



MODULES AND SOFTWARE FOR INTELLIGENT BUILDINGS

■ CORE TECHNOLOGIES

for intelligent buildings

Lonix provides core technologies for intelligent building systems. Solutions involving our forefront technologies bring comfortable, healthy and energy efficient indoor conditions to all kinds of buildings. Smart control nodes, the Lonix modules, include the intelligence of the solution in compact size. Security systems are easy to integrate into the open solution. In addition to smart modules, Lonix provides cutting-edge software for managing the integrated solution.



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Lonix
BUILDING CONNECTIVITY

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MODULES

and software

Lonix product family consists of control nodes, scada software and integrator's tools. Smart control nodes, the Lonix modules, include the intelligence of the solution. The Building Operating System software provides full transparency to all building management and security systems through an open interface. The versatile software tools speed up the project execution by automating most of the system integrator's programming work.

■ DISTRIBUTED INTELLIGENCE

Lonix modules provide the intelligence for controls of heating, cooling, ventilation and lighting, consumption metering, leakage alarms, intruder alarms and fire alarms. Access control, video monitoring

and other security systems are easy to integrate into the open solution. The solution is scalable from one to thousands of modules.



■ BUILDING CONNECTIVITY

The Building Operating System software, named as COBA, provides a common window to building management and security systems. Easy and secure access to building functionality in a standard

manner forms the basis for convenient usage, simple maintenance and efficient service provisioning. All systems can be accessed through one graphical user interface, both locally and remotely.

SMART modules

Lonix modules provide controls of heating, cooling, ventilation and lighting, consumption metering, leakage alarms, intruder alarms and fire alarms. The modules function as autonomous units and communicate over Local Operating Network (LON) using standard network variables (SNVT). The solution is independent of control server or network.

Lonix modules comply with open standard interfaces. All sensors and actuators compliant with industry standards as well as any standard scada can be used together with the modules. Small, standard-sized modules are easy to place anywhere, and the solution is scalable from one to thousands of modules.

The modules are easy to take into operation with the user-friendly Project Creation Tool (PCT) software.

■ MULTI-PURPOSE MODULES



Multi-purpose modules include all the intelligence needed for HVAC processes, such as controls of heating, cooling, ventilation, air-conditioning and lighting. Multi-purpose modules are based on standard software objects (DI, DO, AI, AO, PID), which are easy to configure for the desired functionality. New projects can be implemented without new programming work.

- Multimodule 2242P:
Versatile controls and indications
(2 DI, 2 DO, 4 AI, 2 AO, 2 PID).
- Digimodule 5400P:
Digital controls and indications
(5 DI, 4 DO, 2 PID).
- Indication Module 1000S:
Digital indications (10 DI).

ROOM MODULES



Room modules are optimal for controlling conditions in rooms and spaces. All room modules are extremely simple to use. Each module includes a built-in program, which can be selected from amongst several standard versions. Special versions are also available upon request. The modules include five inputs (2 DI, 2 AI, 1 DI/AI) and four outputs (1 DO, 3 DO/AO).

- A-series "AIR":
Heating, cooling, lighting group, VAV dampers
- L-series "LIGHTS":
Heating, cooling, two lighting groups (2 on/off)
- D-series "DIMMER":
Heating, cooling, lighting groups (1 on/off, 1 dimming)
- F-series "FAN COIL":
3-speed fan coil units

SPECIAL MODULES



Special modules are designed for application specific solutions.

- Counter Module 1000C:
10 counters for consumption measurements of water, electricity or energy
- Remote Control Module RCM:
Remote control of geographically distributed systems.
- Time Scheduler Module TSM:
Time schedules
- Control Panel LCD:
Local light-weight user interface of the system



CUTTING-EDGE software

Lonix software products are compliant with COBA definitions, which were created in accordance with IFC model (Industry Foundation Classes) in the standardization project "Connected Open Building Automation" during 2000-2003. The open software architecture was designed to overcome the problems created by non-uniformity and incompatibility of different systems. The standardization involved 15 companies from a variety of industries, including several Fortune 500 companies.

■ COBA – BUILDING OPERATING SYSTEM

COBA Building Operating System is the control server software that provides a uniform view to building management and security systems. It takes care of trending, alarm handling, user rights management and conveying dynamic data from all systems to any application and vice versa. All systems can be accessed in a standard manner through an open interface.

