

Operating Instructions

Fronius EMIL



EN-US | Operating instructions



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General information

Important notes about this document

Purpose of the document

These Operating Instructions describe the operating principle, installation, and setup of a system running with the software solution "Fronius EMIL". The system is understood to mean several charging stations and Smart Meters that are controlled at a central location. Charging and energy management can be operated with a single system.

The document is intended exclusively for qualified personnel who are entrusted with the establishment and administration of the load management and charging management of an e-mobility infrastructure.

How information is presented in the document

The conventions regarding how information is presented in the document, which are set out below, have been defined in order to increase the readability and comprehensibility of the document. See the "Safety" chapter for the conventions on presenting safety-related information. The conventions described here refer to the way various types of information is presented, such as operational prerequisites, guidance, operator prompts, etc.

IMPORTANT! Indicates tips for correct operation and other particularly useful information. It does not indicate a harmful or dangerous situation.

Emphasis

- Display texts are written in bold, e.g., **Settings**.
- Sequences in the program are marked with an ">" e.g., **Settings > System**.

Overview

Funktionsbeschreibung

General

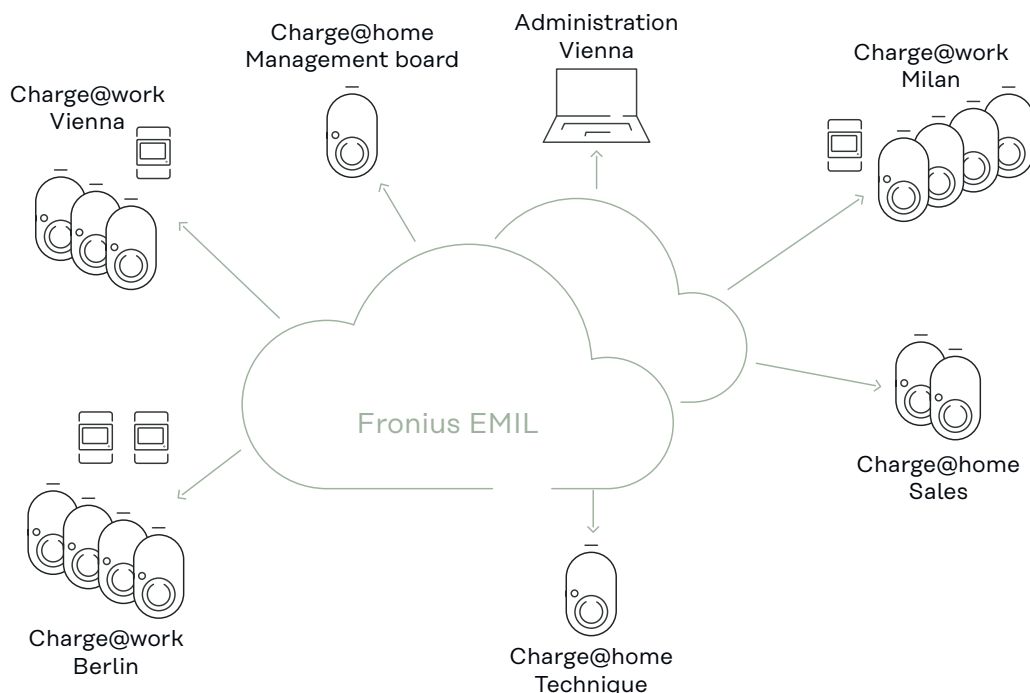
Fronius EMIL is a software solution for managing the load, charging, and energy of e-mobility infrastructure. With the help of Fronius EMIL, current loads can be controlled in such a way that cables and equipment are not overloaded and the available energy is intelligently managed. Compatible devices are controlled by Fronius EMIL via the open communication protocol OCPP for communication with charging stations, and via Message Queue Telemetry Transport (MQTT) for communication with one or more Smart Meters, and can therefore be coordinated with each other in the software. Compatible devices include electricity meters and charging stations (see [Compatibility](#)).

By intelligently managing compatible devices, load peaks can be avoided or the available energy distributed as needed. Fronius EMIL is available as a cloud solution. Different locations can be integrated into one system, while several systems can be created. Fronius EMIL supports any number of data points. A data point can be a charging point (charging solution) or an electricity meter (Smart Meter).

Fronius EMIL supports the regulated and prioritized charging (see [Load management](#)) of electric vehicles. Furthermore, PV-optimized charging is also supported (see [Energy management](#)).

System layout

The following schematic illustration shows the layout of a system for the e-mobility infrastructure of a large company. The system contains several company locations (Charge@work), home charging stations (Charge@home), and the central administration of Fronius EMIL. Further information on Charge@work and Charge@home can be found here: [Introduction](#).



Target group

Fronius EMIL Partner

Fronius EMIL is aimed at all Fronius EMIL Partners. They are responsible for the configuration of Fronius EMIL with existing or new e-mobility hardware (e.g., charging stations, Smart Meters). They support the users of Fronius EMIL. A Fronius EMIL Partner introduces Fronius EMIL systems for companies, after which the facility managers of the companies are responsible for overseeing and supporting the systems.

To become a Fronius EMIL Partner, contact us via www.fronius.com.

Facility managers

Facility managers are responsible for a company's technical infrastructure. Facility managers plan, create, and edit various charging profiles, check power and current limits, manage and monitor charging and energy management.

IT administrators

A company's IT administrators are responsible for the implementation of Fronius EMIL within an existing company network.

Users and roles

User and role management is carried out directly in Fronius EMIL. The following roles are available:

- **Partner**
Is usually responsible for the installation of charging stations and other hardware at the end customer. Establishes systems in Fronius EMIL, creates new data points, and constructs the charging management of an infrastructure. Establishes load and energy management for the end customer.
- **Admin**
Is responsible for managing and monitoring a system in Fronius EMIL. Creates and manages users and charging profiles.

All users of Fronius EMIL must be trained according to their user role. Suitable for this purpose are these Operating Instructions and any training provided by a Fronius EMIL Partner, for example.

