



Tomsk Electronic Company
is certified to the international standard
BS EN ISO 9001:2008, auditor NQA Russia



Scientific and Manufacturing
Enterprise

**TOMSK
ELECTRONIC
COMPANY, Ltd.**



SME Tomsk Electronic Company, Ltd.
Vysotskogo Ul., 33, TOMSK, 634040, Russia

Phone/Fax: +7 3822 63 39 63
+7 3822 63 38 37

e-mail: npp@mail.npptec.ru
web: www.npptec.ru



TOO SMETEC,
Subsidiary Enterprise in the Republic of Kazakhstan
62, Voroshilov St., Ust-Kamenogorsk,
Republic of Kazakhstan, 070002

Phone: (7232) 75-38-31
Fax: (7232) 75-38-31

e-mail: smetec@mail.npptec.ru

Integrated Automation
for Oil, Gas and Petrochemical
Production

www.npptec.ru



Production enhancement can be reached only through the integrated approach to automation and development of the unified strategy of its implementation.

Integrated automation for oil, gas and petrochemical production is one of traditional and fast developing profiles of SME Tomsk Electronic Company.

Basing on the above principle SME TEC performs works for automation of some separate process facilities and large plants, including production, treatment, transportation, refinery and sales of final products.

02

The complete scope of work related to automation is performed, including:

- Development of concept and designing
- Manufacturing and supply of hardware
- Installation and commissioning
- Guarantee service and maintenance during operation

Company employees possess significant experience of developing and turn key commissioning of PCS and ESS:

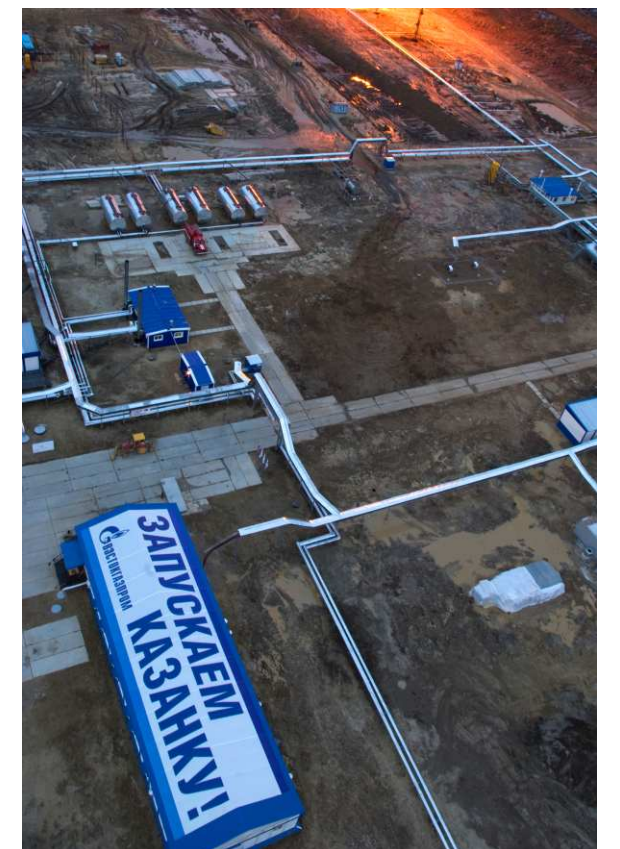
- facilities for oil production and treatment (pads, booster pump stations, water knock out units, oil treatment facilities)
- oil pumping stations
- main and inter-field pipelines
- crude oil delivery and acceptance points
- gas distribution stations
- gas processing facilities
- associated gas utilization units
- petrochemical productions (production of monomers, polypropylene, methanol, formalin and carbamide formaldehyde concentrate)

Main advantage of SME Tomsk Electronic Company making it different from the majority of foreign and Russian companies is the fastest implementation of orders with the best quality, including designing, manufacturing, supply, installation, setting and commissioning. This reduces significantly the pay back period of the Customer's capital investment.



