
• Access to the Wizard that is used for initial commissioning
1.1.1.6 EVlink Load Management System hardware features

**CAUTION**

**RISK OF BURNS**

Do not touch the surface of the heat sink during operation.

During operation, the surface temperature of the heat sink may exceed 70 °C.

Failure to follow these instructions could result in minor or moderate injury

### Description

#### Reset button and LEDs

The table below describes the meaning of the status LEDs

<table>
<thead>
<tr>
<th>Marking</th>
<th>Color</th>
<th>State</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWR</td>
<td>Green</td>
<td>On</td>
<td>Active (user operates OS) (state S0)</td>
</tr>
<tr>
<td>WIFI/BT</td>
<td>Green</td>
<td>Off</td>
<td>No WiFi/BT data transmission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On</td>
<td>Data transmission</td>
</tr>
</tbody>
</table>

#### Front view

1 - SD card socket (SD card not delivered with the EVLMS)
2 - LEDs and reset button
Top view

1 - SMA connector for the GPRS/4G external antenna (function not yet available)
2 - Optional interface
3 - SMA connector for the WLan external antenna (function not yet available)

Bottom view

1 - USB1 (USB 2.0)
2 - HDMI port
3 - ETH1 (10/100/1000 Mb/s)
4 - COM port RS-232/422/485
5 - Ground connection pin
6 - USB2 (USB 2.0)
7 - ETH2 (10/100/1000 Mb/s)
8 - GPIO
9 - DC power connector

1.1.2 EVLMS communication devices

1.1.2.1 EVlink charging stations

The EVLMS is compatible with the v3.2.0.0.12 firmware release or upper. See DOCA0060 “EVlink Charging Stations commissioning guide” to learn how to check the firmware release of the charging stations and update it. Latest releases are available on se.com/download. For previous releases, contact Schneider Electric Customer Care Center.
1.1.2.2 Power meters

Note: power metering is only required when the EVLMS is used in dynamic mode.

The table below lists the power meters compatible with the EVLMS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Pole description</th>
<th>Input type</th>
<th>Connection to EVLMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A9MEM3250 (Acti 9 iEM3000)</td>
<td>1P + N / 3P / 3P + N</td>
<td>External CT: 1 A or 5 A CT: Current Transformer</td>
<td>See § 3.2.5 Power meter connection</td>
</tr>
<tr>
<td>METSEPM5320 (PowerLogic PM5000)</td>
<td>1P + N / 3P / 3P + N</td>
<td>On the same network where the EVLMS is connected</td>
<td></td>
</tr>
<tr>
<td>A9XMWA20 (Smartlink SL D + Power Tags)</td>
<td>1P + N / 3P / 3P + N</td>
<td>Wireless energy sensor PowerTag up to 630 A</td>
<td>On the same network where the EVLMS is connected</td>
</tr>
</tbody>
</table>

1.1.2.3 Modem

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Connection to EVLMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVP2MM</td>
<td>3G/4G</td>
<td>On the same network where the EVLMS is connected</td>
</tr>
</tbody>
</table>

Note: Other modem could be used (router function is required).
1.1.3 EVLMS network architecture

1.1.3.1 Daisy chain topology

1.1.3.2 Star topology

1.1.3.3 Ring topology

Manageable switch TCSESB083F23F0 or TCSESL043F23F0
1.2 EVLMS characteristics

1.2.1 General characteristics

<table>
<thead>
<tr>
<th>Element</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Linux Yocto</td>
</tr>
<tr>
<td>Cooling method</td>
<td>Natural air flow</td>
</tr>
<tr>
<td>Weight</td>
<td>1 kg (2.2 lbs)</td>
</tr>
</tbody>
</table>

1.2.1.1 Dimensions

1.2.2 Environmental characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection</td>
<td>IP 40</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>For use in pollution degree 2 environment</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0…50 °C</td>
</tr>
<tr>
<td>Operating temperature for horizontal mounting</td>
<td>0…50 °C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>0…50 °C</td>
</tr>
<tr>
<td>Operating altitude</td>
<td>2,000 m (6,560 ft) max</td>
</tr>
<tr>
<td>Random vibration</td>
<td>5...500 Hz: 2 G&lt;sub&gt;rms&lt;/sub&gt;</td>
</tr>
<tr>
<td>Storage humidity</td>
<td>10...95 % RH at 40 °C (104 °F), no condensation</td>
</tr>
</tbody>
</table>

1.2.3 Power supply characteristics

<table>
<thead>
<tr>
<th>Element</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 Vdc</td>
</tr>
<tr>
<td>Inrush current</td>
<td>1.5 A</td>
</tr>
<tr>
<td>Power consumption</td>
<td>16 W</td>
</tr>
</tbody>
</table>
1.2.4 Communication modules

1.2.4.1 USB interface

<table>
<thead>
<tr>
<th>Element</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>USB 2.0</td>
</tr>
<tr>
<td>Current load</td>
<td>Maximum 0.5 A</td>
</tr>
<tr>
<td>Connection</td>
<td>Type A</td>
</tr>
</tbody>
</table>

1.2.4.2 Ethernet interface

<table>
<thead>
<tr>
<th>Element</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>RJ45</td>
</tr>
<tr>
<td>Speed</td>
<td>10/100/1000 Mb/s base-T</td>
</tr>
</tbody>
</table>
1.3 Set up of EVLMS system environment

1.3.1 EVLMS installation

See DOCA0164EN-02 “EVLMS installation guide” available on the EVLMS packaging and on se.com/download

1.3.1.1 Ethernet connection: charging stations connection

EVLMS is connected to the charging stations network through Ethernet connector ETH1 (do not use ETH2). Use an Ethernet straight cable between EVLMS and the charging station Ethernet network.

1.3.1.2 Power meter connection

Gateways and Power meters must be set properly before starting with the EVLMS commissioning. Please check the relevant documentation to perform this step.

Note: power metering is only required when the EVLMS is used in dynamic mode.

**Link**: commercial reference EGX150
User Guide document reference available on se.com:
- EN ➔ DOCA0110EN
- FR ➔ DOCA0110FR

**Acti9 PowerTag Link (Acti 9 Smartlink)**: commercial reference A9XMWA20
User Guide document reference available on se.com:
- EN ➔ DOCA0157EN
- FR ➔ DOCA0157FR

**PM5320**: commercial reference METSEPM5320
User Guide document reference available on se.com:
- EN ➔ EAV15107-EN
- FR ➔ EAV15107-FR
Acti 9 IEM3X5X: commercial reference A9MEM3X5X
User Guide document reference available on se.com:
- EN ➔ DOCA0005EN
- FR ➔ DOCA0005FR

Powertag A9MEM15XX
User Guide document reference available on se.com:
- EN ➔ DOCA0157EN
- FR ➔ DOCA0157FR

Powertag A9MEM15XX & Acti 9 IEM3X5X: refer to Schneider Electric catalog to select the right reference
1.4 Zone definition

A zone is made of one switchboard:
- directly supplying charging stations and possibly other electrical loads,
- or supplying other switchboards of which at least one is supplying charging stations and possibly other electrical loads. This latter forms a sub-zone. The total installed power of all sub-zones must be at least equal to the maximum power that can be delivered by the upper zone switchboard. Three levels of sub-zones are possible.

The maximum number of zones and sub-zones depends on the EVLMS reference (see features table on §1.1.1.3).

Example #1: one single zone

In this example, the main switchboard can supply both switchboards at the maximum power. Energy management is required in the zone if the switchboard #1 cannot supply all charging stations and other electrical loads at the same time at the maximum power.
Example #2: one zone with one sub-zone

In this example, the main switchboard cannot supply both switchboards at the maximum power. In the same way, the switchboard 1 cannot supply all charging stations and other electrical loads at the same time at the maximum power.

