

Complex projects by EcoProg with Saia based BMS

Moscow 2010

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About EcoProg:

EcoProg is a leading Russian engineering company to develop and implement integrated engineering infrastructure projects for all types of real estate facilities.

Founded in 1990 the EcoProg company works in the field of information and telecommunication systems, security systems, mechanical and electrical systems, building management system (BMS).

EcoProg realizes integrated project design, equipment supply, mounting and commissioning of engineering systems, start up and adjustment works.

EcoProg has worked out several innovative solutions patented in Russia, USA and Canada. Among innovations created by EcoProg is the PROFIVE® technology – five-level building management system that provides integrity throughout the whole infrastructure and helps to integrate equipment by different manufacturers.

By now EcoProg has realized more than 400 large scale projects in Moscow and other regions of Russia.

Projects description:

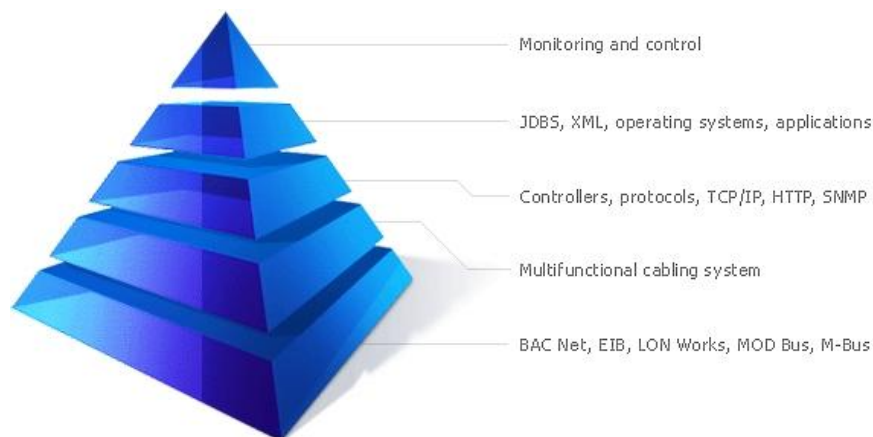
Each project by EcoProg is a complex one. Every complex project provides for the integration of engineering equipment into a unified information area and PROFIVE® building management system.

For the unified information area to be scalable, flexible and easy to operate, EcoProg use equipment working on ModBus, S-bus, Lon Works, EIB open protocols in its projects.

At the level of local automation equipment EcoProg specialists use programmable controllers and distributed I/O signals systems by Saia Burgess Controls for to control building engineering systems, i.e. ventilation systems, heat and cold supply systems, and also to collect data on functioning condition from other engineering facilities.

At the main level of building management system EcoProg engineers use industrial computers by Beckhoff Automation (Germany) as I/O servers, and workstations by Dell (USA) as operator WKS. SCADA-systems by the leading manufacturers, CitectSCADA by Citect (Australia) and Niagara AX by Tridium (USA) are used as software.

Experience by EcoProg proves that such complex projects equipped with the advanced information technologies satisfy clients' needs to the fullest extent.



Belgorodenergo complex of buildings



Location and characteristics

Belgorodenergo power distribution company with its complex of administrative buildings is situated in Belgorod of Russia. It includes a 7-storey administrative and research building with an underground parking and a technical floor, with total area of 8 600 sq.m. and a 5-storey building with 4100 sq.m. of area.

