# Reference list BMS

ion solutions


## Master Hall of the Novi Sad Fair

NOVI SAD, SERBIA

The building lies on 35.000 $m^2$ and is home to fair shows, meetings and seminars. The central monitoring and management system for monitoring fuses, switches and load in 56 electrical boxes have been installed. Moreover, there has been performed an integration with HVAC units and heat substations. Even further, the advanced software-skim surveillance and management system has been installed so as to enable a more efficient performance on the part of the maintenance team.

web: www.sajam.net
contact: Jovica Krsmanović, +381 21 483 07 77

## Telenor Data Center

BELGRADE, SERBIA

The purpose-built facility is located in Novi Beograd and is a part of the business complex known as Airport City. It was built with the specific aim to have the entire cell phone operator «Telenor» equipment stored in a single place. The construction of the facility presupposed installing highly advanced and technologically demanding central surveillance and management system that enables monitoring highly sophisticated equipment, all facility subsystems, managing air conditioning and lighting, as well as providing necessary information to the manitenance team.

In addition to this facility, the following data centers have been connected into a unique central monitoring and management system:

- Belgrade - AeroAnex
- Belgrade - TKC
- Novi Sad - Center
- Niš - Center
- Kragujevac - TKC

This enables for all parameters to be tracked by using the internet in data centers across Serbia.

web: www.telenor.rs
contact: Dejan Simić, +381 63 230 089

## Airport City Belgrade

BELGRADE, SERBIA

The facility, which includes an area of 64.000 m², is a premium block of offices for renting. The vertical integration of all subsystems (chiller, diesel aggregate, lifts, access control, fire protection station, etc.) and integrated facility management (TotalObserver) have been implemented in this facility, both of which contribute to increased efficiency in terms of finances and maintenance.

web: www.airportcitybelgrade.com
contact: Svetlana Subašić, +381 11 3189 516

## HSBC Bank

MALTA

The work on the headquarters and all branch offices of the Malta HSBC bank involved redesigning, intergating and putting into operation the integrated monitoring and management system. The project was realized through joint efforts of ION Solutions and the local partner company Mekanika Ltd.

contact: Norbert Conti, + 356 44806


## InterContinental

MALTA

The BMS in InterContinental hotel includes all subsystems: boiler rooms, heating rooms, air conditioning units, fan coil systems, water heaters, swimming pool technics etc. It is specific for its size and network topology. LON-IP routers were used here, which convert the LON communication by floors into TCP/IP and thus enable a large flow in the central part of the network which connects all subsystems by floors to the control center.

web: www.ichotelsgroup.com/intercontinental/en/gb/locations/overview/malta
contact: Norbert Conti, + 356 44806

## M-Invest business building

BELGRADE, SERBIA

The work on the business building M-Invest was a joint project of ION Solutions and Vektor inženjering Company. The installed central monitoring and management system is aimed at synchronizing all systems as well as managing lighting, air conditioning and ventilation. HVAC was realized as a VRF system by implementing Mitshubishi equipment, whereas CSNU communicates with it using native protocols and adapters, which ensures overall management and observability at very low costs.

web: www.m-invest.rs
contact: Nenad Mihailović, Vektorženjering +381 64 821 9623

## Imel Group Headquarters

BELGRADE, SERBIA

The construction of the Imel Group's business building and headquartes in Belgrade, which is situated on 3.500 m 2, required installation of the system that integrates all subsystems in the facility (control of lighting, air conditioning, access, lifts, audio system, fire protection system, etc. ) into the central surveillance and management system. By doing so, it is possible to manage the entire building, which enables saving a great amount of energy. This facility can be classified as «green» as it is a notable example of the rational use of energy.

web: www.imelgroup.rs
contact: Željko Ragač, +381 65 3606 063

## PIN soft

NOVI SAD, SERBIA

The business building of PIN soft has the central monitoring and management system installed, which ensures managing lighting, heat pumps, use of energy and zone heating/colling. The system is well suited for adapting ambient conditions to employees and clients who spend time in the building. That is achieved by optimal use of energy sources entailing lower operating and maintenance costs.

web: www.pinsoft.com

## Emergency Center

NOVI SAD, SERBIA

The Emergency Center building comprises the monitoring and management system that integrates the following subsystems: managing 7 HVAC Units, managing and monitoring 8 heat substations, monitoring the diesel aggregate block, monitoring 5 UPSs and ventilation of operation halls (Draeger system), monitoring outdoor and indoor lighting, managing bactericidal lapms, monitoring fuses in distribution cabinets, reservoire block and medical gases station, managing ice melting, monitoring use and quality of eletricity, lift operation and VRV systems.