The power available to charging stations will depend on:
- the total consumption of other electrical loads supplied by switchboards 1 and 2 due to the current limitation of the main switchboard (630 A),
- on the consumption of other electrical loads supplied by the switchboard 1 due to its current limitation (400 A)

As a result, it is necessary to define a zone (main switchboard) with a sub-zone (switchboard 1).
Example #3: two zones at the same level

In this example, the main switchboard can supply both switchboards at the maximum power. Energy management is required in each zone if switchboards 1 and 2 cannot supply all charging stations and other electrical loads at the same time at the maximum power.
1.5 Commissioning of remote connection to EVLMS

Please go to Chapter 2 EVLMS COMMISSIONING if you do not plan to access remotely to the EVLMS.

1.5.1 Initial condition

1.5.1.1 IP Address:

EVLMS IP (default address): 192.168.0.128
Modem IP (default address): 192.168.0.254
Sim card IP (example): 193.192.200.10

1.5.1.2 Prerequisites:

Cellular configuration must be done (see QGH5298301 “Instruction sheet for EVP2MM Modem”)

1.5.2 Example of selection of the modem port:

Default EVLMS IP 192.168.0.128
EVLMS port (Port to access to the EVLMS dashboard): 443

Select the two last digit of the EVLMS IP address (28) and concatenate it to the EVLMS port (443).
Result: Modem Port = 28443

NOTE: the port number cannot exceed 65535

Network schematic of the EVLMS remote connection

WAN: Wide Area Network
LAN: Local Area Network
1.5.3 Commissioning of the EVlink modem (EVP2MM)

1.5.3.1 Configuration of the downstream communication channel

1/ Go to settings tab
2/ Check the status of the configuration
   The button must indicate “Advanced” if it is not the case, click on the button
3/ Click on “add rule”
The Inbound Forwarding Rule window appears
4/ Insert the following parameters:
   o Name: Indicate a name for the connection (example: Remote connection)
   o WAN Port(s) (Port selected previously): 28443
   o Destination LAN IP (EVLMS IP): 192.168.0.128
   o Destination LAN Port (Port to access the EVLMS dashboard): 443
5/ Then click on the Submit button

1.5.3.3 Configuration of the upstream communication channel
6/ Click on Advanced to switch the status of the configuration to Advanced (The button should indicate Normal)

7/ Click on “Add SNAT Rule” (scroll down to find the button)
The Postrouting Rule window appears.

8/ Insert the following parameters:
   o Name: Indicate a name for the connection (example: Remote connection)
   o Destination LAN IP (EVLMS IP): 192.168.0.128
   o Destination LAN Port (Port to accede to the EVLMS dashboard): 443
   o NAT IP (Modem IP): 192.168.0.254

9/ Then click on Submit
Then click on the button “Save and restart” to finish the configuration.

Thank to this operation, the USER will be able to access to the EVLMS dashboard through 193.192.200.10:28443
Chapter 2.
EVLMS COMMISSIONNING
2.1 Getting started with EVLMS

2.1.1 Computer configuration

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connect your computer to the EVLMS Ethernet network</td>
</tr>
<tr>
<td>2</td>
<td>Open the local network properties menu of your computer.</td>
</tr>
<tr>
<td>3</td>
<td>Open Internet Protocol TCP/IP v4 properties.</td>
</tr>
</tbody>
</table>
| 4    | Set the static IP address properties as follows:  
|      | IP address: 192.168.0.x (where x is a number between 50 and 100)  
|      | Subnet mask: 255.255.255.0  
|      | No default gateway  
|      | No DNS server  
|      | No proxy |

2.1.2 Login to the EVLMS (Wizard)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open a web browser and type 192.168.0.128 in the URL field</td>
</tr>
</tbody>
</table>

If the EVLMS IP has been changed, you may not know its IP address. To have access to the product, you can use your computer to detect the EVLMS on the network. On Windows, open the Windows Explorer and click the network icon (scroll down on the left menu). After a short loading time, the EVLMS available on the network are displayed, named according to their reference. You can double-click on the EVLMS Icon to open its commissioning tool.

NOTE: Only Google Chrome web browser is compatible (72.0.3626.121 or upper)

A security warning may be displayed: click on “Advanced” button if this occurs (see capture below)
Then click on “Proceed to @ …”

2 Log in with credentials as below:

Login: admin
Password: ADMIN
2.2 EVLMS commissioning

During the first commissioning, a wizard will guide the installer to set the EVLMS. If you have already done the first commissioning, please go to chapter 3 OPERATION INTERFACE.

2.2.1 Firmware update

It is recommended to update the product with the latest version of firmware that has been issued. The file needs to be available locally, hence the installer needs to download it previously from se.com. A QR code is provided on screen to the webpage on se.com where the last firmware release is available. If the firmware version is already the most recent one available, click on the top right cross to close the window.

For current firmware versions equal or lower than 1.0.6.3, the QR code will not be shown on screen. In that case, please look for the last firmware release on se.com, or use the following QR code or URL address:


During the firmware update process the EVLMS will lose connection. A message will be shown on-screen for that. That is the normal behavior. Please wait a few seconds for the connection to be reestablished, or else refresh your browser.
2.2.2 Administration and User password configuration

In EVLMS there’s two different user profiles:

**Admin**: Access to all configuration parameters and features, dashboard operation and badges management.

**User**: Dashboard operation and badges management.

In the configuration process an Administration profile and a User profile need to be created.

### 2.2.2.1 Administration profile creation

![Configuration assistant of the Load Management System](image)

During this step, the installer is asked to set new administrator credentials to replace the existing ones for cybersecurity reasons.

The passwords must have at least 8 characters, including at least 1 upper-case letter, 1 lower-case letter, 1 number and 1 special character (!, #, @, -, etc.).

The login cannot be “Admin”.

Once the new Admin profile is created, the option to abandon the configuration assistant is enabled by means of an exit arrow symbol on the top right area of the screen.
2.2.2.2 User profile creation

During this step, the installer is asked to set new user credentials.

The passwords must have at least 8 characters, including at least 1 upper-case letter, 1 lower-case letter, 1 number and 1 special character (!, #, @, -, etc.).
2.3 Network configuration

2.3.1 Ethernet configuration

Gateway: A network gateway connects two networks so the devices on one network can communicate with the devices on another network.

DNS: Domain Name System is the naming system for computers and devices connected to a Local Area Network (LAN) or the Internet.

<table>
<thead>
<tr>
<th>Fields</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>R/W NA</td>
<td>192.168.0.128</td>
<td>EVLMS IP address</td>
</tr>
<tr>
<td>Network mask</td>
<td>R/W NA</td>
<td>255.255.255.0</td>
<td>EVLMS sub-network mask</td>
</tr>
<tr>
<td>Default gateway</td>
<td>R/W NA</td>
<td>192.168.0.254</td>
<td>Gateway IP address (1)</td>
</tr>
<tr>
<td>Preferred DNS system</td>
<td>R/W NA</td>
<td>8.8.8.8</td>
<td>Preferred DNS server IP address (2)</td>
</tr>
<tr>
<td>Other DNS system</td>
<td>R/W NA</td>
<td></td>
<td>Other DNS server IP address (2)</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available

(1) Address of the modem used for the connection to the supervision, if any.
(2) DNS Server is used to convert URL to IP address. May be provided by the remote supervision (through a dedicated SIM card for example). Google DNS server by default.

Note: If the EVLMS sub network (192.168.0.128) is changed, the sub network of the computer must also be changed after the reboot of the EVLMS.
2.3.2 DHCP server configuration

**DHCP**: Dynamic Host Configuration Protocol is a protocol used to provide quick, automatic, and central management for the distribution of IP addresses within a network.

EVLMS can be configured to act as a DHCP server to assign IP addresses to charging stations in the defined range, provided that they are configured to support this feature.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP range high</td>
<td>R/W</td>
<td>192.168.0.250</td>
<td>DHCP range high IP address limit</td>
</tr>
<tr>
<td>DHCP range low</td>
<td>R/W</td>
<td>192.168.0.200</td>
<td>DHCP range low IP address limit</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available

**Note**: Check with the building IT manager if the DHCP is already activated on the same network of the EVLMS. If yes, do not activate DHCP on the EVLMS.
2.4 Power meter configuration

2.4.1 Prerequisites

**Reminder:** Power meters are only required in EVLMS dynamic mode. Their Ethernet connection must be configured (See §1.3.1.2 Power meter connection) regardless of the EVLMS and prior to the EVLMS commissioning.

