

## 1.02. WIDE AREA MEASUREMENT SYSTEM



Wide area measurement system "Regina-Ch" is intended for:

- monitoring operational parameters of power systems in real time, as well as stability, fluctuations, present values of angles and frequency, operational modes of essential mechanisms of nuclear power plants (NPP), including main circulating pumps (MCP), during start-up, operation and braking of units, and a state of voltage control means;
- measuring intensity, voltage, power, phase and frequency of AC;
- automatic registration of abnormal operational modes;
- storing the measuring data;
- processing measuring data, displaying it in the digital and text formats, graphs and tables on a monitor and preparing it for printing, and its transmission to the different levels with reference

to standard time signals received from GPS receiver.

The system can be used to control electrical parameters in different industries, even as a part of information-measuring and control complexes.

### *Technical specifications:*

Data averaging interval	from 1 to 50 periods of industry frequency with increments of one period
Number of input analog signals	Up to 32
Range of input signals from CT (present values)	0,05...6 A at $I_n=5$ A, 0,01...1,2 A at $I_n=1$ A
Range of input signals from VT (present values)	1...2 0 0 B at $U_n=100$ V
Limits of the permissible absolute error at the phase angle measuring	$\pm 0,1^\circ$
Limits of the permissible absolute error of time synchronisation of the "Regina-Ch" system	$\pm 5 \mu\text{s}$
Limits of the permissible absolute error of frequency measuring At the signal period of 50Hz frequency	$\leq \pm 0,001$ Hz
System accuracy class when measuring electric current intensity and AC voltage	0,2
System accuracy class when measuring active and reactive powers	0,5
Criteria for writing emergency information into archive:	<ul style="list-style-type: none"> <li>• frequency slew rate of phase voltage is outside the set-point from the range 0,001...2 Hz/s with increments of 0,001 Hz/s;</li> <li>• present value of any phase voltage is outside the set-point in the range to 120 %</li> </ul>

Type and number of the parameters written into archive can be modified in the configuration file.

"Regina-Ch" can also transmit the measured and estimated values via dedicated or switched channels. All measured and estimated values are transmitted on demand or in a real time by IEC 60870-5-104 and IEEE C37.118 protocols.

*The recording electrical measuring device "Regina-Ch" passed the state check testing in the SE "Ukrmetrteststandart" and was registered in the State Register of Measuring Instruments of Ukraine*