



# HOME INTELLIGENCE

*FIBARO – innovation, intelligence and comfort  
in your house*

*innovation*



Configuration interface FIBARO HC2



FIBARO interface for mobile phones



FIBARO interface for iPad

## WELCOME TO THE WORLD OF FIBARO

Currently, the FIBARO System is the best building automation solution available on the world market. The purpose of this presentation is to give at least a brief overview of the possibilities it offers. The number of solutions and practical applications of the FIBARO System is so vast that no instruction manual or book could present them all. With the FIBARO System the sky is the

limit. The remaining sections of this presentation outline the most important premises behind the FIBARO System and give you an idea of what you can expect upon installing it in your house or apartment. The FIBARO System is a totally new approach to intelligent building automation solutions. The FIBARO System is more than just an intelligent electrical system. It is a trusted host,

your personal manager who will take care of you and your family. Not only will the FIBARO System ensure your comfort, but it will also change your life – try it and things will never be the same again.

# FIBARO System

## How was the FIBARO System created?

Necessity is the mother of invention – the idea of developing the FIBARO System was inspired by a futile search for an intelligent house management system undertaken by one of the Fibar Group founders. None of the offers available on the market met all his needs and requirements. Thus, an idea was born to develop our own system, which would allow control over and synergic operation of all the electrical devices in a facility AND MORE.... Before any work on the



system began, the Fibar Group had been testing all the technologies available on the world's market for several months. Each technology was dissected, tested in detail and examined with respect to failure frequency and the possibility of integration and future development. We were also interested in whether a given technology could be integrated with the systems found in our prospective Customers' facilities. We rejected over 80 solutions which required even a minimum adjustment to home electrical systems. We were left with several reasonably priced technologies, whose owners offered professional cooperation and reliable technical support. Out of these several technologies we selected one. Today, it is an unmatched technology, stable, continuously improved upon and developed, tested by several independent companies.



It can be easily integrated with peripheral devices and, most importantly, it is very safe. Unfortunately, it is not cheap. However, the goals developed by the Fibar Group helped to change it. Even though the technical solution itself is not cheap, the price thresholds of the final products are to be maintained at such a level so as to make the FIBARO System the cheapest solution on the market. We have committed ourselves to a very difficult goal, since our competitors offer solutions based on a technology which is 10 times cheaper, while the FIBARO System is supposed to be offered at a similar or even lower price...



inspirations

# FIBARO System

## The basic goals

The System has to be flexible and, as has been mentioned, allow non-invasive installation in our Customers' homes. No arterial cables, no extensive switching stations, no complex training programs for installers, only a simple and fast installation process, which can be completed by any licensed electrician. Z-Wave technology, which soon will become as popular as Wi-Fi, is the only technology of this kind available on the market. The Fibar Group was granted

a license to use this technology in 2010. The strategy for building our devices was developed in cooperation with many experts in the fields of electronics, electrical engineering, robotics and automation. Our system's intelligence and autonomous decision-making rely on a paradoxically simple model, based on a very complex neuron network. They resemble the intelligence and autonomy of a 2-year-old child, however, the FIBARO System's learning process has been

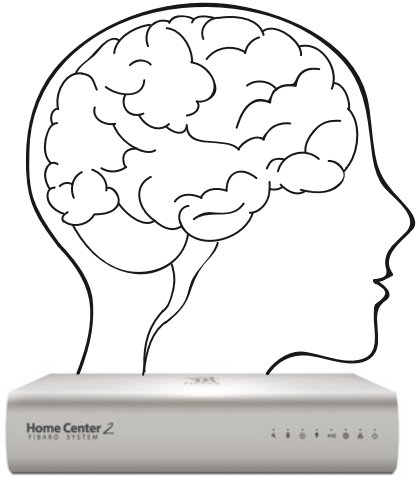
shortened from 2 years to several dozen minutes. The FIBARO System takes commands and accepts solutions immediately, and saves them in its memory forever. You don't need to repeat or refresh them. It is ready and eager to work at any time and immediately follows any familiar instructions. Just like in humans, 3 elements are required for the intelligence or autonomy features to work.



