

# INTELYO system description v1.3



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## A. General description of the system

### 1. Introduction

INTELYO provides intelligent solutions (hardware, software, structure) to integrate different systems and devices to managed unified platform easily. Concept of the system is focused on high-performance and energy savings. Optimisation of costs and efficiency of the proposed objects. The system helps to obtain Energy Certification of buildings and assists in obtaining LEED points.

#### Driver for Embedded PC

Development of computer and Internet technology systems and IT approaches. PLC drivers are widely used but are being traded by more robust Embedded PC which significantly enhance the functionality of the system control and optimize the cost of an installation. Embedded PC-type Computers meet the increasing requirements of users of modern control systems and automation. An embedded PC mounted on a DIN rail work in "headless" mode. That is to say they do not require a keyboard, mouse and monitor. If necessary, it is possible to elaborate on typical PC buses and interfaces such as USB, DVI, VGA, Audio-Video. It is the main component allowing for expanded functionality and features for large industrial projects. At the heart of each embedded processor a simple Prescott processor clocks 128/266MHz after the latest solutions using Intel Atom 1.6GHz. The standard is LOM Ethernet where there are two or more network interfaces, often using WLAN or Bluetooth.

#### Operating system INTELYO

Optimized for INTELYO Building automation, embedded PC uses a dedicated OS INTELYOCore which connects an XML interface with devices based on TCP/IP. This allows you to visualize and control components for building automation with external visualizations. The basic structure for the visualization is defined in the INTELYO Manager software. Visualization processes are also possible in an INTELYO environment via HMI/SCADA. Full monitoring, energy analysis and archiving data is stored on database servers. INTELYO operating system storage is placed on a Compact Flash device. This approach avoids the loss of application data due to a driver failure making an unbootable system on a new backup installed by object support (just translate SD card to the new driver and run it).

Sustainable development of these technologies ensures the vanishing use of additional storage such as HDD type. The use of energy efficient processors does not require active cooling of the CPU. Embedded PC-type computers offers a wide range of possibilities. They can be used in both simple and complex automation tasks. The BECKHOFF embedded PC drivers are more comprehensive than simple PLCs and less expensive than computer type Industrial PCs. They are applicable in many control automation tasks in BMS.

#### BMS

Installing a BMS smart building system gives you the highest functionality by automating processes and additional features, which in conventional electrical installation would not be achievable. Work equipment may be dependent on the weather, time of day, the presence of the setting or specific users. The system can integrate with multiple systems and make decisions based on their reactions. BMS has practically unlimited possibilities. Thanks to the scalability of the platform integration we are able to meet most requirements. Our engineers will support in the selection of system and its functionality.

## 2. Building systems capabilities

The concept of intelligent control systems is primarily for integration and full automation processes within the building. By using this, the user is able to:

- Optimize the management of the resources of the building
- Elevate security
- Increase comfort in the workplace
- Minimize consumption of electricity and heat

Unusual flexibility and advanced technology makes the INTELYO intelligent control system ideal for practice and application in buildings of all types.

Equipment and office building utilizing the INTELYO intelligent system offers practically unlimited possibilities and their modification and development depends only on the imagination and the current needs of users.

### INTELYO Range of Integration

The range of automation and integration of INTELYO monitoring processes in smart building may be installed with practically all systems and provides the following:

- Lighting control
- Blind and shutter control
- Heating control
- Air conditioning control
- Ventilation control
- 240v control
- Pump control
- Gateway control
- Central function creation
- Voice messages
- Temporary features
- Visualization creation
- Remote control
- Simulation of presence
- Logic
- Management with planner
- Books

### INTELYO Platform Functionality

Thanks to the range of supported INTELYO protocols (e.g., BACnet, EIB, DALI, EnOcean, DMX, Modbus, EtherCAT, e-drive, RFID, IR, RS232, RS485, USB) in combination of the flexibility of the software, this allows simultaneous support for virtually an unlimited number of devices and free system development and expansion in the future.

INTELYO integrates all systems installed in modern buildings:

- Lighting
- Air conditioning
- Heating
- Ventilation
- Shutters and blinds
- Multimedia

In addition:

- Ethernet TCP/IP connectivity system fingerprint readers
- IP camera
- Audio-video systems
- Motion sensors
- Gas and smoke detectors
- Weather stations

Intelyo is capable of running and managing automated-objects in buildings of any size. This scalable approach allows for very rich complex puzzle/mathematical algorithms.

#### Simplicity of Use

Access to all functions of the system is possible via the colour LCD touch panels, or wireless WiFi devices such as iPhones.

OSD System and display options can be freely configured. Control of its features it is also possible via GSM mobile phone and/or remotely via the Internet.

#### Flexibility and Convenience

The INTELYO system provides the user with the possibility of temporary event programming and setting schedules tasks performed by the system at specific, predetermined times.

Also, the system may perform temporary functions with scenes involving supported media, initiated by specific events, such as:

- Open door scanners by a particular user may result in certain areas to include lighting scenes and set audio system to pre-determined settings
- Alarm touch panels having an automatic shutdown of water and gas
- All systems in power save mode and simulation of presence by integrating the minimum lighting in certain areas

Pre-defined and programmed tasks are limited only by the imagination of the INTELYO system users.

