

# SolarEdge ONE for Residential Third-Party Integrations Guide — Application Note

This Integrations Guide lists and explains how different third-party products integrate with SolarEdge ONE Energy Management System (EMS).

## Revision history

Version 1.0, June 2024: Initial release

## Contents

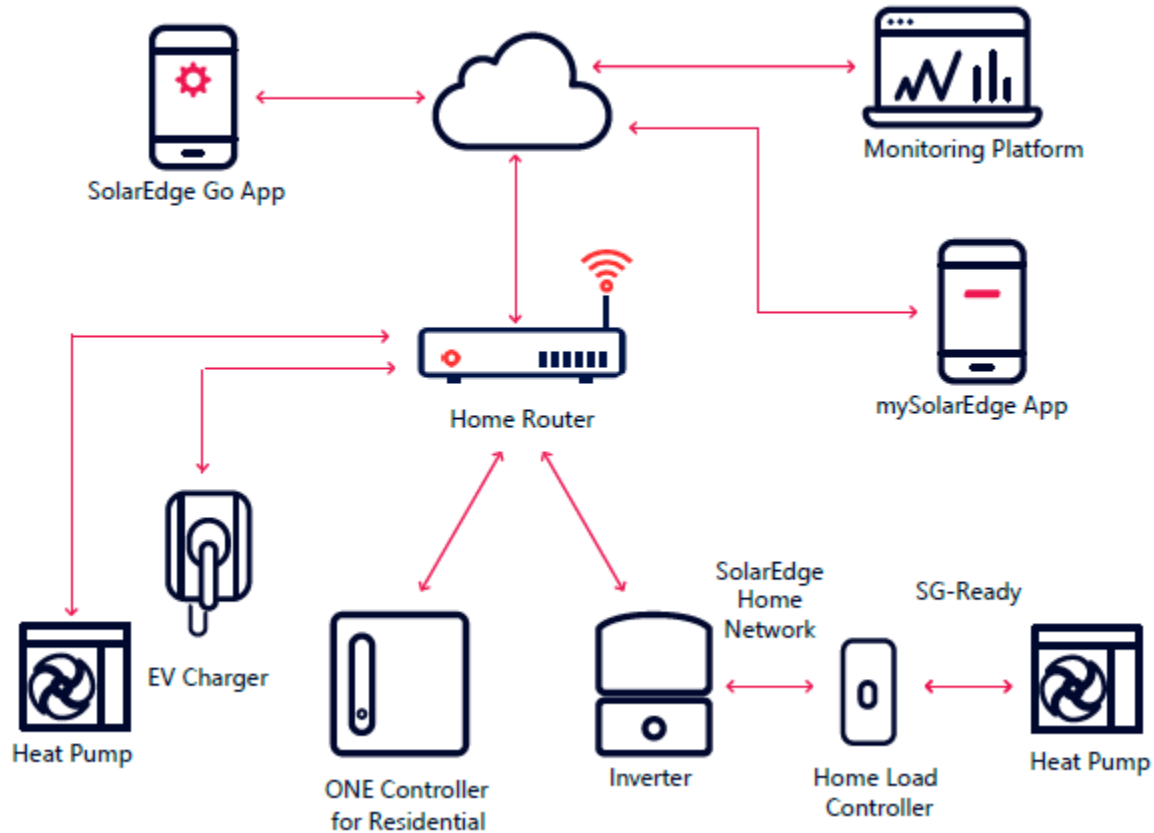
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## Overview

SolarEdge ONE is an operating system that orchestrates all residential energy management loads in the SolarEdge ecosystem. This system controls and optimizes large fundamental appliances to minimize operational costs. The SolarEdge ONE Energy Management System (EMS) integrates with third-party devices using the ONE Controller or the Home Load Controller. This allows you to build a scalable system that integrates with third-party devices to monitor, manage, and expand your solar ecosystem as needed.

## How it works

This diagram displays the interfaces among the devices in the SolarEdge ONE ecosystem.



### SolarEdge ONE Controller

The ONE Controller integrates third-party products in the SolarEdge ecosystem.

The ONE Controller connects to the home router using Local Area Network (LAN). The router links the ONE controller to the inverter, electric vehicle (EV) Charger, heat pump, and SolarEdge servers. The ONE Controller communicates with the third-party devices through the router using the following protocols: EEBUS and OCCP1.6J. The SolarEdge EMS components are connected locally through the home router, so they continue to work regardless of connectivity to the Cloud.

### SolarEdge ONE communication frameworks

- OCCP1.6J
- EEBUS

### SolarEdge Home Load Controller

The Home Load Controller connects most air-to-water Heat Pumps to the SolarEdge ONE ecosystem using a SG-Ready interface. The Home Load Controller is connected to the inverter









through the SolarEdge Home Network. The Home Load Controller connects directly to the SG-Ready heat pump’s interface. It manages and controls the different modes of operations. For details, about how to commission Heat Pumps with the Home Load Controller, see [Heat Pump Control with SolarEdge Home Load Controller](#).

## Supported functionality

The following tables displays the supported functionality for EV Chargers and Heat Pumps.

