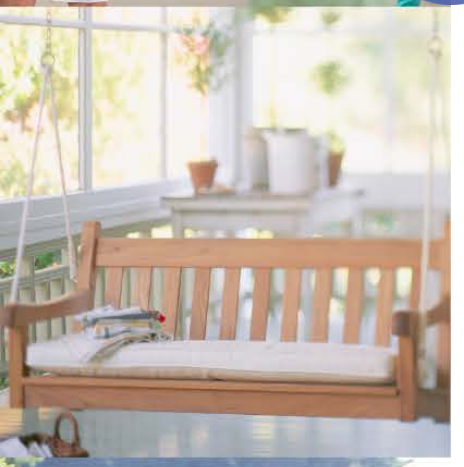


WeR@Home™

Connected Living

Cloud Solution

ESUGSL006

Version 3.0

June 2019

essence

Better life made possible™

Table of Contents

1. Overview

Changes in technology and consumer preferences have created the baseline for the growth in smart home solutions. Broadband IP connectivity penetration and smartphone adoption bring new opportunities for service providers seeking to broaden their service offerings. This is where the WeR@Home™ product suite comes into play.

WeR@Home™ is a self-installed, wireless, smart home solution which enables consumers to monitor and manage their homes from their mobile devices.

You can provide your customers with the option of professional WeR@Home™ installation and monitoring. The professional premium service level ensures that your customers feel safe and secure, while at the same time, having control of their smart home environment.

WeR@Home™ fits seamlessly into everyday modern life, enabling people to feel safe and secure about their home and family.

WeR@Home™ can be used in several ways – from acting as an intruder alarm system to implementing smart home applications for remote management of automation devices, such as:

- Dimmers
- Door locks
- Doorbells
- Garage door controllers
- Glass break detectors
- In-wall switches
- Lock sensors
- Door sensors
- Multi-channel devices

- Multi-colored RBGW LED bulbs
- Multi-input/multi output devices
- Power strips
- Range extenders
- Thermostats
- Wall plugs
- Water valves

This document describes the WeR@Home™ connected-living cloud solution, highlighting its capabilities.

NOTE: This document refers to WeR@Home™ version 5.0 or later.

For further technical information about the WeR@Home™ connected-living cloud solution, refer to the user documentation and datasheets.

2. WeR@Home™ Connected Living

The merging of third-party devices and services with WeR@Home™ extensive capabilities, using Z-Wave® -based or cloud-to-cloud integration, allows for a more comprehensive offering of applications and use cases.

The following are examples of ways WeR@Home™ can be used in everyday life.

- **Security** – People can use WeR@Home™ as an intruder alarm system.
  - The door/window sensors communicate wirelessly with the WeR@Home™ hub, to inform the user immediately, over the app, about any intrusion.
  - If the siren is installed in WeR@Home™, the intrusion event triggers the siren, in parallel to broadcasting notifications and alerts to the users.
  - Additional devices are available to further expand the operation of the system, such as:
    - Remote control key-fobs for arming and disarming the system
    - Motion detectors
    - Camera detectors
    - Smart glass break detectors
    - Tag readers and tags
    - Smoke cannon connected to a smart MIMO device
- **Safety** – WeR@Home™ enhances living safely by utilizing dedicated capabilities and optional peripherals, such as:
  - Add a smoke alarm to WeR@Home™ in a user-friendly DIY process. When detecting smoke, WeR@Home™ warns the user of a possible indication of fire. In parallel, WeR@Home™ generates a local audible alarm to alert the residents to exit the house.
  - Add a flood detector to the WeR@Home™ to alert the user of possible water leakage in selected places. When dampness is detected, the user is immediately alerted by push notifications from the app. Adding a smart water shut-off valve can enable remote closure of the entire water system of the house. This can minimize water damage to property.
- **Comfort and lifestyle** – Installation of WeR@Home™ at home reveals many possibilities that can simplify and enhance daily living.
  - WeR@Home™ can be used to manage the lighting in the home from a mobile device, by adding smart plugs to the WeR@Home™ network. This transforms the mobile device into a global remote control from inside or outside the home.
  - Instead of waiting at home for hours to open the door for the service technician, with a smart door lock, one can spend the time away from home and open the door remotely when the service technician arrives. The user can use a camera detector or an HD camera for quick monitoring, to verify that all is well. When the service technician leaves, the door can be locked remotely.

- **Smart energy** – People all over the world are becoming more concerned about the environment. Efficient use of power consumption at home is a growing application of environmental protection. The WeR@Home™ solution includes Smart Rules enabling users to manage, monitor, and control their electricity consumption to reduce overall costs. For example:
  - When the home alarm is set to **Arm Away**, Smart Rules can be triggered to automatically switch off the lights and reduce the home temperature.
  - Users can add a smart thermostat to their air-conditioning system. The user can remotely check if the air-conditioning has been left on and if so, turn off the air-conditioner.