# FIBARO System

①

Processing, memorizing,  
decision making element



The Home Center 2  
FIBARO System main controller

With these elements we are able to control 95%  
of a building's devices.

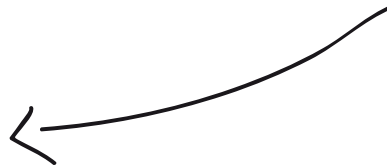


Wall Plug

remotely controlled outlet adapter  
with power metering feature



Executive element  
(eg: arm, leg, speech)



Senses  
(eg smell, sight, touch, hearing, etc.)



Sensors  
(eg motion, temperature, humidity, smoke, CO<sub>2</sub>, flood,  
door / window opening sensor ...)

②



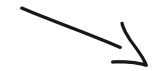
Dimmer

a device used to vary the  
brightness of a light



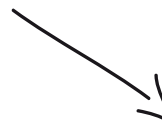
Roller Shutter

a device used to control roller  
blinds, awnings, etc.



Relay Switch

relay switch, able to control  
2 independent circuits



RGBW Controller

a device used to control  
LED lighting

③

# FIBARO System



## Real intelligence

Our main goal was to create a real, intelligent building automation system. In order to achieve it, we had to predict countless possible scenarios, to make the FIBARO System respond to various situations in an appropriate way, without any guidance from us. For example, to make it activate the sprinkler system more frequently during drought or to turn it off when you are letting your guests into your property, so as not to get

them wet. When strong wind makes it impossible for the sprinklers to water a certain part of the garden, a pump will sequentially increase water pressure in the appropriate section. When your car's engine is running for an extended period in a closed garage and the CO concentration is dangerously high, not only will the system activate the alarm but it will also warn the members of the household, activate the ventilation

system and, at a critical stage, open the garage door. The above and similar problems were analyzed by a team of analysts, whose sole responsibility was to predict situations of this kind. Thanks to the use of wireless Z-Wave technology, the FIBARO System is compatible with motion, temperature, humidity, smoke, CO, flooding, and door-opening detectors.





Currently, 250 companies worldwide have access to Z-Wave technology. Before appearing on the market, each device has to undergo a rigorous and complex trial conducted by the technology owner. Subsequently, it is awarded a certificate of compatibility. This way we can be sure that

a device manufactured by company X is compatible with a device manufactured by company Y. For this reason Z-Wave technology is developing at an incredible pace. By doing so, we have eliminated a problem which occurs when one, the so-called universal operating system, is installed

on all computers, which frequently causes problems and leads to consumer dissatisfaction. Moreover, the Fibar Group has entered into a cooperation agreement concerning selected devices, thanks to which we are offered products at lower prices and receive full technical support.

## Simple and fast installation

Our intention was to make the installation of the FIBARO System simple. Our designers and electronics engineers always kept this goal in mind. We found it obvious that a solution which would require a complex, kilometer-long electrical system to work, would make implementing this concept impossible. We had to come up with a non-invasive way of integrating actuators and sensors with the infrastructure already existing in our Customers' houses, thus saving them the trouble of damaging walls, modifying switching stations, exchanging switches, etc. It was a very difficult goal to achieve.

How to install the system without introducing any modifications in our customers' houses? How to install the device responsible for switching the lights on and off without changing anything? Yet another problem which our constructors had to face was controlling high-power devices, such as a 2.5 kW electric heater. For this reason we needed components capable of bearing heavy electrical loads.

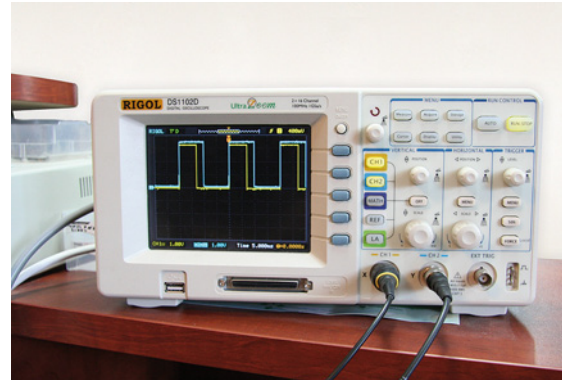
*All this makes non-invasive  
installation impossible,  
but not for the  
Fibar Group team*