	Partner	Admin
Creating a new system	x	-
Adding Smart Meters	x	-
Adding charging points	x	-
Starting/stopping a charging point	x	x
Manually controlling charging points	x	x
Charging point simulation	x	x
Adding load management	x	-
Editing load management	x	-
Adding energy management	x	-
Editing energy management	x	-
Adding charging profiles	x	x
Adding users	x	x
Editing users	x	x

	Partner	Admin
Deleting users	x	x
Enabling data point subscriptions	x	-
Disabling data point subscriptions	x	-

x = is authorized, - = is not authorized; status: January 2024

NOTE!

At least one admin user must exist in the system.

Deleting the last admin user or changing the role of the last admin user to another role is not permitted by the system.

- Make sure at least one admin user is defined in the system.

Terms and conditions of use

Detailed terms of use are available directly at Fronius EMIL or at www.fronius.com.

Access to or use of the Fronius EMIL software signifies acceptance and compliance with these terms and conditions of use. If the terms and conditions of use are not agreeable then access to the Fronius EMIL software should not take place.

The terms and conditions of use set out the responsibilities of Fronius International GmbH towards the users of the Fronius EMIL software. In addition, the "dos" and "don'ts" are listed, which should be observed when using the Fronius EMIL software.

Data storage

All data resulting from the installation, operation or update of Fronius EMIL is stored on Fronius servers. Further information can be found in the Data Privacy Statement (available online at www.fronius.com or via Fronius EMIL).

Data Privacy Statement

The GDPR (General Data Protection Regulation) applies.

Security information



CAUTION!

Risk of unauthorized access to embedded devices due to lack of network security.

Access to the integrated devices (e.g., charging stations) may be unencrypted. Whether access is unencrypted depends on the respective device manufacturer. While setting up the system in a local network, there is a risk of unauthorized access, in particular if the network is not protected against unauthorized access. During operation, the data is encrypted via OCPP and MQTT.

- Ensure that the network is protected by appropriate safeguards (e.g., VLAN, Mutual TLS).
- Observe the security recommendations of the device manufacturer.
- Ensure that the data is encrypted when the system is set up.

Compatibility

Introduction

The following section lists the components or devices that are compatible with Fronius EMIL. The information contained in this section comprises the device designation, the software version, and a comment regarding possible limitations. The limitations were identified during the tests carried out and always relate to the exact software versions listed.

Other software versions of the listed components may also be compatible with Fronius EMIL. If necessary, get in touch with your Fronius point of contact for further information.

The comments describe the limitations of a component identified during the tests in greater detail. A distinction is made between the Charge@work and Charge@home scenarios.

Charge@work

The charging station is located within the power grids, which are protected from overload by the load management of Fronius EMIL (e.g., company on-site parking).

Example: I charge my vehicle on the company site, all charging stations, charging profiles, energy consumption figures, and billing are managed by Fronius EMIL.

Charge@home

The charging station is located outside the power grids, which are protected from overload by the load management of Fronius EMIL (e.g., garage parking in a detached home).

Example: I have been provided with a charging station by my employer and use it to charge my vehicle at home. Billing takes place through the company, so the charging station is managed by Fronius EMIL.

Please note:

Compatibility with the devices of the third-party manufacturers listed below is only guaranteed for the device types and firmware versions expressly mentioned - deviations may result from individual technical conditions such as cabling, network structure, network access and interaction with other hardware. In the event of an automated firmware update and thus a newer version of the third-party devices, compatibility may no longer be guaranteed.

Smart Meter

IMPORTANT!

The specified software versions are supported. In order to avoid compatibility problems, the automatic software update of the device must be disabled.

Manufacturer	Model	Software version
Fronius International GmbH	Smart Meter - IP	2.4.0-0042
TQ-Systems GmbH	Energy Manager - EM420	3.1.4

Charging stations**IMPORTANT!**

The specified software versions are supported. In order to avoid compatibility problems, the automatic software update of the device must be disabled.

AC charging solution

Manufacturer	Model	Software version	Downgrade possible*	Remark
Fronius International GmbH	Wattpilot	40.7	No	Charge@work
	- Go 11 J			- Following a network failure and restoration of the network, the fallback settings are not sent to the charging station.
	- Go 22 J			
	- Home 11 J			
	- Home 22 J			
Schrack Technik GmbH	i-CHARGE CION Pro 22kW	5.32.0-18730	-	-
eCharge Hardy Barth GmbH	- cPH2	2.0.2	Yes	Charge@home
	- cPP2			- Authentication is not possible with an RFID card. - Following a network failure and restoration of the network, authentication with an RFID card is not possible.
				Charge@work
				- Following a network failure and restoration of the network, authentication with an RFID card is not possible.
				- Following a network failure and restoration of the network, the fallback settings are not sent to the charging station.
KEBA Energy Automation GmbH	KeContact	1.15.x	No	Charge@home
	- P30 x-series	1.16.x		- Authentication is not possible with an RFID card.
	- P30 c-series			

*With some manufacturers, it is possible to switch to an earlier software version (perform a downgrade).