2.4.2 Power meters landing page

<table>
<thead>
<tr>
<th>Icons</th>
<th>Access rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Add" /></td>
<td>Admin: Yes, User: No</td>
<td>Add a new power meter</td>
</tr>
<tr>
<td><img src="image" alt="Update" /></td>
<td>Admin: Yes, User: No</td>
<td>Update the power meter parameters</td>
</tr>
<tr>
<td><img src="image" alt="Remove" /></td>
<td>Admin: Yes, User: No</td>
<td>Remove the power meter</td>
</tr>
<tr>
<td><img src="image" alt="Correct" /></td>
<td>Admin: Yes, User: No</td>
<td>Power meter correctly connected</td>
</tr>
<tr>
<td><img src="image" alt="Not Connected" /></td>
<td>Admin: Yes, User: No</td>
<td>Power meter not connected</td>
</tr>
<tr>
<td><img src="image" alt="Connection" /></td>
<td>Admin: Yes, User: No</td>
<td>Connection not established with the power meter, EVLMS reboot needed</td>
</tr>
</tbody>
</table>
### 2.4.3 Power meter setting

**Description**

RTU and TCP are both communication protocols used by Schneider Electric power meters. If the RTU check box is not selected, it means that the communication is TCP. In such case, please follow instructions in the table below to create the power meter in the EVLMS.

![Power meter settings table](image)

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Range</th>
<th>Factory setting</th>
<th>Fields to enter per protocol and per settings</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>RTU TCP</td>
<td>Power meter name (Please select an unambiguous name, where the power meter is located example: main switchboard power meter)</td>
</tr>
<tr>
<td>Protocol</td>
<td>R/W</td>
<td>NA</td>
<td>TCP</td>
<td>X</td>
<td>Power meter communication protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RTU</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Reporting (1)</td>
<td>R/W</td>
<td>NA</td>
<td>No</td>
<td>X</td>
<td>Select this option when Power meter is going to be used to register consumptions of electrical loads other than charging stations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>R/W</td>
<td>NA</td>
<td>IEM3x5x</td>
<td>X</td>
<td>Power meter model</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PM5320</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PowerTag</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>IP address (2)</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>X</td>
<td>Power meter IP address: Indicate the parameters that have been configured during the commissioning of the power meter (see document §1.3.1.2 Power meter connection)</td>
</tr>
<tr>
<td>Port (2)</td>
<td>R/W</td>
<td>NA</td>
<td>502</td>
<td>X</td>
<td>Power meter TCP port: Indicate the parameters that have been configured during the commissioning of the power meter (see document §1.3.1.2 Power meter connection)</td>
</tr>
<tr>
<td>Settings</td>
<td>Access rights</td>
<td>Range</td>
<td>Factory setting</td>
<td>Fields to enter per protocol and per settings</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------</td>
<td>-------</td>
<td>-----------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Slave Id</td>
<td>R/W</td>
<td>NA</td>
<td>1 - 255</td>
<td>X X</td>
<td>Power meter slave Id:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>255</td>
<td></td>
<td>Indicate the parameters that have been configured during the commissioning of the power meter (see document §1.3.1.2 Power meter connection)</td>
</tr>
</tbody>
</table>

(1) Availability depends on supported EVLMS reference  
(2) Mandatory only when TCP protocol is selected

R/W: Read/Write - NA: Not Available

⚠️ Note: When the configuration of the power meter will be finished, a notification will appear to report that there is no communication with the power meter. The communication will be activated after the reboot automatically done at the end of remote supervision step.
2.5 Zone configuration

2.5.1 Prerequisites

Reminder: Each zone and subzone to be created will need a maximum current setpoint defined for it. Zones or subzones to be managed with a dynamic energy management directive will need a power meter (configured in the previous step) assigned to each of them.

2.5.2 Zones configuration

EVLMS can manage different zones and subzones based on the electrical architecture deployed in the installation. Please refer to §1.4.

The wizard allows the installer to define the name of each zone and its sub-zones, as well as its maximum current setpoint (maximum intensity), the energy management mode for the zone, and the power meter to associate to the zone if the energy management mode is dynamic.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Access rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Admin Yes, User No</td>
<td>Add a new zone</td>
</tr>
<tr>
<td>✔</td>
<td>Admin Yes, User No</td>
<td>Save the zone configuration</td>
</tr>
<tr>
<td>✗</td>
<td>Admin Yes, User No</td>
<td>Delete a zone</td>
</tr>
</tbody>
</table>
### 2.5.3 Zone creation

<table>
<thead>
<tr>
<th>step</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on + next to <strong>Name</strong> to create a zone. Several zones can be created depending on the EVLMS reference.</td>
</tr>
<tr>
<td>2</td>
<td>Click on + next to <strong>Zone</strong> to create a sub-zone. Several sub-zones can be created depending on the EVLMS reference.</td>
</tr>
</tbody>
</table>
| 3    | Set the maximum intensity allowed in each zone and sub-zone. **Note:**  
- The value must be lower or equal to the electrical capacity of the installation.  
- Max intensity in a sub-zone cannot be higher than the maximum intensity in the related zone. |
| 4    | In dynamic mode, select the power meter measuring the zone current. A power meter is assigned to a single zone and cannot be shared. |
| 5    | Select Dynamic or Static mode.  
Static mode: The maximum power setpoint value for the charging stations is equal to the subscribed demand or any fixed value.  
Dynamic mode: The remaining power at the building level is allocated to the charging infrastructure in real time. |

### 2.5.4 Zone settings

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Range</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Zone name</td>
</tr>
<tr>
<td><strong>Max intensity</strong></td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Maximum current available (A) in the selected zone</td>
</tr>
<tr>
<td><strong>Power meter</strong></td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Power meter assigned to the selected zone</td>
</tr>
<tr>
<td><strong>Power management</strong></td>
<td>R/W</td>
<td>NA</td>
<td>Dynamic</td>
<td>Zone supporting dynamic energy management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Static</td>
<td>Zone supporting static energy management</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available
2.6 Remote supervision configuration

2.6.1 Remote supervision configuration

The remote supervision must be enabled when the customer has chosen to have the installation managed by a CPO (Charge Point Operator). The CPO will provide the installer with an URL. Such URL will be used by the charging stations to establish communication between the remote supervision and the charging stations. The communication protocol must be OCPP 1.6 Json.

The remote supervision is disabled (OFF) by default. The time and date provided by the web browser are displayed. The LMS allows to configure the time zone.

When the remote supervision is enabled (ON), the time and date are provided by the remote supervision.

When enabled, the remote supervision must be configured with the communication parameters between the remote supervision and the EVLMS.

The main field to enter is the remote supervision URL address.
When the installer clicks on "Next", the system will reboot to take into account the new settings. Then, the installer needs to log in again to perform the next configuration steps.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address (Supervision URL)</td>
<td>R/W</td>
<td>NA</td>
<td>Remote supervision URL; Start with <code>ws://</code> or <code>wss://</code> in case of secure mode</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available

Note: If the EVLMS sub network (192.168.0.128) is changed, the sub network of the computer must also be changed after the reboot of the EVLMS.
2.7 Authentication mode configuration

The authentication mode will define the rules and strategy to grant access to the charging stations. Moreover, it allows to define the behavior of the charging stations in case the connection between the charging stations and the EVLMS is lost.

2.7.1 Authentication mode with remote supervision

When the authentication is managed by the remote supervision, the possible options are:

“CPO”: The remote supervision is defining the behavior of badge authentication. The same behavior is expected on each charging station when the connection is lost. This option requires the charging stations to be equipped with an RFID reader.

When the connection is lost with the remote supervision, the behavior options to choose from are:
- “Allow all”: All requests to charge are accepted by the charging stations whatever the badge
- “Reject”: All requests to charge are refused by the charging stations whatever the badge
- “Reject with cache list”: Requests to charge coming from badges already used on the specific charging station will be accepted.
- “Charging stations”: only the badges created in the charging station are allowed. The same behavior is expected when the connection is lost.