# FIBARO System



Many of our electronics engineers lost sleep over such ambitious goals. After several weeks of analysis we came to the conclusion that the only reasonable solution which would not affect the already existing building systems and would not require our Clients to make any modifications or

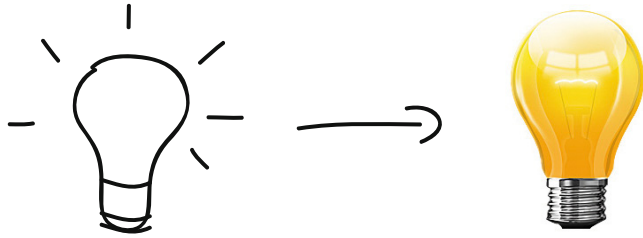


change their habits, was to install output modules behind keys (switches), in the wall switch boxes which already exist in their houses. With this solution, connecting building automation system components is very simple. However, the difficulty lies in the fact that there is very little



room in a wall switch box. When designing our modules, our goal was to make them fit into the most shallow wall switch boxes. We can't expect our Customers to exchange them, as it would contradict our primary goal – no modifications in our Customers' homes.

# FIBARO System



## Designing explained

While we managed to develop the prototypes of our devices rather fast and without any failures, their size was a problem. Miniaturization of the actuator modules was the most time-consuming process. All the electronic elements were arranged on multilayer PCB plates with surgical precision. The tiniest deviation immediately resulted

in interference and electronic noise, which caused device instability. To separate high voltage from low voltage we had to use additional filters, which took up more space. To ensure maximum safety, we installed an additional single fuse, which takes up little over 0.5 cm<sup>2</sup> of space.



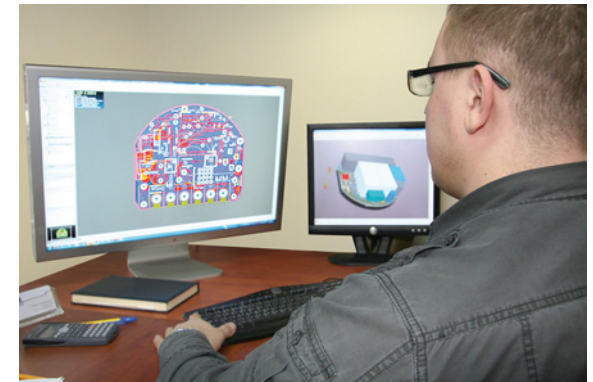
*After several months of work we finally managed to bring our devices to perfection.*

Each FIBARO module is only :

**42,5mm long, 37mm wide and 15,9mm high**

They can be fitted into any wall switch box.

Currently, they are the **WORLD'S SMALLEST** devices of this type.



*Dimmer*

The dimmer is a device used to vary the brightness of a light. It allows you to control an additional circuit and to connect two switch keys to it. With the dimmer you can control yet another device in the network. It also has the On/Off Switch function.



*Roller Shutter*

The controller is a device used to control roller blinds, awnings, etc. It is the only device of this type on the market which knows the exact position of a roller blind or an awning, without any additional sensors.



*Relay Switch*

It can serve 2 independent circuits. It can control voltage other than the one it is powered with. It can work with two circuits with a maximum load capacity of 1.5 kW each\* or with one 3 kW circuit\*\*. (\*the FGS-221 model, the FGS-211 model\*\*).



*RGBW Controller*

Advanced wireless 4-colour LED strips controller. Apart from traditional RGB channels it, also supports the additional white light channel, which allows for adding pastel colours to the colour scheme. The device may control up to four analogue sensors.