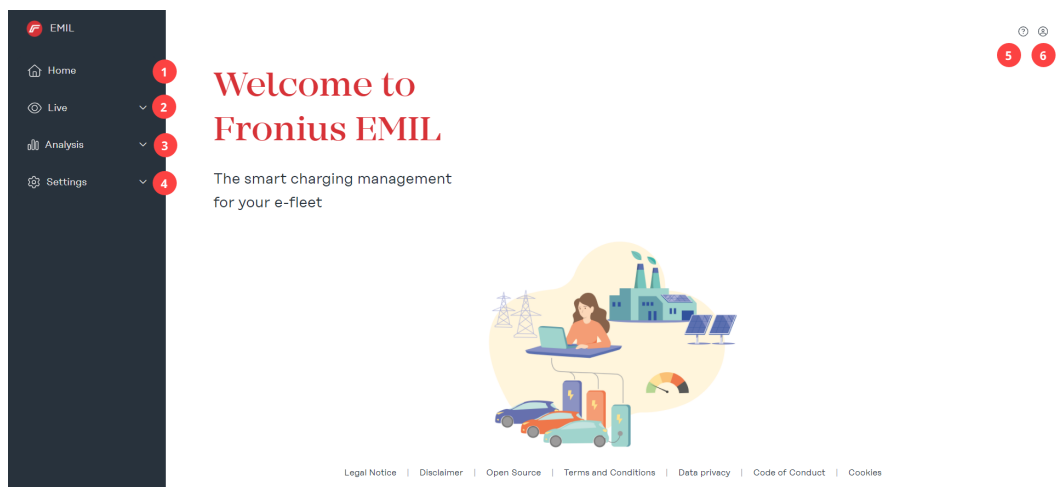
DC charging solution

Manufacturer	Model	Software version	Downgrade possible	Remark
alpitronic GmbH	hypercharger	hyc_v1.6.7	-	-
	- HYC 150			
	- HYC 300			

User interface

Overview

User interface



(1) **Start page**

(2) **Live**

In the "Data Points" submenu, the entire system is displayed in list form. The created system is graphically displayed in the "System overview" submenu.

(3) **Analysis**

The "Charging sessions" submenu lists all planned, running, and completed charging processes. In addition, a CSV or XLSX file can be exported for a defined period of time.

All messages from the system, as well as the data points created in it, are listed in the "Event log" submenu.

(4) **Settings**

New users are added and existing users can be edited in the "Users" submenu. A role must be assigned to each user. Several charging profiles and RFID cards can be assigned to each user.

Automatic messages for system events can be configured in the "Messages" submenu. Possible system events include: Charging started, charging error, charging finished. For example, by sending a message, a user may be notified when charging has finished and the charging station may be released for the next user.

New charging profiles can be added and existing charging profiles can be managed in the "Charging profiles" submenu. Charging profiles are used for load and/or energy management and are assigned to users.

New elements can be added to a system in the "System" submenu. The following elements are available: Group, Smart Meter, Charging Point, Load Manager, and Energy Manager.

(5) **Support**

Solutions for possible problems are listed on the "Support" page.

(6) **Profile**

On the "Profile" page, the user has access to their account and to the system selection. In addition, the system name of the selected system is displayed.

Installation

Requirements

System requirements

Fronius EMIL is a browser-based software for which we recommend the following minimum requirements.

Hardware requirements

- PC, mouse, keyboard

Monitor

- min. 1 440 x 1 080 pixels

Browser

- Google Chrome
- Microsoft Edge

Network

- All data points to be integrated into the system must have a stable network connection.

Outgoing ports

- Enable 443 (HTTPS), 8883 (MQTT) for the network on which the data points are located, e.g., if the charging stations on a network are located in a parking lot, the specified ports on this network must be enabled:
 - mqtt.space.fronius.com:8883
 - ocpp.space.fronius.com:443

System installation

Creating a new system

Ordering and installation of Fronius EMIL is carried out by a Fronius EMIL Partner. The Fronius EMIL Partner creates a system, the necessary data points, and load and energy management for an end customer (admin role).

To create the first system, perform the following steps:

- 1** Launch your **Internet browser** (see [System requirements](#))
- 2** Go to the page emil.fronius.com.
- 3** Log in or register.
- 4** Click on **+ new system** to create a system.

To create additional systems, perform the following steps:

- 1** Go to the page emil.fronius.com the last system selected will automatically appear.
- 2** Click on Profile > **System selection** at the top right.
- 3** Click on **+ new system** to create a system.

Access to the system

As a Fronius EMIL Partner, perform the following steps to grant administrator access to a system:

- 1** *Admin:* Launch your **Internet browser** (see [System requirements](#)).
- 2** *Admin:* Go to the page emil.fronius.com.
- 3** *Admin:* Log in with your credentials or create an account.
- 4** *Admin:* Copy the displayed account ID and send it to your Fronius EMIL Partner.
- 5** *Partner:* Click on "**Settings**" > "**Users**" > "**Add account**".
- 6** *Partner:* Enter the account ID in the input field and set the admin role for the administrator.
- 7** *Admin:* Access to the system is now available. Additional users can be added directly by the administrator.

The new system will then be set up by the Fronius EMIL Partner. This creates new data points, groups the data points in consultation with the administrator, and adds load managers and energy managers to the system.

For further information about setting up the new system, see [Setting up the system](#).

Installing third-party devices

Please note:

The following information regarding the commissioning of third-party devices from the named third-party manufacturers (such as KEBA, Schrack and the like) is intended solely as general, non-binding information and can therefore not be used as a substitute for professional advice or information.

Although this information has been carefully prepared, it does not claim to be factually correct, complete and/or up to date. In particular, this information cannot take into account the particular circumstances of each individual case.

Reference is therefore made below to the third-party Operating Instructions for a specific type of third-party device and a specific firmware version valid at the time of publication of these Operating Instructions - an update to newer third-party device types or references to the third-party Operating Instructions is therefore not provided and it is solely your responsibility to independently obtain and observe the applicable third-party Operating Instructions when commissioning the third-party devices as well as any information on newer third-party devices or firmware versions.

Any liability on the part of Fronius International GmbH is excluded. The respective third-party manufacturer should be contacted for specific concerns.

Connecting Smart Meters

Adding Smart Meters

To add a Smart Meter, the corresponding permissions must be available (see [Users and roles](#)).

