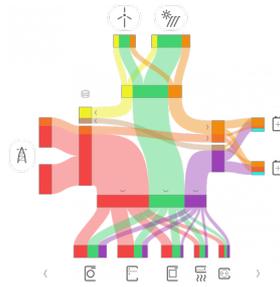# HEMS Introduction

Home Energy Management System (HEMS) is a system for:

- monitoring electricity flows at home (consumption, production and storage),
- control of key consumers,
- optimizing consumption in terms of reducing consumption and using cheaper energy to ensure the same comfort with lower costs.

## Control system

It consists of an advanced HEMS controller (HC-IQ-HEMS), a suitable power supply (PS-IQ), and communication interfaces for meters, and consumer management devices (CAD-232-A2-IQ, GW-WN-W and GW-ENO-IQ).

## Sources and consumers measurements

The measurement of electrical power and energy is provided by single-phase (PM1-E-D) and three-phase (PM3-I-D) meters, which are connected directly to CAD-232-A2-IQ or via a wireless bridge (BR-WN-W) to the HEMS controller.

## Load managers

Are used for control of managed device. Wired load managers (relays, power-relays) are toggling power supply or enabling signal for the operation of the device. They are controlled directly from HC-IQ-HEMS.

HEMS also enables the use of various wireless load management devices:

- Wireless socket SC1-WN-F,
- Wireless relay RL1-WN-W,
- Wireless DIN rail power meter PM1-WN-D and
- Wireless on wall power meter PM1-WN-W,

which in addition to switching, also measure the consumption of these so there is no need for additional power meter.
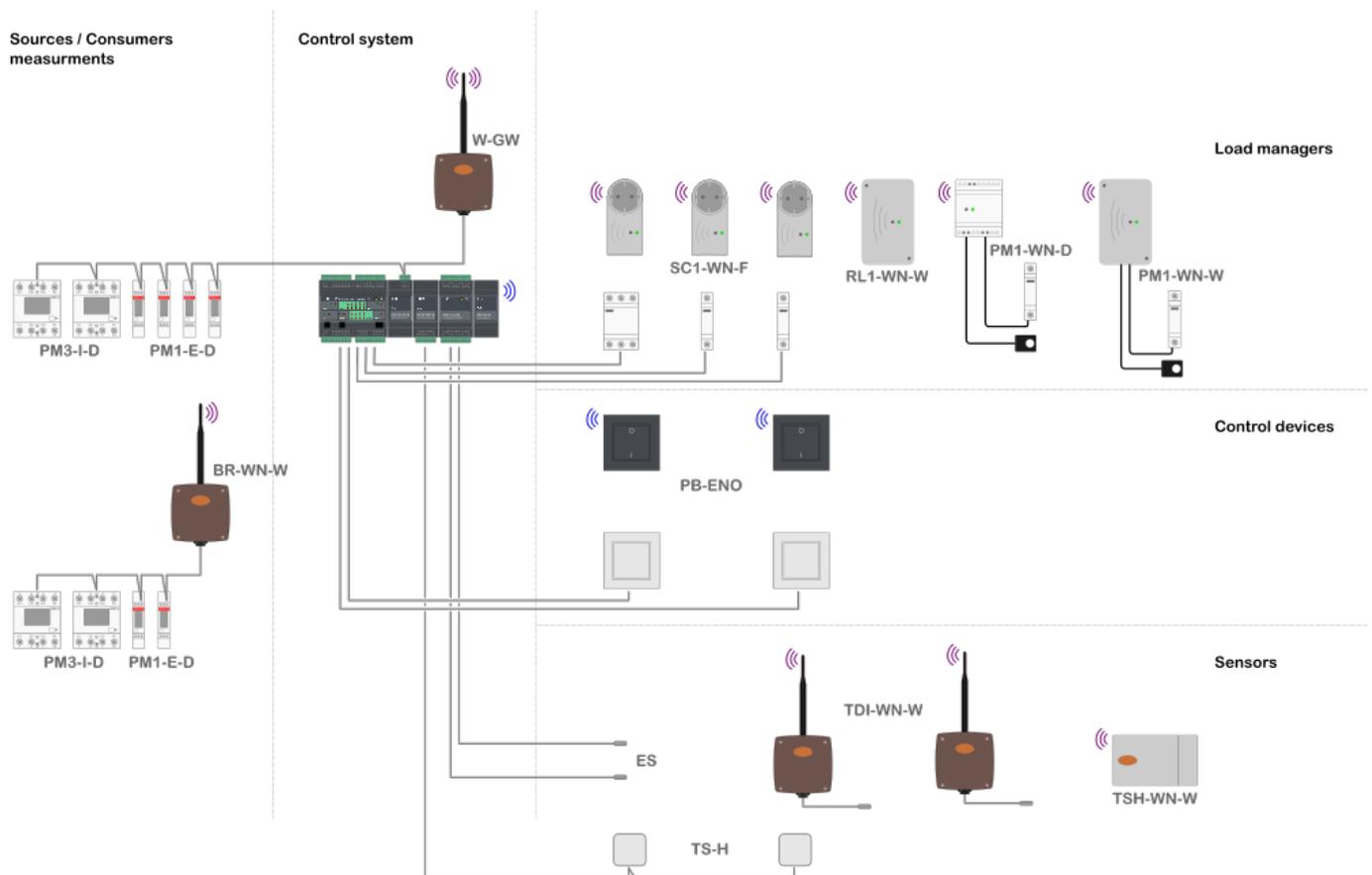
# Control devices

Are used for manual control of managed devices. Push-buttons are directly wired to HEMS controller, but also wireless push-buttons (PB-ENO) are supported.

# Sensors

Sensors captures additional information about controlled devices, which can help optimization of load management. Supported sensors are:

- Room temperature and humidity sensor (TS-H)
- 12 temperature sensors S-PT1000 connected to AIR-12
- Wireless room temperature and humidity sensor (TSH-WN-W)
- Wireless module which allows to connect up to 2 temperature probes and 2 digital signals (TDI-WN-W)