*Non-invasiveness*

## What is a non-invasive installation?

In order to answer the foregoing question you need to be aware of the diversity of the past and present technologies used in the construction sector. It is almost impossible to adjust a system to all the available solutions and offer a fully universal and professional product. For this reason, other companies in the building automation and intelligent houses sector offer services and products which interfere with the building's infrastructure by making it necessary to run meters or kilometers of additional cables and forcing Customers to make (sometimes rash) decisions, limiting their decision-making comfort or reducing the selection of wall buttons,

controllers, or control options, not to mention the very limited possibilities which such systems offer. As a result, they make your life a living hell by enslaving you to a pseudo-intelligent system, or simply offer you the possibility of remote control. 95% of people have hardly any idea of the potential that building automation systems offer. Blindly trusting an advisor or installer from company X or Y, they make decisions which they often regret in the future. Most systems limit you in a number of ways, forcing you to install special infrastructure or a complex switching station in order to activate them. You mustn't forget that an INTELLIGENT HOUSE should be comfortable,



convenient and safe. If a Customer is forced to call the technical service each time they want to reset a simple parameter or turn on the sprinkler system, such a system can hardly be called comfortable. If, in the event of fire, the central unit goes up in flames and is unable to give commands to the remaining system components, such a system can hardly be called safe.

# FIBARO System

## Installation in any house or facility



As has been said, the FIBARO modules can be connected to the already existing electrical systems, without the need to introduce any changes to the building. Having based our system on the most stable, wireless Z-Wave technology, we have built a perfect platform. Currently, this technology is used by over 250 manufacturers worldwide. Most of them manufacture devices which are compatible with one another, which is confirmed by the certification process required by the technology owner. Before being launched on the market, the FIBARO products had been put to a number of tests. The devices offered today are cutting edge technology on

a global scale. The FIBARO System light dimmer is the only device of this type which is compatible with old-type systems, in which there is no voltage when the light is off... The dimmer, however, is powered and works flawlessly. Thanks to Z-Wave technology we can be sure that every device that we purchase in the future will be compatible with the FIBARO System. Specialist devices used in the medical, pharmaceutical and military sectors are an exception to this rule. For safety reasons, these kinds of devices require dedicated software from their manufacturers. Moreover, when designing the FIBARO System, we strove for the least possible interference with our Customer's'

habits. If our Customer has an old-type (the so-called bistable) switches in their house, they should select an appropriate option in the Home Center 2, while the System will interpret commands in an analog way. You don't need to install any touch panels, unless you want to. The System is compatible with both mono- and bistable switches. Do you have a bedside lamp which you wish to connect to the system? It's not a problem. Simply install the FIBARO module behind a socket. Currently, we offer modules compatible with an electrical load of up to 3kW.



## 3-minute installation

The installation of our devices takes up to 3 minutes.

- ✓ Remove the light switch keys,
- ✓ Disconnect them from cables,
- ✓ Connect the FIBARO System module,
- ✓ Reconnect the keys,
- ✓ Screw the switch into the wall.



Next, click "ADD" on the Home Center 2 "ADD/REMOVE DEVICE" tab and press the key under which the FIBARO module is located three times. The Home Center 2 will detect a new device. All you need to do to complete the installation

process is type in the device name. Thanks to its great simplicity, the installation of the building automation system is really easy and inexpensive. Any licensed electrician is capable of installing the FIBARO System.

When you move the house, you can take the entire automation system with you, along with your furniture and any other furnishings, without leaving a trace of there ever being any device installed there.

# FIBARO System



Configuration interface FIBARO HC2

## FIBARO versus other systems...

When we were testing tens of systems and analyzing technical solutions and the ways in which other systems are managed, we discovered not tens but hundreds of senseless operations which a person using such systems needs to perform. They ranged from having to come up to the wall on which the touch panels for switching a given

system device on/off are installed, through having to delve into the complicated interface structures on such panels in order to achieve a given goal, to absurd and nonsensical configuration issues. In some systems, a user who wants to rename a living room lamp from "the wall" to "wall light", has to contact the technical service.

The FIBARO System is free from such faults. Our motto is: "The Customer cannot be enslaved to the system – the system is to serve the Customer, and not the other way round."



Moreover, when developing the FIBARO System, we strove for the greatest possible compatibility with mobile phones from various manufacturers. You almost always have your mobile phone on you. Now, thanks to your phone, you can have your entire HOUSE "on you". The FIBARO system is comprised of many components.

The applications which operate on iPhone, NOKIA, LG, SAMSUNG, SONY ERICSSON, HTC and many other mobile phones are part of the system. We are continuously developing applications for new mobile phone models. In order to satisfy the needs of our Customers who own non-standard mobile phone models that

command only a small market share, we have developed a special website which allows managing the system using a browser. If you are not sure if your mobile phone is compatible with the FIBARO System, ask your local FIBARO supplier about it.