Tasks and objectives

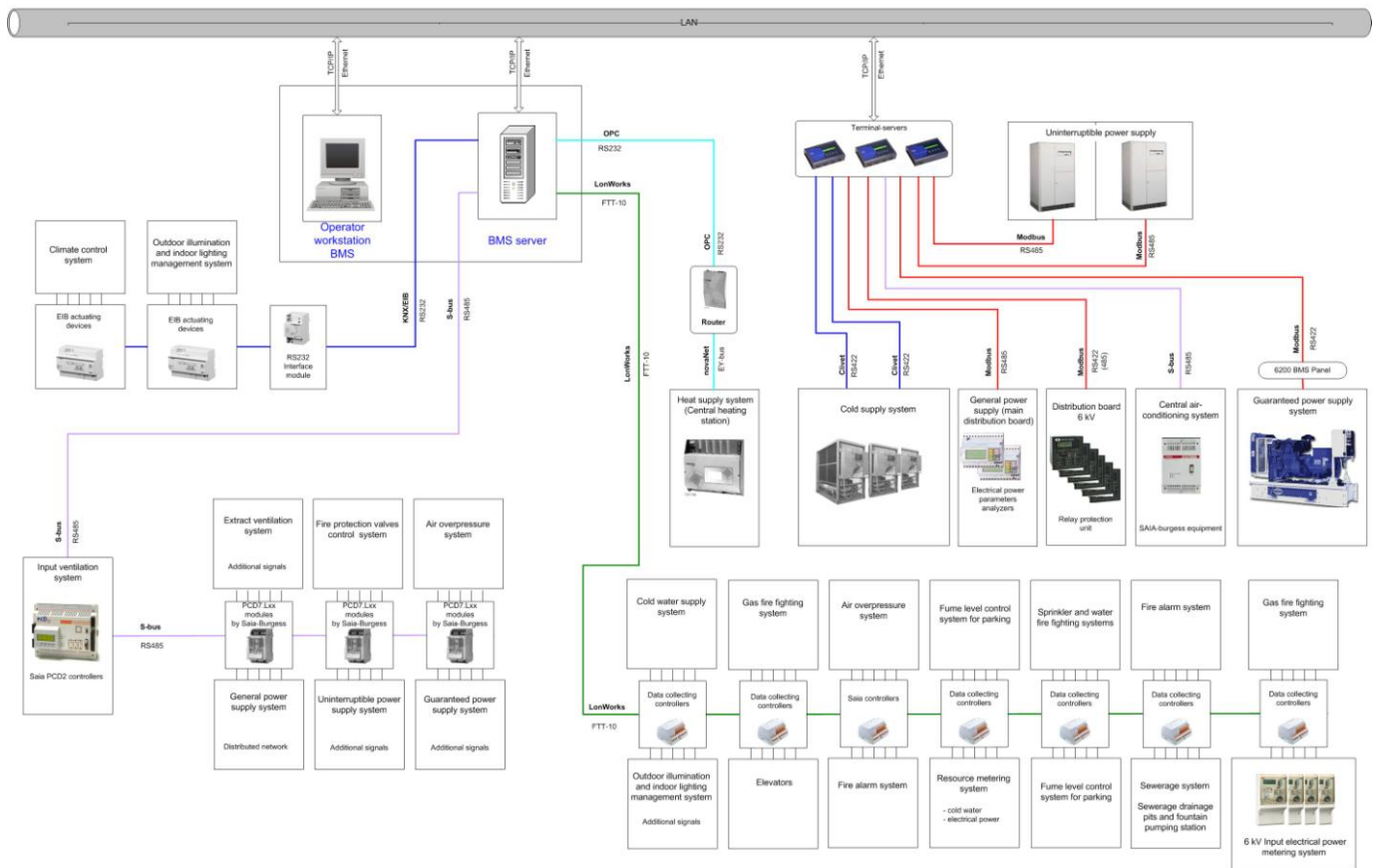
EcoProg engineers faced a task of equipping the buildings with the most up-to-date engineering facilities and using information technologies for efficient operation of Belgorod and the neighboring territories power system.

Implementation

Systems content: mechanical and electrical systems, security systems, information and telecommunication systems, BMS.

Saia PCD2 operate the central air conditioning system, chiller station and monitor the power supply systems. Other engineering systems parameters are monitored by data collecting I/O distributed modules via Lon Works. General, guaranteed and uninterruptible power supply systems are controlled via ModBus. Climate and lighting parameters are regulated automatically via EIB.

Structural diagram
For the building management system of the Belgorodenergo office building



Saia PCDs controls the following engineering systems:

- ▶ input and extract ventilation
- ▶ air conditioning
- ▶ cold supply
- ▶ cold water supply;
- ▶ general power supply(distribution board)
- ▶ uninterruptible power supply
- ▶ smoke removal (air overpressure)
- ▶ fire water supply
- ▶ fire suppression valves.

Features: the project was awarded EIB/KNX 2004 in the nomination “The best realized project of building automation”.