Adding Smart Meters

- 1** Click on "Settings" > "System" > "Add element" > "+ Smart Meter"
- 2** Implement the necessary settings in the pop-up menu. Mandatory fields are marked with a *.
 - Name
For a good system overview, it is advisable to assign a descriptive name. For example, the equipment identification, or a combination with a location abbreviation, e.g., ATTHA Main (AT = Austria, THA = Thalheim, Main = feed point).
 - Assignment
Assign the Smart Meter to a parent group. The top group is your system.
 - Driver
If it is a physically installed charging station, the driver "smartmeter-agent-v1: vx.x.x" must be selected. For a simulated Smart Meter, you need the driver "smartmeter-simulator-v1:vx.x.x".
 - Settings
Under the "Settings" tab, set the following parameters:
 - "Max. amperage [A]" = physical limit of the Smart Meter
 - "Monitored amperage [A]" = control value; if this value is exceeded, warnings are displayed in the system
 - "Rated voltage [V]" = depending on the country (Austria: 230 V)
 - "Rated frequency [Hz]" = depending on the country (Austria: 50 Hz)
- 3** Click "Save".
- 4** Open the added Smart Meter again. Click "Edit" (pencil icon).
- 5** Go to "Settings" and scroll to "Smart Meter overview".
- 6** Make a note of the username, password, and path. You must enter this information in the user interface of the Smart Meter in order to establish a connection.

Fronius Smart Meter IP

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the Smart Meter, please visit the manufacturer's website at [Fronius Smart Meter IP](#).

Requirements

- The Smart Meter is installed
- A connection to the Internet has been established
- Port 8883 for outgoing connections is enabled in the firewall
- Fronius EMIL: The Smart Meter is created
- Fronius EMIL: Username, password, and path are known

Recommendations for installation

- Connect the Smart Meter to the Internet via Ethernet Cable
- Smart Meter has a static IP address

Connecting Smart Meters

- 1** Connect to the Smart Meter via the Smart Meter access point. See [Operating Instructions for Fronius Smart Meter IP](#).

- 2 Go to the user interface of the Smart Meter; to do so, enter the IP address **192.168.250.181** into a browser.
- 3 Enter the password "123".
- 4 Click on "Advanced Settings" > "Network".
- 5 Click on "LAN (Network Cable)" and then on "Next".
- 6 Click on "Automatic IP address over DHCP" and then on "Next".
- 7 Click on "Save and apply"
- 8 Disconnect from the access point. The Smart Meter is now accessible on the network with the assigned IP address. It is advisable to configure a static IP address.
- 9 Implement the settings below on the user interface of the Smart Meter.
- 10 Click "Advanced Settings" > "Reboot device" to restart the Smart Meter.

Implement the following settings on the user interface of the Smart Meter

Parameter	Setting
Server configuration	
Server name	mqtt.space.fronius.com
Port	8883
Username	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
Password	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
MQTT security	TLS certificates
MQTT topic prefix	Enter the path from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
Configure MQTT topics	Remote configuration (recommended)
Firmware updates via MQTT	Enable (recommended)
Client ID	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")

TQ Energy Manager EM420

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the Smart Meter, please visit the manufacturer's website at [TQ Energy Manager EM420](#).

Requirements

- The Smart Meter is installed
- A connection to the Internet has been established
- Port 8883 for outgoing connections is enabled in the firewall
- Fronius EMIL: The Smart Meter is created
- Fronius EMIL: Username, password, and path are known

Recommendations for installation

- Connect the Smart Meter to the Internet via Ethernet Cable
- Smart Meter has a static IP address

Connecting Smart Meters

- 1 Go to the user interface of the Smart Meter; See [Operating Instructions for TQ Energy Manager EM420](#).
- 2 Implement the settings below on the user interface of the Smart Meter.
- 3 Click "Device settings" > "Device" > "Restart" to restart the Smart Meter.

Implement the following settings on the user interface of the Smart Meter

Parameter	Setting
Device settings > Network settings	
Time zone	UTC
MQTT interface > Server configuration	
Server name	mqtt.space.fronius.com
Port	8883
Username	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
Password	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
Client ID	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")
Certificates	Accept
MQTT topics	
Data format	Simple list of measured values
Transmission interval	1 second
MQTT topics > Smart Meter	
Activate MQTT topics	Activate
MQTT topic for the measured data	Enter the path from EMIL (retrieve via "Settings" > "System" > Smart Meter "Edit" > "Settings" > "Smart Meter overview")

Parameter	Setting
Keep last value notification in the message broker	No
MQTT value range quality	0

Connecting a charging station

Adding charging points

A charging point in Fronius EMIL corresponds to a charging station in reality. To add a charging point, the corresponding permissions must be available (see [Users and roles](#)).

Adding charging points

- 1** Click on "Settings" > "System" > "Add element" > "+ charging point"
- 2** Implement the necessary settings in the pop-up menu. Mandatory fields are marked with a *.
 - Name
For a good system overview, it is advisable to assign a descriptive name. For example, the equipment identification, or a combination with a location abbreviation, e.g., attha-01 (at = Austria, tha = Thalheim, 01 = charging station number).
 - Assignment
Assign the charging point to a parent group. The top group is your system.
 - Driver
If it is a physically installed charging station, the driver "ocpp16-cp-agent-v1:vx.x.x" must be selected. For a simulated charging station, you need the driver "chargepoint-electrical-simulator-v1:vx.x.x".
 - Connection
Under the tab "Connection", all connections (plugs) of the charging station are configured to correspond to the physical connections of the real charging station. After configuring a connection, click on "Add."
- 3** Click "Save".
- 4** Open the added charging point again. Click "Edit" (pencil icon).
- 5** Switch to "Connection" and scroll to "Overview of charging points and connection".
- 6** Make a note of the username, password, and path. You must enter this information in the user interface of the charging station in order to establish a connection.

Fronius Wattpi- lot

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the charging station, please visit the manufacturer's website at [Fronius Wattpilot](#).

Requirements

- The charging station is installed
- A connection to the Internet has been established
- Port 443 for outgoing connections is enabled in the firewall
- The Fronius Solar.wattpilot app is installed
- Fronius EMIL: The charging point is created
- Fronius EMIL: Username, password, and path are known (see also [Setting up the system](#))

Recommendations for installation

- The charging station has a stable WLAN connection

Connecting a charging station

- 1** Open the Fronius Solar.wattpilot app on your device.