# FIBARO System

## The interface from scratch

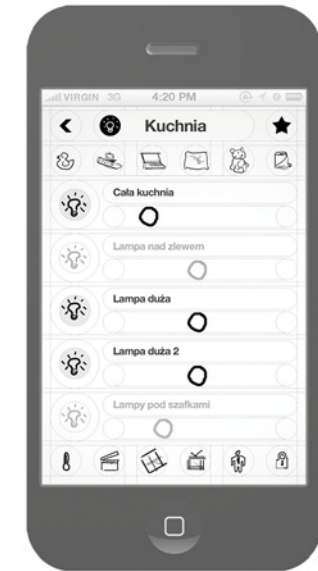
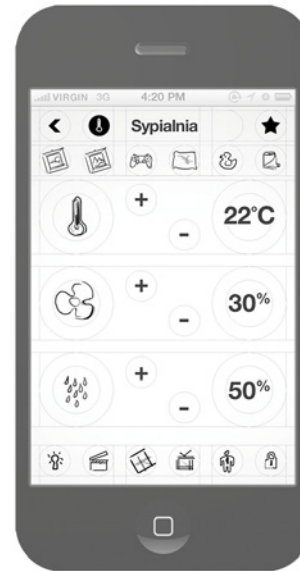
The FIBARO System uses two interfaces to communicate with its human users:

- The external interface – which is used to control the system on a daily basis,
- The configuration interface – which is used to define the location of particular devices, room names, dependencies between devices and other system functions.

The configuration interface is hardly ever used, while the external interface is a component used for ongoing communication between the FIBARO System and its user. For this reason the external interface has to be perfect and use a language which is easily understood by the user. Just think how difficult it is to communicate with a foreigner, if you don't speak his or her language.



# FIBARO System



We did our best to make this system component suit your needs. When developing the interface, our basic goal was to make sure that the users could learn to operate it as fast as they learn to operate a TV remote control. The interface was to facilitate the use of the FIBARO System. It was supposed to calm the users down, make them

think of pleasant things, have a nice appearance and be transparent. When developing the external interface, we were assisted by several specialists in the field of IT system construction and optimization in a man-machine relationship. We were also joined by a number of web usability specialists and, most importantly, by a company

from the touch panel sector. It allowed us to develop a template on which usability tests were conducted. The template was handed over to a control group. Their comments helped us to adjust and improve it.

# FIBARO System



## The final result

The final stage of the work was completed by a team of graphic artists, who took care of every detail of the interface appearance, making it transparent and pleasant to look at.

Obviously, we are aware of the fact that the tastes of our Customers vary. For this reason we have made it possible for them to adjust the interface to their liking.





## *Adjust the interface to your liking*

The interface allows installing additional sets of icons for rooms, devices, scenes, etc., without having to interfere with the graphics. We have also made it possible to change the arrangement of particular icons and to move them about in

such a way so that the ones used most frequently are always close at hand. The FIBARO System Interface allows creating individual shortcuts to selected actions to make them immediately available.

## The Home Center 2 = the brains

When working on the FIBARO System's central unit, we favored simple configuration. We were very much concerned with safety. Therefore, during the installation process, the device being

added always has to be within reach of the central unit. This way you can be sure that the device adding process will be successful. The central unit is portable.

Adding a new device comes down to a given module being detected by the central unit, named and assigned to a given room.



Configuration interface FIBARO HC2



Home Center 2



## Compatibility

As has been mentioned, the FIBARO System is compatible with all the certified Z-Wave devices. However, in order to increase the system's potential, we are currently working on inter-system gates, to enable our system to cooperate with other systems based on different popular technologies. We are improving the integration process, in order to make the FIBARO System

compatible with the majority of systems available on the market. This way the users of other systems are able to extend them using the FIBARO modules. We developed, a module which allow integration with the majority of alarm systems, both wired and wireless. Once such a module is installed, the FIBARO System will automatically recognize the alarm systems



installed in our Customers' houses. This way the sensors in the existing alarm systems are be used to expand the FIBARO System's intelligence at no additional cost. Moreover, the system does not require a VPN connection or a static IP address for remote access.