These are only a few of the use cases where WeR@Home™ can enhance daily living. More capabilities are added with every new release.

3. Google Assistant Support

WeR@Home™ supports integration with Google Assistant and provides voice control for WeR@Home™ smart home and security features.

When your WeR@Home™ app is certified as a Google Assistant smart home service, your customers can install Google Assistant to control and manage their WeR@Home™ devices.

4. Professional Installation Option

The WeR@Home™ app installation tool guides professional installers with step by step instructions.

The customer's home floor plan determines the arrangement of the peripheral devices and their placement. The installation tool uses the real-time RF signal strength data for each peripheral device to ensure successful and efficient installations.

The installation tool includes testing the peripherals following installation.

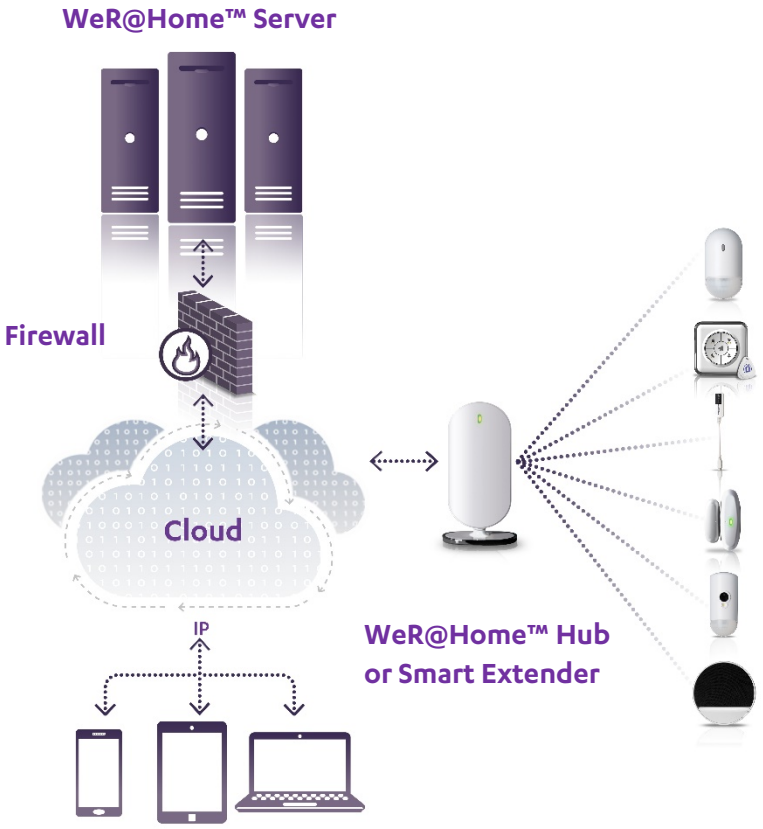
5. WeR@Home™ Architecture

The WeR@Home™ system architecture is comprised of the following:

- Cloud-based network architecture
- Communications technology
- Firewall and security technology
- Server communications and architecture

5.1. System Configuration

The following diagram provides a simplified view of the WeR@Home™ main components and how they are arranged in the WeR@Home™ configuration.



The following is a description of the main components and their functionality:

- **WeR@Home™ Hub** – The hub acts as a gateway between the WeR@Home™ peripherals, installed on the user premises, and the service provider's network.
  - The hub communicates over wireless radio frequency (RF) with the devices for monitoring, control, and maintenance.
  - The hub communicates with the server in the cloud. The cloud can either be private or public.

  The WeR@Home™ app controls the devices through the server and then, through the hub. The hub runs the control logic which enables the automatic interaction between connected home devices. For example, the hub triggers the siren to chime when a door is opened.
- **Peripheral Devices** – The WeR@Home™ peripherals include the home sensors and devices connected to the hub, to create the smart home experience. The peripherals include devices such as:
  - Camera detectors
  - Motion detectors
  - Door/window sensors
  - Indoor sirens
  - Smoke alarms and flood detectors
  - Tag readers and tags
  - HD network cameras
  - Smart switches and dimmers
  - Smart thermostats
  - Smart glass break detectors
  - Smart door locks
  - Smart garage door controllers

  All the devices communicate with the hub over one of the following available interfaces:
  - Essence's proprietary ECOP 2.4 GHz RF channel - for core security devices
  - Z-Wave sub-GHz RF channel protocol – for home automation using the Z-Wave Plus Extender
- **WeR@Home™ Smart Extender** – The Smart Extender increases **WeR@Home™** coverage to areas on the premises **outside** the main **WeR@Home™** hub's range.

  The Smart Extender acts like a hub in that it can connect to peripheral devices. The main **WeR@Home™** hub communicates through the Smart Extender to the Smart Extender's peripherals, so that the peripherals become part of the overall **WeR@Home™** configuration.

- **WeR@Home™ Server** – The server, running in a cloud, is provided as an Essence service. Alternatively, some customers prefer to own and manage their own server.

