



Smart Home, Building, Hotel, Office Automation



eHouse PRO - Smart Home, Building Automation and Management for central Switch-Boards Catalog

Automation for:

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

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1.Introduction.

eHouse is complex solution of home automation from iSys.PL, developed since 2000. eHouse currently exists in several versions (eHouse LAN, RS-485, RF, CAN, PRO).

- Ehouse LAN, RS-485 - based on RoomManager architecture for mini switch-board in the room
- eHouse CAN/RF (wired/wireless)– for electric cans/sockets installation
- eHouse PRO for centralized installation in main switch-board

eHouse PRO building management system is designed for main switch-board (centralized installation) works directly in Local Area Network or WiFi.

Ehouse.PRO is connected to Ethernet Switch or WiFi Router.

Architecture is suitable for control whole building or single storey from single controller due to very large hardware resources (up to 256 intelligent inputs, up to 256 intelligent outputs).

Each segment can be located in professional central (main) switch-board for 230V mains installation for whole building or for each floor.

Segments are integrated each other by eHouse.PRO server software and control protocols for sending events, controllers statuses, etc.

eHouse.PRO can also integrate all versions of eHouse (LAN, RS-485,CAN, RF, PRO) creating any hybrid or combination installation - “**eHouse Hybrid**”. eHouse Hybrid gives possibility to create any advanced installation depending on communication interface (wired, wireless), installation type (room switch-board, electric socket cans, central switch-board).

1.1. eHouse system applications

eHouse system was designed for interfacing software applications and all sort of electric and electronic devices. Main application of eHouse are:

- ✓ Home Automation
- ✓ Smart Home
- ✓ Building / Facility Management
- ✓ Office Automation
- ✓ Access Control & Limitation



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- ✓ Security Systems
- ✓ Safety Systems
- ✓ Hotel automation
- ✓ Measurement systems
- ✓ Electronic Houses
- ✓ Low voltage house installations
- ✓ Control systems
- ✓ Visualization and graphical control
- ✓ Systems integration



1.2. 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. 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).

2.2.1 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 (**)