web: www.kcv.rs

## KBC Securities, Takovska

BELGRADE, SERBIA

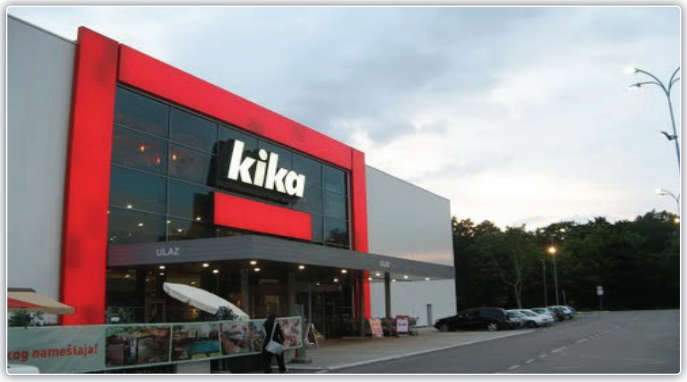
The business building in Takovksa Street in Belgrade is a prime example of managing heat/cooling and lighting in zones. Such management system provides a better quality work environment. Moreover, the system ensures significant energy savings.

## Kika

BELGRADE, SERBIA

The construction of the shopping mall KIKA presupposed the implementation of the monitoring and management system. The system includes zone management (heating/coling, lighting), managing two HVAC units, chiller, outdoor and indoor lighting, maxigraph, heat substations, etc. This enables adequate monitoring, managing and maintaining of the facility.

web: www.kika.rs
contact: +381 11 2259 211

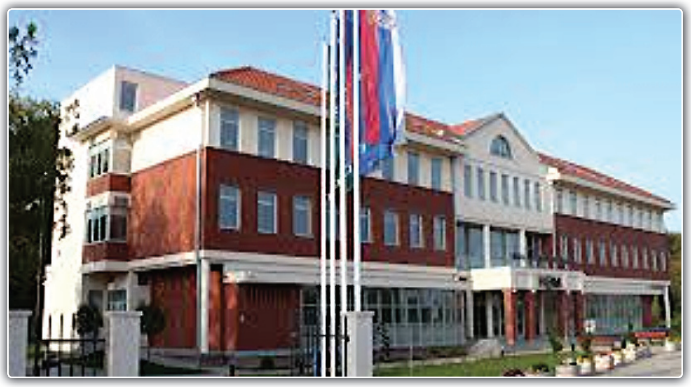


## Alpha Bank

BELGRADE, SERBIA

The work was carried out in the headquarters of Alpha Bank in Makedonska Street in Belgrade. Even though the installation of the central monitoring and management system enables the control of all subsystems in the facility (air-conditioning, ventilation, lighting), its main function is monitoring the work and parameters of the Data Center and existing computer equipment.

web: www.alphabankaserbia.com
contact: Pantelis, +381 64 551 5840



## Faculty of Management – F@M

SREMSKI KARLOVCI, SERBIA

The F@M building has 2.800 sqaure meters. The college has state of the art equipment, two large amphitheaters, eight classrooms, computer lab, studio for recording television shows and labs for image and sound editing etc. The building is worth 2.5 million eur and is among the environmentally sustainable buildings because renewable energy is used for heating and cooling, using underground water resources along with the use of heat pumps. The BMS in this building monitors and controls lighting, heating and cooling in each room, heating substation, gas boiler, power consumption etc.

web: www.famns.edu.rs/

## Milan Petrovic School

NOVI SAD, SERBIA

The school building for elementary and high school education for the children with physical disabilities and special needs has an area of 8000 square meters. Between 500 and 600 students with different types of disability attend the school. In addition to specialized cabinets and rooms with therapeutic and rehabilitation aids, indoor swimming pool and sports facilities, the school has dormitories for 40 students. The central system for managing internal and external lighting was implemented in the school.

web: www.smp.edu.rs/

## MDS

BELGRADE, SERBIA

MDS building is unique in that it has smart house elements installed that are based on LonWorks protocol; besides those, it has the standard Schneider Electric equipment for BMS systems installed including management of heat substation, zone management of heating/cooling and management of outdoor and indoor lighting.

web: www.mds.rs

contact: Mihailo Mrđa +381 63 364 826


## Elnos BL

BATAJNICA, SERBIA

The new business center of the company Elnos BL spreads across 3750 $m^2$ of which 2350 $m^2$ of offices and 1400 $m^2$ of production and warehouse space. The air-water heat pumps are used for heating and cooling. The BMS system installed in this building controlls heat substations, heating, cooling and lighting by zones as well as the other internal and external lighting.

