

## Modern SCADA systems in technological process automation



Modern technological process automatic control systems aren't imaginable without visual control on the basis of programmable logical controller (PLC). Quite recently technological process visual control at the enterprises with the sophisticated control architecture was carried out with the help of mnemocircuits and pulpits with a lot of switching and signaling equipment.

Nowadays this equipment is changed by visualization systems of new generation, called as SCADa systems (Supervisory Control and Data Acquisition).

SCADa refers to the human-machine interface (HMI) systems. Today all leading firms, producing equipment for technological process automation, offer one or another SCADa system. Plenty of them are carried out on the basis of personal computers under operation systems Windows 95/ 98/ NT 4.0/ 2000, XP control and provide wide functional capabilities for the integration of different assignment control system.

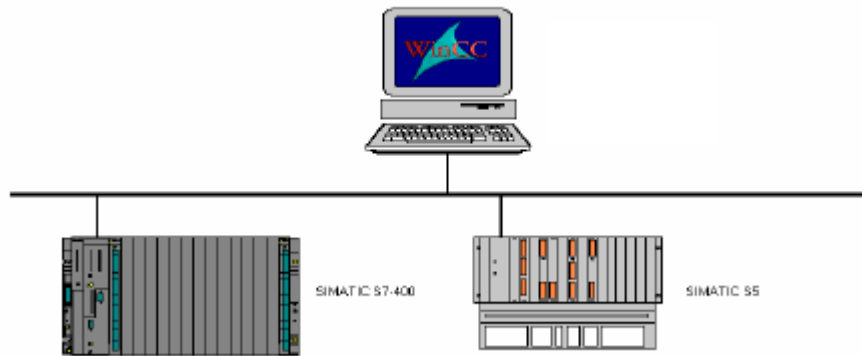
Advantage of modern visualization systems lies in the fact that they display not only object static condition but also permit as follows:

- to watch over technological process in dynamics
- to archive temporary process followed by printing as a report
- to control process from the personal computer (PC) or operator's panel (OP) display by means of the mouse and the keyboard,
- to print report and task blank forms,
- to change process parameters by means of PC or OP,
- to change tasks on output of products,
- to save modes and production receipts in PC memory
- to give messages at pre-set events
- to control operator's wrong actions, excluding human factors which lead to accidents or to production of defective products,
- to form and to print reports automatically instead of manual blanks and operating logs filling, excluding errors and operator's additions.

All SCADa systems have much the same configuration. View construction architecture of SCADa systems **Simatic WinCC** from the firm Siemens, which consists of as follows:

- The personal computer with visualization software package - Simatic WinCC.
- The programmable logical controllers of Siemens or controller of another producer.

The connection between PC and PLC can be carried out according to the protocol MPI, PROFIBUS-DP Industrial Ethernet.



Visualization software package allows operating technological process with some controllers.

SCADA system advantages in front of morally out-of-date mnemocircuits in that not only operator's areas are cut down during their using but also production control becomes much easier.

During using decentralized process control architecture it's much less expenses on the following:

- switching equipment
- signalling and control valves
- cable production

It is profitable to use SCADA systems equally either on the small objects of automation or the big one. Rolling mills, blast-furnace production, TPP, pumping stations, metering and packing line, storage rooms, poultry factories, concentrating mills, goods traffic operating, are not complete list of possible using of these systems.

At Kazakhstan markets vizualization systems of different producers are used, for example: Siemens, Allen Bradley, GE Fanuc, Mitsubishi, ABB, Omron and so on. An absolute leader of SCADA system at Kazakhstan markets is Siemens with software packages WinCC Flexible and WinCC.

SCADA system **WinCC Flexible** is visualization tool, satisfying all requirements which are fixed for such kind of system. It works under Windows XP and consists of software Runtime and configuring package, needed for project development. WinCC Flexible allows programming operator's panels, has fast reaction time as compared to traditional SCADA systems. It's used for units visualization and small productions in any industry as single-place system and also can be connected with system of upper level system (for example, with WinCC).

Open SCADA system Simatic WinCC permits to integrate operator's interface by re-creating or already existing automation projects easily and simply. This powerful program product of Siemens allows avoiding excessive expenses on the designing and software checkout. It's important that WinCC supports Russian. This system has everything needed for leading visualization system.

“RVSA”, Ltd., carried out following SCADA system projects:

- Electrolyte tinning line at JSC “Arcelor Mittal Temirtau”
- Cement grinding area at JSC “KarCement”
- Ropeway “Koktobe”, Almaty.
- «ArcelorMittal Темиртау» speed modes control of rolling mill JSC “Arcelor Mittal Temirtau”
- Concrete preparation units
- Annealing furnaces control at JSC “NF machining plant”, Balkhash and others.