“RFID disabled”: The RFID reader is disabled. When this option is selected, a submenu opens to define whether the authentication mode is one of the following two options:
- “Remote request: Yes”: managed by a 3rd-party system (remote supervision) who is taking control to give or reject access.
- “Remote request: No”: there is no authentication mode and hence, to charge, the user only needs to connect the plug (default value)

When the wished option(s) are selected, click on “Next” button.

NOTE: The installer should implement the badges list on each charging station if this option is selected.
2.7.2 Authentication mode without remote supervision

When the authentication is managed by the EVLMS, the possible options are:

“LMS – Allow all badges”: The EVLMS will allow any badge to charge. The same behavior is expected on each charging station when the connection is lost. This option requires the charging stations to be equipped with an RFID reader.

“LMS – Allow only the known badges”. Only the badges created in the EVLMS are allowed. When a badge is scanned at a charging station, it will get permission to charge or not based on whether it is included or not in the list hosted in the EVLMS. This is the default option.

When the connection is lost with the EVLMS, the behavior options to choose from are:
- “Allow all”: All requests to charge are accepted by the charging stations whatever the badge
- “Reject”: All requests to charge are refused by the charging stations whatever the badge
- “Reject with cache list”: Requests to charge coming from badges already used on the specific charging station will be accepted.

“Charging stations”: only the badges created in the charging station are allowed. The same behavior is expected when the connection is lost.

NOTE: The installer should implement the badges list on each charging station if this option is selected.

“RFID disabled”: The RFID reader is disabled. When this option is selected, a submenu opens to define whether the authentication mode is one of the following two options:
- “Remote request: Yes”: managed by a 3rd-party system (remote supervision) who is taking control to give or reject access.
- “Remote request: No”: there is no authentication mode and hence, to charge, the user only needs to connect the plug (default value)

When the wished option(s) are selected, click on “Next” button.
2.8 Charging station commissioning

2.8.1 Prerequisites

Charging stations must be powered on and connected to the Ethernet network prior to the EVLMS commissioning.

Charging stations must have a compatible firmware version, see chapter 1.1.2.1

2.8.2 Charging station landing page

2.8.3 Description

<table>
<thead>
<tr>
<th>Icons</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCAN</td>
<td>Show all charging stations on the network</td>
</tr>
<tr>
<td></td>
<td>Refresh the display of charging station settings</td>
</tr>
<tr>
<td>SAVE ALL</td>
<td>Save settings</td>
</tr>
</tbody>
</table>

2.8.4 Charging station configuration

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on SCAN</td>
</tr>
</tbody>
</table>
| 2     | Update charging station settings:  
- IP Address: Change this parameter if IT manager imposes fixed IP addresses  
- Station name: It is recommended to select a name that indicates the location and the name of the parking (50 characters max)  
- Connector(s): in order to optimize the load management it is recommended to rotate the phases of the charging stations installed on the same site. Select here the phase wiring of each connector of the charging station according... |
### Steps

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connect the electrical wiring as implemented in the electrical network. e.g.</td>
</tr>
<tr>
<td>2</td>
<td>VIP: Check the box to activate the VIP status to the charging station.</td>
</tr>
<tr>
<td></td>
<td>Version: Firmware version embedded in the charging station. See 2.8.1 Prerequisites</td>
</tr>
<tr>
<td></td>
<td>Box identity: If the EVLMS is connected to a remote supervision insert here the box identity provided by the Charge Point Operator (CPO). By default it is the charging station MAC address</td>
</tr>
<tr>
<td></td>
<td>Zones: Please choose the zone where the charging station belongs. Please notice that the serial number of the charging station can be read by placing the pointer over the little question mark symbol next to each charging station model).</td>
</tr>
<tr>
<td>3</td>
<td>Click on “Save All” button to initiate the configuration of the charging stations</td>
</tr>
<tr>
<td>4</td>
<td>Click on “Next” to complete the step</td>
</tr>
</tbody>
</table>

---

**Note:** It is possible that the installation of a charging station doesn’t succeed (marked with a red cross). In that case please relaunch the installation of the charging station.

During the configuration of the charging stations, the EVLMS will automatically update the firmware of the charging stations in the network to the charging station firmware version embedded in the LMS firmware.
2.9 Load shedding strategy and degraded mode

2.9.1 Definition

The degraded mode is a parameter defining the current setpoint allocated to the charging station when the communication between the charging station and the EVLMS is lost. It is also the threshold under which the charge will be suspended in normal mode.

In dynamic mode, the EVLMS will favor the continuity of service of the building therefore the current setpoint will be set to 0 A.

2.9.2 Prerequisites

The sum of the degrade mode setpoint must be lower than the max intensity of the zone. Otherwise, for safety and continuity of service reasons, the EVLMS will automatically configure the current setpoint to 0A.

2.9.3 Degraded mode configuration page

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the minimum current setpoint at which the EVs will accept to charge for your installation</td>
</tr>
<tr>
<td></td>
<td>- IEC 61851 (6A single phase and 3 phases)</td>
</tr>
<tr>
<td></td>
<td>- EV/ZE ready (8A single phase and 14A 3 phases)</td>
</tr>
<tr>
<td>2</td>
<td>Please choose the load shedding priority option</td>
</tr>
<tr>
<td></td>
<td>&gt;Energy: Proportional to the energy consumed (kWh)</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td></td>
<td>&gt;Duration: Proportional to the charging time</td>
</tr>
<tr>
<td></td>
<td>• The system suspends the charging of vehicles which have charged for the longest time since the beginning of the charging process.</td>
</tr>
<tr>
<td>3</td>
<td>Click on “Next” to complete the process</td>
</tr>
</tbody>
</table>
2.10  Badge management

This is the last step in the configuration wizard. The same interface is included in the EVLMS Dashboard, badges tab. If the authentication mode has been set to “LMS – Allow only the known badges”, the list of authorized badges must be entered here.

2.10.1 Prerequisites

Beforehand the authentication mode must have been set to “LMS – Allow only the known badges”. Otherwise, you can skip this step.

2.10.2 Badge management configuration page

2.10.3 Badge addition

2.10.3.1 Badge manual addition

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on “Add a badge” button.</td>
</tr>
<tr>
<td>2</td>
<td>Enter the IdTag of the badge</td>
</tr>
<tr>
<td></td>
<td>NOTE: to know the IdTag a dedicated smartphone app or other device</td>
</tr>
<tr>
<td>3</td>
<td>Select the status:</td>
</tr>
<tr>
<td></td>
<td>- VIP (otherwise, standard badge): Select this option to provide the badge with VIP privileges. This option is available only in specific EVLMS references (refer to § 1.1.1.3).and only with EVLMS authentication selected (refer to §2.7).</td>
</tr>
<tr>
<td></td>
<td>- Authorized: Select this option to authorize the badge to charge.</td>
</tr>
<tr>
<td>4</td>
<td>Enter comments (example, name of the owner of the badge, 50 characters max)</td>
</tr>
<tr>
<td>5</td>
<td>Click on the “SAVE ALL” button</td>
</tr>
</tbody>
</table>

2.10.3.2 Badge list import

Note: if the installer imports a list of badge, all previously registered badges will be deleted
If the badge list is already available:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on the “IMPORT” button on the EVLMS badges configuration page.</td>
</tr>
<tr>
<td>2</td>
<td>Select the import file format: EVLMS or charging station. <strong>The file format of the EVLMS and the charging station are different, therefore the charging station file is compatible with the EVLMS but not the reverse.</strong></td>
</tr>
<tr>
<td>3</td>
<td>Click on Confirm.</td>
</tr>
</tbody>
</table>

If the badge list is not yet available and needs to be created:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Swap all badges to be imported into the EVLMS in front of the RFID card reader of a charging station connected to the EVLMS.</td>
</tr>
<tr>
<td>2</td>
<td>Export the badges list from the charging station (see DOCA0060EN)</td>
</tr>
<tr>
<td>3</td>
<td>Click on the IMPORT button on the EVLMS badge configuration page and import the file with the badge list from your computer</td>
</tr>
<tr>
<td>4</td>
<td>Confirm.</td>
</tr>
</tbody>
</table>

This last procedure is the most efficient way to add a large group of new badges to the EVLMS.