- 2 Go to "Internet" > "OCPP".
- 3 Implement the following settings and click "Save":

Parameter	Setting
Access control	
Authentication	Authentication required
Cable unlock	Locked when car is connected
Lock current level selection	Locked when car is connected
OCPP	
OCPP 1.6J	Activate
OCPP server address	wss://<Username>:<Password>@ocpp.space.fronius.com/<Path>
Status	Connected
Custom certificate	Deactivated

KEBA

The compatible devices are available at [Compatibility](#).

For information and help with the initial installation of the charging station, please visit the manufacturer's website at [KEBA SUPPORT](#).

Requirements

- The charging station is installed
- A connection to the Internet has been established
- Port 443 for outgoing connections is enabled in the firewall
- EMIL: The charging point is created
- EMIL: Username, password, and path are known (see also [Setting up the system](#))

Recommendations for installation

- The charging station is connected to the Internet with an Ethernet cable
- The charging station has a static IP address

Connecting a charging station

- 1 Go to the user interface of the charging station. See [Operating Instructions for KEBA charging station](#).
- 2 Navigate to: "Configuration" > "OCPP"
- 3 Implement the following settings:

Parameter	Setting
Device	
Authorization	ON
Online authorization mode	FirstOnline
Browser time	Determine browser time
Rated voltage	230
Network connection	
Local DHCP server	OFF

Parameter	Setting
OCPP	
Charge point identity	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
OCPP communication protocol	OCPP 1.6 JSON
OCPP backend address	ocpp.space.fronius.com
OCPP backend port	443
OCPP backend path	ocpp16
Secure OCPP backend connection	ON
OCPP backend authentication procedure	BasicAuthentication
Authorization key	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
Reconnection interval	30
WebSocket ping interval	50
Predefined token	<i>Leave empty</i>
Interval of the transmission of meter readings during the charging process	3
Time-based interval for transmitting meter readings.	0
External TCP meter	
TCP house connection monitoring	OFF

IMPORTANT!

Note the correct **DIP switch** settings of the charging station. Information on this can be found on the manufacturer's website, under [KEBA Service & support](#).

Schrack

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the charging station, please visit the manufacturer's website at [Schrack e-mobility](#).

Requirements

- The charging station is installed
- A connection to the Internet has been established
- EMIL: The charging point is created
- EMIL: Username, password, and path are known (see also [Setting up the system](#))

Recommendations for installation

- Connect the charging station to the Internet via Ethernet Cable
- The charging station has a static IP address

Connecting a charging station

- 1 Go to the user interface of the charging station. Further information on this can be found on the manufacturer's website, under www.schrack.at.
- 2 Go to "Backend " > "OCPP".
- 3 Implement the following settings and restart the charging station after saving:

Parameter	Setting
Network - LAN	
Display network settings	Display
Ethernet configuration mode	Automatic (DHCP client)
DHCP client request reattempts	10
DHCP client request timeout duration	10
Interval between two DHCP request reattempts	10
Client hostname	Schrack-Lan
Backend - connection	
Connection type	Ethernet
Backend > OCPP	
OCPP ChargeBoxIdentity (ChargePointID)	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
Identity of the charging device	-
OCPP mode	OCPP-J 1.6
WebSockets JSON OCPP URL of the backend	wss://ocpp.space.fronius.com/ocpp16
Websockets proxy	-
WebSockets keep alive interval	50
Strictness of the OCPP connection	Secure ciphers only
Password for HTTP basic authentication	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
Always send heartbeat messages	On
Send informative StatusNotifications	On
Send StatusNotifications for errors	On
Send USB errors via StatusNotifications	Off
StatusNotification state transition strategy	Occupied during charging
Allow long access to configuration keys	Off
Numerical values for Boolean configuration keys	On

Parameter	Setting
Prevent charging in the event of an ongoing backend malfunction	Off
Status "not available" at the start of the firmware update	On
Force status "available/not available" of OCPP connector	Available
Backend > Other	
Backend connection timeout duration	60
Number of attempts to transmit transaction-relevant messages	3
Number of attempts to transmit transaction-relevant calibration messages	0
SSL mode as client	Normal SSL authentication
TCP watchdog timeout	10 800
Show backend connection failure as error	On
Backend > Utility meter	
Data transfer for tariff and overall use	Off
Meter values sampled data (OCPP)	Energy.Active.Import.Register, Power.Active.Import, Current.Offered, Current.Import
Meter value sample interval (OCPP)	1
Meter values aligned data (OCPP)	Energy.Active.Import.Register
Time-coordinated data transmission interval [s] (OCPP)	0
Re-transmit meter value messages	On
Current flow direction of L1 of the primary meter	Suppress sign
Current flow direction of L2 of the primary meter	Suppress sign
Current flow direction of L3 of the primary meter	Suppress sign
Current flow direction of L1 of the secondary meter	Suppress sign
Current flow direction of L2 of the secondary meter	Suppress sign
Current flow direction of L3 of the secondary meter	Suppress sign
Backend gateway for banner parking sensors	
Send parking space occupancy data to the backend	Off
Backend notification by e-mail	
E-mail notification of errors	Off
Backend - HawkBit client	
HawkBit client	Off

Parameter	Setting
Authorization - Free charging	
Charging is free	Off
RFID tag for free charging with full OCPP and fixed RFID modes	Freecharging
When in doubt, allow charging	Off
Authorization - Overview	
Send OCPP authorization for remote start	On
Mode when stopping a transaction	Normal
Authorization - RFID settings	
Activate RFID	On
RFID mode	RFID only
Uppercase/lowercase sensitive for RFID tag	Uppercase
Authorization - RFID whitelists	
Activate local whitelist	Off
Activate OCPP whitelist	Off
Local pre-authorization	Off
Local offline authorization	Off
Authorization - HLC 15118	
15118 configuration	Off
Strictness of the 15118 connection	Standard
Autocharge	Off
System - Overview	
Time zone	UTC
REST interface	Deactivated
Restore time	Only when the software is restarted
Tcpdump interface	Ethernet

eCharge Hardy Barth

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the charging station, please visit the manufacturer's website at [eCharge Hardy Barth](#).