## Muehlbauer Technology Center

STARA PAZOVA, SERBIA

The German company Mühlbauer is a global leader in technological security solutions in the field of electronic identification - machines for production of electronic documents, electronic passports, biometric ID cards and all products that are included in the area of electronic government. In the building of the Mühlbauer technology center the management system has been implemented with 4 HVAC units used for heating or cooling the production hall and maintaining a constant level of moisture. In addition the BMS manages the air conditioning and ventilation of the server rooms, as well as bringing the fresh air into the offices based on the level of carbon dioxide.

## Sports facility Klisa

NOVI SAD, SERBIA

The sports facility in Klisa comprises a sports hall and a swimming pool available for public use. Installing the central monitoring and management system has enabled monitoring all subsystem major parametres, registering the alarm conditions and advanced lighting management with the possibility to regulate specific light effects. The equipment that allows for online system surveillance has also been installed in the facility, which enables having a central surveillance location even at greater physical distances.

web: www.nsprostor.co.rs
contact: Dejan Rapajić, +381 21 489 00 00


## Konkordija city museum

VRSAC, SERBIA

The system of zone cooling and heating control has been installed in the Konkordija city museum. The sensors detect the presence of people in each office and based on that determine the optimal room temperature with the maximum energy savings.

## Stadium Karadjordje

NOVI SAD, SERBIA

By reconstructing the Karadjordje stadium, the modernization of the city stadium was performed. 4 pillars were added, 45 meters high and 72 spotlight were mounted on each pillar. In addition to the soptlights on pillars, 28 spotlights were mounted on the roof over the stands. Overall, 316 spotlights of 2KW of power were installed, that are designed to comply with the requirements of UEFA for football and IAAF for athletics. The BMS system includes spotlight monitoring and management. All key parameters for spotlight operation are monitored (positions of switches, fuses and contactors, temperature and humidity in the reflector poles, ventilation management etc.). Different work modes are defined for spotlight operation during football and athletics training, games with and without TV coverage, as well as the hot-restrike mode in case of power outage and transition to the aggregate supply.

web: www.fkvojvodina.rs/stadion/stadion-karadorde-2/

## Rowing Club Danubius

NOVI SAD, SERBIA

A system for the control of heating, cooling, lighting and exterior blinds in offices and training room has been installed in the new building of the rowing club, with an area of 1094 $m^2$. The complete system is controlled by a touch screen and a web server. The web server allows the control and monitoring of the system via the Internet.


## Agrosava

SIMANOVCI, SERBIA

Agrosava complex is comprised out of 12 warehouses, two production facilities, drying room and the administrative building.

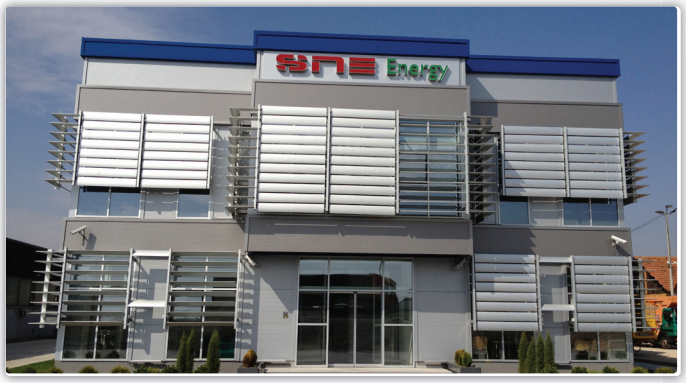
The BMS system includes:

1. The control of heating and lighting in all buildings of the complex
2. Monitoring of the diesel generator
3. Monitoring of the sprinkler systems
4. Monitoring of the compressor station
5. Monitoring of the drying room

## Dock command building, NIS-Oil Refi nery

PANCEVO, SERBIA

In order to achieve the maximum savings and convenience, the command building of the pier in Pancevo oil refinery, has been equipped with a system for the control of lighting, heating, cooling, heat pump and steam humidifiers. In addition to managing these subsystems the key parameters for the server room are also monitored.




## Elektrovat

CACAK, SERBIA

The business-production building of the company Elektrovat Cacak consists of two manufacturing halls and a business administrative part with the total area of 1550 $m^2$. The HVAC system is based on renewable energy sources. The water from the well is used for heat transfer with heat pumps for heating and cooling. An underfloor pipe system has been installed in the facility for passive cooling and the heat pump in combination with a fan coil apparatus. The external aluminum blinds have been installed as protection against solar radiation. The interior lighting is equipped with LED lights on DALI protocol. A solar power plant with a total power of 55 kW has been installed on the roof of the building.