COBA integration is available for controls of heating, cooling and ventilation, lighting control, consumption management, access control, emergency lighting, digital video recording, as well as burglar, humidity and fire alarms. New systems are easy to add through simple device drivers.

COBA Building Operating System includes an open, structured XML interface so that other applications can easily interact with the connected systems. COBA includes a structured object model of the building, its parts and spaces, its connected systems, system parts and effect areas of each system. Modeling enables applications such as generic peak load management of electricity, which automatically takes into account the mode/situation of the building, effect areas of the systems and other prevailing circumstances.



COBA USER INTERFACE

COBA User Interface is a client application of the Building Operating System. It shows system views, floor plan views, trends, reports, alarms and logs. All systems connected to COBA Building Operating System can be accessed through the same User Interface. In addition to local usage, the User Interface client allows for remote usage of several sites using the same client software.



COBA USER INTERFACE EDITOR

The User Interface Editor (UIE) is a convenient tool for creating graphical COBA User Interfaces. The created data is in COBA compatible XML format. The data is simply copied to COBA server. The User Interface Editor includes the following features:

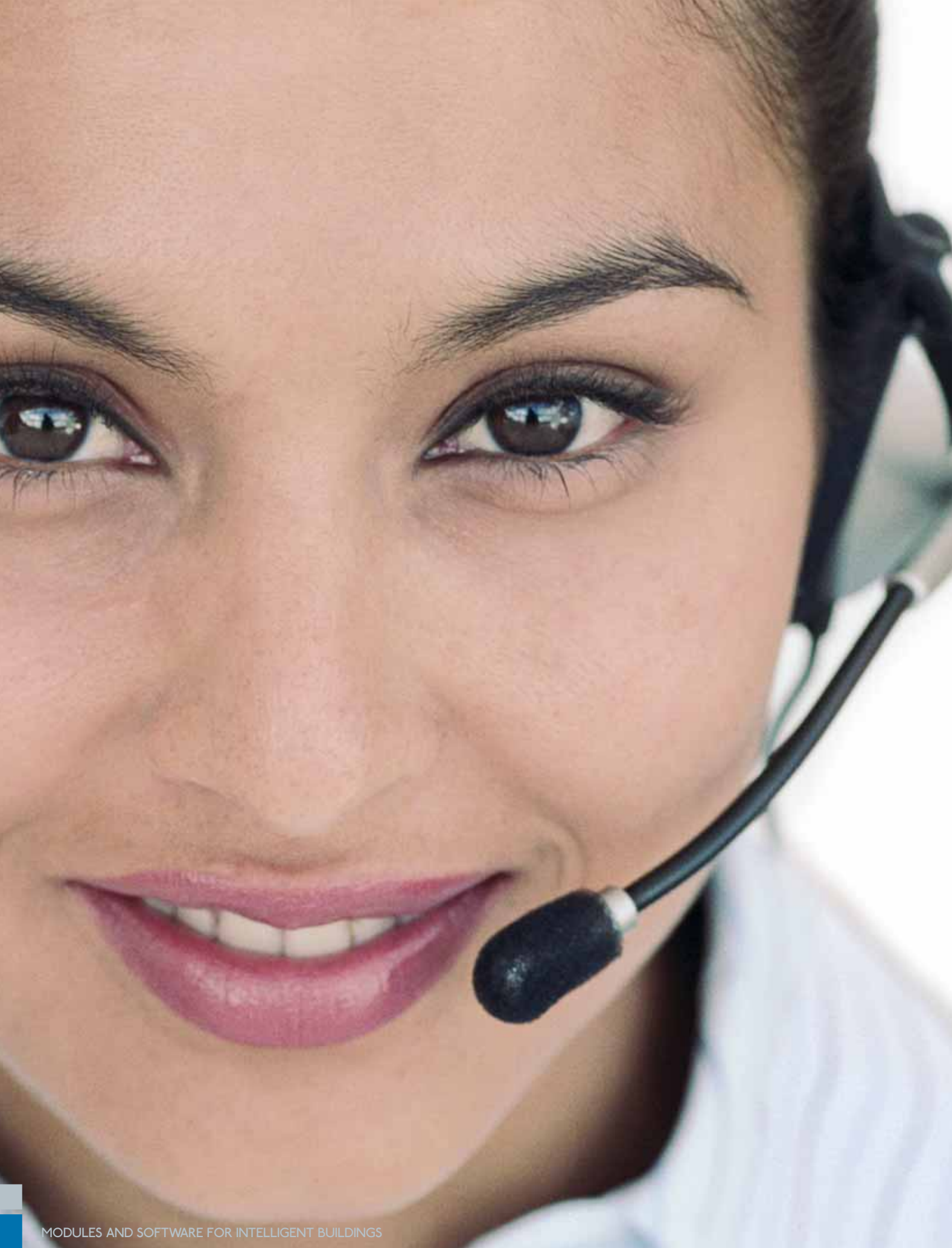
- Convenient drag & drop and copy-paste functionality
- Templates for user interface creation (standard, user, project)
- Importing floor plans from image files (jpg, gif, png)
- Using defined areas in pictures as links