### 2.10.4 Badges file export

The export feature is used to back up the badge list in the EVLMS format.

### 2.10.5 Badge removal

Select the red button located on the right-hand side of each badge line to remove the badge from the list.

### 2.10.6 Badge update

The following fields can be updated:

- Authorization
- Type (VIP, or Standard by unselecting VIP)
- Comments
Chapter 3.
OPERATION INTERFACE
3.1 Login to the EVLMS (Webserver)

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1    | Prerequisite: Wizard process completed  
Open a web browser and enter 192.168.0.128 (default address) or the address defined during the commissioning. |
| 2    | Log in with credentials defined for Admin profile during the commissioning |

3.2 Menu and status bar

3.2.1 Bar items

<table>
<thead>
<tr>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EVLMS contextual menu</td>
</tr>
<tr>
<td>2</td>
<td>Number of charging stations per status: green – available, blue – charging in progress, red – malfunctioning</td>
</tr>
<tr>
<td>3</td>
<td>Language selection (English or French)</td>
</tr>
<tr>
<td>4</td>
<td>Logout</td>
</tr>
<tr>
<td>5</td>
<td>Commissioning assistant restart button</td>
</tr>
<tr>
<td>6</td>
<td>Display of EVLMS firmware version</td>
</tr>
<tr>
<td>7</td>
<td>Access to download the user guide</td>
</tr>
</tbody>
</table>
3.3 Dashboard

Access by the Stations tab

3.3.1 Global view

The purpose of this tab is to display the ongoing status of the charging stations and the load transactions managed by the EVLMS.

Moreover, some specific actions can be executed on connected charging stations.

The global view is made of three parts:

- On the left: EVLMS topology, zones organization, power outlets (other loads than charging station for which we want to monitor the consumption) - each part can be selected, then expanded or collapsed to display or hide details.

- In the center: status of charging stations and power outlets when “Global” is selected.

- At the bottom: ongoing charging sessions when “Global” is selected and control button to remotely stop the charging session.

Action

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stop transaction: remotely stop the selected charging session(s)</td>
</tr>
<tr>
<td></td>
<td>Display charging sessions: only ongoing sessions (by default) or all sessions</td>
</tr>
</tbody>
</table>
**EXPORT TRANSACTIONS button:** Click here to export the charging data records for the transactions done on all charging stations in the network since the commissioning of the EVLMS.

The charging data records are exported to an external file in CSV format for all the charging stations.

It is possible to select the period before exporting the file.

The data that will be exported are the following:
- Transaction number
- Charging station ID
- Socket outlet
- User ID
- Type of charge
- Start datetime
- End datetime
- Energy consumed (kWh)
- Socket type
- Transaction duration
- Comment
- Charge box identity
- NoPeriod: Energy consumed (kWh) during the transaction outside of any defined time of use period and timeslots.

There may be additional columns for each and every time of use tariff period available at the time of the export. Each additional column is named after the corresponding period name and the values shown correspond to the energy in kWh consumed within the transaction during the specific period. See Time of use (TOU) documentation at §3.9.3 for more details about time of use tariff periods.

### 3.3.2 Zone view

Zone view is available when a zone is selected in the left panel.

The zone view provides the same data as the global view plus the capability for the user to manage the charging stations.
### Actions

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Update]</td>
<td>Update a charging station (details in next part)</td>
</tr>
<tr>
<td>![Start]</td>
<td>Start a session: remotely start a charging session on the selected charge point</td>
</tr>
<tr>
<td>![Connect]</td>
<td>Connect to a charging station web server</td>
</tr>
<tr>
<td>![Reboot]</td>
<td>Reboot a charging station</td>
</tr>
<tr>
<td>![Remove]</td>
<td>Remove a charging station from the EVLMS</td>
</tr>
<tr>
<td>![Stop]</td>
<td>Stop a session: remotely stop a charging session on the selected charge point</td>
</tr>
<tr>
<td>![Display]</td>
<td>Display charging sessions: display only ongoing (by default) or all charging stations</td>
</tr>
<tr>
<td>![Status]</td>
<td>Status of the connection devices</td>
</tr>
</tbody>
</table>

### 3.3.3 Charging station view

The charging station view is available when a charging station is selected in the left panel or by the charging station update icon in the bottom panel.

![Charging station view](doca0163en-03.png)

Following changes can be done:

#### 3.3.4 - charging station name

- charging station zone
- charging station type status: VIP or standard
3.4 Badge management

The same interface as in the configuration assistant is included in the EVLMS Dashboard, badges tab. If the authentication mode has been set to “LMS – Allow only the known badges”, the list of authorized badges must be entered here.

3.4.1 Prerequisites

Beforehand the authentication mode must have been set to “EVLMS – Allow only the known badges”. Otherwise, you can skip this step.

3.4.2 Badge management configuration page
### 3.4.3 Badge addition

#### 3.4.3.1 Badge swap

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Swap the badge in front of the RFID card reader of a charging station connected to the EVLMS.</td>
</tr>
<tr>
<td>2</td>
<td>Click on Refresh button on the EVLMS badges configuration page.</td>
</tr>
</tbody>
</table>
| 3    | Select the status:  
  - **VIP** (otherwise, standard badge): Select this option to provide the badge with VIP privileges. This option is available **only in specific EVLMS commercial references** (refer to § 1.1.1) **and only with EVLMS authentication selected** (refer to §3.7.4 ).  
  - **Authorized**: Select this option to authorize the badge to charge. |
| 4    | Enter comments (50 characters max) |
| 5    | Click on the “SAVE ALL” button |

#### 3.4.3.2 Badge manual addition

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on “Add a badge” button.</td>
</tr>
</tbody>
</table>
| 2    | Enter the IdTag of the badge  
  **NOTE**: to know the IdTag a dedicated smartphone app or other device |
| 3    | Select the status:  
  - **VIP** (otherwise, standard badge): Select this option to provide the badge with VIP privileges. This option is available **only in specific EVLMS references** (refer to § 1.1.1.3) **and only with EVLMS authentication selected** (refer to §2.7).  
  - **Authorized**: Select this option to authorize the badge to charge. |
| 4    | Enter comments (example, name of the owner of the badge, 50 characters max). |
| 5    | Click on the “SAVE ALL” button |

#### 3.4.3.3 Badge list import

**Note**: if the installer import a list of badge, all previously registered badges will be deleted.

If the badges list is already available:

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on the &quot;IMPORT&quot; button on the EVLMS badges configuration page.</td>
</tr>
</tbody>
</table>
| 2    | Select the import file format: EVLMS or charging station.  
  *The file format of the EVLMS and the charging station are different, therefore the charging station file is compatible with the EVLMS but not the reverse.* |
| 3    | Click on Confirm. |
If the badges list is not yet available and needs to be created.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Swap all badges to be imported into the EVLMS in front of the RFID card reader of a charging station connected to the EVLMS.</td>
</tr>
<tr>
<td>2</td>
<td>Export the badges list from the charging station (see DOCA0060EN)</td>
</tr>
<tr>
<td>3</td>
<td>Click on the IMPORT button on the EVLMS badge configuration page and import the file with the badge list from your computer</td>
</tr>
<tr>
<td>4</td>
<td>Confirm.</td>
</tr>
</tbody>
</table>

This last procedure is the most efficient way to add a large group of new badges to the EVLMS.

### 3.4.4 Badges file export

The export feature is used to back up the badge list in the EVLMS format.

### 3.4.5 Badge removal

Select the red button located on the right-hand side of each badge line to remove the badge from the list.

### 3.4.6 Badge update

The following fields can be updated:

- Authorization
- Type (VIP, or Standard by unselecting VIP). This option is available only in specific EVLMS commercial references (refer to § 1.1.1) and only with EVLMS authentication selected (refer to §3.7.4).
- Comments
3.5 Network configuration

Access by the Admin tab → Configuration → Network

Note: Whatever the parameters changed in network configuration, a reboot must be done after the configuration.