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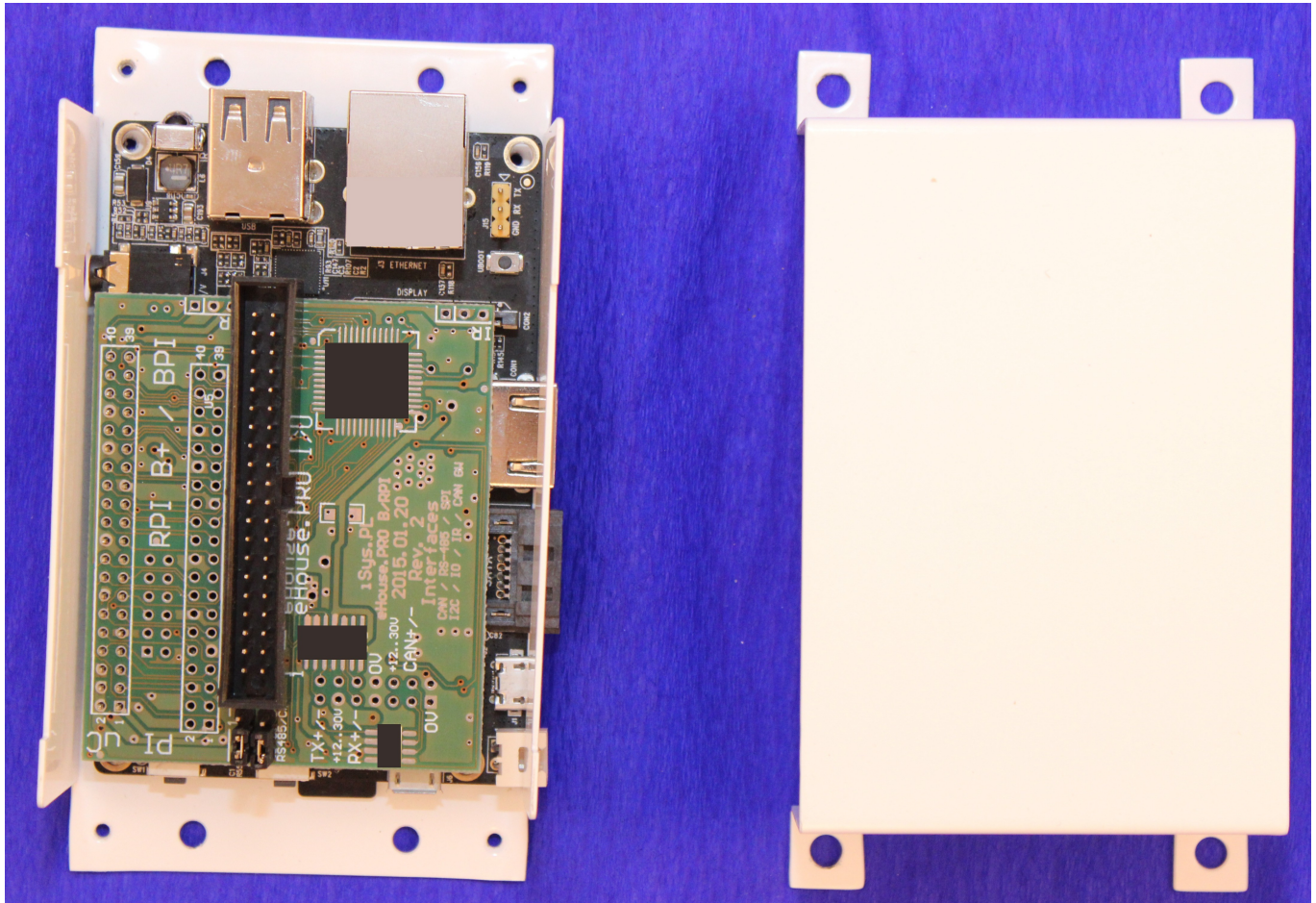
- CAN interface for direct connection eHouse CAN controllers (*) (**)
- eHouse CAN/RF gateway for integration eHouse CAN and eHouse RF systems(**)

(*) 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.
- ✓ 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)



Picture for information only Not for Reference may be changed during production and development.

Pictures are not in 1:1 scale.

Dimensions: 100*70*30mm without cover / 120*70*40mm with cover and may be changed during production and development

- ✓ Modules may be RoHS or not on demand
- ✓ Installable Product RoHS not required for CE
- ✓ Complying with CE norms for (EMI)

