SolarEdge ONE for Residential Third-Party Integrations Guide — Application Note[1]

This Integrations Guide lists and explains how select third-party devices integrate with SolarEdge Home ecosystem.

Revision history

Version 1.1, August 2024: Update availability.

Version 1.0, June 2024: Initial release

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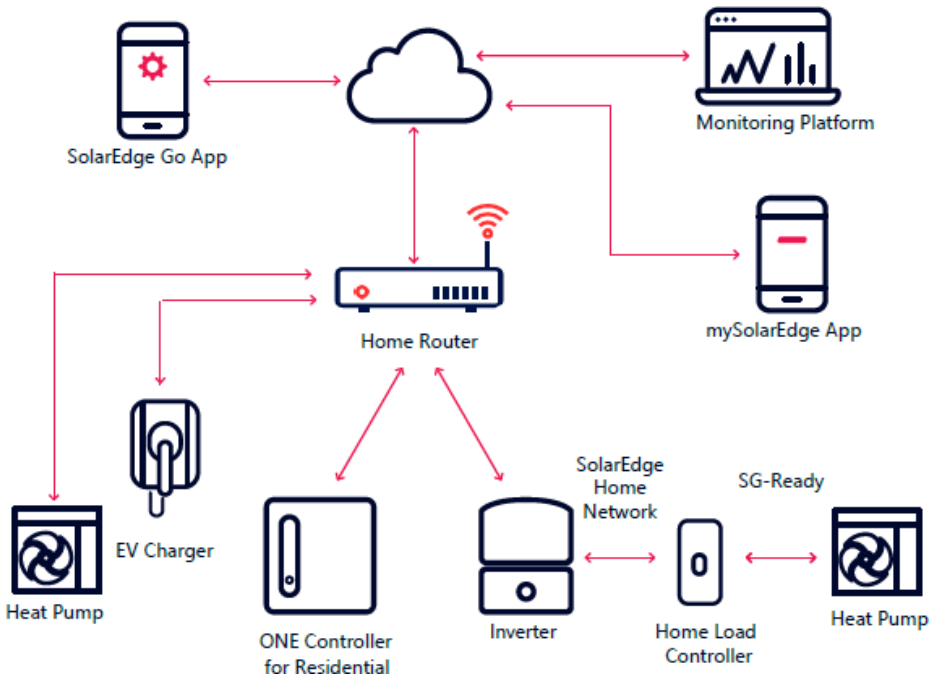
Overview

SolarEdge ONE is an energy optimization system, that automatically manages the home's power in real-time to maximize savings and extend backup duration. SolarEdge ONE integrates with select third-party devices using the SolarEdge 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.

[1] SolarEdge ONE Controller for Residential expected availability: Q4 2024. Specific device integration releases in Europe will begin upon product release and continue over time.

How it works

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



SolarEdge ONE Controller

The ONE Controller integrates select third-party products into the SolarEdge ecosystem. The ONE Controller connects to the home router using Local Area Network (LAN). The home router links the ONE Controller to the Inverter, Electric Vehicle (EV) Charger, Heat Pump, and SolarEdge servers. The ONE Controller communicates with the integrated third-party devices through the home router using the following protocols: EEBUS and OCPP1.6J. These components are connected locally through the home router, so they can continue to work regardless of connectivity to the SolarEdge Cloud.

SolarEdge ONE Controller communication protocols

- OCPP1.6J
- EEBUS

SolarEdge Home Load Controller

The Load Controller is designed to connect most air-to-water Heat Pumps to the SolarEdge Home ecosystem using a SG-Ready interface*. The Load Controller is connected to the Inverter through the SolarEdge Home Network. The Load Controller connects directly to the SG-Ready Heat Pump's interface. It is designed to manage and control 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 functionalities*

The following table displays the supported functionalities for EV Chargers and Heat Pumps.

Controlled Device	Acronym	Connection method	Description
Electric Vehicle Charger	EVC	ONE Controller (OCPP1.6)	▰ EV Charger control via mySolarEdge • Automatic charge when EV is plugged in • **Start** or **Stop** charging manually through app • **Schedule** • **Charging History** ▰ **Excess Solar** – 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. ▰ **Import Limit** – 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.
Air-Water Heat Pump	HP	ONE Controller (EEBUS)	▰ Heat Pump control via mySolarEdge • View **Hot Water** temperature and change set point temperature • Change **Climate Control** set point temperature • Change **Climate Control** and **Hot Water** mode of operation • See Heat Pump power consumption ▰ Heat your Hot Water tank and buffer tank with excess PV. ▰ Extend your battery life during power outage by automatically turning **OFF** the Heat when configured as a **Nonessential** device.
		Load Controller (SG-Ready)	▰ Activate the Heat Pump automatically when the Heat Pump has excess PV available. ▰ Increase your battery life during power outage by automatically turning the Heat Pump OFF when configured as a **Nonessential** device.

* Expected in Q4 2024

Supported vendors*

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	▪ Elvi models that support OCPP1.6 ▪ The model must include a built-in kWh meter
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

* Expected in Q4 2024
** 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
- One Controller
- 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 router. 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.

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 (this may take a 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	▰ AMTRON® models that support OCPP ▰ Latest firmware version ▰ Admin credentials on personal laptop ▰ USB or Ethernet Cable
Limitations	▰ Only supports Ethernet LAN connection • Wi-Fi is not supported ▰ Configuration only using a laptop • Mobile phones are not supported
Commission	Before you begin, verify the following: ▰ SolarEdge ONE controller is installed and connected to the internet through the home router. ▰ Mennekes EV Charger is installed and connected to the internet, and to same home router and home network as SolarEdge ONE Controller. ▰ Use your PC to connect to the charger's WebUI using the username and password from the Mennekes guide. For details, see the Mennekes video. Enter the following parameters: ▰ SolarEdge Backend credentials in Backend -> OCPP tab: • ChargeBox Identity number • HTTP Basic Authentication Password • WebSockets Controller JSON OCPP URL ▰ In OCPP tab, select instructed **OCPP mode.** ▰ In Authorization tab, change **Free Charging** to **No.**

* Expected in Q4 2024