  In both cases, the server is responsible for two main tasks:

  - Managing the hubs
  - Supporting the user with hybrid apps

  The server architecture is designed to be robust and to support high availability mechanisms, essential as the number of managed hubs grows.

- **User Apps** – The hub and peripherals are fully managed remotely through the WeR@Home™ app for both Android and iOS mobile devices.
  - The app provides the user with the tools for day to day WeR@Home™ operation including:
    - First time registration with tutorial
    - Adding and managing users
    - Adding and managing devices
    - Managing security
    - Controlling automation devices
    - Defining Smart Rules for automation and scheduling.
    - Monitoring home activity by viewing "live view" videos

- **Administration Tools** – The WeR@Home™ Admin Center is a web-based application for the service provider, to manage the deployment of WeR@Home™ in the customer base. The tools provided are:
  - User administration
  - Service level management
  - Hub management
  - Reporting
  - Firmware update management
  - HD camera service management

5.2. Highlights of the Network Architecture

The following provides information about the network architecture of the main components:

- **Peripheral Devices** – The Essence peripheral devices are paired to a specific hub during production or during setup at home. All access to the peripherals is through the hub. The communication is based on Essence proprietary protocol: ECOP.
- **Hub and Server** – The hub manages the peripherals on the premises. Communication with the server is over IP to the cloud, using a constant open TCP link.

  The available options for this connection are:

  - **Landline**: using the 802.3 LAN interface of the hub, connected to an existing broadband home gateway or modem
  - **GSM:** using data services over a mobile 3G (HSPA+) service (separate PN)

    By inserting a SIM-card in the hub, the user can use mobile connectivity to connect to the server.

  The hub supports automatic backup between the links which enhance the availability of the service.

  The customer receives the hub preconfigured with the URL of the relevant server. The URL connects to either a dedicated or shared Essence service.

  Upon initial power up, the hub creates a link with the server over the configured URL address. Hub activation is an automatic process that initiates when the link is setup. After the hub connects with the server, the hub is active and can manage the home systems.

5.3. RF Technology at Home

The hub communicates with the devices over a proprietary protocol called **ECOP-R** – Enhanced Controlled Open Protocol.

ECOP-R is a complete, proprietary protocol specifically designed for efficient home monitoring and control. This protocol has the following characteristics:

- A star topology where the hub acts as the "gatekeeper" node communicating with all other devices
- Two-way wireless over public frequency 2.4 GHz (ISM band)
- Transmission: QPSK, DSSS @250 kS/s (3 MHz)
- Power efficient to extend battery life of the devices' batteries
- Complies with the IEEE 802.15.4 standard, in layers 1 and 2
- Compliant with FCC CFR47 Part 15 (US) and EN 300-440 (Europe)

The hub also offers optional support for Z-Wave devices extending end-user options.

5.4. Server Architecture

The server is a central part of the system. The server architecture is a three-tier client-server comprised of server applications for:

- The front-end tier
- The middle tier
- The back-end tier

The applications are developed and maintained as independent modules. This approach enables a simpler way to extend the system functionality. The server supports the following main functionalities and services:

- Maintains a link with all hubs and monitors their status
- Controls the hub, based on commands coming from the app or through the API
- Collects information from hubs and peripherals, via the hub – the information is stored and presented upon request
- Integrates with the Web API used by the smartphone and third-party applications
- Broadcasts push notification mechanisms for the apps for both iOS and Android mobile devices
- Distributes email notifications to users, via SMTP
- Supports Remote Software Upgrade (RSU) and FTP service
- Manages hubs using the WeR@Home™ Admin Center designed for the service provider
- Manages user accounts including assigning a service package to each user
- Provides a central SQL Server database, for storage of user and hub events and configuration
- Allows for live viewing of video captures and storing video recordings in addition to control of network camera functions and configuration

5.4.1 Server External Interfaces

The following table lists the external interface protocols compatible with the server.

Protocol	Towards	Description
JSON over HTTPS	Applications: WeR@Home™ app, alarm monitoring software, and third-party applications	API for controlling and managing the system
GCM / C2DM	Google service	Push notifications to the Android apps
APNS	Apple service	Push notifications to the iOS apps

Protocol	Towards	Description
SMTP	SMTP server	Email notifications to users
Syslog	Syslog server (external)	For exporting system events in a standard format
ECOP-N	Hubs	Commands, events, videos
FTP	FTP server	For remote software upgrade of the hubs
SMPP	SMS gateway	Send commands to the hub by SMS (e.g. setting APN)
HTTPS	WeR@Home™ Admin Center	Managing the hubs
Event uploader	Third-party applications	Pushing events to third-party applications and supports various formats such as SIA DC-07 and JSON protocols

5.4.2 The Web API Layer

The Web API layer provides the ability to connect to third-party applications. The Web API layer refers to the complete set of WeR@Home™ external interfaces.