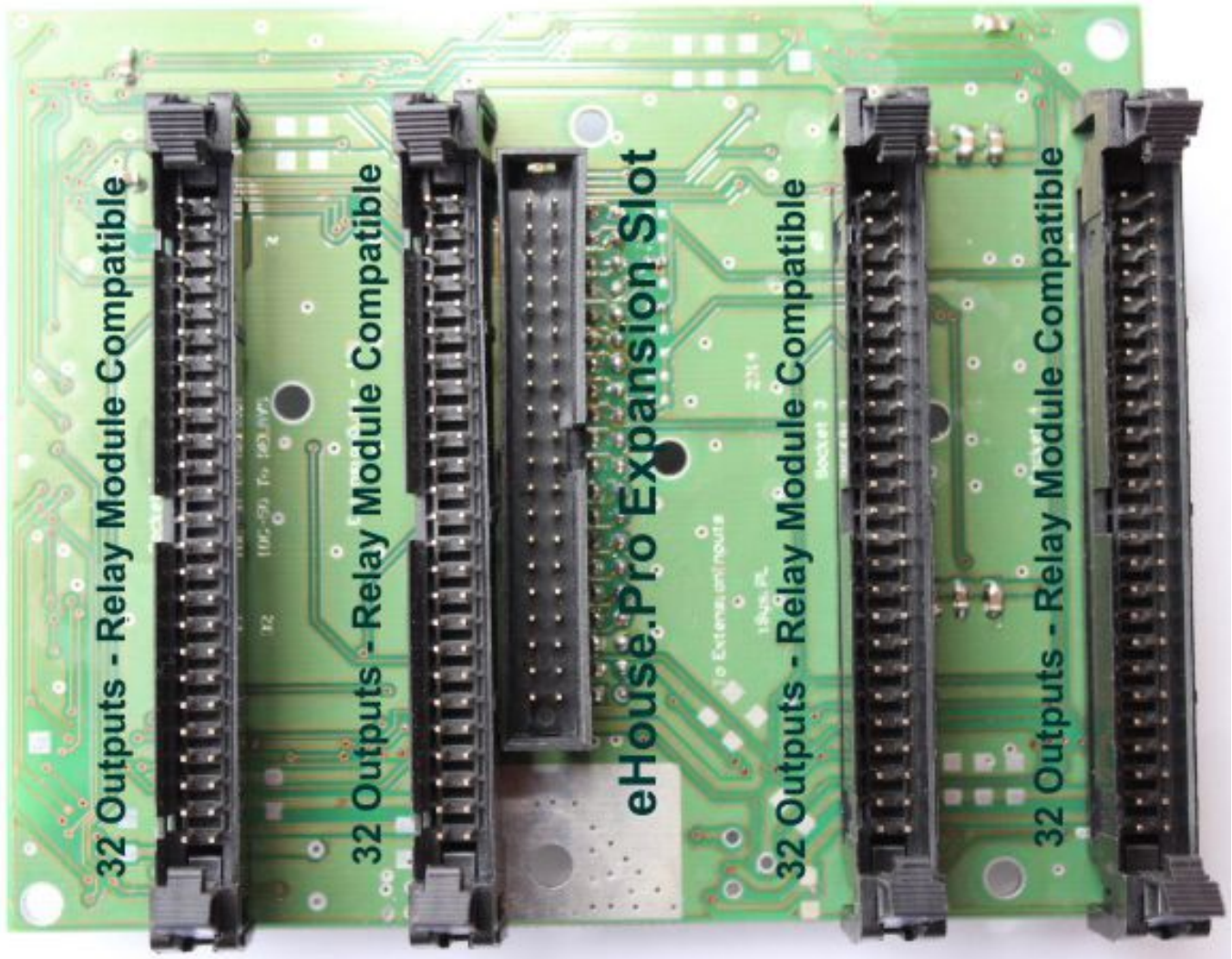


2.3. 128 intelligent outputs expansion board for eHouse.PRO PRO128OUT

128 intelligent outputs module for eHouse.PRO is used for expansion number of outputs.

Main features:

- ✓ 128 intelligent outputs - work as single outputs (on/off), pairs of outputs for drives, gateways, cutoff, regulation (+/-/stop)
- ✓ up to 2 modules can be connected to eHouse.PRO server - 256 outputs supported
- ✓ 4 IDC-50 Male sockets for MP-18 relay modules connection (8 pcs for 128 outputs)
- ✓ 2 expansion sockets of eHouse.PRO expansion modules - IDC-40 Male



