



SPC «KRUG»



SCIENTIFIC PRODUCTION COMPANY «KRUG»

Founded in 1992, today **SPC «KRUG»** is one of outstanding engineering companies in Russia in industrial automation field.

Today **SPC «KRUG»** associate with reliability of complex automation systems, responsibility with respect to Partners and Customers, economic stability in business.

SPC «KRUG» is creator and supplier of modern industrial automation systems and branch solutions. Using uniform hardware and software, adapted for Russian standards, in designing and producing allow to decrease total cost of ownership fundamentally and to provide high level of saving rate from our production:

- Control Systems «turnkey»
- DCS
- Software
- Control room consoles.

Strategic direction of company activity related with standard solutions designing for industrial automation. Jointly with partners – engineering companies – we offering innovation individual and end-to-end solutions, including control and information systems, software and hardware communications.

SPC «KRUG» offers end-to-end solutions for automation tasks in following fields:

- Heat-electric power
- Oil and gas
- Municipal
- Building industry
- and other key branches.

Reference list are included Russia, Kazakhstan, Uzbekistan, Belarus, Ukraine and Poland:

- More than 200 control systems, especially in dangerous fields:
 - more than 50 systems in oil and gas field
 - more than 90 systems in power engineering.

PROFESSIONALISM AND COOPERATION

Firm collective join industrial automation specialists, programmers, researchers, testing engineers, whose high-level skill and experience provides successful application of the achievements of technologies to firm production, solutions and service.

Organizational framework of firm includes following departments: control systems, system and embedded software, designing and producing, economics and finance, marketing, preproduction, also testing department, integrated solution department, metrology and quality department, information technologies department and training center. Scientific and technical council takes a policy decisions.

Project - oriented principle, underlie organizational framework of firm, helps us to handle a big volume of concurrently running works concerned with business rapid growth and to provide high quality of these works.

Quality management system of SPC «KRUG» to the requirements of ISO 9001 corresponded since 2002.

Cooperation and partnership of long duration – the most important component of our work. We are fundamentally thankful to our partners and clients for their choice and trust in our production and solutions. The problems of service, efficiency and quality of technical support are in the field of permanent attention of firm's top-management.



Because of considerable volume of functionality, software products and DCS of SPC «KRUG» are applied to many industrial spheres. Successful introduction and operation of our systems is associated with effective cooperation with customers and partners in these branches:

Oil and gas branch

- ROSNEFT
- GAZPROM
- GAZPROM-NEFT
- SURGUTNEFTEGAS
- TNK-BP
- TRANSNEFT
- TATNEFT et al.

Heat-electric power

- Territorial Generating Company (TGC) -3 (MOSENSRGO)
- TGC - 4
- TGC - 5
- TGC - 6
- TGC - 7
- Wholesale Generative Company (WGC) – 4
- BASHKIRENERGO
- TATENERGO
- Heat - electric generating plant of «Metal Steal Temirtau» metallurgical industrial complex (Temirtau, Kazakhstan)
- Heat - electric generating plants of other enterprises (Russia, Kazakhstan) et al.

Housing and municipal

- Saratov water supply and sanitation
- Penza water supply and sanitation
- Stavropol water supply and sanitation
- Kuban treatment facilities of water supply (Pyatigorsk)
- City power supply (Gheleznogorsk, Krasnoyarsk Territory) et al.

Chemistry

- Uralhimplast (Nizhny Tagil)
- Synthetic Rubber Plant (Yefremov)“
- Nizhnekamskneftehim
- Plastic plant (Omsk)
- Ftalevik (Omsk)
- Caustic (Sterlimak)
- Sylvinit (Solikamsk) et al.

Building industry

- Pridonhimstroyizvest (Rossosh)
- Saratov building materials plant
- Sokol (Dedovsk) et al.

Other branches

- Novoship (Novorossiysk)
- Heat-resistant products and engineering design (TIIR) (Yaroslavl) et al.





PRODUCTION AND SERVICE

Choosing **SPC «KRUG»** as a partner, customers take notice of optimum relationship «price-quality» of our products, availability of realized customizable projects, service completeness and firm's financial facilities. Department officers are intimated production specificity and they are able to offer end-to-end automation solutions proprietary for each customer and help in hardware selection and in systems engineering.

Control systems

Control systems (CS) departments design control systems for continuous and periodic processes, the centralized and territorial distributed units. Functionality and scale CS founded in the range from local (unit control) to complex systems:

- Control systems – control systems of monitoring and control of technological processes
- Automated systems of the commercial account of the heat-electric power
- Automated systems the technical account of the heat-electric power
- Automated systems of operative-dispatch and dispatch-technological management
- Telemechanics systems
- Systems of technical and commercial account of heating resources, natural gas and oil products
- EAM (Enterprise Asset Management).

Control systems designing is based on Russian and foreign DCS.



DCS and other

Simplicity and flexibility, high-technology equipment, openness and availability of program-technical complexes (DCS), made by «KRUG», are foundation for serial solutions for industrial automation as for system integrators as for end users.

You can order complete adjusted DCS, software and hardware «by catalogue»:

- DCS
- Universal time server «TimeVisor» 
- Communication modules «DevLink»: 
 - Communication server (DevLink ComServer)
 - Protocol converter (DevLink Converter).