Third-party applications can use the interfaces to support different business needs, such as:

- Integration with on-line payment services
- Suspension of service for a hub account from a CRM
- Retrieval of information on a specific hub from a 24-hour CRM customer portal
- Integration with other back office tools
- Support for alarm monitoring software
- Distribution of email notifications
- Broadcast of SMS notifications
- Integration with third-party web portals and applications
- Integration with customized apps

The Web API communicates with other WeR@Home™ services using Windows Communication Foundation (WCF) protocol.

These web services use HTTPS as the transportation service for sending and receiving messages in JSON format.

6. Using WeR@Home™

The WeR@Home™ is designed for self-installation. Technical knowledge is not required. Installation is fast and easy. Users can start enjoying the product within minutes from opening the box.

Users manage their WeR@Home™ devices using the smartphone app, available for iOS and Android mobile devices. Security-related functionality is also accessible through the tag reader and the remote control as part of an intrusion alarm system.

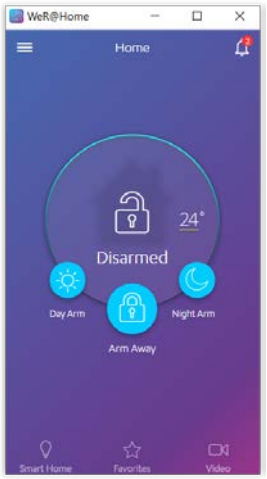
6.1. Smartphone App

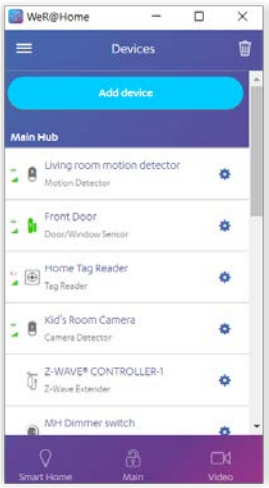
The app is available on Google Play and the Apple App Store.

The app allows for the following security options:

- PIN
- Fingerprint
- Facial recognition

The user can use the app for managing, monitoring, and controlling their home in a very simple and intuitive manner.





The app supports many capabilities, such as:

- Monitoring system status, such as, **available**, **offline**, **armed**, and **disarmed**
- Arming the alarm system for **day**, **night**, or **away** arm scenarios
- Receiving push notifications on intrusion, tamper, or other events
- Customizing notification options either by DIY users or professional installers
- Viewing on-demand or stored videos from the installed cameras

- Receiving events, such as “low battery”, from peripherals
- Reading parameters, such as “reception level”
- Controlling Z-Wave appliances, such as smart thermostats
- Controlling cloud to cloud integrated devices such as NEST and HD network cameras
- Viewing history of events and alarms

The WeR@Home™ app features the following home management functions:

- Managing all WeR@Home™ devices including the Z-Wave devices
- Managing all WeR@Home™ users including their access to WeR@Home™
- Multilingual support:
  - English
  - Spanish
  - French
  - Italian
  - Danish
  - Russian
  - Chinese
  - Japanese
  - Vietnamese

You can also install the app as a desktop application. The desktop version allows your users to control and manage their WeR@Home™ from their PC or Mac. The application also enables help-desk support with fast access to a users’ system.

6.2. Smart Rules Engine

WeR@Home™ includes the Smart Rules feature. This feature provides a user with the capability to enhance their smart living experience by creating automation scenarios that extend their control of their smart home environment.

The purpose of the Smart Rules engine is to allow a user to setup their environment to automatically “react” to detected events and activities. The hub can execute actions in response to specific events and activities.

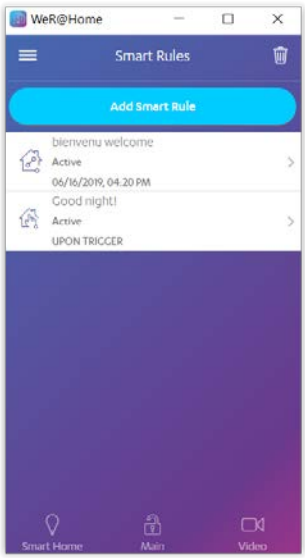
The Smart Rules feature allows a user to further customize their system to fit their everyday life in an efficient and effective manner.

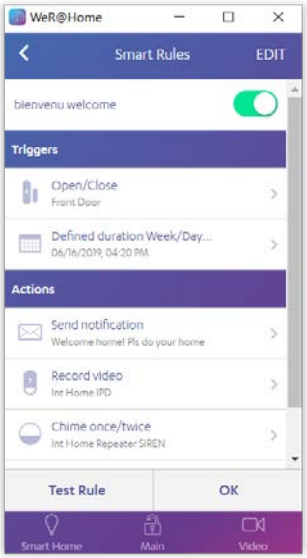
The Smart Rules are procedures that trigger an action or actions that are performed following a detected event or activity.