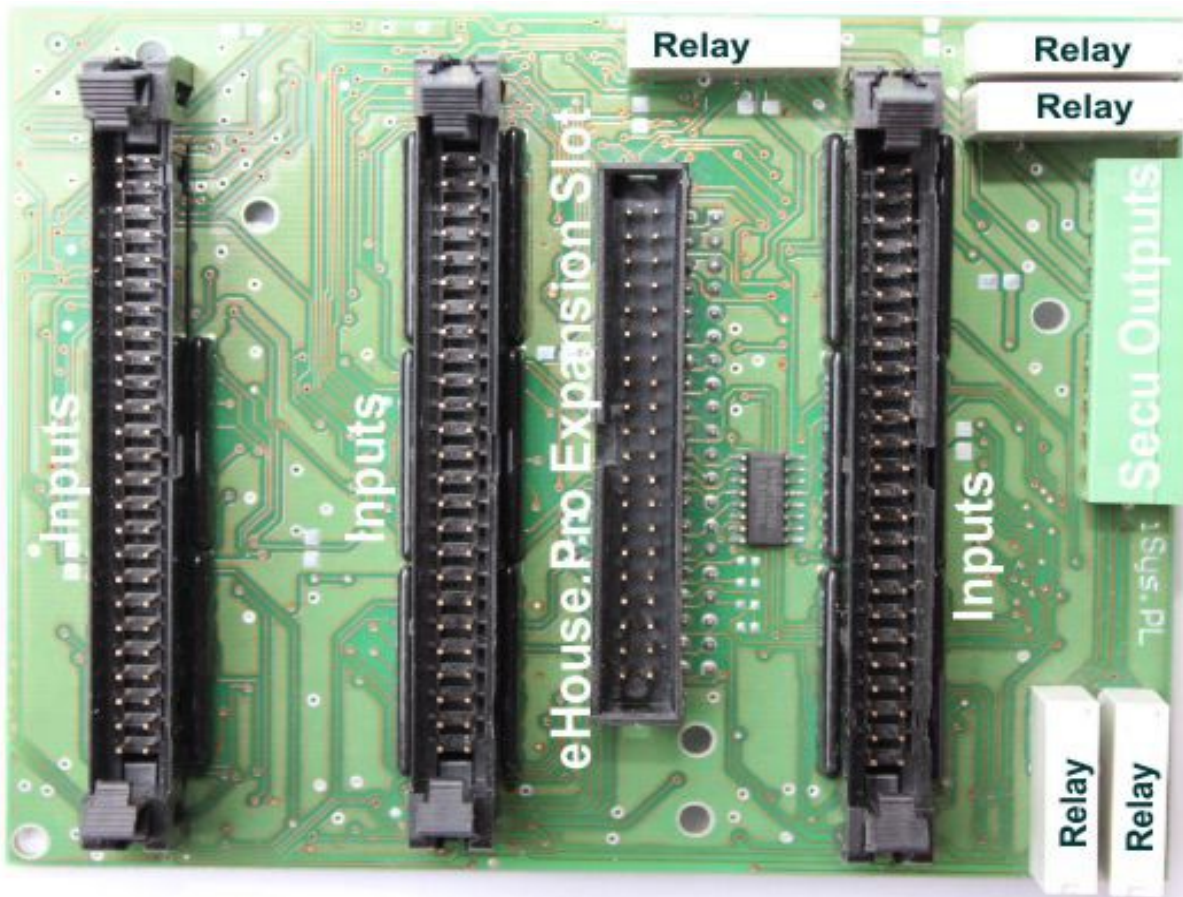


2.4. 128 intelligent inputs expansion board for eHouse.PRO PRO128IN

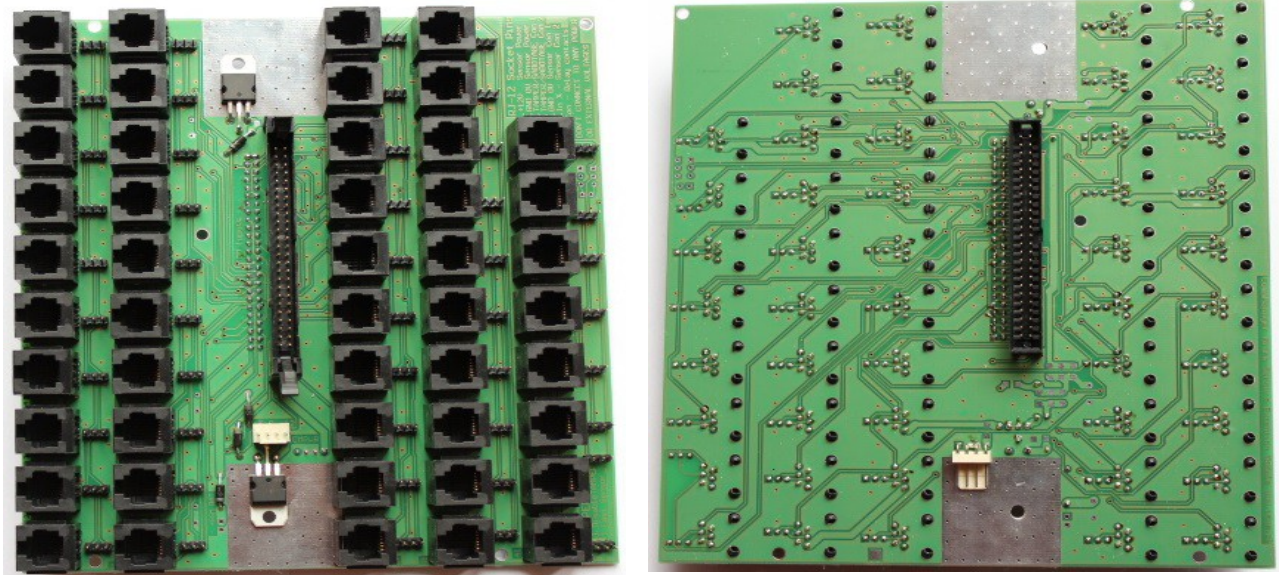
128 Intelligent inputs board for eHouse.PRO is used for increase number of inputs of eHouse.PRO server.

