



We.R™ System

User Guide

ESUG05022
Version 3.3
December 2013

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How to Use this Guide

The backbone of this guide is the We.R™ installation procedure – following an introduction to the system concept, the guide takes you through the steps of identifying the system components and their functions, preparations, and installation of the system components (hardware and software) in the recommended sequence ensuring smooth buildup of your We.R™ system. This is the largest section of this guide and includes basic understanding of the setup and operation of both the components and the whole system.

The daily usage of the system (system administration) is provided in the following section, while maintenance – on the next. Other required information is also provided thereafter.

Complementary information covering different aspects of background knowledge related to the We.R™ are provided in the form of appendixes at the end of this guide as well.



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1. Introduction

Welcome to the We.R™ Smart Home System User Guide.

The We.R™ Smart Home system enables consumers manage different aspects of their homes such as security, safety, home automation and energy savings from anywhere and at any time using their PCs or smart device applications.

The We.R™ system is a self-monitoring DIY solution based on the most advanced wireless technologies that include cloud services, and remote management and automation applications from any device, coupled with unique hardware design for consumers' homes.

1.1. Foreword

To begin utilizing the system, it is required to link onto the We.R™ Web Application (link address is provided by the seller or the Security Service Provider) and register as a User.

The Mobile Application, for both Apple® iPhone® (iOS) and Android™ users, may be downloaded later from the following QR-code link:

(or search within Apple's App Store or Google's Play for We.R™)

The installation program of these applications guides the Users through all phases of the identification, installation and registration process.

Once the system is accessed, the registered Users may begin enjoying its many benefits, including:



- Get real time alerts in case of unpermitted access to the premises.
- Protect valuables and personal belongings, based on unique living habits.
- Monitor entrance and exit time of residence staff, such as the cleaner, babysitter, etc.
- Be informed when kids are back from school etc.
- Keep kids away from the medicine cabinet, basement and other high-risk zones.
- Watch over children when they are out of sight.
- Care for elderly parents when needed.
- Watch for pet left alone at home.
- Connect, control and manage the premises, anywhere and anytime.
- Remain up-to-date with all new system and components software.

1.2. General Guidelines

Following are some general guidelines for the installation and day-by-day usage of the We.R™ system:

- Batteries should not be inserted into any of the system devices until a specific step in the installation process is reached.

Proper order of installing the batteries ensures that the various components of the system are integrated into the system in the correct sequence.

- The Central Control Unit (CCU) must be positioned at least 1 meter away from other We.R™ system components for proper operation.

There are two types of components:

- ◆ The Central Control Unit, and
- ◆ The peripheral devices (devices triggering alarms or set Home Automation).

The peripherals are referred to, within this guide, as **devices**.

- Keep the system components away from wet, hot or humid environments.
- Temperature ranges:

- Devices with Alkaline batteries:

- ◆ Storage Ambient Temperature range: -20°C – 50°C
- ◆ Operating Ambient Temperature range: 0°C – 50°C

- Devices with batteries:

- ◆ Storage Ambient Temperature range: -20°C – 60°C
- ◆ Operating Ambient Temperature range: -5°C – 50°C

1.3. Content of the Standard Kit Box

The following Table 1 details the content of the Kit Box.



Note: Following description of the Kit Box content refers to the standard kit. Other combinations of components included in the kit are possible too.

Product

Central Control
Unit (CCU) –
Essence
ES8000CP



Description

The We.R™ **Central Control Unit**. Sometimes referred to as **Control Panel** (CP). Manage and communicate with system peripherals and the Cloud/Servers which provide the data to the different user applications. Generates notifications and source data streaming.

It features:

- Users' remote access for control and management via Apple's iOS and Google's Android™ based smartphones/tablets and web application software.
- Optional 3G (850/900/1800/1900MHz) modem.
- Automatic APN setting.
- Streaming of data to designated devices (smartphone, PC, etc.).
- Supports large variety of peripherals and up to 32 Users (including 2 Master Users).
- Long term battery backup.