3.5.1 Ethernet configuration

Network configuration

<table>
<thead>
<tr>
<th>Setting</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>R/W</td>
<td>192.168.0.128</td>
<td>EVLMS IP address</td>
</tr>
<tr>
<td>Sub network mask</td>
<td>R/W</td>
<td>255.255.255.0</td>
<td>EVLMS sub-network mask</td>
</tr>
<tr>
<td>Default gateway</td>
<td>R/W</td>
<td>192.168.0.254</td>
<td>Gateway IP address (1)</td>
</tr>
<tr>
<td>Preferred DNS system</td>
<td>R/W</td>
<td>8.8.8.8</td>
<td>Preferred DNS server IP address (2)</td>
</tr>
<tr>
<td>Other DNS system</td>
<td>R/W</td>
<td>NA</td>
<td>Other DNS server IP address (2)</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available
(1) Address of the modem used for the connection to the supervision, if any.
(2) DNS Server is used to convert URL to IP address. May be provided by the remote supervision (through a dedicated SIM card for example). Google DNS server by default.

Gateway: A network gateway joins two networks so the devices on one network can communicate with the devices on another network.

DNS: Domain Name System is the naming system for computers and devices connected to a local area network (LAN) or the Internet.

Note: If the EVLMS sub network (192.168.0.128) is changed, the sub network of the computer must also be changed after the reboot of the EVLMS.
3.5.2 Proxy configuration

**Proxy:** A proxy server is a dedicated computer or a software system running on a computer that acts as an intermediary between an endpoint device, such as a computer, and another server from which a user or client is requesting a service.

Note: Must be activated if required by network installation

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy address</td>
<td>R/W</td>
<td>NA</td>
<td>Proxy server IP address (1)</td>
</tr>
<tr>
<td>Proxy port</td>
<td>R/W</td>
<td>80</td>
<td>Proxy server port used (1)</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available
(1) Available only with Proxy support activated

3.5.3 DHCP server configuration

**DHCP:** Dynamic Host Configuration Protocol is a protocol used to provide quick, automatic, and central management for the distribution of IP addresses within a network.

EVLMS can be configured to act as a DHCP server to assign IP addresses to charging stations in the defined range, provided that they are configured to support this feature.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP range high</td>
<td>R/W</td>
<td>192.168.0.250</td>
<td>DHCP range high IP address limit</td>
</tr>
<tr>
<td>DHCP range low</td>
<td>R/W</td>
<td>192.168.0.200</td>
<td>DHCP range low IP address limit</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available

Note: Check with the building IT manager if the DHCP is already activated on the same network of the EVLMS. If yes, do not activate DHCP on the EVLMS
3.6 Remote supervision configuration

Access by the Admin tab → configuration → remote supervision

Note: Whatever the parameters changed in supervision configuration, a reboot must be done after the configuration.

3.6.1 Remote supervision configuration

The remote supervision must be enabled when the customer has chosen to have the installation managed by a CPO (Charge Point Operator). The CPO will provide the installer with an URL. Such URL will be used by the charging stations to establish communication between the remote supervision and the charging stations. The communication protocol must be OCPP 1.6 Json.

The remote supervision is disabled (OFF) by default. The time and date provided by the web browser are displayed.

When the remote supervision is enabled (ON), the time and date are provided by the remote supervision.

The remote supervision must be configured with the communication parameters between the remote supervision and the EVLMS.
The main field to enter is the CPO supervision URL address. The rest of fields are parameters used by OCPP experts. The installer can choose to leave the default values. The CPO will change them afterwards if needed.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervision URL</td>
<td>R/W</td>
<td>NA</td>
<td>Remote supervision URL; Start with ws:// or wss:// in case of secure mode</td>
</tr>
<tr>
<td>MeterValueSampleInterval</td>
<td>R/W</td>
<td>NA</td>
<td>300 sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Interval of communication between 2 consumption messages</td>
</tr>
<tr>
<td>MeterValuesSampledData</td>
<td>R/W</td>
<td>NA</td>
<td>Energy.Active.Import.Register</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Meter values format used to report consumption</td>
</tr>
<tr>
<td>TransactionMessageAttempts</td>
<td>R/W</td>
<td>NA</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maximum message sending attempts before drop</td>
</tr>
<tr>
<td>WebSocketPingInterval</td>
<td>R/W</td>
<td>NA</td>
<td>120 sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Web socket ping interval</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available
3.7 Zones configuration

Access by the Admin tab → configuration → zone management

Note: Whatever the parameters changed in zones configuration, a reboot must be done after the configuration.

3.7.1 Prerequisites

Reminder: Power meters are only required in EVLMS dynamic mode. Their Ethernet connection must be configured regardless of the EVLMS and prior to the EVLMS commissioning.

3.7.2 Zones landing page

EVLMS can manage different zones and subzones based on the electrical architecture deployed in the installation. Please refer to §1.4.

The zone landing page allows the installer to define the name of each zone and its sub-zones, as well as its maximum current setpoint (maximum intensity), the energy management mode for the zone, and the power meter to associate to the zone if the management mode is dynamic.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Access rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Add a new zone" /></td>
<td>Admin: Yes, User: No</td>
<td>Add a new zone</td>
</tr>
<tr>
<td><img src="image" alt="Save the zone configuration" /></td>
<td>Admin: Yes, User: No</td>
<td>Save the zone configuration</td>
</tr>
<tr>
<td><img src="image" alt="Remove the zone" /></td>
<td>Admin: Yes, User: No</td>
<td>Remove the zone</td>
</tr>
</tbody>
</table>
3.7.3 Description

<table>
<thead>
<tr>
<th>Step</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on + next to <strong>Name</strong> to create a zone. Several zones can be created depending on the EVLMS reference.</td>
</tr>
<tr>
<td>2</td>
<td>Click on + next to <strong>Zone</strong> to create a sub-zone. Several sub-zones can be created depending on the EVLMS reference.</td>
</tr>
</tbody>
</table>
| 3    | Set the maximum intensity allowed in each zone and sub-zone.  
**Note:**  
- The value must be lower or equal to the electrical capacity of the installation.  
- Max intensity in a sub-zone cannot be higher than the maximum intensity in the related zone. |
| 4    | In dynamic mode, select the power meter measuring the zone current. A power meter is assigned to a single zone and cannot be shared. |
| 5    | Select Dynamic or Static mode.  
Static mode:  
The maximum power setpoint value for the charging stations is equal to the subscribed demand or any fixed value.  
Dynamic mode:  
The remaining power at the building level is allocated to the charging infrastructure in real time. |

3.7.4 Zone settings

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Range</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Admin</td>
<td>User</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Zone name</td>
</tr>
<tr>
<td>Max intensity</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Maximum current available (A) in the selected zone</td>
</tr>
<tr>
<td>Power meter</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>Power meter assigned to the selected zone</td>
</tr>
<tr>
<td>Power management</td>
<td>R/W</td>
<td>NA</td>
<td>Dynamic</td>
<td>Zone supporting dynamic energy management</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Static</td>
<td>Zone supporting static energy management</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available
3.8 Power meters configuration

Access by Admin tab ➔ configuration ➔ Power meters

3.8.1 Prerequisites

<table>
<thead>
<tr>
<th>Icon</th>
<th>Access rights</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Yes</td>
<td>Add a new power meter</td>
</tr>
<tr>
<td>🔄</td>
<td>Yes</td>
<td>Update the power meter parameters</td>
</tr>
<tr>
<td>🗑️</td>
<td>Yes</td>
<td>Remove the power meter</td>
</tr>
<tr>
<td>✔️</td>
<td>Yes</td>
<td>Power meter correctly connected</td>
</tr>
<tr>
<td>🚧</td>
<td>Yes</td>
<td>Power meter not connected</td>
</tr>
<tr>
<td>🚨</td>
<td>Yes</td>
<td>Connection not established with the power meter, EVLMS reboot needed</td>
</tr>
</tbody>
</table>

Reminder: Power meters are only required in EVLMS dynamic mode. Their Ethernet connection must be configured regardless of the EVLMS and prior to the EVLMS commissioning.