The general structures of Smart Rules are:

- **If** <event or activity or time > **occurs**, **then, execute** <action(s)
- **For a specific** <date and time>, **execute** <action(s)
- **For a** < time period>, **execute** <action(s)

One can define Smart Rules using the app **Smart Rules** module.





6.3. Working with IFTTT

IFTTT is a popular online consumer web service that allows the user to create customized **I**F-**T**his-**T**hen-**T**hat scenarios. WeR@Home™ supports integration with the IFTTT service, enabling the service provider to become an IFTTT channel.

Users can expand their smart home capabilities by accessing their service provider's IFTTT channel, applets directly from their app.

When a user signs into the IFTTT service, they can use the pre-defined recipes provided on the service provider's IFTTT channel or create their own recipes using triggers and actions from the available integrated channels.

7. Hub and Peripheral Devices

The WeR@Home™ basic kit includes a hub and peripheral devices, such as:

- Motion detector
- Camera detector
- Door/window sensor
- Indoor siren
- Remote control

The basic kit can be extended with third-party devices and services to manage the home including energy consumption and safety measures.

7.1. The Hub

The hub is the gateway between WeR@Home™ devices installed on the user premises and the service provider's network.

The hub communicates over wireless RF with the devices for monitoring, control, and maintenance. The hub communicates with the WeR@Home™ server over an IP network. The IP network can be either private or over the internet.

The WeR@Home™ app controls the devices through the server and the hub.

The hub features include:

- Two-way secured communications (AES encryption) with the peripherals
- Rechargeable, lithium, polymer, backup battery, provided in the kit
- IP connectivity over LAN (IEEE 802.3) or Mobile (3G/4G) connections, with automatic backup option
- Support for high quality resolution and color photo and video capture
- Support of up to 64 security peripherals, 24 safety peripherals, and up to 32 users, including two master users
- Option to add a Z-Wave Plus Extender
- Option to add a Smart Extender

7.2. Motion Detector

The WeR@Home™ wireless motion detector includes the following features:

- Passive infrared multi-zone spherical lens for exceptional detection coverage (up to 90º horizontal, 105º vertical)
- Detection range of up to 12 m (39.4 ft.)
- Intelligent signal analysis for reliable detection and pet immunity.
- Sealed optics, immune to external light and insects, that reduce false alarms
- Wall mount installation using either double-sided tape or screws
- Uses two standard AA alkaline batteries with efficient power consumption to extend the operational period to 60 months
- Alarm triggered when the unit is tampered

7.3. Integrated Camera with Motion Detector

The WeR@Home™ wireless camera detector is a motion detector with indoor camera capability that can be used for security purposes or for daily lifestyle monitoring. The camera detector has the following features:

- On-demand comfort video or motion-triggered security video, viewable through the app
- Full-color streaming and capture
- On-board flash-memory for video clip retransmission
- Super-bright white LED flash for intruder deterrence in total darkness
- Diagonal shooting angle: 90°
- Detection range: Up to 12 m (39 ft.)

- Resolution of 256 x 192 pixels for comfort video and 320 x 240 pixels for security video
- Three standard AA alkaline batteries with efficient power consumption to extend the operation period, depending on video viewing usage
- Alarm triggered when the unit is tampered
- Sealed optics, immune to external light and insects, that reduce false alarms
- Wall mount installation either using double sided mounting tape or screws

7.4. Door/Window Sensor

The WeR@Home™ wireless door/window magnetic sensor is connected to doors or windows creating an intruder alarm system. When WeR@Home™ is armed and a door or window opens, the door/window sensor triggers an alert event.

The sensor includes the following features:

- Bi-directional wireless WeR@Home™ technology
- Detection of the opening and closing of doors, windows, cabinets, etc.
- Optional: tamper switch for notification of tamper events
- Alarm triggered when the device is tampered
- Dual LED indicators for open (red) and close (green) status
- Easy to install using either double-sided tape or screws
- Requires one standard AA alkaline battery with efficient power consumption to extend the operational period to up to 24 months

7.5. RFID Tag Reader with Keypad

This WeR@Home™ wireless tag reader is an integrated access control unit which includes a full numeric keypad. The tag reader implements the following levels of security for disarming:

- RFID tags
- Access codes
- Both RFID tags and access codes assigned to specific users

The tag reader with keypad has the following features:

- User identity verification via portable proximity RFID tag in a wireless access control application, based on well-established advanced magnetics and RFID technology (MiFare)
- Provides ARM and DISARM functions, as well as:
  - Partial ARM
  - Open and close door function
  - Panic and duress function
- Remote deactivation of tags in case of loss or theft, via smartphone
- Functionality specific to an indoor installation
- Battery-operated with efficient power consumption to extend the operational period to up to 12 months
- Tamper alarm triggered when detached from a wall
- Wall mount installation using either double-sided tape or screws

7.6. Access Control Tag Reader

The WeR@Home™ wireless tag reader is an integrated access control unit, which uses tags to grant access to the assigned users. As an optional added level of security, each user can receive an access code along with the tag, to further verify the tag owner's identity when disarming WeR@Home™.