PROJECT CREATION TOOL

Project Creation Tool (PCT) allows for speedy execution of automation projects. With PCT the system integrator can easily configure the modules, design the connections between I/O objects, perform testing, manage the project and automatically produce the project documentation.

The software is extremely beneficial already as a standalone tool, but it also provides compliance with standard COBA definitions. The created project data is in COBA compatible XML format, so the project data is simply copied to COBA server. The data can be utilized by all COBA compatible applications, such as user interface clients or maintenance manual applications, for example.



EFFICIENT SERVICE provisioning

Accessing the building functionality through the COBA Building Operating System allows for very efficient system maintenance and service provisioning. Full transparency to building systems and remote diagnostics of all devices and systems ensure that everything is in perfect condition and functions in the optimal way. Should anything disturbing happen, detailed information about the matter is conveyed automatically thus leading to immediate corrective action. Forefront services guarantee not only undisturbed conditions but also minimized energy consumption, improved security and significantly lower life cycle costs.



ALARM MONITORING



- Intruder alarms
- Fire alarms
- Maintenance alarms
- Video monitoring
- All alarms trigger corrective action



REMOTE DIAGNOSTICS OF ALL DEVICES



- Immediate feedback from all devices
- Quick replacement of faulty units
- Regular software updates



ENERGY OPTIMIZATION AND TRENDING



- Set point adjustment
- Control optimization
- Trending and reporting
- Consumption based billing
- Preventive maintenance



DOCUMENTATION AND TRAINING

SYSTEM

architecture

The Lonix solution is open and clearly layered. Different functionalities – systems – are implemented using distributed control techniques and standard open communication networks. The solution is reliable, flexible and easy to use. Intelligent integration and the use of open technologies allow the system structure to be modified and extended at minimal cost.

1. SERVICE LAYER

Easy and secure access to building functionality in a standard manner through the COBA Building Operating System allows for convenient usage, simple maintenance and very efficient provisioning of maintenance and security services. For example, professional service providers can monitor alarms, optimize the building functionality and provide remote diagnostics of all devices and systems – the possibilities are endless.

2. MANAGEMENT LAYER

To ensure extremely fault-tolerant system functionality, the management layer of the solution is not responsible for any controls. The role of the management layer is to provide a uniform view to all systems. The control layer functions independently, even without the management layer.

The management layer complies with client-server architecture and consists of two clearly separate parts: the Building Operating System and client applications, such as the User Interface. The Building Operating System, COBA, is the server software that handles the following tasks:

- Conveying dynamic data from all systems to any application and vice versa
- Conveying alarms to the desired media and application/user
- Trending of history data from all systems
- Ingenious management of user rights based on predefined user roles

COBA includes a structured object model of the building, its parts and spaces, its connected systems, system parts and effect areas of each system.