3.8.2 Power meters landing page

3.8.3 Power meter setting

Description

RTU and TCP are both communication protocols used by Schneider Electric power meters. If the RTU check box is not selected, it means that the communication is TCP. In such case, please follow instructions in the table below to create the power meter in the EVLMS.
<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Range</th>
<th>Factory setting</th>
<th>Fields to enter per protocol and per settings</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Protocol</td>
<td>R/W</td>
<td>NA</td>
<td>TCP</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RTU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reporting (1)</td>
<td>R/W</td>
<td>NA</td>
<td>No</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Model</td>
<td>R/W</td>
<td>NA</td>
<td>IEM3x5x</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PM5320</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>PowerTag</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IP address (2)</td>
<td>R/W</td>
<td>NA</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Port (2)</td>
<td>R/W</td>
<td>NA</td>
<td>502</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Slave Id</td>
<td>R/W</td>
<td>NA</td>
<td>1 - 255</td>
<td>255</td>
<td>X</td>
</tr>
</tbody>
</table>

(1) Availability depends on supported EVLMS license
(2) Mandatory only when TCP protocol is selected
R/W: Read/Write - NA: Not Available

Note: When the configuration of the power meter will be finished, a notification will appear 🚨 to report that there is no communication with the power meter. Please reboot the EVLMS to activate the communication.
3.9 Time of use (TOU)

Access: Admin tab → Configuration → Time-of-use

3.9.1 Definition

The time-of-use (TOU) feature allows to define a reduced maximum current setpoint during the times of the day when electricity is more expensive, when the building is under time-of-use type of electricity tariffs. That way, EV charging can be maximized when electricity has a lower price, and limited when it has a higher price, based on the settings defined by the operator.

A total of 5 tariff periods can be defined, and a total of 20 timeslots can be defined and associated to those tariff periods. You can define TOU periods characteristics and then choose to deactivate them if you want to temporarily cancel them but you don’t wish to lose their settings.

TOU feature setup and visualization is just available by Admin profile.

3.9.2 Prerequisites

- This feature is available for commercial references HMIBSCEA53D1ESM, -EDS, -EDM and -EDL.
- At least 1 zone must be created (please refer to chapter 3.7 Zone creation)

3.9.3 Tariff periods configuration tab

3.9.3.1 Create periods

Define the % of maximum setpoint reduction wished per TOU period.
For example: for a zone with a maximum setpoint of 100A, if 80% is defined, the new maximum setpoint will be 80A.

a. For Dynamic load management, the maximum setpoint applied will be the lower of the two:
   i. the % of reduction defined, or
   ii. the dynamic current available in real time

b. For Static load management, the % of reduction defined will apply

The user can create several periods using the “+” symbol on the screen.
5 steps are needed to create a period:

<table>
<thead>
<tr>
<th>step</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Click on + icon to create a tariff period. Several periods up to 5 can be created</td>
</tr>
<tr>
<td>2</td>
<td>Enter period <strong>Name</strong></td>
</tr>
<tr>
<td>3</td>
<td>Define <strong>Timeslots</strong>: min 1, max 20 by clicking on ‘Add a timeslot’ link</td>
</tr>
<tr>
<td>4</td>
<td>Define application week <strong>day</strong>. At least 1 day must be selected.</td>
</tr>
<tr>
<td>5</td>
<td>Define % of <strong>Maximum setpoint</strong> reduction</td>
</tr>
</tbody>
</table>

For the remaining time slots of the day that are not aligned to any tariff period, no reduction of current setpoint will be applied. Nominal current setpoint per zone will apply.
### 3.9.3.2 Description

<table>
<thead>
<tr>
<th>Settings</th>
<th>Access rights</th>
<th>Range</th>
<th>Factory setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>R/W NA</td>
<td></td>
<td></td>
<td>Tariff period name</td>
</tr>
<tr>
<td>Timeslots</td>
<td>R/W NA</td>
<td>0 - 23 for hours</td>
<td></td>
<td>The tariff period is active only within defined time slots.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-59 for minutes</td>
<td></td>
<td>- 1 min per period</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- 20 max across all periods</td>
</tr>
<tr>
<td>Days</td>
<td>R/W NA</td>
<td></td>
<td></td>
<td>The tariff period is active every week on the selected days.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>At least 1 day per period needs to be selected.</td>
</tr>
<tr>
<td>Maximum setpoint</td>
<td>R/W NA</td>
<td>0 - 100</td>
<td></td>
<td>% of reduction to apply to the maximum current setpoint</td>
</tr>
</tbody>
</table>

R/W: Read/Write - NA: Not Available

### 3.9.3.3 Update period

You can update the characteristics of a tariff period by clicking on the corresponding Edit button.
3.9.3.4 Remove a period

You can remove a tariff period by clicking on the corresponding Delete button.

3.9.4 Zone configuration tab

Define the parking zones where you wish all or part of the defined TOU periods to apply. By default, all TOU periods defined apply to all zones but the EVlink LMS allows you to modify that.

You can disable some or all periods for each zone.

3.9.5 Summary tab

On the “Summary” tab, verify the resulting TOU settings in terms of what tariff periods apply to what zones, and what is the resulting maximum current setpoint in Amps based on the reduction % defined during tariff periods definition.

If you have disabled some period(s) on some zone(s), the current value shown for them will be the nominal one for the zone. That fact will be highlighted with cursive, bold police.
3.9.6 Disable TOU feature

You can disable or enable again TOU feature by clicking on this button.

![Image of Time-of-use configuration]

3.10 Advanced configuration

In this section you can configure the advanced parameter of your EVLMS device related to cybersecurity.

For cybersecurity reasons, those parameters are not described in this document.
3.11 User management

Access by the Admin tab → Users management

3.11.1 User management landing page

There are two profiles in the EVLMS:

Admin: full access to all configuration parameters
User: badge management, access to the dashboard in read-only mode

See chapter 2.2.2 for login and password rules.

3.11.2 Add a user

All fields must be populated.
3.11.3 Change the user password

All fields must be populated.

3.11.4 Delete a user

All fields must be populated.
3.12 Charging station commissioning

Access: Admin tab → Station installation

3.12.1 Prerequisites

Charging stations must be powered and connected to the Ethernet network prior to the EVLMS commissioning.
Charging stations must have the right firmware version, see chapter 1.1.2.1 EVlink charging stations

3.12.2 Charging station landing page

![Charging station landing page]

Description

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCAN 📡</td>
<td>Show all charging stations on the network</td>
</tr>
<tr>
<td>🔄</td>
<td>Refresh the display charging station settings</td>
</tr>
<tr>
<td>SAVE ALL</td>
<td>Save settings</td>
</tr>
</tbody>
</table>

3.12.3 Update the charging stations discovery

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select the IP addresses scan range: enter the low and upper IP addresses. Note: if you have changed the sub network of the EVLMS during the Network step, please update the scan range addresses accordingly.</td>
</tr>
<tr>
<td>2</td>
<td>Click on SCAN 📡</td>
</tr>
</tbody>
</table>
| 3     | Update charging station settings:         
|       |   - IP Address: Change this parameter if IT manager imposes fixed IP addresses         
|       |   - Station name: It is recommended to select a name that indicates the location and the name of the parking (50 characters max)         
|       |   - Connector(s): in order to optimize the load management it is recommended to rotate the phases of the charging stations installed on the same site. Select here the phase wiring of each connector of the charging station according to the electrical wiring. |
### Steps Description

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>e.g.</strong></td>
</tr>
<tr>
<td>N</td>
<td>TR1'23</td>
</tr>
<tr>
<td>L1</td>
<td>TR231</td>
</tr>
<tr>
<td>L2</td>
<td>TR312</td>
</tr>
<tr>
<td>L3</td>
<td>MONO1</td>
</tr>
<tr>
<td>N</td>
<td>MONO2</td>
</tr>
<tr>
<td>L1</td>
<td>MONO3</td>
</tr>
</tbody>
</table>

- **VIP**: Check the box to activate the VIP status to the charging station.
- **Auth mode**: The authentication mode will define the rules and strategy to grant access to the EV charging stations (see §3.7.4).
- **Auth disconnected mode**: it allows to define the behavior when the connection between the charging stations and the EVLMS is lost. (see §3.7.4).
- **Version**: Firmware version embedded in the charging station. See 2.8.1 Prerequisites
- **Box identity**: If the EVLMS is connected to a remote supervision insert here the box identity provided by the Charge Point Operator (CPO). By default it is the charging station MAC address
- **Zones**: Please choose the zone where the charging station belongs.
  Please notice that the serial number of the charging station can be read by placing the pointer over the little question mark symbol next to each charging station model).