The tag reader has the following features:

- User identity verification via portable proximity RFID tag in a wireless access control application, based on well-established advanced magnetics and RFID technology (MiFare)
- Support for up to eight tags
- Tag is brandable
- Command options such as:
  - Arm
  - Disarm
  - Partial Arm
  - Bell or chime
  - SOS alarm
- Remote deactivation of tags in case of loss or theft, via smartphone
- Functionality specific to an indoor installation and outdoor installation
- Dual purpose as a tag reader and a doorbell button
- Battery-operated with efficient power consumption to extend the operational period to up to 12 months
- Tamper alarm triggered when detached from a wall
- Wall mount installation using either double-sided tape or screws

7.7. Remote Control Unit

The WeR@Home™ remote control is a bi-directional, compact WeR@Home™ key fob, with advanced security functions. The key fob has the following features:

- Wireless control
- Arming command keys:
  - Arm Away
  - Day Arm
  - Night Arm
  - Disarm
- Visual indication of system status for **Armed** and **Alarm is triggered**
- Personal SOS alarm or panic button
- Force arm for open zone or tamper situations
- Remote deactivation in case of loss or theft
- Battery powered, using a 3V CR2450 lithium battery
- Efficient power consumption to extend the operational period to more than 24 months

7.8. Indoor Siren

The indoor siren is usually included in the system when configuring for security or safety applications. The siren has the following features:

- Battery-operated, wireless, powerful siren for overt alarm indication
- Emits alarm sound of more than 85 dBA from 1 m (3.28 ft.)
- Default sound duration of 90 seconds following an intrusion
- Configurable sound duration and level
- Dual purpose as a siren or a door bell or chime
- Uses four standard AA alkaline batteries with efficient power consumption to extend the operational period to up to 24 months
- Alarm triggered when the unit is tampered
- Ceiling/wall mount installation using either double-sided tape or screws

7.9. Smoke Alarm

The smoke alarm is a stand-alone, early warning, peripheral, that contains a photoelectric smoke detection chamber, and has the following features:

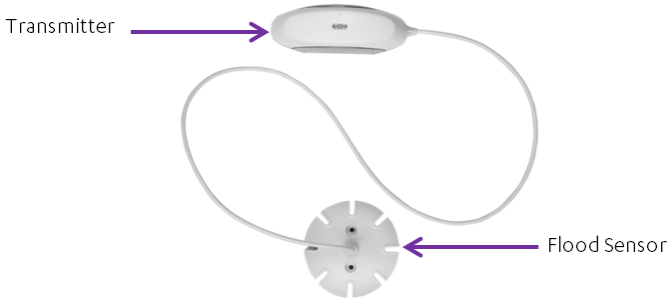
- Test/Mute button with three-color LED for visual indication
- Emits loud alarm sound of 85 dBA from 3 m (9.84 ft.)
- Concurrent operation modes: can be used as part of WeR@Home™ or work independently when communication with the hub is interrupted.
- hub is interrupted, the SKs continue working independently of the hub.
- Tamper alarm triggered when detached from its base
- Uses two AA alkaline batteries, with efficient power consumption to extend the operational period to up to two years
- Installation without batteries blocked

7.10.Flood Detector

The flood detector is a battery-operated, bi-directional wireless sensor that detects water accumulation, designed for high-risk areas such as basements, or near air conditioners, washing machines, or sinks.

The flood detector consists of two connected parts:

- The transmitter
- The flood sensor



The flood detector has the following features:

- Dual red/green LED for detector status
- Requires single AA alkaline battery with efficient power consumption to extend the operational period to up to two years
- Mount installation using either double-sided tape or screws

7.11. HD Camera

Essence supports the integration of indoor and outdoor cameras in WeR@Home™ to view and record HD video, with audio capability.

Essence camera models support:

- 2 megapixels
- Wide angle – 3.6 mm lens
- Day and night vision – ICR
- Resolution: 1080P (1920x1080), VGA (640x480), QVGA (320X240)
- Fully integrated in WeR@Home™ app with live view and video recording
- Wi-Fi RJ45 + 802.11b/g/n

- Easy installation – plug and view
- Local recording on Micro SD

Essence supports the following camera models:

- The Essence indoor pan/tilt HD camera is an infra-red lens network camera, powered by DC5V, with 10 m motion detection, and 2-way audio with built-in speaker/microphone.

- The Essence indoor fixed lens HD camera is an infra-red lens network camera, powered by DC5V, with 10 m motion detection, and 2-way audio with built-in speaker/microphone.

- The Essence outdoor fixed lens HD camera is a weatherproof infra-red lens network camera, with 15 m motion detection, powered by DC12V.

7.12. Z-Wave Plus Extender and Support

Z-Wave is an interoperable, home control, wireless protocol that can communicate and control the operation of smart home devices from third-party vendors. WeR@Home™ can integrate with the Z-Wave network by adding a dedicated controller connected to the hub.