Requirements

- The charging station is installed
- A connection to the Internet has been established
- Port 443 for outgoing connections is enabled in the firewall
- EMIL: The charging point is created
- EMIL: Username, password, and path are known (see also [Adding charging points](#))

Recommendations for installation

- Connect the charging station to the Internet via Ethernet Cable
- The charging station has a static IP address

Connecting a charging station

- 1 Go to the user interface of the charging station. Further information on this can be found on the manufacturer's website, under [eCharge Hardy Barth](#).
- 2 Go to "Configuration".
- 3 Implement the following settings, save and restart the charging station:

Parameter	Setting
Global options	
Charging station type	Cable/socket
Time zone	Set
Auth. mode	OCPP
Key switch type	None (recommended)
Min./max. current	6 - 32 A (recommended)
External control	Deactivated
OCPP options	
OCPP	Activated
Uri/CPID	Double-click next to CPID to open the menu
Uri/CPID -	Enter path from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection"):
	wss://ocpp.space.fronius.com/ <path>
Uri/CPID - username	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
Uri/CPID - password	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
Verify CERT	Activate
Mains options	
Overcurrent/Eco	Deactivate (recommended)
Peak shave	- (recommended)
ECO reference	- (recommended)
Network options	
DHCP	Activate

alpitronic hyper-charger

The compatible devices are available at [Compatibility](#) .

For information and help with the initial installation of the charging station, please visit the manufacturer's website at [alpitronic hypercharger](#).

Requirements

- The charging station is installed
- A connection to the Internet has been established
- Port 443 for outgoing connections is enabled in the firewall
- EMIL: The charging point is created
- EMIL: Username, password, and path are known (see also [Adding charging points](#))

Recommendations for installation

- Connect the charging station to the Internet via Ethernet Cable
- The charging station has a static IP address

Ladestation verbinden

- 1 Go to the user interface of the charging station. Further information on this can be found on the manufacturer's website, under [alpitronic hypercharger](#).
- 2 Implement the following settings, save and restart the charging station:

Parameter	Setting
General > System Settings	
Time zone	Do not set
Network > Preferred network	
To change default	Wired Connection
OCPP > OCPP File	
ConnectorPhaseRotation	Adjust according to physical phases
OCPP > Boot.INI File	
chargePointIdentity	
URI/CPID -	Enter path from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection"):
	wss://ocpp.space.fronius.com/<Pfad>
URI/CPID - username	Enter the generated username of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")
URI/CPID - password	Enter the generated password of the device from EMIL (retrieve via "Settings" > "System" > Charging point "Edit" > "Connection" > "Overview of charging points and connection")

Parameter	Setting
Verify CERT	Activate
Mains options	
Overcurrent/Eco	Deactivate (recommended)
Peak shave	- (recommended)
ECO reference	- (recommended)
Network options	
DHCP	Activate

System

General

Charging profile

A charging profile contains limit values for charging processes. These profiles can be assigned to users for specific groups in a system, or to an entire system. The user (charging-authorized user) can charge within the limit values defined in the charging profile.

With a charging profile, charging-authorized users can be assigned various load and energy management settings. Each charging-authorized user (for creating a charging-authorized user, see [Users](#)) can be assigned one or more charging profiles and RFID cards, e.g. for charging at different company locations or at different charging stations.

The values for the [38](#) and [37](#) are set in the load profile.

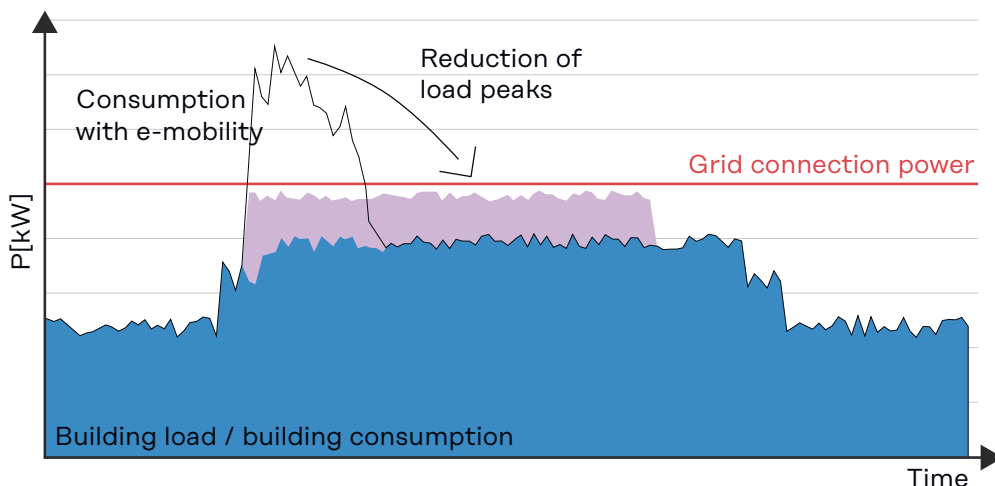
Load management

Load management in Fronius EMIL is used to protect your infrastructure. This prevents load peaks. Load peaks can occur at times of the day when the demand for electricity is highest and the infrastructure is insufficiently designed for this.

The settings implemented apply to each charging profile and to all users (charging-authorized users) to whom the charging profile is assigned.

Avoiding load peaks

The following illustration shows how load peaks can be avoided by using load management at certain times of the day. We assume the basic consumption of an infrastructure (building load / building consumption) between 6 am and 5 pm. From 6 am, the energy demand of the infrastructure increases because employees want to charge their e-vehicles.



Settings

In the load management of the charging profile, you can set the minimum and maximum permissible amperage as well as the energy that a charging-authorized user is permitted to use when charging. The **priority** can be set (1 = highest priority), whereby vehicles with a low priority are charged later with little available energy.