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Click on “Save All” button to initiate the configuration of the charging stations</td>
</tr>
<tr>
<td>5</td>
<td>Click on “Next” to complete the step</td>
</tr>
</tbody>
</table>

Note: It is possible that the installation of a charging station doesn’t succeed (marked with a red cross). In that case please relaunch the installation of the charging station.

During the configuration of the charging stations, the EVLMS will automatically update the firmware of the charging stations in the network to the charging station firmware version embedded in the LMS firmware.

### 3.12.4 Definition of authentication mode

The authentication mode will define the rules and strategy to grant access to the charging stations. Moreover, it allows to define the behavior of the charging stations in case the connection between the charging stations and the EVLMS is lost.

The possible options are:

**“LMS – Allow all badges”**: The EVLMS will allow any badge to charge. The same behavior is expected on each charging station when the connection is lost. This option requires the charging stations to be equipped with an RFID reader.

**“LMS – Allow only the known badges”**: Only the badges created in the EVLMS are allowed. When a badge is scanned at a charging station, it will get permission to charge or not based on whether it is included or not in the list hosted in the EVLMS. This is the default option.
When the connection is lost with the EVLMS, the behavior options to choose from are:
- **“Allow all”**: All requests to charge are accepted by the charging stations whatever the badge
- **“Reject”**: All requests to charge are refused by the charging stations whatever the badge
- **“Reject with cache list”**: Requests to charge coming from badges already used on the specific charging station will be accepted.

**“Stations”**: only the badges created in the charging station are allowed. The same behavior is expected when the connection is lost.

**“Disabled”**: The RFID reader is disabled. When this option is selected, a submenu opens to define whether the authentication mode is one of the following two options:
- **“Remote request: Yes”**: managed by a 3rd-party system (remote supervision) who is taking control to give or reject access.
- **“Remote request: No”**: there is no authentication mode and hence, to charge, the user only needs to connect the plug.

When the wished option(s) are selected, click on “Next” button.
3.13 Load shedding strategy and degraded mode

Access: Admin tab → Configuration → Stations

Note: Whatever the parameters changed in degraded mode configuration, a reboot on the EVLMS and charging station must be done after the configuration.

3.13.1 Definition

The degraded mode is a parameter defining the current setpoint allocated to the charging station when the communication between the charging station and the EVLMS is lost. It is also the threshold under which the charge will be suspended in normal mode.

In dynamic mode, the EVLMS will favor the continuity of service of the building hence the current setpoint will be set to 0 A.

3.13.2 Prerequisites

The sum of the degrade mode setpoint must be lower than the max intensity of the zone. Otherwise, for safety and continuity of service reasons, the EVLMS will automatically configure the current setpoint to 0A.

3.13.3 Degraded mode configuration page

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | Select the minimum setpoint for your installation  
|      | - IEC 61851 ready (6A single phase and 3 phases)  
|      | - EV/ZE ready (8A single phase and 14A 3 phases) |
| 2    | Please choose the load shedding priority option  
|      | >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 time since the beginning of the charging process. |
| 3    | Click on “Next” to complete the process |
3.14 Maintenance

3.14.1 Download the maintenance report

Access by the Admin tab → Reports

Click on Download button to get the EVLMS maintenance report in HTML format.

3.14.2 Read EVLMS Logs

Access by the Admin tab → Logs

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Stations</th>
<th>Command</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>22/03/2019 15:20:26</td>
<td>0</td>
<td>Smart TE</td>
<td>Heartbeat</td>
<td></td>
</tr>
<tr>
<td>22/03/2019 15:20:22</td>
<td>0</td>
<td>LC</td>
<td>Stats</td>
<td>uptime:13718 sysUptime:13730 load:45/47/54 free ram:555M vmSize:2097M rss:22M</td>
</tr>
<tr>
<td>22/03/2019 15:20:02</td>
<td>0</td>
<td>LC</td>
<td>Stats</td>
<td>uptime:13698 sysUptime:13710 load:40/47/54 free ram:554M vmSize:2097M rss:22M</td>
</tr>
<tr>
<td>22/03/2019 15:19:52</td>
<td>1</td>
<td>LC</td>
<td>PM</td>
<td>Recap read PM Ph1: 0.6A Ph2: 0.6A Ph3: 0.6A</td>
</tr>
</tbody>
</table>

3.15 EVLMS firmware update
You can update the new firmware release of the EVLMS

Access by the Admin tab → Update

Click on Choose file to select the binary file. The most recent firmware release is available on se.com. You can use the following QR code or URL address to locate it:


Click on UPDATE to install the firmware in the EVLMS. Then reboot the EVLMS.

It is possible to upgrade your current EVLMS license to a more sophisticated one (for example, from a commercial reference able to manage up to 15 charging stations, to a new one able to manage up to 50 charging stations). If you wish to do so, please contact Schneider Electric, or your Schneider Electric commercial partner.
3.16 Reboot and back to factory settings

3.16.1 Reboot and back to factory settings from the webserver

Access by the Admin tab → Reboot

Click on “Reboot the server” to restart the EVLMS application.

Click on “Back to factory” to restore all the EVLMS factory settings:

- The following data will be deleted:
  - Badge list
  - Charging stations
  - Zones
  - Power meters
  - Transaction data
  - User list (except factory default user, ADMIN)

- The remote supervision connection will be removed

- The network settings will be reset

During the reboot process or the back to factory process the EVLMS will lose connection. A message will be shown on-screen for that. That is the normal behavior. Please wait a few seconds for the connection to be reestablished, or else refresh your browser.

3.16.2 Hardware back to factory settings

Refer to section 4.1 Hardware back to factory settings.
Chapter 4. **EVlink LMS Maintenance**
4.1 Hardware back to factory settings

4.1.1 Definition

If you find yourself in a situation where you can no longer access your EVLMS user interface (for example, because you have lost your Admin credentials, or if you have changed the network settings in a wrong way) you may consider bringing your EVLMS back to its factory settings using the physical procedure to do it.

Note: When you reset your EVLMS to factory settings all data will be deleted. To know the list of data this procedure will delete, please refer to chapter 3.16.1.

4.1.2 Prerequisites

EVLMS must be powered on.

4.1.3 Hardware back to Factory Settings procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create a wired bridge between the GPIO 7 and the GPIO 8 of the product connector during at least 5s</td>
</tr>
<tr>
<td>2</td>
<td>After at least 5s, remove the wired bridge</td>
</tr>
</tbody>
</table>
| 3    | Wait for the reboot of the product  
You can now login to the EVLMS (Wizard) (See §2.1) |
4.2 Regular cleaning and maintenance

4.2.1 Introduction

Inspect the EVLMS Box periodically to determine its general condition. For example:

- Are all power cords and cables connected properly? Have any become loose?
- Are all installation screws holding the unit securely?
- Is the ambient temperature within the specified range?

The following sections describe maintenance procedures for the EVLMS Box, which shall be carried out by a trained, qualified user.

---

**DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the EVLMS Box and the power supply.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the EVLMS Box. The AC unit is designed to use 100...240 Vac input. The DC unit is designed to use 24 Vdc input. Always check whether your device is AC or DC powered before applying power.

Failure to follow these instructions will result in death or serious injury.

During operation, the surface temperature of the heat sink may exceed 70 °C (158 °F).

---

**WARNING**

**RISK OF BURNS**

Do not touch the surface of the heat sink during operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

---

4.2.2 Cleaning solutions

**CAUTION**

**HARMFUL CLEANING SOLUTIONS**

- Do not clean the unit or any component of the unit with paint thinner, organic solvents, or strong acids.
- Use only a mild soap or detergent that will not harm the poly carbonate material of the screen.

Failure to follow these instructions can result in injury or equipment damage.