



Smart Home, Building, Hotel, Office Automation



eHouse PRO - Smart Home, Building Automation and Management Central Switch-Board

Automation for:

- ✓ home
- ✓ office
- ✓ school
- ✓ special objects
- ✓ building
- ✓ hotel
- ✓ sport facilities
- ✓ any other building and premises
- ✓ flat
- ✓ pension
- ✓ swimming pools

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<http://www.isys.pl/download/ehouse-pro-catalog-doc-en.pdf>



1. Main features of eHouse PRO system

- ✓ Cheapest Professional home automation system available on the market thanks to very large controller for centralized installation
- ✓ Long live applications
- ✓ Not sensitive for elements aging
- ✓ No spread electronic in electric cans through the building
- ✓ Not sensitive for external interference, disruption, noise, sabotage, malfunction comparing to wireless systems
- ✓ Low voltage controller based on Linux microcomputer together with I/O expanders contain a lot of intelligent digital outputs (up to 256) and intelligent digital inputs (up to 256)
- ✓ Integrated security system with SMS/GSM notification
- ✓ Professional Installation in Central Switch-Board with external relays modules for security, safety, trouble-free, fast service
- ✓ Multi Platform software for integration, configuration, visualization, programming libraries
- ✓ Possibility of self development, programming integration with attached programming libraries, templates, open source code.
- ✓ Contains a lot of communication interfaces under eHouse.PRO software integration: SPI, I2C, RS-232, RS-485, USB, Ethernet, WiFi, CAN, RF, HDMI, Audio-Video output (stereo)
- ✓ Integration with Apache web server and Web browsers
- ✓ HTML Request server/client support for integration with other systems/software



2. eHouse PRO Controller (LAN, WiFi) and accessories

eHouse PRO controller work directly in LAN (Local Area Network) architecture or WiFi. Controller is stand-alone, self supported, requires direct connection to Ethernet / WiFi (Switch / Router) with Ethernet RJ-45 socket.

Ehouse PRO building management system is based on ARM Linux microcomputer and for native eHouse PRO operation it utilizes local Inputs/ Outputs ports and local serial SPI, I2C interfaces for additional I/O expanders.

Ehouse PRO controller equipped with external communication interfaces, buffers and gateways for integration all eHouse versions (PRO, RS-485, CAN, RF, LAN) for **eHouse Hybrid** operation and other software/hardware integration.

eHouse.PRO server incorporates:

- ✓ Linux Based ARM microcomputer
- ✓ eHouse Hybrid interfaces and gateways (optional)
- ✓ eHouse.PRO server software
- ✓ Apache Server with installed eHouse4Apache module for web browser support



2.1. eHouse.PRO home automation system components

Ehouse.PRO building management system contains:

- ✓ eHouse.PRO Server
- ✓ 128 intelligent inputs modules with security system functions - up to 2 modules can be connected to eHouse.PRO server
- ✓ 128 intelligent outputs modules can work as single (on/off), double (+,-, stop) drives, gateways, etc) - up to 2 modules can be connected to eHouse.PRO server
- ✓ SMS/GSM module for security system notifications and control
- ✓ MP-18 relay modules for connecting electric devices do output (up to 8 for 128 outputs)
- ✓ RJ-12 sockets modules for easy connecting inputs
- ✓ Cover, box, for whole system or mounted eHouse.PRO switch-board ready to install on the building



2.2. Mounted central switch-board of eHouse.PRO (128 intelligent outputs 230V/16A and 128 intelligent inputs) - EHOUSEPROSW

Mounted and internally connected switch-board of eHouse.PRO Building Management system ready for installation in home. It contains complete accessories of eHouse.PRO:

- ✓ Metal cover of Switch-board SWBOX128 with full set of accessories
- ✓ eHouse.PRO server + software + metal cover
- ✓ Single 128 intelligent inputs expansion module eHouse.PRO (2 modules for 256 inputs - optionally)
- ✓ Single 128 intelligent outputs expansion module eHouse.PRO (2 modules for 256 outputs - optionally)
- ✓ 8 relays modules with relays and socket for easy installation 18*230V/16A - MP-18
- ✓ 8 cooper comb for short relay „COM” contract for whole MP-18 (can be cut on desired length)
- ✓ Switching power supply 230V=>12V/6A for eHouse PRO
- ✓ Switching UPS power supply 12V/6A and accumulator 12V/20Ah (Optional)
- ✓ Switching-power supply 5V/3A
- ✓ Screwed socket for connecting 230V cables
- ✓ Screwed socket for connecting low voltage cables
- ✓ Three 48*RJ-12 input modules EXT-48 for easy and fast installation of alarm sensors and inputs
- ✓ Complete set of metal shield/covers for electronic and low voltage part of installation
- ✓ Complete set of low voltage flat cables for internal connection.