The **minimum amperage [A]** is the minimum current with which a user may charge a vehicle, if the infrastructure permits it. If the infrastructure does not

permit it and the value falls below this limit, charging does not take place. It is recommended to set 6 A as the minimum value, as most vehicles require this amperage as the minimum charging current.

The **maximum amperage [A]** is the maximum current with which a user may charge a vehicle, provided that the technical conditions allow this.

The **maximum energy [kWh]** is the total energy with which a user may charge a vehicle, provided that the technical conditions allow this. More energy may not be drawn.

Possible charging interruptions can be prevented by activating **Allow charging pause**. Some vehicles do not resume the charging process after an interruption.

Energy management

Energy management in Fronius EMIL is used to optimize your energy use. The settings implemented apply to each charging profile and to all users to whom the charging profile is assigned. When creating a charging profile, different energy management settings can be defined for different days of the week.

In the energy management of the charging profile, you can set the minimum and maximum permissible energy as well as the maximum power that a charging-authorized user is permitted to use when charging. A **priority** can also be set (1 is the highest priority), which allows mutual priorities to be set in the profiles when adding several energy management settings (it may be the case that several settings cannot be fulfilled in parallel, so it is important to set the priority).

Optimization > Yes, optimized self-consumption can be set, in order to preferably use self-generated energy for charging the electric vehicle fleet.

The **max. energy [kWh]** is the total energy that a user is authorized to use when charging. More energy may not be drawn.

The **minimum energy [kWh]** is the minimum energy that a user is authorized to use when charging, even if the optimization is set to **Yes, optimized self-consumption**. If no self-generated energy is available, charging is still carried out up to this value. After that, up to **max. energy [kWh]**, if self-generated energy is available.

In the case of **Finished until**, setting a time can be used to define that the **min. energy [kWh]** will be used for charging by this set time. It is irrelevant, whether self-generated energy is actually available when optimization is activated.

Possible charging interruptions can be prevented by activating **Allow charging pause**. Some vehicles do not resume the charging process after an interruption.

The **charging timer** allows the user to define the entire energy management for the period of one calendar week. Click on "Add" to save different settings for different days. For example, the optimization can be set to active from 6 am to 5 pm from Monday to Friday, whereby the optimization does not take effect outside this period.

Simulation

Both Smart Meters and charging points can be simulated. This is helpful for testing purposes.

To enable simulation, the driver "chargepoint-electrical-simulator" ("Settings" > "System") must be defined for the created data points. Simulated Smart Meters

have no further function. For simulated charging points, the connection and disconnection of a vehicle can be simulated.

Settings

Setting up the system

The Fronius EMIL Partner sets up the new system for the administrators.

Creating a new system

- 1** Click on "Settings" > "System".
- 2** Click "Add element" > "+ Smart Meter" to add the first Smart Meter.
- 3** Implement the necessary settings for a newly added Smart Meter.
- 4** Repeat steps 2 and 3 if necessary.
- 5** Click "+ charging point" to add a charging station.
- 6** Implement the necessary settings for a newly added charging station.
- 7** Repeat steps 5 and 6 if necessary.
- 8** Click "+ Load Manager".
- 9** Implement the necessary settings for a newly added Load Manager.

Use the Load Manager to arrange the created data points (Smart Meters, charging points) in a hierarchy. The hierarchy created should correspond to the reality of your infrastructure; if necessary, the structure can be freely selected. The data points are displayed in the "System overview" as they are set up in the Load Manager. See [Load management](#).

Creating an Energy Manager takes place in the same way as creating the Load Manager. However, the hierarchy is not important here. The data points should be added to an Energy Manager where this makes sense. See [Energy management](#).

Group

Creating a group can be used to organize and structure a system. It makes sense to group the system based on the locations of the data points created.

Creating a group

- 1** Click on "Settings" > "System" > "Add element" > "+ group"
- 2** Follow the instructions

Smart Meter

See [Adding Smart Meters](#).

Charging point

See [Adding charging points](#).

Load Manager

The Load Manager is required to protect the infrastructure. In the Load Manager, you map the physical structure of your system. This structure is visible under "Live" > "System overview".

Set up Load Manager, see [Setting up the system](#).

Energy Manager

The Energy Manager is required for optimization of the self-consumption.

Set up Energy Manager, see [Setting up the system](#).

Charging profiles

Creating charging profiles

- 1 Click on "Settings" > "Charging profiles" > "Add"
 - 2 Follow the instructions
-

Users

Creating users

A user with the "User" role does not have direct access to the system. This user must be created in order to be assigned a charging profile and an RFID card.

Creating charging-authorized users

- 1 Click on "Settings" > "User" > "Create user"
- 2 Follow the instructions

NOTE!

To add a charging profile and an RFID card to the newly created user, you must "Edit" the newly created user and add a charging profile and RFID card after saving it for the first time.

Delete User

If all authorizations are withdrawn from a user, the user remains in the system and is visible to the administrator, but can no longer interact with the system. All loading sessions and personal data are retained and the administrator can grant the user authorizations for the system again at any time.

The delete button removes the user from the system. All authorizations and personal data are deleted. It is no longer possible to restore the user. The loading data remains in the system in anonymized form.

Troubleshooting

Causes and solutions

Possible errors when using Fronius EMIL can have many causes due to the complexity of a system, which are not directly triggered by Fronius EMIL.

Ensure that the following infrastructure is functional:

- Network
- Charging station
- Smart Meter

Support

For end users, your installer or the Fronius EMIL Partner is the first point of contact for support with troubleshooting.

In addition to training, Fronius International GmbH offers Fronius EMIL Partner support to assist with the installation, commissioning, and configuration of the software. Support is the point of contact for Fronius EMIL Partners if faults and errors that occur in Fronius EMIL cannot be remedied independently.

Appendix

General

Software update Regular updates are carried out to improve functionality and fix errors.

The software functions affected by an update will be published in the Release Notes.

Release Notes

The Release Notes provide an overview of the changes, enhancements, and any other amendments to the software. The Release Notes are listed in [Release Notes](#).