Saia-Burgess controllers implemented

	Controllers	I/O modules				Distributed I/O modules		
Type of controller	PCD2. M130D163	PCD2.E160	PCD2.A460	PCD2.W340	PCD2.W410	PCD7.L101	PCD7.L201	PCD7.L300
	4	16	5	6	4	9	1	4
Total quantity	4	31				14		



Aquamarine multifunctional complex



Location and characteristics

Multifunctional complex consists of three A-class business centers, Holiday Inn hotel and a business-class residential complex. Total area – 160 000 sq.m.

Tasks and objectives

The task was to create efficient engineering infrastructure and minimize financial and time expenditures for project design and construction. The EcoProg engineering company successfully coped with the task

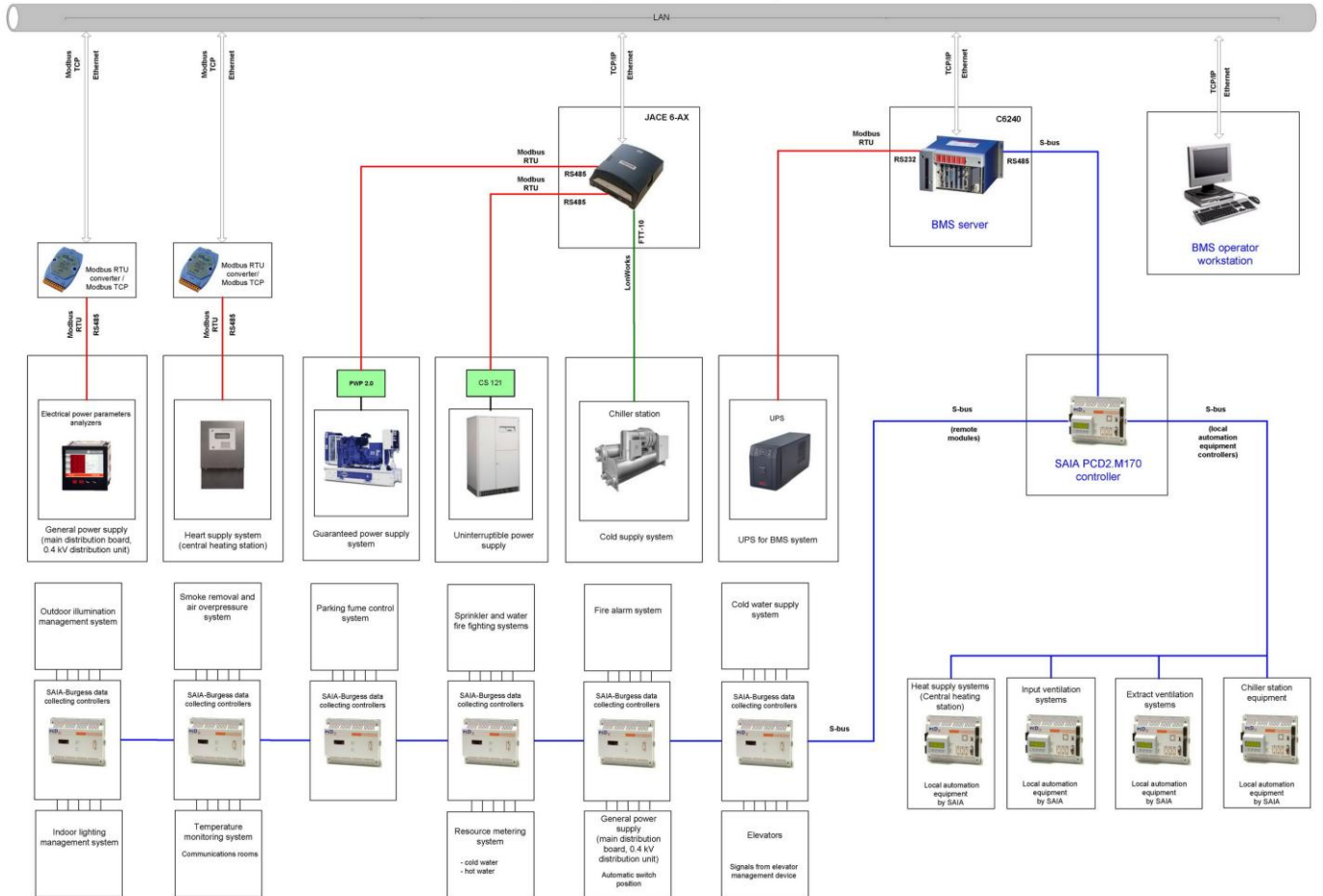
due to complex approach to the engineering infrastructure.