Users can add Z-Wave third-party devices, such as thermostats and light dimmers, to WeR@Home™. The app is used for monitoring and managing these devices.

To verify interoperability of the Z-Wave Plus Extender, the system has passed thorough tests in an accredited laboratory.

The Z-Wave Plus Extender, using the 500-series chip, currently supports the following frequencies:

Country	Frequency
Australia	921.4 MHz
USA, Canada, and Mexico	908.4 MHz
Europe	868.4, 868.42 MHz
Japan	926.3 MHz
Israel	916 MHz
Russia	869 MHz

7.12.1 Z-Wave Supported Functionality

Integrating the WeR@Home™ network with the Z-Wave Plus Extender is developed according to the Z-Wave specifications and tested for interoperability in a third-party laboratory. Testing verified that the solution works, as designed, with multiple third-party devices.

The Z-Wave functionality was designed to provide:

- Support for predefined scenarios – automatically activating selected devices upon system alarm arming on disarming. This capability can be configured by the user using the app.
- Expanded functionality to work with smart home devices
- Support for third-party Z-Wave controllers to further expand the Z-Wave network

Other Z-Wave devices are supported in the class range of the devices mentioned above. Further enhanced functionality to include more devices and more modes is planned for future releases.

7.13. Smart Extender

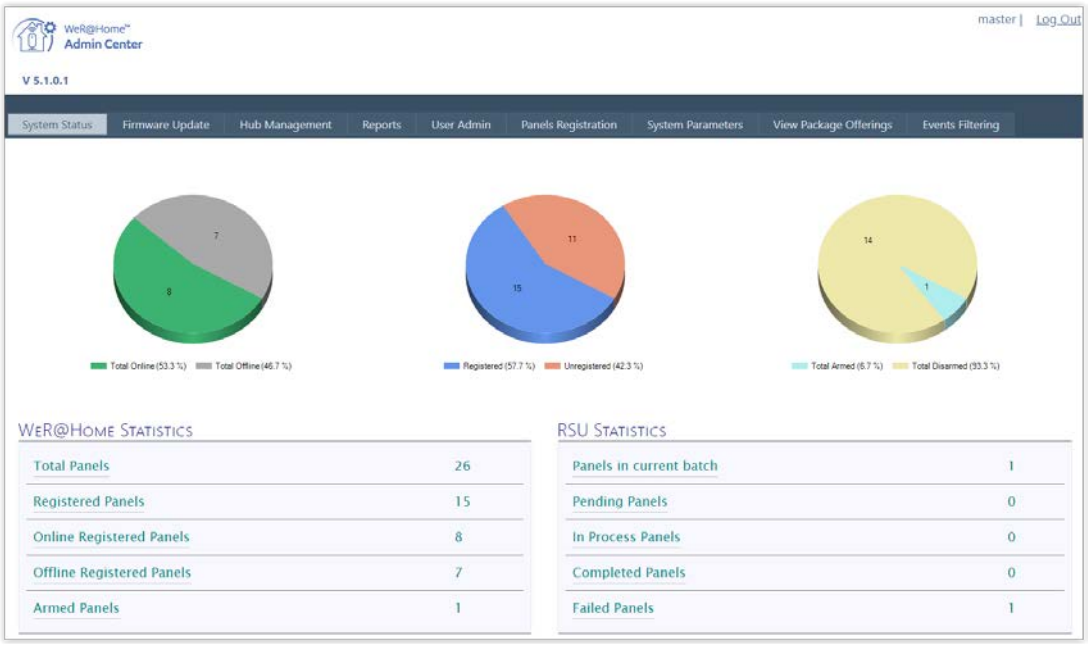
The WeR@Home™ Smart Extender extends the range of the WeR@Home™ hub, to help maximize the coverage of the premises by WeR@Home™. The Smart Extender supports the connection of up to 63 additional devices to WeR@Home™. The Smart Extender manages the peripheral devices connected to it, acts as a gateway to the Essence Cloud, and communicates with the Essence servers which provide data to the app. The Smart Extender uses 3G/4G (HSPA+) internet connectivity.

7.14.Other Devices

Essence continues to improve and expand its range of available WeR@Home™ devices, through both direct development and integration with other vendors.