Release Notes

Overview of releases

In this [section](#) you will find detailed information on the latest versions of our software. We describe the new features, improvements and bug fixes for each release.

Please note that this guide will be updated regularly to include the latest release information. If you have any questions or require further assistance, please do not hesitate to contact your contact person.

Fronius EMIL 9

The following software functions are affected by the Fronius EMIL 9 release. (As of: 10. 06. 2024)

Design adjustments

Improved user-friendliness and design of the smart meter and charging station dialogs. The dialogs now open in full screen mode, which increases clarity.

Inverters can be integrated

It is now possible to integrate inverters into a system. Among other things, an inverter is displayed in the system overview and there is a dialog with more information in full screen mode.

Dashboard

Various graphical elements are displayed on the start page in EMIL (previous start page), the most important system data is visualized on one page and provides a quick overview.

Site selection

Each user can be assigned a specific location in addition to their role. This is particularly useful for large systems with several locations.

Fronius EMIL 8

The following software functions are affected by the Fronius EMIL 8 release. (As of: 01. 05. 2024)

Endless scrolling

Automatic reloading of table entries when scrolling. The content of lists is automatically reloaded, so that there is no need to scroll through the pages in lists.

Event Log

Improved performance and access speed.

Delete User

Users can now be deactivated by withdrawing all role authorizations to access the system without deleting the user and billing data from the system. Reactivation is possible by the administrator.

For further information see [Users](#).

Fronius EMIL 7

The following software functions are affected by the Fronius EMIL 7 release. (As of: 03. 04. 2024)

API

API gateway functionality has been technically enhanced.

Bug fixes

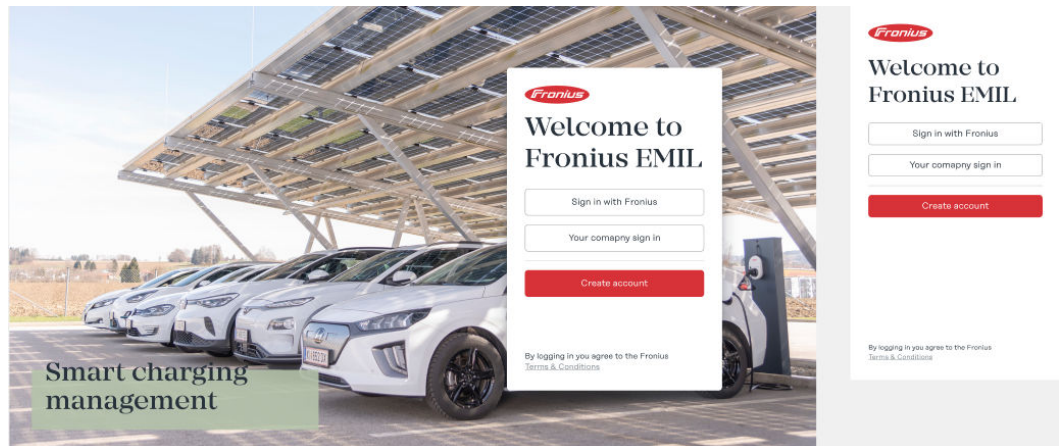
Various bug fixes.

Fronius EMIL 6

The following software functions are affected by the Fronius EMIL 6 release. (As of: 06. 03. 2024)

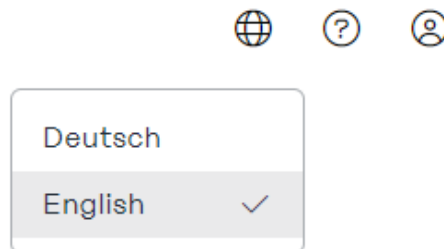
Responsive design

Improvements in responsive design.



Change language

The user interface can be displayed in English or German.



Compatibility

The "Alpitronic Hypercharger DC" DC charging station is compatible.

Fronius EMIL 5

The following software functions are affected by the Fronius EMIL 5 release. (As of: 08. 02. 2024)

Login

Logging in to the system is possible with your company name as defined in Fronius EMIL. The company login can be set by the system administrator and adjusted if necessary.



Willkommen bei EMIL

Neu hier? Registrieren

Anmelden mit Fronius

Ihr Firmen login

Mit dem login akzeptieren Sie die
Allgemeinen Geschäftsbedingungen

User entry fields

Additional entry fields are available when creating a new local user (charging-authorized user). It is possible for up to three further items of information to be added, for example the personnel number, license plate number or chassis number. For billing, the data is also output in an additional column when exporting charging sessions (as CSV or XLSX).

The screenshot shows the EMIL user management interface. On the left is a dark sidebar with navigation options: Home, Live, Analysis, Settings (selected), Users, Notifications, Charging profiles, and System. The main content area is titled 'Benutzer' (User) and contains a search bar and a list of users: Demo Admin, Davide Baltieri, Olesya Berikova, Roman Bartl, Werner Baumg, Juergen Baumg, Jürgen Baumg, and John Blau. A modal form for creating a new user is open, titled 'Benutzer'. It has two columns: 'E-Mail' and 'Passwort'. The 'E-Mail' field contains 'max@mustermann.com' and the 'Passwort' field contains '449 171 123 456'. Below these are fields for 'Neues Passwort eingeben' and 'Neues Passwort wiederholen'. There are three rows of 'Key' and 'Wert' (Key and Value) fields. Each 'Key' field has a dropdown menu with 'Knoten auswählen' (Select node) and each 'Wert' field contains 'P12345678'. At the bottom right of the modal are buttons for 'Abbrechen' (Cancel) and 'Speichern' (Save).

E-Mail	Passwort
max@mustermann.com	449 171 123 456
Neues Passwort eingeben	Neues Passwort wiederholen
Key: Knoten auswählen	Wert: P12345678
Key: Knoten auswählen	Wert: P12345678
Key: Knoten auswählen	Wert: P12345678

Benutzer-ID: -

Abbrechen Speichern



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MONITORING &
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