The choice of equipment meeting special unified criteria helped to shorten the design and construction stages.

Implementation

Systems content: mechanical and electrical systems, security systems, information and telecommunication systems, BMS.

**Building management system communications diagram
for Aquamarine multifunctional complex**



Saia PCD1/2 controllers operate chiller station equipment, extract and input ventilation system, heating systems, distributed I/O modules monitor power supply systems in the business center. They also collect data from other engineering systems. Equipment works via Lon Works. Power supply systems function as a part of a single operating system via ModBus.

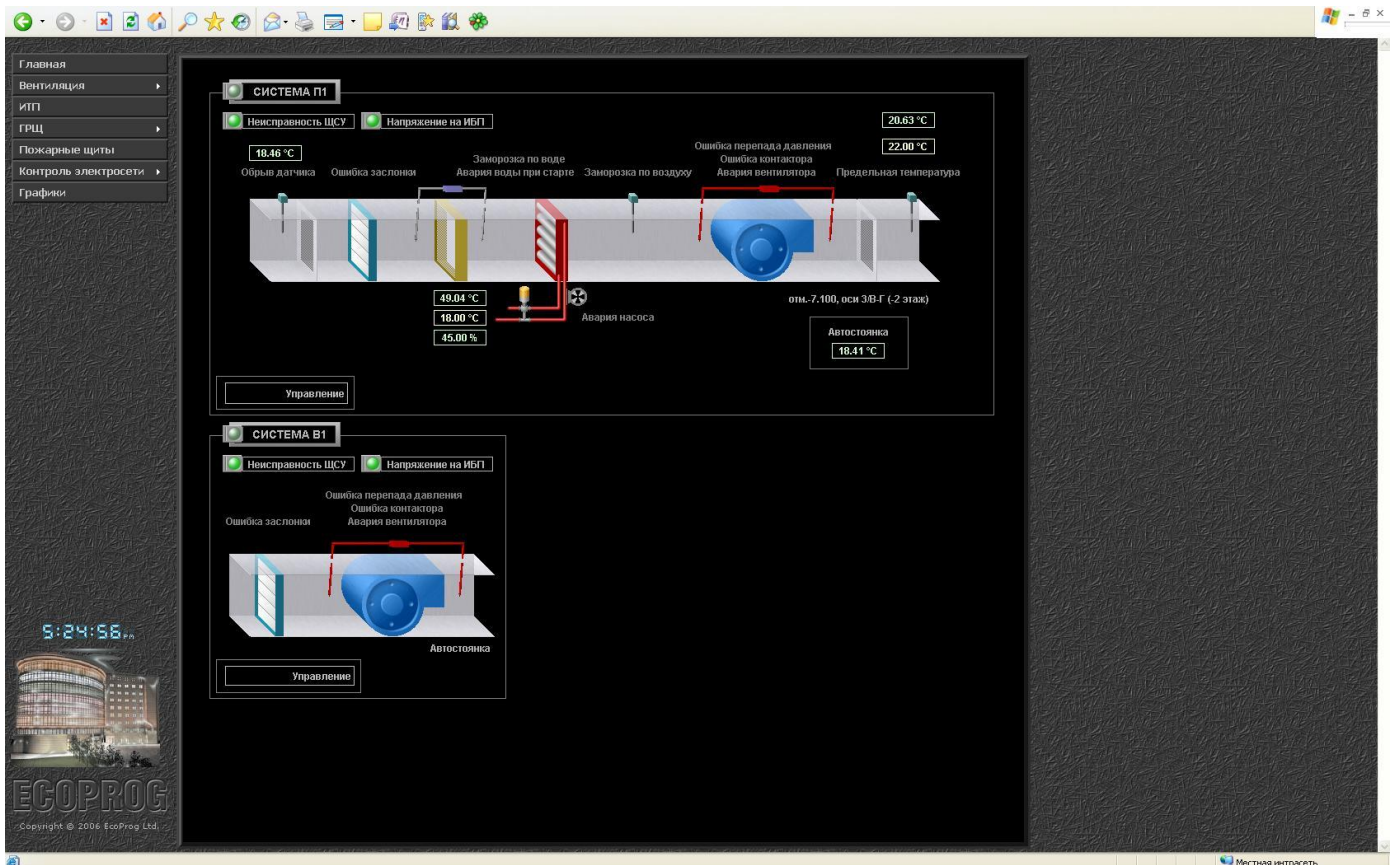
SAIA PCDs control the following engineering systems and its parameters:

- ▶ Extract and input ventilation systems
- ▶ Heating systems
- ▶ Water supply and sewerage systems:
- ▶ Cold supply system
- ▶ Fire water supply
- ▶ Smoke protection systems
- ▶ Fume control system
- ▶ General, guaranteed and uninterruptible power supply

Saia Burgess controllers implemented:

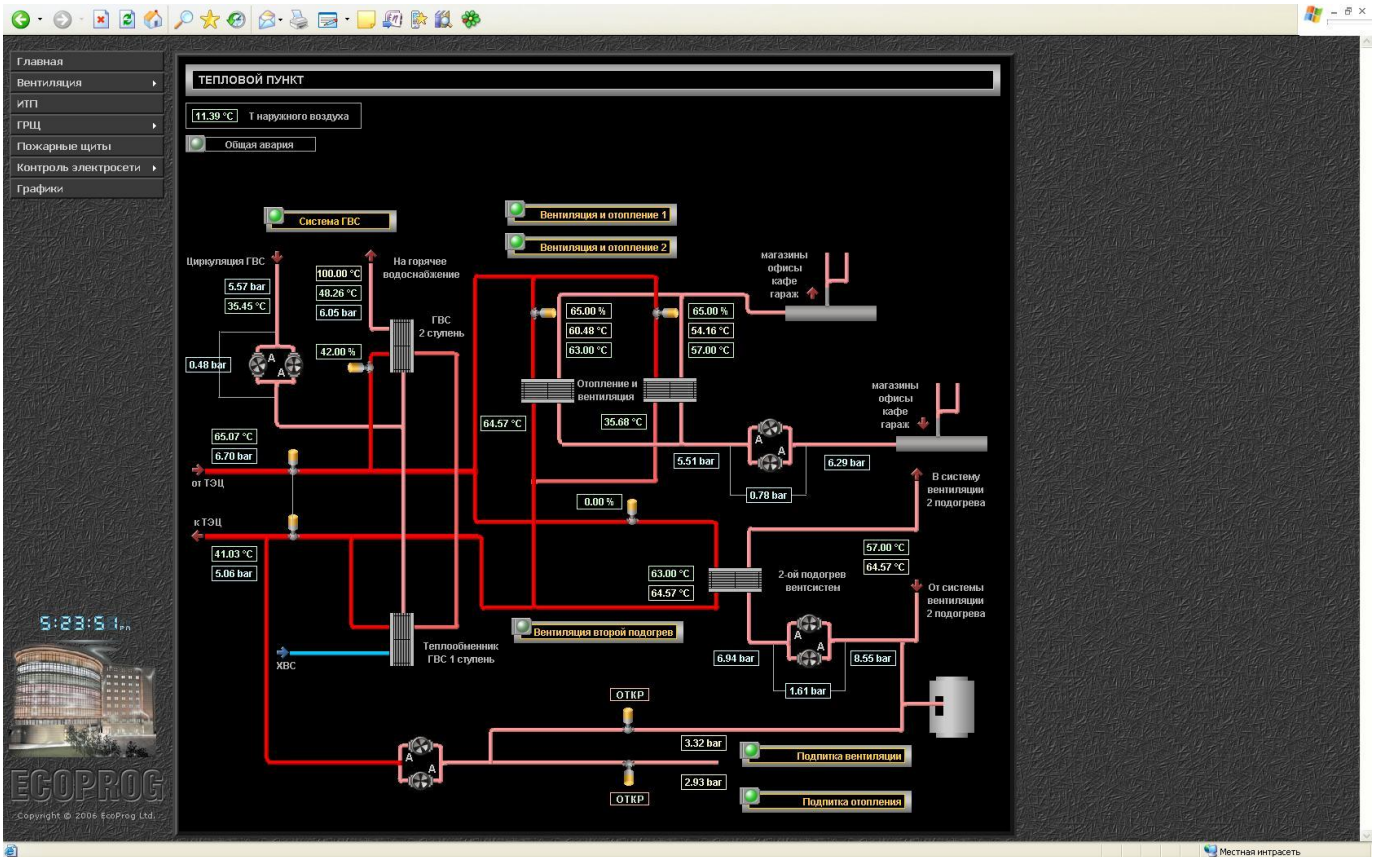
Type of controllers	Controllers		I/O modules			
	PCD1. M130D165	PCD2. M150D165	PCD2.E160	PCD2.A460	PCD2.W340	PCD2.W410
Business center	3	10	47	12	16	14
Hotel	12	2	51	17	14	12
Residential complex	30	1	118	27	15	13
Total quantity	58		356			