Main features:

- ✓ 128 intelligent inputs with security systems functionality
- ✓ up to 2 modules can be connected to eHouse.PRO server – 256 inputs supported
- ✓ relay contact outputs for security system (horn, warning light, early warning, quiet alarm, monitoring)
- ✓ socket for connecting alarm outputs
- ✓ 3 sockets IDC-50 Male for connecting RJ-12 (EXP-48) module for alarm sensors/inputs
- ✓ 2 expansion socket of eHouse.PRO expansion modules - IDC-40 Male



2.5. Input Expander (48) for CM for professional installation - EXP-48

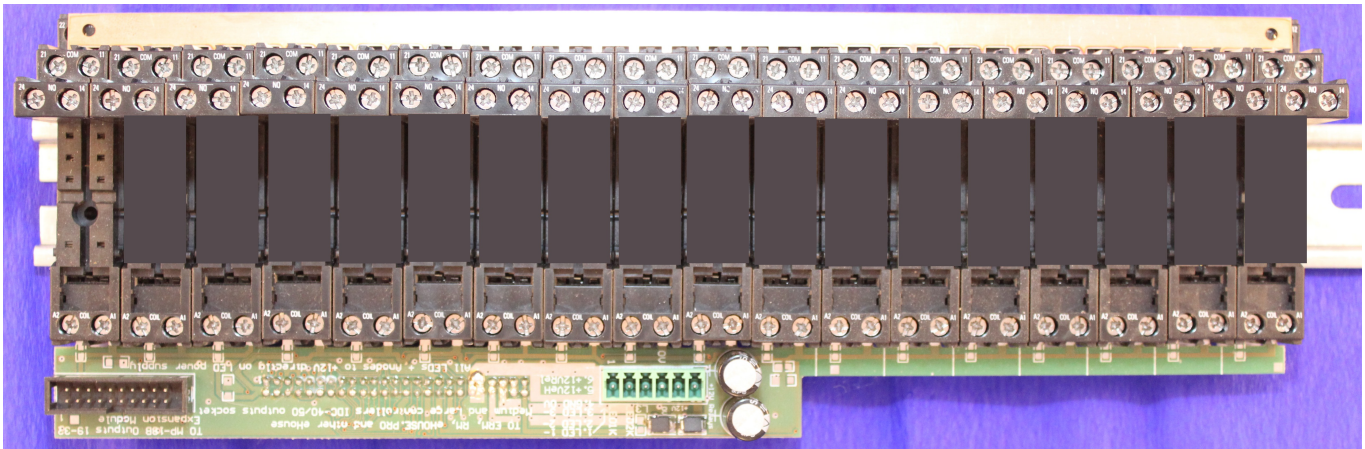


- ✓ 48 * RJ-12 telephone socket for connection of security sensors (inputs switch-board) for eHouse.PRO expansion inputs and CM
- ✓ Power supply for GSM/SMS module (only for CM)
- ✓ Tamper options set by jumpers
- ✓ Fast and professional Installation, Deinstallation, Service, Maintenance