Comfort



## Perfect Wake up

Design your own awakening, just the way you like it. It will make getting up for work easier, even on a cloudy day. Use the infinite possibilities of FIBARO to secure your own comfort and convenience during your everyday morning activities.

## Imagine that ...

*6:30 am*

The central unit of the FIBARO System collects meteorological data, based on which it customizes a number of scheduled activities, such as adjusting the right temperature for your morning needs and habits.

*7:15 am*

The temperature in each room is now perfect. The house gently wakes you up by playing tunes from your favorite radio station, gradually increasing the volume to a preprogrammed level.

*7:20 am*

The roller blinds are gently pulled up and your bedroom is flooded with natural light. In wintertime, the system turns on the light using 30% brightness, allowing your eyesight to gradually adjust to daylight.

*7:25 am*

You get up. The house senses motion in the bedroom and illuminates your way to the bathroom and the kitchen.

*7:28 am*

The bathtub fills with hot water while the espresso machine turns on in the kitchen. The TV turns on for the news. There's nothing like the latest world news.\*

*7:30 am*

The windows open slightly to let a breath of air into your house.



*Safety*

## Imagine that ...



## In the event of fire

In critical situations, immediate response to threat is the most important factor, which often can save our lives. FIBARO will identify a threat within seconds, warn you of the danger and activate all the pre-programmed alarm procedures, thus preventing a tragedy from happening.

*1:03:12 am*

The Smoke Detector sends a signal to the FIBARO Control Unit, informing it of the threat of fire in your house. The System immediately implements emergency procedures and warns you of the danger.

*1:03:15 am*

The alarm system is activated, while all the lights in the house are switched into flash mode to make the threat clearly visible to the appropriate services and to your neighbors.

*1:03:17 am*

The FIBARO System closes all the windows in the house, to not let in oxygen. Pulls up the roller blinds and unlocks the doors, to enable the escape of members of the household and allow firemen to enter in the building.

*1:03:18 am*

The system cuts off the gas supply. At the same time, the ventilation system is activated on 100% power, to suck out as much oxygen and blow out smoke.

*1:03:21 am*

The thermostats and the air conditioning control devices are immediately disconnected, which prevents smoke from spreading in the house.

*1:03:22 am*

All the audio and video devices play warning messages and evacuation instructions.

*1:03:23 am*

Special pre-configured lighting guides the members of the household to the exit through an escape route.



Convenience



## The return home

After a hard day's work you deserve a rest. All you dream about is getting back home. Let the FIBARO System know about your arrival and have it await it, create the right atmosphere in the house and ensure your comfort and convenience.

\* this function will be available soon

## Imagine that ...

*6:00 pm*

The system senses the evening approaching thanks to the reduced intensity of the light outside. It turns on the garden lighting and the fountain.

*6:10 pm, you get back from work*

The system can sense your car approaching the property. It increases the brightness of lighting in the garden and in the driveway to 100%. It opens the gate and the garage door. It turns on the light in the garage.

*6:11 pm, you drive into the garage*

If the CO detector senses a deterioration of air quality in the garage, it will turn on the fan, which will drive the exhaust fumes outside. If the CO concentration is too high and poses a threat to your life, the garage door will remain open until the garage is aired.

*6:12 pm, you enter the house*

The alarm system is deactivated. If it is dark outside, all the roller blinds are pulled down and the lights are turned on in all the rooms where motion is detected. The TV turns on to your favorite channel.

*6:20 pm*

The 'WATER THE GARDEN' scene is activated. The brightness of the light in the garden is reduced to 50%. The sprinklers are activated and water the garden.

*6:30 pm*

Your neighbor joins you for a football match. Before you let him into the house, you talk to him on the phone, which is connected to the intercom. When you open the gate, the brightness of the garden lighting is increased to 100% and the sprinklers are turned off, so as not to get your guest wet.\*

## Saving with FIBARO

All the FIBARO System devices have been designed with the view of saving energy. The energy consumed both by the system and by the devices it controls. Our system's components are powered by power units with the greatest possible (90%) efficiency. In order to save energy, all the radio transmissions are reduced to a minimum, while the battery-powered devices are put into sleep mode to increase their operation time

and reduce the amount of waste released into the environment. The FIBARO System modules have been designed in such a way so as to make them compatible with all kinds of lamps, including compact fluorescent lamps and LED light bulbs. Most of the competing systems require the use of conventional light bulbs, which are significantly less effective and consume more energy.