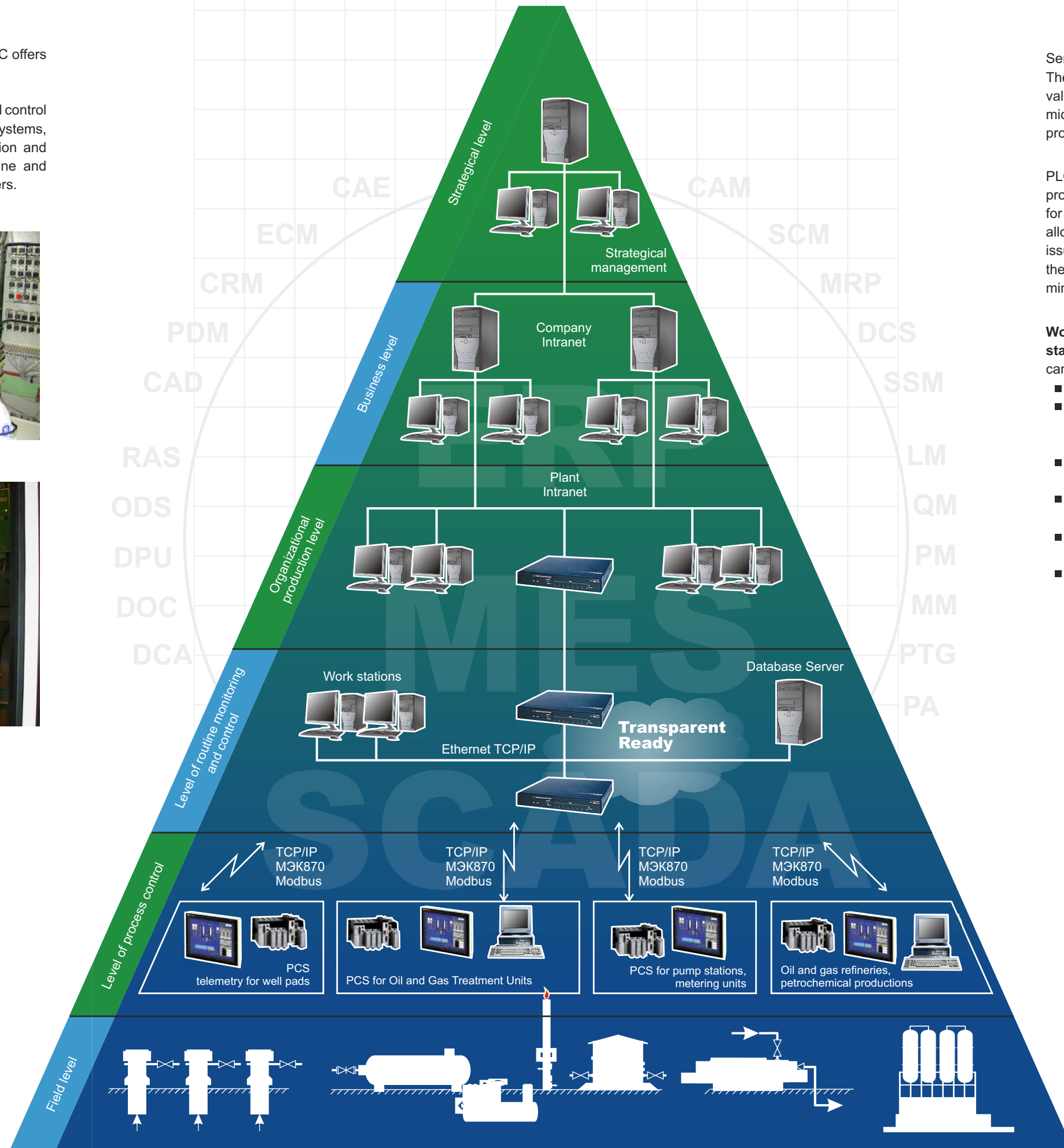
The approach to integrated automation offered by us for oil, gas and petrochemical facilities provides the following:

- Best solutions for process equipment control aimed at reduction of products losses and enhancement of equipment operation efficacy
- Using energy-saving technologies
- Collection, processing and transfer of data from lower level to the upper level and back
- High reliability and timeliness of the data, thus the existing resources can be used in the best way, and forecast about system behavior in case of some external actions can be made
- Reliable and highly efficient tools for archiving and data restoring in order to analyze and find out reasons for deviation from procedures
- Minimum costs for upgrade or replacement of automation devices at all levels by the minimum influence on working efficiency on the system in general during the upgrade period
- Diagnostics and monitoring of state (including transfer to standby) of primary measuring devices, input/output modules, controllers, working stations, nets and devices for uninterrupted power supply
- Diagnostic and monitoring of the state for input/output signals (loss, short circuit, overloading, failure)
- Recording of operation procedures at process facilities, primary measuring devices and system components (running hours, replacement and calibration schedules etc)
- Changeability and handy replacement of system components (including hot replacement of modules)



Depending on the project complexity, SME TEC offers various structures of control systems.