Motion Indoor
Photo Detector
(IPD) – Essence
ES800IPD



A peripheral device combining Passive Infra-Red (PIR) motion detector along with image capturing camera. Referred to as the system's **Camera**. It features:

- Security/Comfort motion detected images streaming to smartphone/web applications.
- Compress/Encrypt data with Essence's proprietary ECOP protocol.
- Relays stream to the We.R™ servers, via the Cloud for distribution to designated devices (smartphone, PC, etc.).
- Multi-zone spherical lens for wide coverage (120° horizontal, 105° vertical).
- Sealed optics, immune to light, insects, and (optional) pets, for reduced false alarms.
- Walk-through test mode.

Product		Description
Motion Detector (PIR) – Essence ES800PIR		A Passive Infra-Red (PIR) Motion Detector peripheral device. It features: ■ Sealed optics, immune to light and insects for reduction of false alarms. ■ Multi-zone spherical lens for wide detection coverage (120° horizontal, 105° vertical). ■ Walk-through test mode.
Door/Window Magnetic Sensor (MGL) – Essence ES800MGL		Compact design magnet detector peripheral device, with long range and easy to install. Referred to as Door/Window Sensor. It features: ■ Dual LED for open/close status indication. ■ Composed of a lightweight detector and a magnet.
Indoor Siren (SRN) – Essence ES800SRN		A wireless Siren peripheral device, powerful and battery-operated. It features: ■ Emits loud and powerful siren of up to 95dB with adjustable volume control. ■ Emits sound for 90 seconds upon intrusion. ■ Dual purpose as a siren and doorbell.
Remote Control Unit (RCU) – Essence ES800KF		A Bi-directional, ultra-compact, Remote Control Unit. Also referred to as Key Fob (KF). A peripheral device serving as the We.R™ system Key Fob as well as personal SOS alarm (panic) button. It features: ■ 5-button interface for setting Full, Day, Night arm/disarm. ■ Status key/LED indication of system status. ■ Remote deactivation in case of loss or theft. ■ Protection against inadvertent press.

Product	Description
LAN Cable 	Local Area Network (LAN) cable (Category 5). A twisted pair cable for carrying the wired data communication signals. This type of cable is mostly used in structured cabling for computer networks such as Ethernet. The cable is used for connecting the CCU to an Internet port via Switch, Hub, etc.).
Power Adapter 	Universal Switching Power Supply converting the mains voltage into DC power required for the CCU. The adapter include electrical cord with mini-USB™ - like connector providing the CCU with the power required for proper operation.
Square Battery Pack – Essence MCBT05001 	The 3.7V _{DC} , 1400mAh Lithium Polymer rechargeable battery is the backup power source for the CCU in case of mains power shortage.
Coin Battery 	Provides power to the Remote Control Unit (KF).

Table 1: We.R™ Box Content

The above items, along with the Shortform User Guide comprise the complete content of the box.

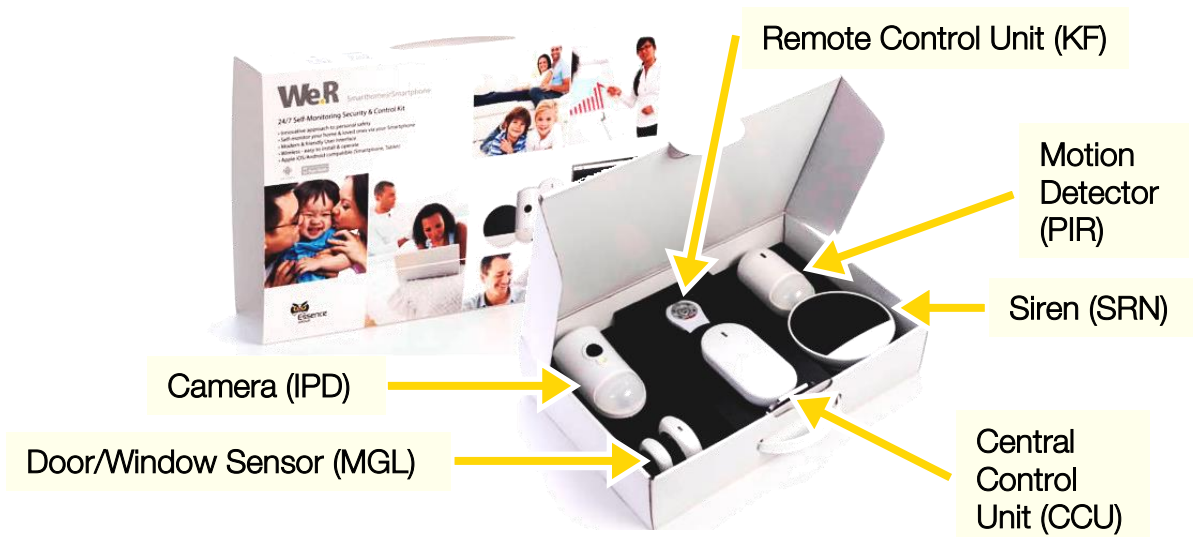


Figure 1: Components Setup in the Box



Note: The LAN cable, Power Adapter and the batteries are packed and stored under the box inner (black) separator.