The BMS system installed in the building controlls:

1. The substation with cascading control of heat pumps, electric valves, circulation and well pumps.
2. The external aluminum blinds based on light intensity and temperature within the premises.
3. The internal and external lighting.
4. The heating and cooling by zones.
5. The DALI lighting control.
6. In the meeting and exhibition rooms, the touch-screens have been installed for the control of DALI lighting, blinds, temperature in the room, with the possibility of executing scenarios and maintaining the same level of light during the day.

## The Monastery of the Resurrection of Christ

KAC, SERBIA

The system for automatic control of heating and cooling has been installed in the monastery. Two heat pumps and a passive cooling system are used as the source of energy. In addition to control of the mixing valves, circulating pumps and passive cooling system, the cascade regulation of heat pumps corresponding to external temperature has also been installed.

## Business Incubator

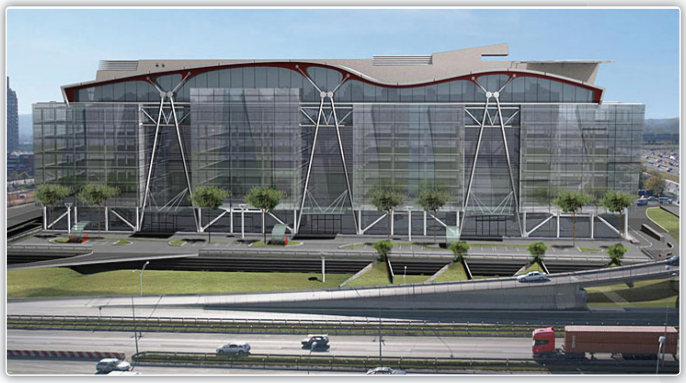
NOVI SAD, SERBIA

The advanced lighting control system has been installed in the building of the business incubator. The system can be accessed from a web browser over an advanced PLC - Web server.

Web: http://www.businessincubatorns.com/

poslovni inkubator Novi Sad

## Projects under construction:



### Block 23

BELGRADE, SERBIA


### The Institute of Cardiovascular Diseases

SREMSKA KAMENICA, SERBIA


### Renovation of Grand hotel Nis

NIS, SERBIA

# Designing central systems for monitoring and managing

**Since 2005 ION Solutions Company has worked with a number of design companies on creating BMS systems. Some of those design companies are the following:**

- ME.COM, Belgrade, Serbia (ACC Podgorica, 70.000 $m^2$, PC Čelebić 17.000 $m^2$, Hotel Crown Plaza Belgrade etc.),
- Mašinoprojekt, Belgrade, Serbia (Telenor Data Center, Kika Business Center, Airport City 1700, etc.),
- Silon, Ljubljana, Slovenia,
- Elektroženjering, Novi Sad, Srbija (Clinical Center of Vojvodina, AquaPark Apatin, Clinical Center Sremska Kamenica, etc.),
- Progres, Krasnodarsk, Russian Federation (Gaspromnjeft Headquarters 18.000 $m^2$, Krasnodarsk),
- Projmetal, Belgrade, Serbia (Verano Headquarters),
- Kolnoa, Zagreb, Croatia,
- Imel group, Belgrade, Serbia,
- Vektor Inženjering, Belgrade, Serbia
- Dijagonala doo, Novi Sad, Serbia
- and the like.

More than 60 projects have been realized recently that presupposed the installation of the central monitoring and management system. Our designers have realized the major part of those projects or supported the project team with respect to electrical and engineer installations.

ion solutions

www.ionsolutions.net

ION Solutions doo was founded in 2004, as a management spin-out of the IT department of a Swiss owned company. From the very beginning, the focus of work was on distribution, development and implementation of systems based on high end technologies.

ION Solutions doo is a system integration company with expertise in development, integration and maintenance of Smart Buildings and Smart House concepts and systems. By selection of best-of-brand equipment and by gaining experience through the permanent contact with vendors and project implementation, ION has gained the highest level of proficiency.

The company is engaged in engineering and IT development in the areas of property, facility and asset management, as well as in the field of automation in energy efficiency. Through permanent professional work and education, as well as the practical implementation of hundreds of projects, the base of knowledge, experience and best practice have been formed, which was confirmed by the implementation of quality standards ISO9000: 2001.

General-socially useful dimension of activities of ION Solutions is reflected in the generation of significant cost savings and increased energy efficiency, as well as work on systematic raising and creating of awareness about the need for responsible behavior in the consumption of renewable and non-renewable energy resources and protection of the environment.