Screenshot for the input and extract ventilation system



The screenshot displays a control interface for a ventilation system. It features two main sections: СИСТЕМА П1 and СИСТЕМА В1. СИСТЕМА П1 includes a 3D schematic of a ventilation unit with various sensors and actuators. It displays real-time data: 18.46 °C, 20.63 °C, 22.00 °C, 49.04 °C, 18.00 °C, 45.00 %, and 18.41 °C. СИСТЕМА В1 shows a similar schematic with data: 18.41 °C. The interface also features a navigation menu on the left, a clock showing 5:24:56 PM, and the EcoProg logo at the bottom left.

Screenshot for the heating station



VTB office in Moscow-City complex



Location and characteristics

VTB Bank occupies 32 floors in the 243-meters high-rise - the West Tower of the Federation Complex in the Moscow City International Business center. Total area – 60 000 sq.m.

Tasks and objectives

EcoProg focused on the main tasks of bank engineering infrastructure – failure-free operation of equipment, efficient operation and comfort conditions for employees.

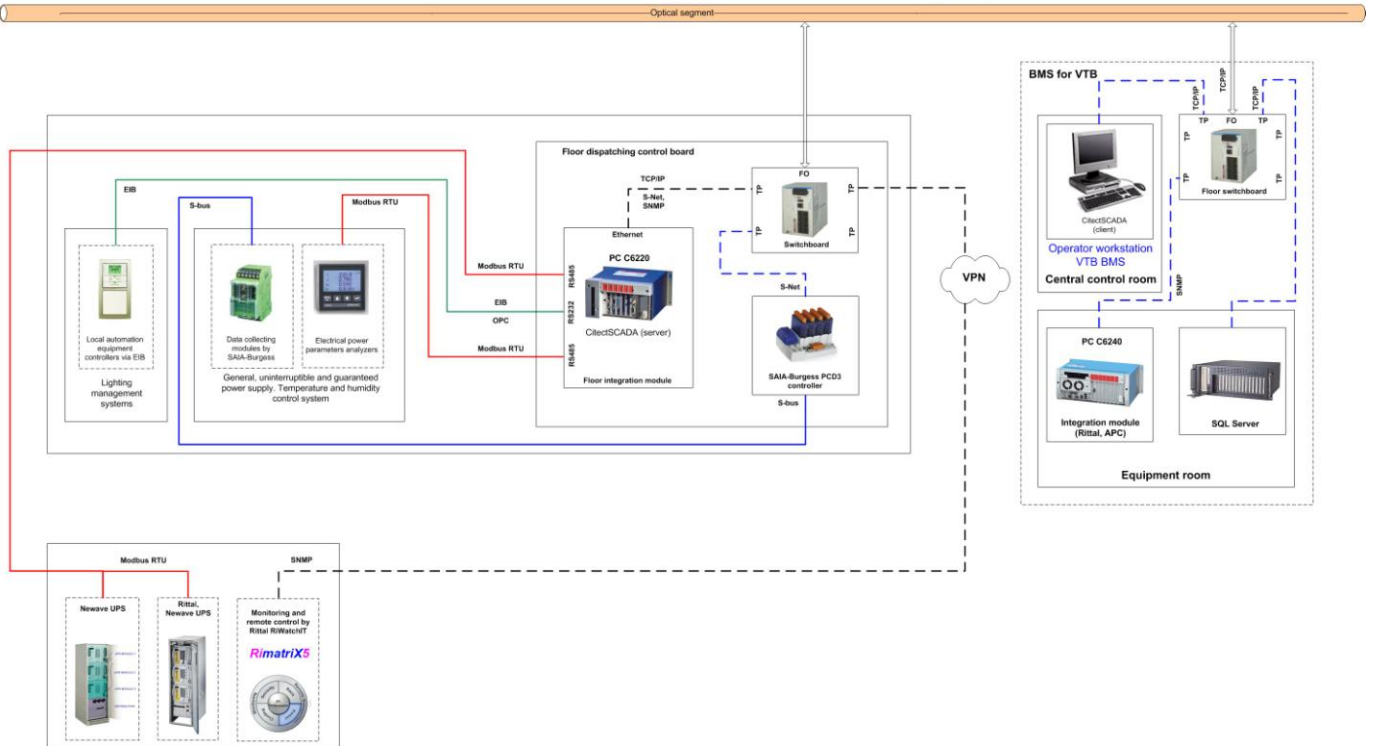