A photograph of several wind turbines standing in a field of bright yellow flowers under a clear blue sky. The text is overlaid on the top left of the image.

With FIBARO  
you can save up to 30% of electricity  
and 23% of heat energy\*

The innovative FIBARO System software allows its users to reduce energy consumption and building operating costs. FIBARO informs you of all the important incidents which occur in the system and displays the status of all its components. FIBARO measures the current electrical power\*\*, gas and water consumption. Moreover, it adjusts the heating or air conditioning

program to your actual needs. The FIBARO System warns of and responds to situations which could lead to unnecessary energy loss, e.g. heating a room with an open window. It prevents the air conditioning and the heating systems from working simultaneously. It does not illuminate the garden on a sunny day nor water it when it's raining. When you're not home,

it will turn off all the devices which are consuming energy in sleep mode. Thanks to the intuitive and transparent FIBARO interface, you can check the status of the devices responsible for lighting or temperature control. The FIBARO System was designed to minimize energy consumption in your house.

\* depending on the individual system settings chose by the user

\*\* selected models



Ecology



## Be green with FIBARO

The FIBARO System has been designed taking into consideration the environmental protection standards. All the FIBARO System devices are compliant with the EU RoHS (Restriction of Hazardous Substances) Directive. The said directive aims at reducing the amount of hazardous substances arising from electrical and electronic

waste. Moreover, as per the WEEE (Waste of Electrical and Electronic Equipment) Directive, the FIBARO products are labeled with a dedicated WEE symbol which bans the disposal of electrical devices together with home waste. Thanks to the cutting edge Z-Wave technology, the FIBARO modules can communicate wireles-

sly, which saves you the trouble of running arterial cables. It also allows cutting down on the amount of copper used. Fibar Group is proud to present the FIBARO System. A fully green system!



# The FIBARO System TOMORROW

The functionality described below will be available soon.

## FIBARO multimedia will enable you to:



control the system from every TV with a HDMI connection. Imagine that... you are having a quiet evening at home watching a movie. Suddenly, you hear the doorbell ring. The movie is paused, the lights go on with 30% brightness in the living room and 100% brightness in front of the house. The picture from the camera in front of the house appears on your TV screen.



You pick up the phone, on which you can see a picture close-up, you have a short conversation and then you open the gate with just one push of a phone button. Watching videos and managing your private video library You can access your favorite videos from wherever your TV is. You can listen to your favorite music in any room, thanks to the non-invasive audio multi-room.



Imagine that... you enter the living room and your favorite music starts playing. You walk into the kitchen. A sensor detects your presence and the kitchen radio starts playing the same kind of music. But there's more... In an emergency situation (such as a fire) all the audio devices will play a special announcement to protect your family.

# FIBARO System



## The FIBARO services\*

With FIBARO you can access a large database of service providers. It allows you to immediately respond to any failure in the house. In the event of a washing machine leak, the system will automatically provide you with a list of plumbers in your neighborhood, along with their contact details, which you will be able to use immediately to call one of them. However, emergency situations are not the only times when the Fibaro services are useful. They give you access to a variety of everyday services such as restaurants, movie theaters, theaters or taxis.

\*This functionality will be available only in selected countries.



## Shopping with FIBARO\*

The system is integrated with the largest Internet stores. Do you shop regularly, wasting a lot of time standing in lines at the check-outs? Spend this time with your family. FIBARO will do your shopping, pay for it and inform you of the delivery, as soon as the courier arrives.