Additional devices may be purchased from local distributors as required. These are described in paragraph 1.4 and Table 2 below.

1.4. Other Available Devices

The system may be expanded with accordance to the premises' structure and protection methods, by purchasing additional components (up to the system's limits detailed in paragraph 3.15 below).

Such additional components may include components from the basic kit (described in the above Table 1) or other available components, built to serve special purposes, which are described in Table 2 below:

Product	Description
Wireless Access Control Tag Reader (TR5) – Essence ES800TR5 and Tag (TAG) – ES800TAG 	The Wireless Access Control Tag Reader is an access control peripheral device. The tags are the access keys. It features: ■ An intuitive user-friendly human interface. ■ Provides command options to ARM, DISARM, partial ARM, SOS alarm and pending indoor or outdoor installation – doorbell or status functions. ■ Remote deactivation of tags in case of loss/theft (via Smartphone or web access). ■ Wall Mount – Double sided tape or Screws. ■ Uses three standard AA-size Alkaline batteries. ■ Long operation period (up to 36 months). ■ Tamper Alarm – when detached from wall.

Product

**Flood Detector
(FL) – Essence
ES800FL**

**Description**

The **Flood Detector** is a water outpouring early warning peripheral device.

It features:

- Alarm upon water leakage.
- The alarm is triggered upon water running through the detection element.
- Fastened to the wall/frame by double-sided tape or optional screws.

**Smoke Detector
(SK2) – Essence
ES800SK2**



The **Smoke Detector** is a stand-alone fire early warning peripheral device.

It features:

- Tri-color LED for visual indication.
- Emits loud alarm sound of 85dB from 3 m.
- The Smoke Detector is fully operational even if the CCU is not.
- Tamper Alarm – when detached from its base.
- Long operation life.
- Uses three (3) standard AA-size Alkaline batteries.

**Universal
Transmitter (UT) –
Essence
ES800UT**



The **Universal Device** is a peripheral device enabling legacy, hard-wired devices interface onto the We.R™ system.

It features:

- Dual LED for visual status indication.
 - Single element – a lightweight RF transmitter with 30 cm double-isolated two-conductor cable.
 - Long operation life.
 - Uses a single standard AA-size Alkaline battery.
-

Product		Description
Z-Wave® Controller (ZWD) – Essence ES800ZWD		The Z-Wave® Controller is a peripheral controller device enabling integration of Z-Wave® approved Smart Home devices (i.e. Door Lock, Light Switch/Dimmer, etc.) onto the We.R™ system. It features: ■ Single element. ■ Long operation life.

Table 2: Other Available Devices

2. System Theory

The We.R™ system transforms mobile smartphones and tablets, as well as personal computers (PC) into powerful remote control devices that help increase safety and enhance the quality of life of families. All system components communicate with the Central Control Unit and the CCU communicates with system servers via the cloud.

The system is based on a modular structure that is flexible in its expansion capabilities – additional devices may be added to the system as needed.

2.1. System Topology

The system consists of the main control component – the Central Control Unit, and sensors/detectors covering all security aspects and communication components.

It features a comprehensive and expandable sensor/detectors array that provides the flexibility to create an ideal solution for every Small Office/Home Office (SOHO). Users can add safety and security accessories, such as additional Cameras, for better protection and monitoring.



Figure 2: We.R™ Home Area Network Components

The We.R™ wireless technology is based on Essence's proprietary Enhanced Controlled Open Protocol (ECOP), a complete, end-to-end proprietary protocol used throughout the We.R™ system. See details in paragraph 2.3.1 below.