Fields of expertise:

- Design, integration and maintenance of energy efficiency (BMS - Building Management System) in the office, residential, public and other buildings.
- Design, integration and maintenance of home automation - **SmartHome ™**.
- integration of the software solution for home automation control, data collection and communication - **Magiesta ™**.
- Integration of the information system for facility, property, asset management, maintenance and costs - **TotalObserver ™**.
- Providing consulting services and analysis in the field of energy efficiency of office, housing and other facilities.

ION Solutions actively cooperates in these fields of expertise with companies from Serbia, Russia, Sweden, Israel, the Netherlands, Croatia, Slovenia, Montenegro, Albania and other countries.

## TotalObserver

www.totalobserver.com

TotalObserver™ is an integrated software for property asset management, finance and maintenance management, fully adjusted for different market needs in the field of property, facility and asset management, with the aim of the automation of operations, increase of efficiency, effectiveness and availability of resurces, as well as the improvement of analysis. In short, the operational and strategic tool for business growth, reduction of costs and increase of revenue.

The solution is to completely adapted to the needs of people in different industries:

- Shopping malls
- Office buildings
- Companies that provide maintenance services
- Users/owners of property
- Residential settlements
- Hospitals
- Power distribution systems

The main software characteristics can be summarized in the following:

- Designed for medium and large companies
- Support for work with assets in geographically dislocated places
- Support for work with several property owner companies simultaneously
- Multilingualism
- Support for notifications via email and SMS
- Easy connection with a variety of technical systems or software

The software focuses employees on the job, helping them plan and carry out activities, while providing the middle and top management with valuable information on the effectiveness and use of resources.

## Pametna kuća™

www.pametnakuca.rs

Smart Home™ is a concept of the modern household and living in it. The house is smart because it adapts to the current activity, mood, habits and lifestyle of every person living in it and thereby achieves energy savings.

Smart Home™ home automation system is simple to install, use and maintain. Adjust your home into a place of enjoyment, fun and relaxing.

Smart Home™ allows you by using a remote control, touch screen or phone to initiate macroes that will instantly transform your home environment into a home cinema, disco, or a peaceful oasis to relax... Lighting, blinds, HiFi system, air conditioning and all other appliances will together give you the finest moments of pleasure, adapt to your current wishes while achieving energy savings.

The complete equipment will synchronize and adapt its work.

Smart Home™ adds new features and simplifies the use of equipment. System management is possible with remote control, touch screen, phone and internet.

Smart Home™ is connected with the heating/cooling system and depending on the use of the facility, outside temperature and other parameters, the system can be guided to optimize the energy use. From a certain place you can set the desired temperature, different for each zone individually. Changes in temperature and other parameters can be performed easily, without any special technical knowledge.

Smart Home™ systems are easy to install in both facilities which are under construction and completed objects - with minimal adjustments to the existing installation. The modular approach allows the design of an optimal, flexible and integrated system, which will be fully operational, providing the optimum in terms of price and utility.

It's possible to include only certain desired units, rooms and equipment that is of interest for automation, with the ability to upgrade the system later.

ION Solutions smart solutions for buildings and houses are used in over 20.000m$^2$ of housing and office space.

## magiesta**

www.magiesta.com

Based on years of experience in the field of home automation, ION Solutions engineers have developed and introduced on the market a new home automation control software, Magiesta™.

Magiesta™ is a powerful, simple and intuitive server software solution designed for home control and other automation control, automation of different types of devices with different purposes, data acquisition and communication. The basic idea of the implementation was the ease of control and visualization, user-friendliness and easy access to multiple users with different devices.

Providing the complete support for standard PCs, Magiesta™ is specialized in touch screens, mobile phones and other similar devices, designed for centralized control of home appliances, communication, home and office security, and more.

The environment (interface) and features of Magiesta™ have been developed for all computer users. With the supported of different devices, it is possible to initiate a command by clicking a mouse (standard PC, net book, etc.), tapping (iPhone, iPod touch, smart phones etc.), or by touching the computer screen (with integrated touch screen) .

Magiesta™ is accessible through the Internet browser. Browsers on different devices have limitations in supported formats, resolution, support for animations and similar, so therefore it is very important when initializing Magiesta™ to carefully select the type of device and thereby the appropriate settings in order to meet the limitations of used input device.

Some of the main features are:

- Defining devices
- The control of lighting and blinds
- The control climate (heating/cooling)
- Video
- Weather forecast
- Calendar (reminders)
- RSS


ION Solutions doo, Laze Kostića 7, 21000 Novi Sad, tel +381 21 475 44 24, www.ionsolutions.net