8. Network Administration and Back Office Tools

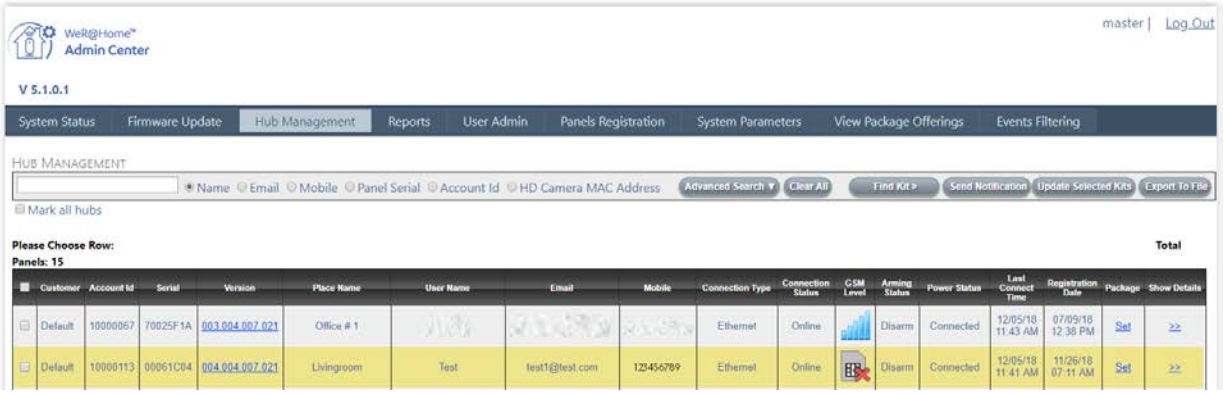
The main back office tool is the WeR@Home™ Admin Center. The service provider uses this web-based application with an advanced search mechanism to locate customer hubs and manage WeR@Home™ deployment and service package assignment.



The application runs on the WeR@Home™ server and provides the following capabilities:

- **Firmware Update** – This function enables remote and centralized firmware/software upgrade. Service providers can select a group of systems and upgrade their software using an automated process manager.
- **Hub Management** – This module allows the user to retrieve a list of registered hubs and information per hub such as:
  - Account ID
  - Serial number
  - Loaded firmware version
  - Associated home devices
  - The last connected time

Each hub is monitored as to its connection status, GSM level status, arming status, and main power status.



The **Hub Management** module allows the service provider to:

- Use specific commands to manage the hubs and their peripherals
- Manage HD camera accounts
- Send APN information
- Enable/disable **W**ork **o**n **R**adio capability
- Configure sirens installed in WeR@Home™ as to sound level and duration

The service provider can view the details of the WeR@Home™ Admin Center registered users, initiate technician access and manage special users such as installers and guards.

- **Reports** – The service provider can use the application to generate various reports. The reports are generated and downloaded in a ***.csv*** file format. This file format enables importing the report into third-party applications such as Microsoft Excel. The reporting period of the reports can be defined as required, depending on the report format. The reports retrieve information per hub, user and events reported in WeR@Home™.
- **User Admin** – This function is used to manage the users, allowed to access the WeR@Home™ Admin Center.
- **Panels Registration** – This function is used to import a group of hubs into the WeR@Home™ Admin Center.
- **System Parameters** – This function allows the definition of global system parameters that are used in WeR@Home™ operations.
- **View Package Offerings** – This page displays the available service packages and HD camera service packages and the Smart Rules associated with each service package. This information gives the service provider a more informed view when assigning service packages to customer hubs.
- **Events Filtering:** This tool allows setting the retention period for the different types of events, that is the amount of time the events are stored on the WeR@Home™ server.

9. Security Aspects

WeR@Home™ incorporates the following security measures to provide a safe and secure experience:

- **User registration to the WeR@Home™ service** – Communication with the app on the server uses HTTPS protocol. First time registration requires a unique eight-digit serial number of the hub. If the hub is already registered, the process is terminated. If the hub is paired with the server, the process prompts the user for valid credentials.

  Following successful registration, access to WeR@Home™ is allowed by entering the user email and password, provided during registration.

- **PIN-controlled access for the app** – The app provides a user with an additional security layer using a four-digit PIN. The user can use the PIN either for full access to the app or for access to the app arming functions.

- **Administrator access to the back office** – The connection to the WeR@Home™ Admin Center is based on HTTP encrypted traffic (HTTPS). Each administrator is personally assigned a username and password. Back office administrator credentials are encrypted and validated using the backend services.

- **Encryption in the RF interface** – The communication between the hub and the peripherals is encrypted using AES protocol with a 128-bit key. This capability is used to guard against "sniffing" the radio waves by external entities, who intercept internal messages and data.

- **Encryption between the hub and the cloud** – The communication between the hub and the cloud is encrypted using AES protocol with a 128-bit key. The key is fully randomized by the internal module of the hub, including a proprietary mechanism for key generation and renewal. Each hub has its own unique keys. The key renewal period is configurable by the Administrator, using the WeR@Home™ Admin Center.

- **Encrypted video streaming** – To protect user privacy, WeR@Home™ video streaming is encrypted during all video transferring stages.

  The stages are:

  - Camera detector to hub – AES protocol
  - Hub to server – AES protocol
  - Server to app – HTTPS protocol

- **Encryption between the cloud and the mobile devices –** The communication between the cloud and the mobile devices is encrypted using HTTPS protocol and is based on the system REST web services, based on SSL certificate provided by the customer.

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