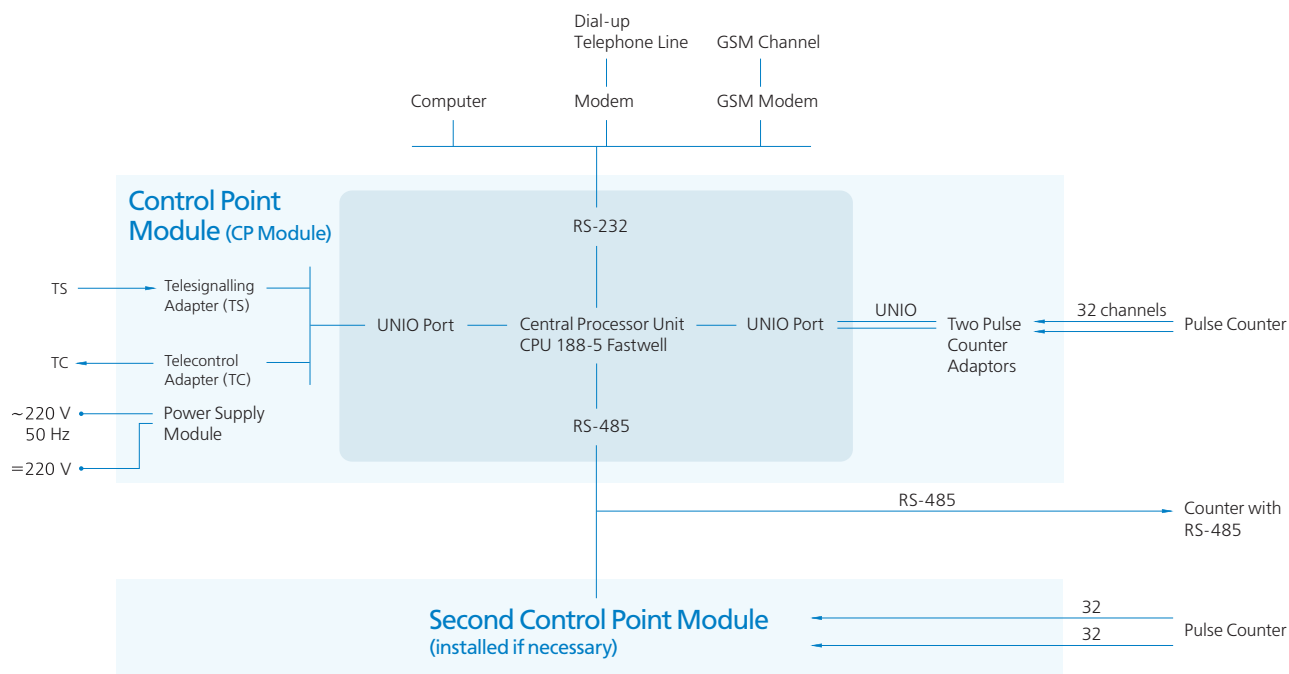# RCS

2000

AZIMUT

Automated System of the Electric Power
Consumption Registration

RCS 2000

Automated System of the Electric Power Consumption Registration

Purpose

The automated system of the electric power consumption registration (ASEPCR) RCS 2000 is designed for collecting, storage and centralized analysis of data on electric power consumption of objects equipped by controlled points (CP) modules of the ASEPCR system, as well as for displaying the data in a form convenient for analysis.

CP Module of the Automated System of the Electric Power
Consumption Registration RCS 2000

Principles of Operation and Signal Format

The RCS system operates on the principle of consecutive inquiry of controlled points (CP) with time separation of requests and reply. Dial-up telephone lines, leased telephone lines, GSM channel, direct cable connection, or RS-232 and RS-485 ports are used as communication lines for connection with the CPs. Data exchange is carried out using code words (patterns) containing CRC-codes for protection against transmission errors.

System Composition

The RCS 2000 system consists of an equipment installed on the controlled objects (CP module) and software and hardware facilities of the data collection and analysis centre.

CP Module

The CP module provides:

· receiving, collecting, and storage of data incoming from the counters;
· support of a common system time;
· data transmission to the server of the RCS 2000 system via RS-232 interface, dial-up and leased telephone lines, or GSM-channel;
· incoming information protection against interference in the communication lines with counters (on the software level).

The CP module has up to 64 inputs for connecting of counters, according to the configuration (number of counter adaptors). The counter adaptor is intended for receiving and storage of data incoming from the electric power counters. The adaptor has up to 16 inputs.

Software and Hardware

The software and hardware of the data collection and analysis centre include:

· communication server;
· SQL-server;
· web-server;
· user workstations.

The communication server is a computer to which modems are connected for communication channels organization with the CP modules. The communication server inquiry the CP modules, the processing of received data and transmits it to the database management system MS SQL Server for storage. Data collecting can be carried out in automatic (according to a schedule set by the system administrator) or manual modes, in which case the data is requested by the administrator.

Data Presentation

Data presentation is implemented as a web-interface, which provides access to the data both through the local area network (LAN) and through the Internet. The software installed on users' personal computers (PC) allows selecting information from the database by time period and to display it as a table or chart.

Access Control

The system provides data access control for different categories of users. The access levels are set by the administrator of the RCS 2000 system.

Design and Electronic Components

The CP module of the RCS 2000 system has been developed on the Comby Card 5000 frame. Modern electronic components from a leading world manufacturer and surface mounting technology are utilized in CP module. The module is based on a one-board computer and programmable micro-controllers.

Main Technical Specifications of the RCS 2000

Reduced error of defining the number of incoming pulses, at most	0.2%
Communication channel types	direct cable connection dial-up telephone line dedicated telephone line GSM channel RS-232 and RS-485 ports
Number of inputs (depending on the configuration)	16, 32, 48, 64
Record capacity for each input	45 days
Maximum frequency of incoming pulses	10 Hz
Data rate (RS-232), up to	4800 baud
Clock error per day	±5 s
Clock synchronization error by command from the ASEPCR "Energiya" communication server	±2 s
Weight, at most	6 kg
Power consumption, at most	15 VA
Power supply	220 (+10%; −15%) V, 50 Hz
Period of uninterrupted operation	24-hour

Reliability

MTBF, at least	30 000 hours
Life cycle	15 years

ISO 9001:2000 CERTIFIED