2.3. eHouse.PRO server with eHouse Hybrid interfaces and gateways

eHouse.PRO system can use few number of ARM Linux microcomputers equipped with required communication interfaces. Final parameters and interfaces depends on used microcomputer board as eHouse.PRO server. Linux based microcomputers has different set of accessories, interfaces, parameters so final decision depends on hybrid installation we want create, performance and power is minor factor here.

eHouse.PRO microcomputer is extended by eHouse Hybrid module with interfaces, gateways for connecting other eHouse versions directly to eHouse.PRO server (RF, RS-485, CAN).

2.3.1 Hardware resources of eHouse.PRO Server

eHouse.PRO server functionality (with installed ehouse hybrid interfacing module):

- ✓ ARM microcomputer board - 1, 2 or 4 cores (*)
- ✓ Ethernet, WiFi, SPI, I2C, RS-232, CAN, RF, HDMI, Stereo Audio Out, IR (Infrared), USB, SATA Interfaces(*) (**)
- ✓ Security system outputs (horn, monitoring, early warning, quiet alarm, warning light) (*) (**)
- ✓ SD card with installed Linux and eHouse.PRO server software
- ✓ RS485 interface for communication to „eHouse One” system (*) (**)
- ✓ Ethernet for integration eHouse LAN system and other devices
- ✓ GSM/SMS module for SMS notification from security system and SMS control (**)
- ✓ CAN interface for direct connection eHouse CAN controllers (*) (**)
- ✓ eHouse CAN/RF gateway for integration eHouse CAN and eHouse RF systems(**)

(*) depends on Linux microcomputer board

(**) optional resources

Main functions of eHouse.PRO:

- ✓ Complete security system with SMS notification and control via Ethernet, Internet, WiFi, SMS
- ✓ Up to 256 intelligent / programmable digital outputs (on/off) with relays drivers
- ✓ Up to 128 output pairs for gates, drives, cutoff (+/-/stop) with relays drivers
- ✓ With individually configured time of movement for each drive
- ✓ Up to 256 intelligent / programmable digital inputs (on/off) for connecting
- ✓ Sensors, switches, etc.



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- ✓ Built-in Real Time Clock for eHouse controller synchronization
- ✓ Built-in multi-threaded TCP/Server for control from external applications, systems, panels, smartphones, pads
- ✓ Built-in multi-threaded TCP/Client for eHouse LAN system control
- ✓ UDP reception of eHouse LAN statuses
- ✓ eHouse One system management and integration via RS-485 replacing PC or CommManager
- ✓ eHouse CAN system management and integration via local CAN interface or eHouse CAN/RF gateway
- ✓ eHouse RF system management and integration via eHouse CAN/RF gateway
- ✓ Contains 3 groups of reporting security events via SMS
- ✓ 256 programmable security zones
- ✓ 256 programmable scenes/programs for outputs
- ✓ 5 level programmable mask of security system (for each sensor and each zone)
- ✓ 256 programmable drives/security programs (including security zone)



2.4. "eHouse" Software Package

eHouse.Pro system is also equipped with auxiliary software for many operating systems including configuration, management, control, visualization, graphical control, web browser support, integration to other systems interfaces.

2.4.1 eHouse LAN, RS-485 windows package (for eHouse Hybrid installations)

- ✓ monitoring devices state
- ✓ allows easy, intuitive, secure configuration, naming of whole eHouse system from PC
- ✓ eHouse system event editing and creating
- ✓ scheduler editing and programming
- ✓ generating images for visualization purposes
- ✓ creating eHouse system logs
- ✓ decoding IR remote controller signals
- ✓ updating new firmware and configuration to all controllers

2.4.2 eHouse.PRO binary Linux software package

eHouse.PRO assures supervision and integration of all versions of eHouse system. Currently supported Linux versions:

- ✓ RaspberryPi or other based on ARM11
- ✓ Banana PRO/PI
- ✓ x64
- ✓ x86
- ✓ Other Linux boxes may be developed depending on availability on the market

Main Functions (in reference to eHouse PRO / Hybrid):

- ✓ Web Browser integration
- ✓ Apache Web Server integration (TCP Server)
- ✓ TCP Clients for eHouse LAN / eHouse PRO connection for integration
- ✓ TCP Servers for panels connection
- ✓ UDP listener for eHouse LAN, eHouse PRO status reception
- ✓ eHouse One support for integration (via RS-485 bus)
- ✓ eHouse PRO support for integration
- ✓ eHouse CAN support for integration (via CAN bus)