Implementation

The project consists of general, uninterruptible and guaranteed power supply, lighting and climate control systems.

Failure-free operation of equipment is secured by reliable power supply, as well as by diesel generator set. Comfort conditions for clients and employees of the bank are kept via EIB technology considering all features of different kinds of premises (halls, offices, conference rooms, VIP zones)

All these advantages are guaranteed by PRO-FIVE® technology that makes possible to integrate equipment by different manufacturers into an effective unified management system.

Structural diagram
of the systems automation for offices of VTB bank in the Moscow-City complex



SAIA PCD3 controllers envisaged by the project are set into the control cabinets on each floor of the bank. They help to manage the general power supply system and also collect data from distributed I/O

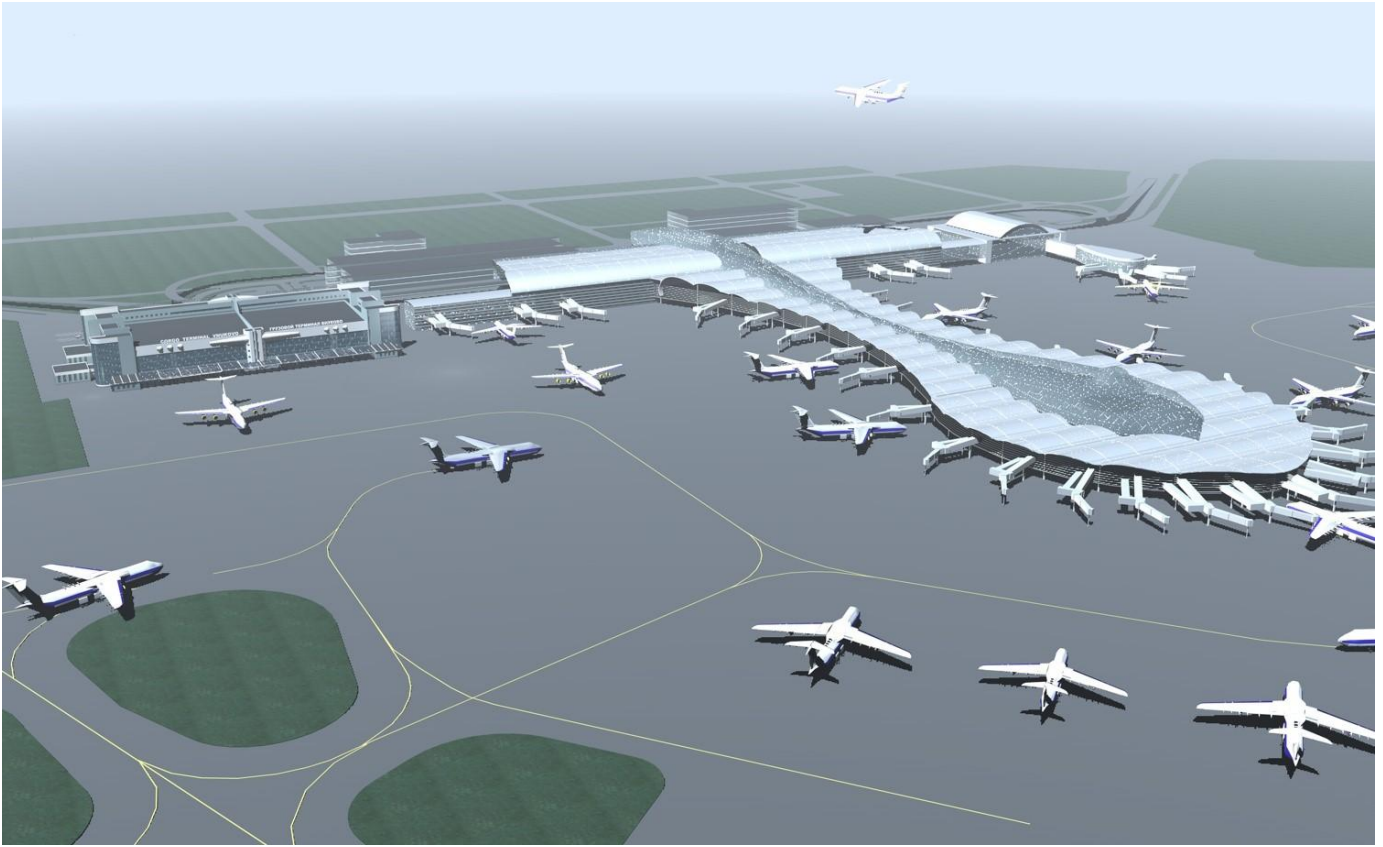
modules via S-bus. UPSs are monitored via ModBus. Climate and lighting parameters are controlled automatically via EIB.