2.6. DIN Relay Module 18 for professional installation (MP-18)

- ✓ 18 relays with DIN Sockets
- ✓ Implement complete low voltage connection to eHouse controllers (Relay coils + Power Supply) - IDC-50 Male socket
- ✓ IDC-20 Male sockets for expansion modules (second MP-18 or MP-12)
- ✓ 2 modules can be connected (up to 36 relays)
- ✓ Cooper Common rail for relay contacts "COM"
- ✓ Fast and professional low voltage and 230V installation without additional wires in switch-board
- ✓ up to 8 MP-18 modules (4*36 relays) can be connected to 128 intelligent output expansion board eHouse.PRO PRO128OUT
- ✓ Fast professional, secure, safe low voltage installation in central/mini/midi switch-board
- ✓ no risk of: breakthrough 230V to electronic, fire, electric shock, damage whole system and connected devices
- ✓ 6 pin socket for connecting power supply





2.7. Central switch-board box for eHouse.PRO (128 outputs 230V/16A and 128 inputs) – SWBOX128



Metal Box dimension 1067x150x907mm with front frame / 1000*150*840mm without front frame.

Functionality and equipment:

✓ 4 * DIN/TH rails (for 45 modules) for installation MP-18 relay modules and other



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accessories

- ✓ 8 bars (8*18) for installation (shorten) neutral and safety 230V cables
- ✓ Removable front frame for installation, plastering and painting building
- ✓ Left / right doors with 2 locks with keys
- ✓ Threaded wholes for installation eHouse LED 12V/8A power supply
- ✓ Threaded wholes for installation eHouse.PRO controller, 2*Inputs and 2*outputs expanders of eHouse.PRO
- ✓ Metal covers/shield of electronic and low voltage part of installation
- ✓ Threaded wholes for installation for external 230V and low voltage cables
- ✓ Shelf for Accumulator for UPS backup
- ✓ Maskable wholes for entrance 230V cables and alarm sensors cables into the switch-board



2.8. 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.





2.9. "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

2.9.1 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



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2.9.2 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)
- ✓ 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

2.9.3 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



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2.9.4 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)
- ✓ 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



2.9.5 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



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2.9.6 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

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



2.9.7 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



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2.9.8 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



2.10. 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. Appendix

3.1. Management of eHouse PRO/Hybrid system

eHouse.Pro Home Automation System can be managed and controlled from:

- ✓ Web Browser WWW
- ✓ PC Computer, Pads, Pods, Touch screen panels - eHouse software package (Windows XP, Vista, 7, 8, Linux, Java)
- ✓ Practically Any Mobile phone, PDA, Smart Phone, Touch Phone, Pod, Pad, Smart TV thanks to software package: Android 4+ (Java), Windows Mobile 6.x+ (*), Java Mobile MIDP (*) - No dedicated panels necessary
- ✓ IR Remote Controller - supported SONY standard protocol (SIRC) (using common SONY remote controller, universal, smart IR panel eg. Logitech, Philips, etc) (for eHouse Hybrid with any eHouse LAN, RS-485, CAN/RF controllers)
- ✓ Advanced scheduler, calendar (for eHouse Hybrid LAN/RF-485)
- ✓ Common electric switches
- ✓ Touch sensors

(*) **Mature solutions available for vendors for development**

3.2. Systems and devices controlled by eHouse PRO, Hybrid

eHouse system can control and integrate a lot of external devices and systems:

- ✓ internal and external lights (any voltage AC / DC, LEDs, RGB, PWM dimmers for 12VDC lights)
- ✓ temperature measurement, regulation, management in rooms (eHouse Hybrid together with eHouse LAN, RS-485, CAN/RF installation)
- ✓ individual, central, floor, convector or ventilation heating (eHouse Hybrid together with eHouse LAN, RS-485, CAN/RF installation)
- ✓ pumps, motors, ventilators, executive devices, cut-off
- ✓ any electric and electronic devices (on / off)
- ✓ HiFi, Audio, Video systems via IR remote controller signal learn and send (eHouse Hybrid together with eHouse LAN, RS-485, CAN/RF installation)
- ✓ VideoLAN application from IR remote controller and eHouse system (eHouse