Software products

Software products of SPC «KRUG» are producing by embedded software department and system software department specialists using modern team engineering. It is afford to solve effective problems of project management, configuration and changes in software life cycle.

Application standard and innovative solutions in software designing provide a facility horizontal and vertical data exchange between subsystems of enterprise and affords to create multicomponent open medium for production control in integrated information field:

- Integrated SCADA «KRUG-2000®»
- SCADA/HMI «DataRate»
- Consolidation data server «WideTrack»
- Real-time systems for controllers
- OPC-servers, device drivers.

SPC «KRUG» offers tools «KRUG OPC Toolkit», «SDK drivers» for third-party developers to create OPC-clients and device drivers, and also to carry out individual customs of software designing.



CONTROL ROOM CONSOLES ConsEnergо®

SPC «KRUG» recommends universal design-packed set of modular **ConsEnergо®** for organization consoles for operatively-dispatching personnel.

Services

High quality of firm services confirmed more than 30 certificates and licenses, including Federal Agencies of technical regulation and metrology, building and others fields. It is afford us to realize full service spectrum of engineering, developing and projecting:

- Object inspection
- Designing of automation conceptions and technical requirements specification
- Developing construction documents
- Engineering
- Assembly control systems, FAT
- Bundling by means of control equipment
- Chef-installation
- Precommissioning
- After-sales service
- Training of the operational and technological staff
- Project management.





FROM INDIVIDUAL CS CREATION TO WIDE REPLICATION OF TYPE DESIGN SOLUTIONS

Long term experience and market research affords SPC «KRUG» successfully replicate own innovations, such integrated recourse counting systems based on uniform program-technical suits for large-scale industrial enterprises, standardized solutions for DAQ through various communication channels, tens standardized projects of comprehensive automation in different branches of industry and many others effective solutions.

Solutions in oil branch

- Control systems of oil processing
- Systems of commercial oil and oil-products calculation
- Control systems of raw material and finished product bases
- Loading systems
- Intellectual anti-emergency systems
- Automated systems of incident liquidation
- Control systems of oil-processing mini- factory

Solutions in gas branch

- Control systems of gas processing
- ACS of gas-compressor units with electric drive
- Systems of account gas and condensed gas
- Control systems of tank fields

Solutions in Energetic

- Control systems of boilers
- Automated ignition systems
- Control systems of turbo generators
- Control systems of gas turbine units
- Systems of commercial gas and heat recourses account
- Integrated systems of technical energy resources account
- Control systems for municipal heat
- Data consolidation system of energy company

Solutions in building and municipal services

- Control systems of residential community power consumption
- Control systems of building life support systems
- Sanitations – operative-dispatching control systems, automation of borehole water intake and comprehensive automation of sanitations

Solutions in other branches

- Chemistry - solvent recovery systems on oil dewaxing apparatus, caprolactam production, control systems of loading rack
- Building industry – control systems for lime burning ovens, control systems of aerocrete production
- also automation solutions in metallurgy, mining industry, pharmaceuticals, melioration, food industry

Solutions for enterprise integrated control system

- Integration with EAM
- Integration with MES
- Integration with ERP



Offering proved cost-effective solutions for our Customers, we give them definite competitive advantages

- For operations corporative management of territorially distributed manufactures, programming-technical complexes of SPC «KRUG» unify data flows from several CS (multiserver access), and provide User's ability of building united dispatching jobsite with centralized direction functions.
- Software tools exchange functional of SPC «KRUG» allows control system to be seen as server or client component in production organizational pattern and allow to create automated system architectures of arbitrary complication.
- Provision with high operational reliability control, directly linked with fault tolerance of equipment and software, is key distinctive feature of complex and mission-critical control systems of our production.
- In the targets of reliability and persistence growth of automation systems programming - technical complexes of SPC «KRUG» is designing on principle designed multilevel backup.
- Easy integration of programming-technical complexes of SPC «KRUG» in united factory automation control system achieves at the expense of using such integration standards as, for example, IEC 870-5-101/104, MODBUS, OPC 2.0, ODBC, and also at the expense of separation applied function from transport and communication functions.
- Function realization as account so technical calculation based on uniform suite hardware and software means allow to refuse great number of various heat-calculators, gas-calculators and other means.



Using programming-technical complexes of SPC «KRUG» to reduce the total cost of ownership fundamentally at the expense of:

- basic costs reduction – fully adjusted high factory availability products; uniform hardware and software; free update; availability of special troubleshooting utilities and remote coding privacy lock
- maintenance charges reduction – high reliability of programming-technical and self-diagnosis means, allows to support workability of control system with minimal cost; data consolidation in united integrated information field; reduction of staff risk of mistakes at the expense of high quality training in SPC «KRUG» preparation center.



SPC «KRUG» is able to solve a queries of large-scale companies as medium and small-scale enterprises. For this purpose the firm use own experience and own innovation designs and also novel world achievements of industrial automation. And not casually, the policy of SPC «KRUG» in quality is formed as: *«Permanent search of novelty, progressive, desire for exceed Consumer's expectations.»*

Dear Customers and Partners!
We highly appreciate Your support and close mutually beneficial collaboration – it is a guarantee of our successful activity in solving key problems of industrial automation.



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