# FIBARO System



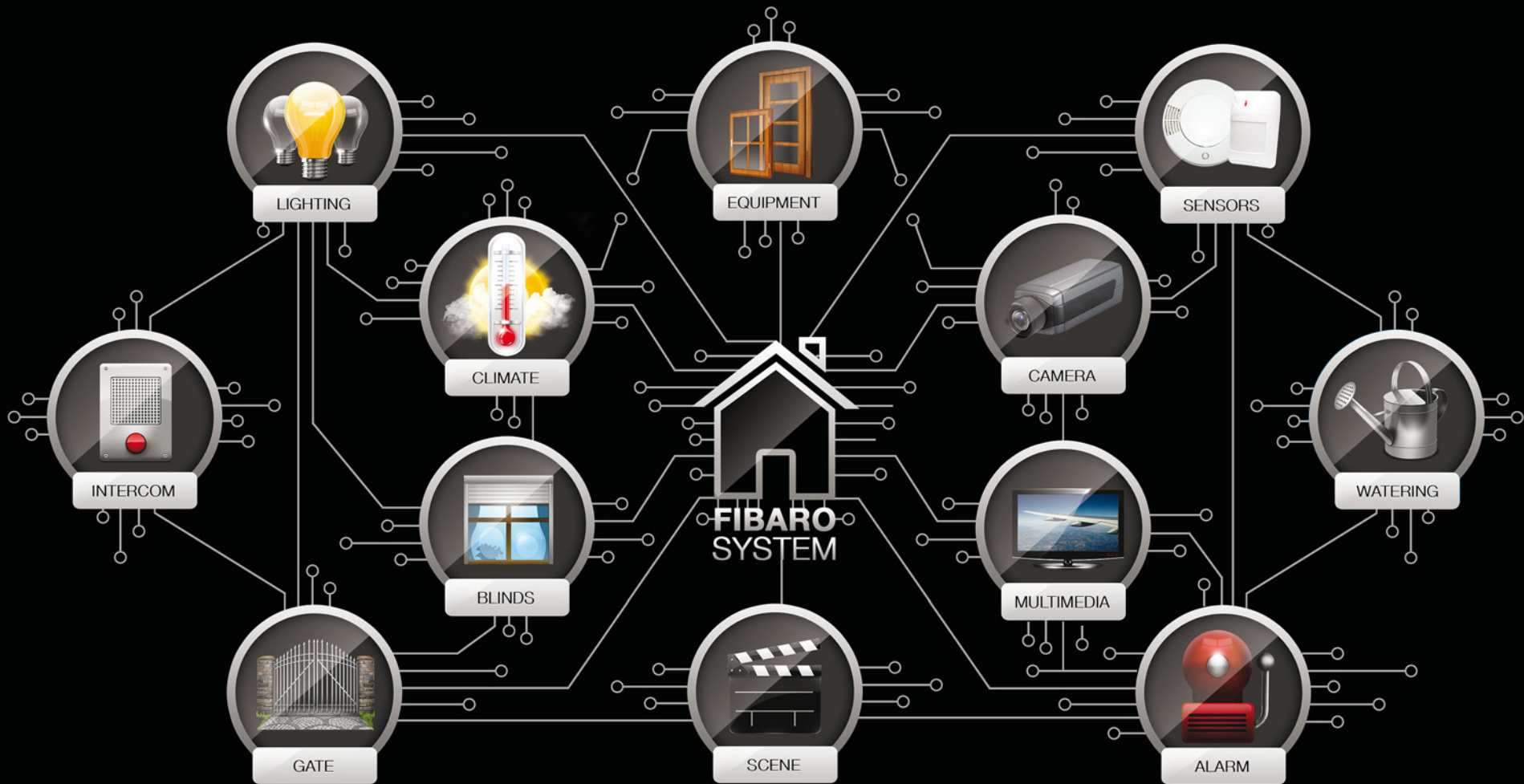
## *FIBARO versus the competing systems...*

With the FIBARO System, you can define scenes and configure dependencies between particular devices, without having to call a specialist. You will do it in no time, and if you don't like the outcome or simply change your mind, you will reconfigure the system at home or at work within seconds. See how simple it is!



## *FIBARO made in Europe*

FIBARO is a system created by both enthusiasts and practitioners of intelligent building technology. We want as many people as possible to benefit from our solutions, therefore, we have developed a top-quality product at a reasonable price. Our product is the least expensive of all the competing products in this sector.



## The Manufacturer



Fibar Group Sp. z o. o.  
 ul. Lotnicza 1  
 60-421 Poznan  
 POLAND  
[www.fibaro.com](http://www.fibaro.com)