

# AIREM

## AI-Based Residential Energy Monitoring

Artificial intelligence (AI)-based residential energy monitoring (AIREM) is an energy monitoring management system for residential use. It is a non-intrusive appliance load monitoring (NIALM) device coupled with AI/machine learning (ML) home energy management system (HEMS).



### Overview

AI-Based Residential Energy Monitoring (AIREM) is an energy monitoring management system using non-intrusive appliance load monitoring (NIALM). It analyses and identifies the energy load consumption of each home appliance from the aggregated home energy consumption.

### Features

AIREM provides the following features:

- Energy Monitoring from Home Distribution Box**  
 AIREM offers a system with three units of energy monitoring Internet of Things (IoT) sensors to measure power parameters (voltage, current, active/reactive/apparent power, power factor and others) directly from a home distribution box busbar.
- Home Appliance Recognition using Proprietary AI/ML Algorithm**  
 A unique signature extraction methodology uses a proprietary AI/ML algorithm to detect and identify individual home appliance signatures through their state of operation.
- High Resolution Sampling Rate**  
 AIREM processes 4K data points every second to deliver in-depth energy monitoring, device detection, and other functionalities.
- Real-Time Readings via Dashboard**  
 AIREM shows home residents exactly how much electricity is used instantly and the on/off status of the appliances via a monitoring dashboard on web browser or Android device.
- Easy Home Installation**  
 A sensor clamp clips around the service mains inside the home distribution board for easy installation.

### Residential Panel Compatibility

AIREM works with a 50Hz and single phase 230/240V residential panel.

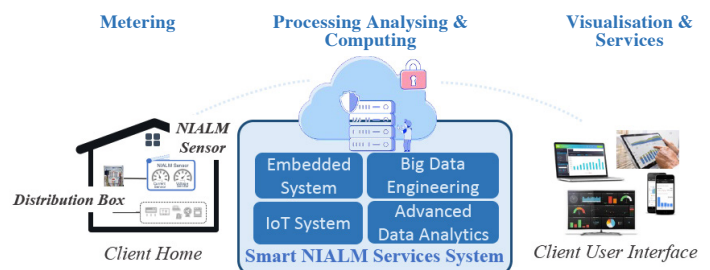
### Technology Benefits

The main impacts of AIREM are:

- Electricity Bill Usage and Carbon Intensity**  
 Electricity bill comparisons and estimates are provided so residents can self-monitor usage through each month. Carbon intensity data is also provided to help reduce carbon footprint.
- Integrable with Home Solar Energy Monitoring System**  
 A home solar energy monitoring system can be integrated with AIREM to track electricity usage and solar production in real time.

### Applications

Residential Energy Monitoring



AIREM system for residential use

