

#### 4.11. DIFFERENTIAL CONDUCTIVITY METERS FOR BIOSENSOR SYSTEMS

Conductometric multi-biosensor analyzer is designed for simultaneous determination of the content of sucrose, maltose, lactose and glucose in manufactured food.

*It provides:*

- diagnostics of the device's operation during the measurement;
- automatic adaptation of a measurement channel to the connected sensors;
- acceptable invariance of the measurement results to the action of non-informative factors.



*Technical specifications*

Hardware composition	a four-sensor block of differential conductometric converters, a basic electronic measuring module, a magnetic mixer of a solution, a personal computer
Informative parameter that is measured	a difference of specific electrical conductivities of the solution on the surfaces of differential sensor converters
Resolution capability to the change of output electrical conductivity of sensor	0,02 mmhos
A number of differential channels	1 ... 4
A given error of the characteristic nonlinearity (at the tangent of phase angle of sensor 0,2 - 0,5)	not worse than 3 - 5% in the range of changes of electrical conductivities 0 - 3% of the total sensor conductivity
Test signal frequency	Selectable in the range of 30 ... 70 kHz
Voltage on the conductometric converter	10 mV
Weight (without computer and mixer)	0,7 kg

**Advantages:** Compared to foreign analogues, conductometric multi-biosensor analyzers have significantly smaller weight and dimensions, and significantly lower cost. The algorithms of automatic balancing and control of the measurement process allow to control important sensor parameters (resistance and tangent of phase angle of the working converter, tangent of the difference of phase angles of the reference and working converters, and ratio of their resistances) directly during the measurement by means of the PC. This ensures high reliability of the results and makes them independent of the type of sensor that is used.