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- ✓ eHouse CAN/RF support for integration (via eHouse CAN/RF gateway)
- ✓ Implements SMS hardware gateway support for SMS reception and transmission
- ✓ HTML requests client support to control other systems, applications, programs
- ✓ HTML requests server for control eHouse PRO/Hybrid system by other systems, applications, programs
- ✓ Update configuration of eHouse CAN, eHouse RF controllers
- ✓ Generate automatic visualization of each eHouse controller
- ✓ TCP server for integration to other systems
- ✓ Supports Onkyo Audio-Video systems via Ethernet
- ✓ Supports Denon, Marantz Audio-Video systems via Ethernet
- ✓ Process IR control signals received from any controllers

eHouse.PRO are under constant development and functionality may change without notice.

2.4.3 eHouse4Apache Module

Loadable Apache Web server module for increase its functionality.

- ✓ Enables integration of eHouse PRO with Apache WWW server
- ✓ transfer data between web browser and eHouse PRO
- ✓ transmit events, commands, configuration
- ✓ send statuses to web browser

2.4.4 Android (Java) - Control Panel Software since 4.0.0 (eHouse4Android)

eHouse4Android application is supported by various Android hardware devices eg.

- ✓ Pods
- ✓ Pads
- ✓ SmartPhones
- ✓ SmartTV

Main functions:

- ✓ Text control
- ✓ Voice control (Speech recognition)
- ✓ Graphical control
- ✓ Online status via TCP, UDP (Local Network)



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- ✓ Graphical visualization individually designed
- ✓ Graphical visualization automatic for each eHouse Controller
- ✓ Control via WiFi, Ethernet, LAN, Internet, SMS, eMail
- ✓ Online status via WiFi, Ethernet, LAN, Internet
- ✓ Supports eHouse 1, eHouse LAN, eHouse.PRO versions

2.4.5 Java - PC Control Panel Software (eHouse4Java)

- ✓ Linux
- ✓ Windows
- ✓ other Java enabled system

Main functions:

- ✓ Text control
- ✓ Graphical control
- ✓ Online status TCP, UDP (Local Network)
- ✓ Graphical visualization individually designed
- ✓ Automatic graphical visualization for each eHouse Controller
- ✓ Control via WiFi, Ethernet, LAN, Internet, eMail
- ✓ Online status via WiFi, Ethernet, LAN, Internet
- ✓ TCP server for connecting external panels
- ✓ TCP server for OpenRemote support
- ✓ Supports eHouse 1, eHouse LAN, eHouse.PRO versions

2.4.6 Windows Mobile 6.x+ .Net, .Net Compact Framework - Control Panel for devices (Mature – only for eHouse RS-485, LAN under eHouse Hybrid installation, only for development)

- ✓ Pods
- ✓ Pads
- ✓ SmartPhones



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Main functions:

- ✓ Text control
- ✓ Graphical control
- ✓ Online status TCP, UDP (Local Network)
- ✓ Graphical visualization individually designed
- ✓ Automatic graphical visualization for each eHouse Controller
- ✓ Control eHouse system via WiFi, Ethernet, LAN, Internet, SMS, eMail
- ✓ Online status via WiFi, Ethernet, LAN, Internet
- ✓ Supports eHouse 1, eHouse LAN versions

2.4.7 JavaScript script - for Web browser client side support

- ✓ online status reception via JSON, data update
- ✓ online text control
- ✓ online graphical control
- ✓ online graphical visualization
- ✓ sending control commands (events) to eHouse system
- ✓ supports eHouse 1, eHouse LAN, eHouse.PRO versions
- ✓ supports SVG (Scalable Vector Graphics), XML

2.4.8 CorelDraw VBA script - for creating visualizations for all control panels

- ✓ WebBrowser: HTML, SVG, XML
- ✓ Custom programmed formats (text)
- ✓ Windows XP, Vista, 7, 8 - PC, Pods, Pads
- ✓ Windows Mobile .Net, .Net Compact Framework - Pods, Pads, Smartphones
- ✓ Java - visualization and graphical control for PCs Java enabled platforms
- ✓ Android - visualization and graphical control for SmartPhones, Pods, Pads, SmartTV
- ✓ supports eHouse 1, eHouse LAN, eHouse.PRO versions
- ✓ supports templates



2.5. Programming libraries and code sources for development

For eHouse system developers and members of eHouse Alliance we offer programming libraries and scripts for most of operating systems:

- ✓ Windows XP, Vista, 7, 8, .Net (*)
- ✓ Windows Mobile 6.x,7,8 .Net Compact Framework (*)
- ✓ Linux x86, x64, ARM, RaspberryPi
- ✓ Java enabled platforms and operating systems
- ✓ Java Mobile for PDAs, Palmtops, Smartphones (*)
- ✓ Web Server (Apache) modules
- ✓ Web Browser Integration scripts
- ✓ OpenRemote.Org integration (*)
- ✓ Android