3. CONTROL LAYER

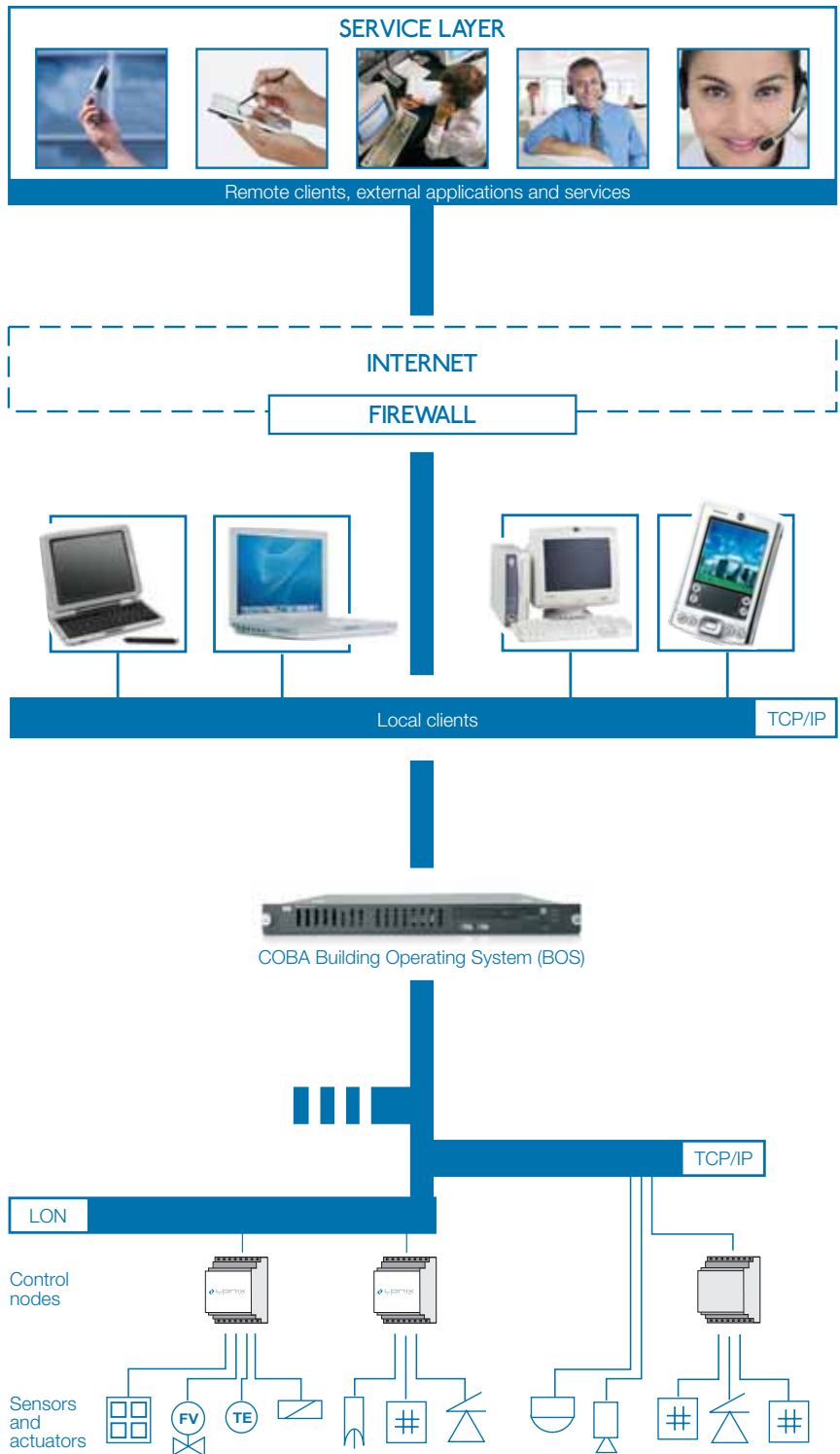
The intelligence of the integrated solution is distributed into smart control nodes in the control layer, i.e. Lonix modules. The systems are easy to configure using the graphical system configuration tool, Project Creation Tool, which is fully compatible with the COBA Building Operating System.

Communication between the modules is done via a Free Topology (FTT-10) Local Operating Network (LON) with the Standard Network Variables Types (SNVT). All communication is event-based. All systems react to alarms on the control layer without interference from the management layer.

To minimize the amount of cabling, control nodes can be placed in the nearest electric panel, inside air-handling units or in separate cabins when adequate. All systems use the same control network cabling, which uses free topology to maximize flexibility for future modifications and to minimize the need for cables.

4. FIELD LAYER

To guarantee openness and flexibility of the integrated systems, the field layer does not include any intelligence. Field devices comply with industry standards, such as PT-1000 for temperature, 0-10 V for other sensors and actuators, potential free contacts for ON/OFF indications and control buttons and 24 V relays for ON/OFF controls.



1. SERVICE LAYER

2. MANAGEMENT LAYER

3. CONTROL LAYER

4. FIELD LAYER