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Hybrid together with eHouse LAN, RS-485, CAN/RF installation)

- ✓ rollers, shade awnings, gates, gateways, drives, servo-motors
- ✓ integrated security system with SMS notification and control managed outside controlled zone
- ✓ Control external Devices, Systems, Applications, Programs by HTML Requests
- ✓ Control eHouse PRO from other systems by HTML Requests
- ✓ Control Onkyo A/V systems by TCP/IP equipped in Ethernet / WiFi



3.3. Screenshots

http://home-automation.isys.pl/all.eHouse_smart_home_visualization_galery.htm

http://www.isys.pl/all.inteligenty_dom_budynek_galeria_software.htm

3.4. Comparison table of eHouse Versions

Many eHouse versions (RS-485, LAN, CAN/RF, PRO) enables individual selection depending on preference, budget, architecture, amount of controlled points and many aspects to achieve most accurate home automation system to user needs. All versions are integrated by eHouse.PRO server (eHouse Hybrid) so it can be any combination of hybrid instalation and works under the same eHouse Control Panel software applications on different operation systems taking advantage of any system benefits.



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Item / Architecture	PRO	RS485 supervision PC / CM	LAN	CAN (EC)
Main Interface	Ethernet 100/10	RS-485 full duplex	Ethernet (10Mb)	CAN (Controller Area Network)
Interface Speed	100Mb/1Gb	115.200kb	10Mb	100kb
Maximal Range Total	20m to Ethernet Switch	1200m segment, serially + terminators (theoretical)	20m to Ethernet switch	500m segment, serially + terminators (theoretical)
Maximal range star topology	20m	200m must be tested individually, 1 terminator	20m	100m must be tested individually, 1 terminator
Cable Type	UTP-8	UTP-8	UTP-8	UTP-8, AWT-6
Expandable segments	No need 4	+ unlimited (Hardware) / -	No need	+ unlimited (Hardware)
Controllers per segments	1	250 / 250	250	125
Total controllers in system	4	125 supported by apps ~65000 / 30	250 supported by apps / ~65000 theoretical	125 supported by apps / ~10000 theoretical
RoomManager	-	+	+	-
Rollers / Gates Control	128(256)	EM (13) / CM (40)	CM (40)	EC (2)
Rollers Programs	256	24 / 24	24	-
Max Rollers Controllers	1	1*EM / 1*CM	4*CM	125*EC
HeatManager	-	+	- / HM via CM	-
Stand-alone Security System	+	- / + CM	CommManager (CM)	- / Software eH4cServer implementation
Alarm Sensors Count	128/(256)	- / CM (48)	CM (48)	EC (4)
Max Alarm Sensors Controllers	1	- / 1 * CM	4 * CM	125 * EC
Security Zones	256	- / CM (21)	CM (21)	Individual Settings
Alarm Horn Output	Hardware	- / Hardware CM	Hardware CM	Software + Firmware Event
Alarm Warning Output	Hardware	- / Hardware CM	Hardware CM	Software + Event
Early Warning Output	Hardware	- / Hardware CM	Hardware CM	Software + Event