Controlled Device	Acronym	Connection method	Description
Electric Vehicle Charger	EVC	ONE Controller (OCPP1.6)	<ul style="list-style-type: none"> <li>■ EV Charger control via mySolarEdge                             <ul style="list-style-type: none"> <li>• Automatic charge when EV is plugged in</li> <li>• <b>Start</b> or <b>Stop</b> charging manually through app</li> <li>• <b>Schedule</b></li> <li>• <b>Charging History</b></li> </ul> </li> <li>■ <b>Excess Solar</b> – Automatically charges the car on excess PV only. Can work in parallel with the Schedule so the car has excess PV charge when it is not within the schedule and a full charge when it is within the schedule.</li> <li>■ <b>Import Limit</b> – Charge as fast as possible, even with limited grid connection, using the circuit breaker protection capability. The SolarEdge system keeps your charging speed as high as possible according to the available power at any given time.</li> </ul>
Air-Water Heat Pump	HP	ONE Controller (EEBUS)	<ul style="list-style-type: none"> <li>■ Heat Pump control via mySolarEdge                             <ul style="list-style-type: none"> <li>• View <b>Hot Water</b> temperature and change set point temperature</li> <li>• Change <b>Climate Control</b> set point temperature</li> <li>• Change <b>Climate Control</b> and <b>Hot Water</b> mode of operation</li> <li>• See Heat Pump power consumption</li> </ul> </li> <li>■ Heat your Hot Water tank and buffer tank with excess PV.</li> <li>■ Extend your battery life during power outage by automatically turning <b>OFF</b> the Heat when configured as a <b>Nonessential</b> device.</li> </ul>
		Load Controller (SG-Ready)	<ul style="list-style-type: none"> <li>■ Activate the Heat Pump automatically when the Heat Pump had excess PV available.</li> <li>■ Increase your battery life during power outage by automatically turning the Heat Pump OFF when configured as a <b>Nonessential</b> device.</li> </ul>

## Supported vendors <sup>1</sup>

Device	Company	Model
EV Charger	MENNEKES 	AMTRON® models with the following P/N: 134xxxx, 136xxxx, 137xxxx, 138xxxx, 139xxxx that support OCPP 1.6
EV Charger	Wallbox* 	Pulsar Max, Pulsar Plus, Pulsar Pro that support OCPP1.6
EV Charger	EVBOX* 	<ul style="list-style-type: none"> <li> Elvi models that support OCPP1.6</li> <li> The model must include a built-in kWh meter</li> </ul>
EV Charger	ALFEN* 	Eve S-line, Eve Pro line that support OCPP1.6
EV Charger	ABB* 	Terra AC Wallbox that supports OCPP1.6
Heat pump	Vaillant* 	All Heat Pumps from 2018 that support EEBUS




\* Coming soon

## Commission EV Chargers

This section explains how to commission supported third-party EV Chargers.




### Required equipment

Before commissioning third-party EV Chargers, you must install the following equipment:

-  SolarEdge residential PV system
-  SolarEdge One Controller. For details, see [Commission SolarEdge One Controller for Residential](#).
-  Supported EV Charger

### Before you begin

Before commissioning third-party devices, make sure:

-  The EV Charger is connected to the same home network as the ONE Controller and SolarEdge Inverter through the home route. For details about the ONE ecosystem, see [How it works](#).
-  SolarEdge Go application is downloaded on your mobile devices.
-  SolarEdge Go has access to relevant site.

<sup>1</sup> The integrations listed herein are subject to extended validation and change. SolarEdge cannot promise to deliver any specific integration, and no warranty, implied or explicit, is given regarding delivery, accuracy, fitness, or performance. SolarEdge reserves the right to modify the list at any time without notice.

## EV Charger integration limitations

The following is not supported for integrated EV Chargers:

- RFID authentication
- Essential Device Support
- Billing capabilities

### NOTE



- The ONE Controller can only be paired with one EV Charger
- PV charging only begins when the excess PV power is higher than:
  - 1.4 kW when charging Single Phase EV
  - 4.1 kW when charging Three Phase EV

## Commission EV Chargers in SolarEdge Go

To pair an EV Charger to the ONE Controller:

1. Open SolarEdge Go, go to **Manage** and select the relevant site.
2. Go to **Action > +Add Device > EV Charger >** select the relevant EV Charger brand. The mandatory parameters for the brand are displayed.
3. Enter the mandatory parameters in the EV Charger on the third-party's website interface or mobile application.

After the EV Charger and the ONE Controller are connected, the EV Charger appears in the Device list (may take few minutes). The EV Charger can now communicate with the ONE Controller and the SolarEdge servers.

## Commission supported vendors

### MENNEKES

This table describes how to commission MENNEKES.

Section	Description
Requirements	<ul style="list-style-type: none"> <li>■ AMTRON® models that support OCPP</li> <li>■ Latest firmware version</li> <li>■ Admin credentials on personal laptop</li> <li>■ USB or Ethernet Cable</li> </ul>
Limitations	<ul style="list-style-type: none"> <li>■ Only supports Ethernet LAN connection <ul style="list-style-type: none"> <li>• Wi-Fi is not supported</li> </ul> </li> <li>■ Configuration only using a laptop <ul style="list-style-type: none"> <li>• Mobile phones are not supported</li> </ul> </li> </ul>
Commission	<p>Before you begin, verify the following:</p> <ul style="list-style-type: none"> <li>■ SolarEdge ONE controller is installed and connected to the internet through the home router.</li> <li>■ Mennekes EV Charger is installed and connected to the internet, and to same home router and home network as SolarEdge ONE Controller.</li> <li>■ Use your PC to connect to the charger's WebUI using the username and password from the Mennekes guide. For details, see the <a href="#">Mennekes video</a></li> </ul> <p>Enter the following parameters:</p> <ul style="list-style-type: none"> <li>■ SolarEdge Backend credentials in Backend -&gt; OCPP tab: <ul style="list-style-type: none"> <li>• ChargeBox Identity number</li> <li>• HTTP Basic Authentication Password</li> <li>• WebSockets Controller JSON OCPP URL</li> </ul> </li> <li>■ In OCPP tab, select instructed <b>OCPP mode</b></li> <li>■ In Authorization tab, change <b>Free Charging</b> to <b>No</b>.</li> </ul>