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801E MULTIPLE SAMPLE BETA/ALPHA IRRADIATOR

The successful 801 multiple sample irradiator has been updated this year with all new electronics, new firmware, and some mechanical improvements. Capacity has also been increased from 20 to 30 disks. Many new features have been implemented to take advantage of the new hardware. Use of a larger display (two lines of 40 characters, red backlit negative image LCD with automatic dimming with ambient light level) makes navigation through the function menu possible using cursor keys, so the number of keys has actually decreased while the functionality has been extended dramatically. A realtime clock/calendar makes it possible to compute decay for the radionuclides housed in the 801E's two irradiators, and an EEPROM stores multiple irradiation programs. There also is a serial channel, either RS-232 or RS-485 (optional) for connecting multiple irradiators (and alpha counters) to a single serial port on an external computer for exchange of status information and downloading irradiation programs. There is nonvolatile storage for up to 10 irradiation programs, up to 10 sets of doserates to different materials, easy editing, and for the first time, irradiation either by time of exposure or by set dose to be delivered (using decay-corrected doserates for the particular material irradiated). Battery-backed RAM stores the current state for protection against power failure, and operation resumes without interruption (but with a printed log of failure time) when power is returned. Security features include possibility of a password to be entered before operation, inaccessibility of irradiators except though the bottom (and an optional hardened steel pin and padlock can secure the 801E to the laboratory bench, thus precluding any access to the bottom of the unit). Radiological health issues have also been addressed. The exposure rate at the surface of the front panel, with a 100 mCi Sr-90 ceramic beta source loaded, is only 10 microR/hr. Worst case for any accessible surface (8 cm from the rear of the case, top center) is 500 microR/hour, reduced to 90 microR/hour 30 cm above the surface, so a simple box security enclosure is adequate personnel protection.

SPECIFICATIONS

Sample positions: 30 dual size sample wells for 10mm disks and 3mm square chips

Irradiators: two, alpha and beta

Irradiation times: 0.1 to 100,000 seconds individually settable, and choice of irradiator settable for each position

Program storage: up to 10 editable, downloadable programs, storage time at least 10 years

Doserate storage: 10 alpha, 10 beta for different materials

Exposure modes: time or dose, multiple or single sample, internal or external irradiator

Decay correction: uses realtime clock/calendar (Y2K compliant) settable from keypad

Display: Two lines of 40 characters, red backlit negative LCD

Display intensity: automatic dimming of LCD backlight and status display with ambient

Control keys: Data entry (0-9, decimal point, backspace), menu (enter, clr entry, <--, and -->), and control (Stop/abort and paper advance)

Backup battery low detection

Printer: 24 character/line dot matrix thermal

Security features: password protection available, optional bench lock

External irradiator power: 24 volts at 1 amp

Serial channel: RS-232 or RS-485 multidrop (16 device ID numbers available), 9600 baud

Physical: 37 cm wide, 18 cm high, 39 cm deep, weight 9 kg, all metal enclosure

Power: 100-240 VAC, 47-63 Hz, 0.8A CE-marked external desktop supply (30W max, +5V and +24V)