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Item / Architecture	PRO	RS485 supervision PC / CM	LAN	CAN (EC)
Monitoring Output	Hardware	- / Hardware CM	Hardware CM	Software + Event
Silent Alarm	Hardware	-	-	-
GSM/SMS	Hardware	SmsGateway.exe / CM (Hardware)	CM (Hardware)	eH4C + Hardware SMSGate
Email control	-	EmailGate.exe / -	-	-
Ftp control	-	FtpGate.exe / -	-	-
BlueTooth	-	BlueGate.exe + RM BlueTooth Module	-	-
Mifare card reader - (attendance)	-	Optional RM expansion module	-	-
Access Control	-	RM + Mifare RFID	External RFID + Software	External RFID + Software
Function Limitation	-	RM + Mifare RFID	-	-
Digital Inputs	128/(256)	RM (12), EM (12)	ERM (12), CM/LM (48)	EC (4)
Inputs support touch sensors / switches	-	-	-	+
Inverted inputs support	+	-	+	+
Authorization to system	Challenge-response, XORed password, plain password, none, Apache security	Not required	Challenge-response, XORed password, plain password, none	Based on Apache web server security
Supervising Host	Not Required	Required PC, CM, computer board, uC	Not Required	Not Required
Communication gateway to LAN	Not Required	Required PC (RS232<=>485) + eHouse.exe/eH4C, computer board, uC / CM not required	Not Required	Required (RS232<=>CAN) + linux Box + eH4C
Windows XP, Vista, 7, 8 app Manage&Control (M), Config (C), Visualization (V), Status (S), Graphical Visualization(G)	-MCVSG	+M +C +V +S +G	+M +C +V +S +G	+M +C +V +S -G only via WB



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Item / Architecture	PRO	RS485 supervision PC / CM	LAN	CAN (EC)
Linux	+MCVSG (eH4c)	+MVSG -C (Java) +MVSG -C (eH4c + WB)	+MVSG -C (Java) +MVSG -C (eH4c + WB)	+MVS -CG (eH4c + WB) via WB only
Web Browser	+MCVSG	+MVSG -C (eH4c + WB)	+MVSG -C (eH4c + WB)	+MVSC -G (eH4c + WB)
Java Enabled Systems	+MVSG -C	+MVSG -C	+MVSG -C	-
Windows Mobile	-	+MVSG -C (.Net, .Net CF)	+MVSG -C (.Net, .Net CF)	+MVSC -G via WB only
Android	+MVSG -C (Java App)	+MVSG -C (Java App)	+MVSG -C (Java App)	+MVSC -G via WB only
Communication gateway to the Internet	not required	Required PC (RS232<=>485) + eHouse.exe, computer board, uC / for CM not required	Control not required / status of all controllers required LinuxBox + eH4C	Required (RS232<=>CAN) + linux Box + eH4C
Analog/Measurement Inputs ADC	-	RM (8), HM (16)	ERM (8)	EC (2)
ADC measurement Range	-	<0..5V>	<0..3.3V>	<0..5> or <0..3.3V>
Digital Outputs	128/(256)	RM (24)	ERM (24)	EC (4)
Single PWM dimmers	-	RM, EM, HM (3)	ERM (3)	EC (4)
RGB dimmers	-	RM (1)	ERM (1)	EC (1) + White
Build-In Power PWM MOSFET Dimmers Drivers	-	- , +	- , +	+
Power supply@ average current	5V/2A	7-12V@0.2A+Relays	6..12V/0.3A+Relays	7V..25V/0.21A..0.07A
Power supply type	Linear/Switch	Linear (Lin)	Lin/SW (Switch)/ Lin + SW	Lin / SW / SW + Lin
Relays	External	External (5V..12V) – DIN 230V/16A - single	External (5V..12V) – DIN 230V/16A - single	4 - Build-In (5V) 230V/5A or 2 - External Module (5V) 230V/20A
Output + Dimmers Programs	256	24	24	-
ADC Programs	-	together with outputs programs	12	-



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Item / Architecture	PRO	RS485 supervision PC / CM	LAN	CAN (EC)
Scheduler	5000	248	128	-
RTC - synchronization	SNTP	Firmware - main host	Firmware - SNTP	Firmware - eH4c
Additional Interfaces	RS232,RS-485 (eHouse1), USB	RS232,SPI, I2C	RS232,SPI, I2C	RS232, SPI
Infrared Transmitter (IR)	-	+ 23 IR standards	+ 23 IR standards	+ 23 IR standards
Infrared Receiver (IR)	-	+ Sony SIRC standard 12,15,24b	+ Sony SIRC standard 12,15,24b	+ Sony SIRC standard 12,15,24b



4. Documentation / Do It Yourself – English Version

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



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

<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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5. 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

6. Notes:



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