

The Hand ϵ Count model is a portable sample counting system, providing simultaneous alpha and beta radiation measurements. Readings are automatically logged to a file for later retrieval to a PC.

Hand ϵ Count

Alpha/Beta Sample Counter



- Simultaneous alpha/beta measurements
- Background subtraction
- 8 hour battery operation
- Built-in calibration routine
- Non-volatile data storage



This system is controlled by a Palm™ hand-held computer that communicates with a modular detector board to perform counting operations. The Palm™ computing platform provides cost-effective advantages over other systems; notably the informative color screen, controls, internal clock and powerful database capabilities.

The Hand ϵ Count system incorporates a 2" (5 cm) dual scintillation phosphor mated to a sliding drawer accommodating a 2" (5 cm) diameter sample. The drawer uses a height-adjustable sampling area to permit use with different sample types. The sample drawer must slide fully to the rear to make switch contact to initiate counting. The enclosure is a rugged, durable plastic.

Battery operation, together with the built-in handle, allow for portability with field use of up to eight hours between battery charges. All measurement results are automatically stored to a database that can be viewed directly on the Palm™ or sent, via the built-in RS-232C interface, to a PC running a Windows™ application. In addition to the measurement database the



Hand ϵ Count also supports a database comprising all the background and check source updates. A separate database references all radiation sources employed for checking and calibrating the instrument. All sources are automatically decay-corrected to simplify and maintain accuracy in these functions.

A built-in calibration routine permits calibration of the instrument and displays the results. Two levels of password control prevent unauthorized access to editing and calibration functions. All calibration results are stored in a calibration-reporting database for review on the Palm™ or for later retrieval by a PC. The Palm™ comes equipped with a Flash card to store accumulated data as well as the HandεCount operating program in the event the Palm's™ internal battery dies.

HandεCount Specifications

Detector:	5 cm (2") Diameter alpha and beta sensitive scintillator.
Efficiency:	Alpha ²³⁹ Pu: > 90% (2 pi). Beta ⁹⁰ Tc: > 25% (2 pi). ⁹⁰ Sr- ⁹⁰ Y: ≥ 35% (2 pi).
Background:	<60 counts per minute (cpm) in the beta channel and < 3 cpm in the alpha channel in a background of 25 μR/h gamma.
Cross-talk:	Alpha to beta and beta to alpha cross-over corrections are automatically corrected with parameters established in the calibration process.
Sample Drawer:	51.6 mm (2.03") diameter x 9.6 mm (0.38") thick maximum. The sample thickness can be adjusted between 3.2 mm (5/16") to 7.9 mm (1/8"). The sample holder and slide are black anodized for ease of decontamination.
Mechanical:	Single package design to allow for portability.
Display/Controls:	Palm™ hand-held computer, Model m515.
Units:	Counts, CPM, CPS, Bq, DPM, DPS.
Count Time:	User selectable count time between 1 second and several hours.
Background Update:	User selectable count time 1 second to 60 minutes utilized in background subtraction of sample counts.
Alarms:	User-defined alarm limits on samples; Out of calibration.
Calibration:	Menu driven calibration routine to optimize HV, alpha/beta thresholds and cross-talk values. Efficiencies are automatically computed based upon user-defined sources. Program includes a user-defined database of sources for quick selection. Automatic decay corrections of sources are calculated. All calibration data are protected in non volatile memory. The next calibration date is automatically computed based upon the user-defined frequency. The HandεCount2 program provides advance warning of upcoming calibration dates.
Power Supply:	110 VAC, 60 Hz standard, optional 220 VAC, 50 Hz.
Check Source:	Software routine permitting quick verification and operability of the instrument to user-defined acceptance criteria.
Passwords:	Protect setup and calibration information via two levels of password controls.
Count Storage:	Data log samples using sequential numbering or user input identification via the Palm™. Graffiti™ interface for approximately 5000 samples. Each data point will include sample ID, sample count type, sample count result, counter serial number, time, date, instrument status etc.
Temperature:	0 to 50° C (32 to 122° F).
Humidity:	10 to 90% non-condensing.
Count Range:	1 to 1.2 million cpm.
Audible:	The Palm™ audible output is used to signal: <ul style="list-style-type: none"> - Countdown timer. - When the sample has completed its count. - Whenever an alarm occurs (when activated).
Size:	38.1 x 12.1 x 30.5 cm (15" x 4.75" x 12").
Weight:	5 Kg (11 lbs). (~6 kg (13 lbs) with battery option).
Testing:	CE Approved. ANSI N42.17

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