OCPP 1.6
User manual

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smappee

Document accuracy

The specifications and other information in this document were verified to be accurate and complete at the time of its publication. Due to ongoing product improvement, this information is subject to change at any time without prior notice. For the latest information, see our online documentation: smappee.com/downloads

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1 Introduction

This user manual describes the details of Smappee's implementation of the OCPP 1.6 J Protocol. There are different Smappee charging solutions, both AC and DC, for residential and (semi-)public use. In general, the OCPP implementation will be the same for all models and where it is not, it will be specified. In this manual, we will elaborate on the specifics of our OCPP communication.

2 Technical documentation

Our installation manuals and other technical documentation can be found at smappee.com/downloads.

3 Compatible CSMSs

Our list of compatible charging station management systems (with which we have done an integration test) can be found here: Which third party CSMSs are compatible?

4 Setting up the connection to a CSMS

To connect a Smappee charging station to a third-party CSMS, this needs to be configured via dashboard.smappee.net.

You can find more information in our Help Center article: How can I use a third party CSMS?

Note that only URLs which have been previously whitelisted by us, can be entered via our dashboard. Please contact us if a new URL needs to be approved. Note that approval generally requires an integration test to be performed.

5 Cloud based solution

The Smappee OCPP component does not reside in the charge point itself, but in the Smappee Cloud. Our Smappee Cloud then communicates with the desired central system (CSMS – charging station management system) over OCPP.

With the Smappee app/dashboard, the user can give extra information regarding tariffs, how long the EV is available for charging and exactly how much it should be charged. Using the solar and consumption forecast, the Smappee Cloud then calculates the most optimal charging schedule per EV and per location. By combining the energy data of both the charging station and the entire site, we can achieve a global optimal energy management. Similarly, dynamic load balancing is also handled by the cloud.

This cloud-based solution also adds an extra layer of security to OCPP 1.6 J and lets us automatically push firmware upgrades to all our devices, without requiring any intervention from the user or the CSMS.

Figure 1: OCPP component in the Smappee Cloud

No.	Description	More information
1	Smappee charger	Sends metering data to the Smappee Cloud
2	Solar and consumption forecast	Sends forecast data to the Smappee Cloud
3	Smappee Cloud	Processes all data, in particular the OCPP component that interacts with the central system
4	Central system	Processes the charging session data for the CSMS
5	Smappee Dashboard	Set parameters to process and show data
6	Smappee App	Set parameters to process and show data

6 Supported operations

Message	Supported	Additional comment
Operations Initiated by Charge Point		
Authorize	Yes	
Boot Notification	Yes	Standard fields are chargePointModel, chargePointVendor, chargeBoxSerialNumber, chargePointSerialNumber and firmwareVersion
Data Transfer	Yes	
Diagnostics Status Notification	Yes	
Firmware Status Notification	Yes	
Heartbeat	Yes	Standard interval: 900
Meter Values	Yes	Standard interval: 300
Start Transaction	Yes	
Status Notification	Yes	
Stop Transaction	Yes	
Operations Initiated by Central System		
Cancel Reservation	No	
Change Availability	Yes	
Change Configuration	Yes	
Clear Cache	Yes	
Clear Charging Profile	Yes	
Data Transfer	Yes	
Get Composite Schedule	No	
Get Configuration	Yes	
Get Diagnostics	Yes	
Get Local List Version	No	
Remote Start Transaction	Yes	
Remote Stop Transaction	Yes	
Reserve Now	No	
Reset	Yes	
Send Local List	No	
Set Charging Profile	Yes	
Trigger Message	Yes	
Unlock Connector	Yes	
Update Firmware	No	All firmware updates are done by Smappee

Remarks regarding these messages:

- For the moment, Smappee does not support OCPP reservations.
- Because Smappee itself is going to regularly check, maintain and update the firmware of your charge point, you don't have to and as such, we don't have any need for the Update Firmware functionality.