This could be one level system with direct digital control of the equipment, as well as PCS and ESD systems, local networks used for subscribers' connection and remote access means, and servers for routine and archive databases, such as OPC and SQL servers.



Sensors and actuating devices make the **field level**. They include not only simple converters of physical values into electric signals, but also quite sophisticated microprocessors, using their own algorithms for processing of input commands and output signals.

PLC equipped with software for data collection and processing and remote input/output modules are used for the **process control level**. Modern controllers allow to locate devices for data collection and command issue at minimum distance from first level system, thus the system becomes more reliable and cabling is minimized.

Workstations of local and central dispatcher stations make the next levels for routine control. They can include the following:

- work stations for data processing
- powerful servers for events and process parameters archiving and storing during the required period of time
- displaying devices (multi monitor displaying system, screens, mnemonic diagrams etc.)
- software presenting data presenting data in the format convenient for servicing personnel
- communication engineer (modems, adapters, configurations etc.)
- interruptible power supply providing operation of crucial PSC devices in case of emergency failure of feeding voltage



06

The company has developed and successfully introduces integrated automation systems, based on advanced hardware and software, which incorporate the latest Russian and international engineering achievements regarding controller equipment, software and communication protocols.

SME TEC cooperates with leading international companies - Emerson Process Management, Yokogawa, Schneider Electric, Siemens, Rockwell Automation et al.

All this allows creating highly efficient integrated automated systems of MES and ERP levels, based on modern information technologies.

High performance rate is provided since the company possesses highly efficient work stations and remote servers, uses the most advanced information technologies and employs highly professional specialists.

The main advantage of our company is applying our own developments for automation projects upon the Customer's approval: intelligent electric drives and package automation units, integrated metering systems, gas contamination monitoring systems, power control panels (SSU), auxiliary equipment cabinets (SVA).

The company possesses its own modern equipment for electronic, mechanical and assembly productions, thus it can provide the best options for automation system components for each specific project fully meeting Customer's requirements and requests.



Amongst our clients are companies within Rosneft, Gazprom, TNK-BP-Holding, SIBUR Holding, EVRAZ Holding and others.

Designing and Development of Automation System Concept

Specialists of SME Tomsk Electronic Company can perform integrated designing or its various stages:

- Inspection of the facility to be automated, generating basic data
- Development of the automation concept and technical requirements
- Development of detail data in order to identify the company to supply basic automation tools
- Development of a technical assignment on automation system
- Development of technical documents and detail drawings for general system solutions, organizational maintenance, technical support, data support, software
- Development of estimate documents
- Support during appraisal of design and estimate documents
- Designer's supervision in order to assure compliance with the design

The system level can include automation of single process units up to automation of the whole production plant.

Manufacturing and Supply of Integrated Automation Systems

It includes the following stages, which are implemented in strict compliance with ISO 9001-2008 quality management system:

- Selection of project manager
- Development and approval of work schedule
- Development of design documents and applied software
- Manufacturing of integrated hardware and software
- Pilot operation
- Factory acceptance testing
- Shipment to the Customer



Assembly and Commissioning

There is a special division in our Company involved into assembly and commissioning, for this purpose the following special subdivisions have been setup within SME TEC structure: operation, repair and commissioning, maintenance service.

Guarantee Service Maintenance During Operation

It includes:

- Monitoring of automation system working capacity during operation
- Support for automation system software
- Servicing all the elements of the system and timely elimination of system operation failures
- Minimum time for repair and downtime of the equipment in emergency situations since all the spare parts are available in the Company warehouse

Exercising flexible approach our company can offer various formats of service to the Customers:

- routine visits of highly qualified specialists to the Customer
- regular presence of SME TEC technical specialists at the Customer's site

07