2.2. The Complete System Overview

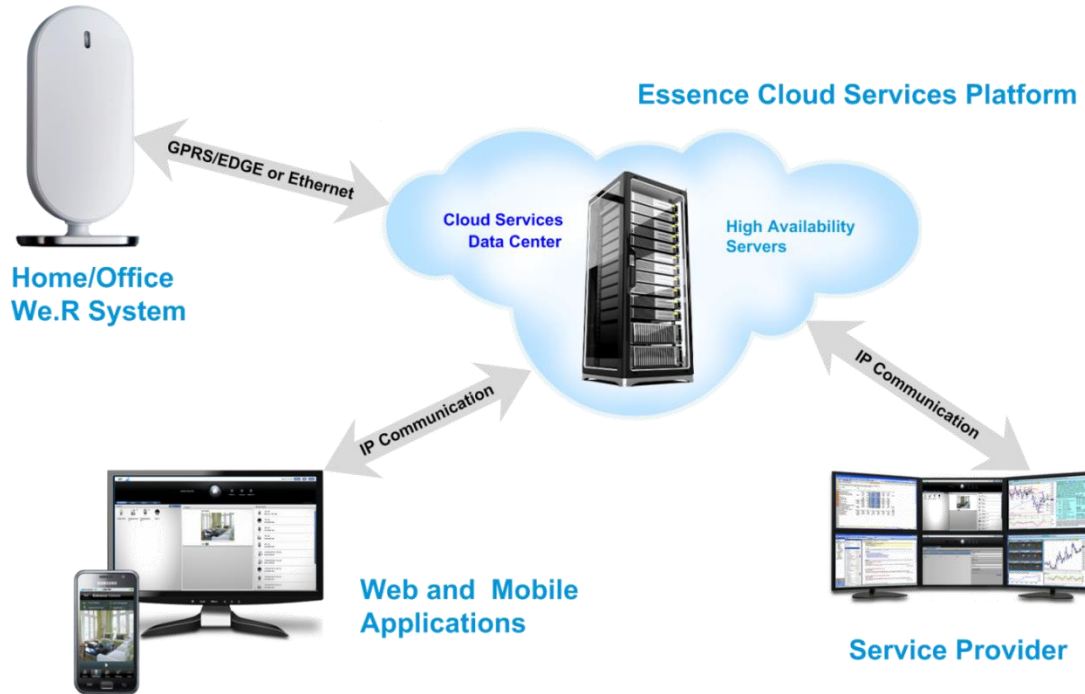


Figure 3: The We.R™ Cloud Computing Network

The installed system communicates via the cloud platform utilizing the following tools:

- User interface software applications:
 - Web software application running over the Internet and a PC, or
 - Mobile software application running over GPRS/EDGE cellular network with a smartphone.
- It may communicate with the server via Internet or via GPRS/EDGE cellular channels, and
- The Service Provider utilizes Internet for communication with the server and all of the Central Control Units.

2.3. Unique Technologies Incorporated

The We.R™ system incorporates some unique technologies and features:

2.3.1. Enhanced Controlled Open Protocol

The We.R™ products intercommunicate with the Central Control Unit (CCU) within the HAN (Home Area Network) using Essence proprietary Enhanced Controlled Open Protocol (ECOP) protocol. The We.R™ CCU serves as the gateway between the HAN and the GSM/GPRS or Internet network.

- Between home sensors and home control units (ECOP-R).
- For external networks (control unit to the world).
- ECOP-X – The XML representation of the ECOP protocol.

Several types of clients (Web Server, iPhone, Windows Mobile, etc.) parse the ECOP protocol.

The ECOP-N protocol is serialized to a standard XML and is transferred to any kind of client (a distinct ECOP-N protocol parser is not needed for each kind of client).

For details of the RF implementation of the ECOP protocol, please refer to paragraph 2.3.2. below.

2.3.2. We.R™ RF Technology

2.3.2.1. Radio Interface Information

The We.R™ system works in a star topology where the Central Control Unit acts as the coordinator, controlling all other sensors and peripherals.

License-free Band Disturbance

Data is sent over the air utilizing the We.R™ proprietary RF protocol (ECOP) in IEEE 802.15.4 standard based on the 2.4 GHz ISM band.

- Gateway (GW) uses a band pass filter for out-of-band noise suppression.
- In-band noise is compliant with EN-300-440.
- Inter-systems disturbance – each system uses a specific, 32bits, system identifier and filters non-conforming packets.