(*) - only for eHouse Hybrid (eHouse LAN, RS-485 **without CAN/RF, PRO**)

Libraries and scripts in most important programming languages:

- ✓ Delphi, Pascal (*)
- ✓ C,C++
- ✓ C#, .Net, .Net Compact Framework (*)
- ✓ Java, Java Mobile (MIDP) (*)
- ✓ Android (Java)
- ✓ VBA – Visual Basic
- ✓ PHP
- ✓ SVG, XML
- ✓ HTML
- ✓ JavaScript

Libraries are individually distributed base on license agreement and fees.

(*) - only for eHouse Hybrid (eHouse LAN, RS-485 **without CAN/RF, PRO**)



3. Documentation

Most current documentation in English are located at producer home page:

http://home-automation.isys.pl/ehouse_doc.intelligent_house_building_doc.htm

Source code examples, templates, libraries: <http://isys.pl/download/>

Do It Yourself information: <http://smart.ehouse.pro/> - **eHouse Blog**

Details DIY, Programming, Designing, Instalation, Configuration, Articles, tips & tricks:

<http://smart.ehouse.pro/category/applications/> - eHouse applications

<http://smart.ehouse.pro/category/boilerroom/> - Boiler Room & Central Heating

<http://smart.ehouse.pro/category/building-management/> - Building Management General Info

<http://smart.ehouse.pro/category/design/> - eHouse Design, solutions, demos

<http://smart.ehouse.pro/category/ehouse4can/> - eHouse4CAN – Installation, Configuration

<http://smart.ehouse.pro/category/ehouse-lan/> - eHouse Ethernet – Installation, Configuration

<http://smart.ehouse.pro/category/ehouse-rs-485/> eHouse 1 – Installation, Configuration

<http://smart.ehouse.pro/category/ehouse-pro/> - eHouse.PRO – Installation, Configuration

<http://smart.ehouse.pro/category/renewableenergy/> - free and renewable energy usage

<http://smart.ehouse.pro/category/general/> - eHouse general info

<http://smart.ehouse.pro/category/integrationcontrol/> - Integration to other systems, devices, A/V

<http://smart.ehouse.pro/category/openremote/> - Integration with OpenRemote.ORG

<http://smart.ehouse.pro/category/os/linux/> - Linux programming for eHouse - „C”

<http://smart.ehouse.pro/category/os/windows/> - Windows programming

<http://smart.ehouse.pro/category/programming/android/> - Mobile Devices PADs, SmartPhone, SmartTV, Android programming , screenshots for eHouse

<http://smart.ehouse.pro/category/programming/apache/> - Apache integration to eHouse.PRO server

<http://smart.ehouse.pro/category/programming/csharp/> - C#, .Net, .Net CF programming

<http://smart.ehouse.pro/category/programming/c/> - C programming for Linux

<http://smart.ehouse.pro/category/programming/delphi/> - Delphi, Pascal programming for Windows

<http://smart.ehouse.pro/category/programming/java/> - Multiplatform Java programming,



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screenshoots

<http://smart.ehouse.pro/category/programming/windows-phone/> - Windows Mobile, Phone programming

<http://smart.ehouse.pro/category/programming/www/> - Web browser support for eHouse

<http://smart.ehouse.pro/category/visualization/> - Creating individual visualization and graphical control views



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4. Contact and Cooperation

iSys – Intelligent Systems

Wygoda 14, 05-480 Karczew

Poland

tel: +48504057165

email: is@isys.pl

GPS: (N:52 st 2min 44.3s; E:21st 15min 49.19s)

[Map](#)

Producer, manufacturer, developer home page in English:

<http://home-automation.isys.pl/> - Producer homepage

<http://smart.ehouse.pro/> - Do It Yourself, designing, development, examples, applications

<http://eHouse.Biz/> - eHouse smart home producer online shop

http://www.isys.pl/?home_automation - Other Languages (for information only not for reference)

Serwisy eHouse w języku polskim:

<http://inteligentny-dom.ehouse.pro/> Zrób to sam, programowanie, przykłady, projektowanie, zastosowania

<http://www.isys.pl/> - strona WWW producenta

<http://ehouse.net.pl/> - sklep internetowy producenta inteligentnego domu eHouse

<http://www.ehouse.pro/> - Automatyka domu, budynku, hoteli, pensjonatów

<http://sterowanie.biz/> - Sterowanie domem, budynkiem, mieszkaniem