#### Guarantee Safety

Through full integration of the INTELYO system with motion sensing systems, emergency calls, gas and smoke detectors and IP cameras there is an increased sense of safety and comfort for the users.

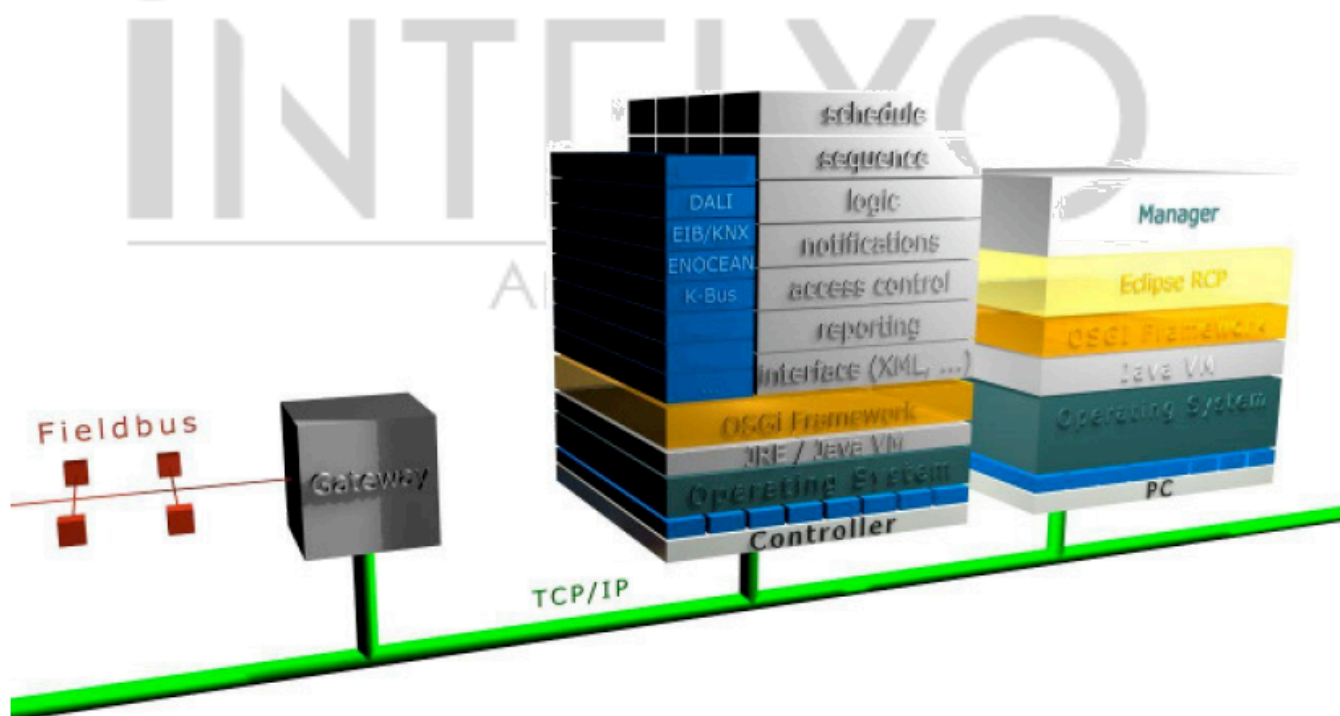


Figure. software system structure

### 3. System Advantages

#### User

- Energy savings (disabling unused sets of electricity and power to adapt to current needs)
- Time savings (everyday automation)
- Ease of use, intuitive and readable graphical interface provides all the functions of a central touch station
- Alternative control such as: Touchpads, Master switches, LV switches, etc...
- System stability: based on modules used in industrial automation
- Programming of any event scenarios: date and time specific
- Temporary schedules
- Alarm functions: notification of any event
- Ability to connect to a wide range of devices: Not only expensive devices dedicated to control systems. For example, all devices equipped with infrared receivers may be implemented without additional costs provided the room is equipped with an IR transmitter
- Remote access
- Extendable to any system
- Startup package provides basic functionality but does not hinder future solutions

#### Developer

- Cabling costs will increase up to 25% of the costs in relation to conventional wiring
- Increased flexibility, features and benefits
- Modular construction and startup package of the INTELYO solution reduces initial costs to a minimum

#### Investor

- Modular approach – inexpensive package capable of any expansion
- Low costs for system functionality
- Integration of all media in a single system
- Increased attractiveness to the market investments

#### Designer wiring

- Dimensions for placing system modules in standard electrical enclosures
- Engineering support
- Minimizes complex field solutions
- Simplified electrical design

#### Setup

- Engineering support
- Remote programming and startup
- Simplified cabling and installation of modules
- Meets all standard regulations

## B. Offer – Bid Proposal

### 1. Development Concept

- Acknowledgement and understanding of project
- Consultation with the Client
- Offer solutions which meet customers expectations
- Information of approximate project costs

### 2. Design and Technical documentation

- Technical advice
- Integration with existing control systems
- Scheduling functionality
- Destination design
- Technical documentation
- Shop drawings

### 3. Pickup and Delivery

- Selection and delivery of controls and peripherals
- Surveillance and coordination of writer
- Project Management
- Documentation
- Programming preparation

### 4. Run, Programming and Servicing

- Programming and system startup
- Training and support: Contractor, Manufacturers and Building Operators
- Service Agreements

## C. Schematic - INTELYO system