Saia Burgess controllers implemented:

	Controllers	I/O modules		Distributed I/O modules	
Type of controller	PCD3.M3120	PCD3.E160	PCD3.A460	PCD7.L130	PCD7.L200
	32	32	32	690	210
Total amount	32	64		900	



Vnukovo air terminals complex



Location and characteristics

Vnukovo airport is a complex of buildings including:

- ▶ New Vnukovo-1 International Passenger Air Terminal, area – 250, 000 square meters, total capacity – 7, 800 pax per hour
- ▶ Vnukovo Post and Cargo Terminal, area – 57, 000 square meters; capacity – 150, 000 tons of cargo per year
- ▶ Vnukovo-3 General Aviation Terminal, area – 7, 000 square meters. The new complex includes passenger terminal and 3 airsheds. The largest and the most hi-tech center of business aviation in Europe.
- ▶ Vnukovo airport hotel complex, area – 30, 200 square meters, a four star hotel with 443 rooms.

Tasks and objectives

It was necessary to equip the buildings with the most up-to-date and high-tech engineering facilities using information technologies for efficient operation of such a multifunctional and technically sophisticated object.

Vnukovo-1, the largest passenger terminal in Russia includes three individual heating stations, chiller station, three transformer substations, two distributed transformer substations, four central air-ventilation chambers, dozens of heat and cold supply control units.

Implementation

Integrated project of each building's engineering infrastructure covers all internal engineering systems: mechanical and electrical systems, security systems, information and telecommunication systems, BMS.

All systems of the airport complex are integrated into the unified information area via Modbus, Profibus DP, EIB, BACnet и S-bus open protocols.

Saia PCD3 units control heating and ventilation systems, power supply and other systems are monitored by distributed I/O modules.

Saia Burgess controllers implemented:

Type of controller	Controllers		I/O modules				Distributed I/O modules		
	PCD2. M150	PCD3. M5340	PCD3.E 160	PCD3.A 460	PCD3.W 340	PCD3.W 410	PCD7.L 130	PCD7.L 200	PCD7.L 300
Vnukovo-1 international passenger terminal		148	344	132	243	179	3975	359	350
Vnukovo post and cargo terminal		32	79	32	60	30	312		
Hotel		53	126	64	86	51	641	157	
Vnukovo-3 General Aviation Terminal	28		76	25	30	30	10	10	30
Total quantity	261		1587				5844		



Advantages of EcoProg’s complex approach to project design and construction of large-scale and hi-tech real estate objects:

- ▶ Efficient project management due to integration
- ▶ Project design and construction stages cost reduction
- ▶ Higher reliability and safety of engineering infrastructure, operating costs reduction

- ▶ Lower insurance payments
- ▶ World-class solutions, highest Russian standards
- ▶ Support during the whole life cycle
- ▶ Combination of proven technologies and cutting edge ones