7 Editable configuration keys

Key	Default value	Min Value	Max Value	Comment
TransactionMessageRetryInterval	60	0	Infinite	
TransactionMessageAttempts	0	0	Infinite	
MeterValueSampleInterval	300	60	Infinite	
HeartbeatInterval	900	60	Infinite	
ClockAlignedDataInterval	900	0	Infinite	Not relevant for cloud implementation
AuthorizeRemoteTxRequests	False			
ConnectorPhaseRotation	"Unknown"			
LocalAuthorizeOffline	False			
MeterValuesSampledData	"Energy.Active.Import.Register, Power.Active.Import, Current.Import, Voltage, Temperature"			
StopTxnAlignedData	CSLtype			Not relevant for cloud implementation
StopTxnSampledData	CSLtype			Not relevant for cloud implementation
UnlockConnectorOnEVSideDisconnect	True			
RemoteStopBehaviour	Finishing			Custom key to determine which state is sent after a remote stop
CSMSUrl	Current websocket URL			Custom key for changing the websocket endpoint
AuthorizationKey				Custom key to add a password to the websocket URL.

8 Integration testing

Before customers can connect their charging station to a new third-party CSMS, an integration test must be performed. To schedule this, please contact your Smappee representative or contact support@smappee.com.

If you have a Smappee charging station at your disposal, you are welcome to use this device to do the integration test. If not, a video call can be scheduled with a Smappee representative whereby a dedicated charging station can be used for the test. This device will have an EV simulator with a 2 kW load. The device that will be used for the test has the following details:

- Device ID: SMP_6101000414
- Model: EVWB-332-BR-E-W
- Description: Smappee EV Wall Business, three-phase, 32A, single socket

During the test, we will go through the basic functionalities, including:

- Remote Reset
- GetConfiguration
- Set Inoperative
- Swiping an invalid/unknown RFID card
- Swiping a whitelisted RFID card
- RemoteStart and RemoteStop
- Offline charging

Throughout the test, the relevant logging for the charging station and the CSMS's platform should be monitored to ensure there are no errors. All transactions should be logged correctly with correct timestamps and meter readings.

9 Vendor specific error codes

Please see the tables below for an overview of the vendor specific error codes that Smappee can forward you in the different status messages for respectively an AC and a DC charger.

Error code	Explanation	Steps to take
SMP_AC_0001	RCM fault	An unacceptable leakage current was detected. Please verify the wiring of the charging station.
SMP_AC_0002	CP positive fault	Contact support@smappee.com.
SMP_AC_0003	PP fault	Contact support@smappee.com.
SMP_AC_0004	Temperature fault	The charging station measured a temperature that was either too high or too low. Please ensure that the ambient conditions stay within the safe operating range.
SMP_AC_0005	External disable	The charging station was disabled by an external command. You can re-enable it via the Smappee Dashboard.
SMP_AC_0006	Cable lock fault	The socket was unable to lock the cable. Please check that the cable is properly inserted and nothing is blocking the lock.
SMP_AC_0007	CP negative fault	Contact support@smappee.com.
SMP_AC_0100	Internet loss	The charging station has lost its internet connection. Please check your internet connection.
SMP_AC_0101	Power meter failure	The charging station has detected a faulty power meter. Please check your components and/or contact support@smappee.com.

Error code	Explanation	Steps to take
SMP_DC_0001	Cable temperature too high	Verify if the ambient conditions fall within operating range and check the charging cable for damage.
SMP_DC_0002	Inverter temperature too high	Verify if the ambient conditions fall within operating range and check the charging cable for damage.
SMP_DC_0003	Warning: cable temperature	None; derating will prevent further temperature rise.
SMP_DC_0004	Warning: inverter temperature	None; derating will prevent further temperature rise.
SMP_DC_0005	Emergency stop triggered	If the charging station stays in this state, the emergency button will need to be physically released.
SMP_DC_0006	IMD was triggered	The electrical insulation of the DC side was too low. Please check all DC wiring.
SMP_DC_0007	EV error code	The EV reported an error. Contact support@smappee.com for more information.
SMP_DC_0008	Warning: Inverter offline	One or more of the inverters is/are offline. Please check the wiring of the inverters and check the displays for any error codes.
SMP_DC_0009	No communication with EVSE communication board	Check the internal wiring or contact support@smappee.com.
SMP_DC_0010	Overvoltage detected	Contact support@smappee.com.
SMP_DC_0100	Internet loss	The charging station has lost it internet connection. Please check your internet connection.
SMP_DC_0101	Power meter failure	The charging station has detected a faulty power meter. Please check your component and/or contact support@smappee.com.
SMP_DC_0103	Timeout of EV	The authentication has timed out. Please unplug the cable and retry.