Power and Sensitivity

We.R™ systems transmit with maximum allowed power according to standard EN 300 –440 (Europe), FCC CFR47 Part 15.

Pending the device, power and sensitivity are divided into two (2) main categories:

<u>Sensitivity</u>	<u>Power</u>
-103 dBm (sensors)	14 dBm
-103 dBm (Central Control Unit)	20 dBm

Channels, Bandwidth and Polling

- Using ECOP protocol, the We.R™ system utilizes between 1 to 16 channels.
- The channel bandwidth is 5MHz.
- The We.R™ systems use Beacon-enabled network intervals, about 100ms for quick response time.
- Modulation type: QPSK, 8 chips DSSS
- Baud rate: 250KBPS

Low Energy Consumption

ECOP protocol is an externally low-power RF protocol based on 16 years of experience in battery-operated devices. For example, the system uses a mechanism that significantly reduces listening time (one of the major drains on battery life).

2.3.3. Remote Software Update

The We.R™ system and its components are being constantly upgraded with regards to the software embedded into them and with regards to their service software packages.

There is no need for any user involvement in these upgrades as these are overall procedures automatically activated by the Service Provider.

2.3.4. We.R™ Cloud Services

The servers of the We.R™ cloud services are the central applicative abstract unit designed for high availability, scalability, robustness, geo-redundancy and security.

The We.R[™] Infrastructure is designed to support millions of concurrent users over multiple client platforms (web application, mobile smartphone and tablets applications, mobile phones via SMS, and 3rd parties consumer data) on various supported protocols (HTTP, SOAP, JSON, REST, TCP).

We.R[™] Cloud Services concentrate and encapsulate the entire communication and logic, allowing users to easily install and enjoy a simplified world of seamless communication between them, their homes and their mobile/web devices.

Operators can exercise full real-time control over all system functions, overview the full picture regarding customer usage, analyze usage patterns and preferences and customize services and activation for each account.

The We.R[™] Cloud Services are based on a few fundamental building blocks, like:

- Asynchronous messaging mechanism.
- Control the devices' communication layer.
- Account management.
- Account activation/deactivation/suspension, user preferences.
- Monitoring System – Logging, Tracing, Monitoring and Audit.
- Message handling and events logic in addition to rules engine.
- Archive mechanism.
- Protocol adapters and services.
- Composition of ECOP-X protocol.
- Video services.
- Live streaming services.
- Video history analysis.
- System for remote firmware update.
- System for OTA mobile software updates cache distribution custom adaptation.
- 3rd-party application adaptations.

2.3.4.1. We.R™ Web Server

The We.R™ Web Server is the set of services within the We.R™ cloud designed to:

- Allow We.R™ security and Home Automation web application for end users.
- Allow the end user to receive full control over his home, including live and archived images on-demand.
- Allow the operator/service provider to fully control account services, view real time usage statistics and analyze usage patterns and preferences.

The applications are high-end Rich Internet Applications (RIA), scalable and designed for a smooth user experience while implementing push mechanisms for seamless client/server communication.

2.3.4.2. Information Consumption Services

The We.R™ system enables access to a special web service layer especially designed for consumer data such as mobile operators, independent central monitoring stations and other types of 3rd-party organizations that can benefit from large amounts of mobile/web data and statistics related to system usage.

2.3.4.3. We.R™ Media Services

- The We.R™ System provides real-time continuous-like images supporting monitoring and security usage.
- The system can handle on-demand requests for images.
- The system can also generate an automatic image request when the home is armed. If an alarm is triggered, the system stores the images captured by the Camera to be sent upon demand to the User.
- The system can store the media data on its servers for future access.
- Media data is archived, cached and optimized for best performance.

2.3.4.4. We.R™ SMS Services

The We.R™ system supports handsets from all major handset manufacturers, which typically use common industry protocols and APIs (HTTP, SOAP, etc.).

2.3.4.5. We.R™ Database

The We.R™ system stores all data that is passed through the system. The data is archived for future use and analysis. Stored data includes:

- Video events
- Alarms
- Event history (alarms, user activity, etc.)
- Logs of all commands and actions performed by any user

2.3.4.6. We.R™ Analysis Service

The We.R™ analysis service system is designed to provide business intelligence, data mining and analysis for the operator and other consumer data.