ALPHA / BETA RADIOMETER

UMF-2000

DOZA

- **LOW-BACKGROUNG ALPHA/BETA RADIOMETER WITH SILICON DETECTOR**
- **FOR LOW ACTIVITY MEASURMENT OF ENVIRONMENTAL SAMPLES**
- **DESIGNED TO MEASURE OVERALL ALPHA ACTIVITY AND OVERALL BETA ACTIVITY OF FRESH WATER, TAP WATER, WASTE WATER, SOIL AND OTHER SAMPLES OF ENVIRONMENTAL OBJECTS**
- **OPTION TO MEASURE ACTIVITY OF ALPHA NUCLIDES BY SPECTROMETRIC METHOD**

APPLICATION:

- measurement of overall (total) activity of alpha nuclides in "thick-shape" and "thin-shape" samples of environmental objects;
- measurement of total activity of beta nuclides in samples of soil, water, on air filters and samples obtained by selective radiochemical extraction methods;
- measurement of alpha activity of nuclides in samples, which are obtained with radiochemical preparation, by radiometric method (using textbook of methodics);
- measurement of alpha activity of nuclides in samples, which are obtained with radiochemical preparation, by spectrometric method (using textbook of methodics and spectrometric kit "UMF-Spectrum).

FEATURES:

- simultaneous measurement of alpha and beta activity of the samples;
- use of silicon ion-implanted detector, area 500 mm^2 or 1000 mm^2;
- active protection against background radiation with the use of gas discharge meters and anticoincidence circuit;
- passive sample protection against background radiation;
- mains protection against power supply interference;
- two-channel counter with timer to count pulses from registered alpha and beta particles;
- spectrometric signal output;
- communication with computer via USB/ RS-232 interface;
- software "UMF-2000" for radiometer control, measurement results processing and report printing;
- determination of nuclides activity (after radiochemical preparation of sample):
  - in soil: Po^{210}, Sr^{90};
  - in water: Po^{210}, Ra^{226}, Ra^{228};
- calibration interval - 2 years.

TECHNICAL CHARACTERISTICS:

Detector:

- semiconductor silicon.

Detector area:

- 500 mm^2;
- 1000 mm^2.

Samples feed:

- drum-type (4 samples at a time) for 500 mm^2 detector;
- drawer-type (single-sample) for 1000 mm^2 detector size.

Activity measurement range:

- alpha nuclides: 0.01 ÷ 1000 Bq;
- beta nuclides: 0.1 ÷ 3000 Bq.

Registered energy range:

- Alpha radiation: 3500 ÷ 10000 keV;
- Beta radiation: 50 ÷ 3500 keV.

Limits of permissible basic relative error

- Activity measurements: ±15 %.

Count rate of background pulses:

- in alpha registration channel (detector area 500 and 1000 mm^2): not more 0.001 s^{-1};
- in beta registration channel (detector area 500 mm^2): not more 0.03 s^{-1};
- in beta registration channel (detector area 1000 mm^2): not more 0.07 s^{-1}.

Warm-up time under constant external conditions, not more:

- 30 min.

Continuous operation time:

- 24 hours.

Power supply:

- 220(+22, -33)V, 50(±1) Hz

Overall dimensions, weight:

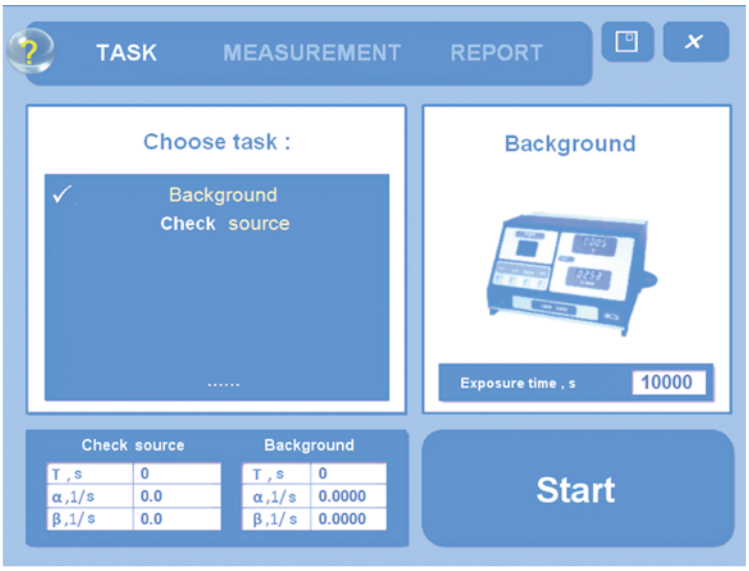
- 336.5×286×190 mm, 23.0 kg (detector area 500 mm^2);
- 334×286×190 mm, 22.3 kg (detector area 1000 mm^2).

SPECTROMETRIC KIT "UMF-SPECTRUM"

- DESIGNED TO MEASURE ACTIVITIES OF ALPHA NUCLIDES BY SPECTROMETRIC METHOD;
- EXTRA OPTION FOR THE UMF-2000 RADIOMETER.

The Spectrometric Kit and UMF-SPECTRUM software allow you to expand the capabilities of UMF-2000 device and its scope of application by using spectrometric method as well as radiometry.

The Spectrometric Kit comes with the textbook of methodics “Measurement of alpha activity of nuclides in “thin-shape” samples with the use of spectrometric method”.



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Technical characteristics are subject to change without prior notice.