AREA MONITOR

With built-in GM Gamma Detector for continuous monitoring



Digital Area Monitor - available in mR/hr or µSv/h

- Detects gamma radiation
- LOW and HIGH alarms with yellow and red lights, adjustable audible tones
- 0.1 mR/hr 1000 mR/hr or 1 μ Sv/h 9999 μ Sv/h
- Detector failure light and tone to signal detector
- overload or instrument failureThreshold adjustment from 2 to 100 mV
- Battery continuously trickle charges when unit is operating and connected to wall current
- Low battery warning

The Digital Area Monitor with built-in GM Gamma Detector provides continuous gamma radiation monitoring of rooms where radionuclides are received, stored, or dispensed, and in waste management areas where there is the possibility of radioactive contamination. The monitor is wall-mountable. SPECIFICATIONS:

Internal Detector: Halogen quenched GM gamma detector, sensitivity: 1000 cpm/mR/hr (Cs-137 gamma), energy response (60 keV – 3 MeV): within $\pm 25\%$ of true value

Display: Four-digit LED display with 0.8" (2 cm) character height Display Range: 000.0-9999

Display Units: Available in mR/hr or μ Sv/h

Linearity: Reading within $\pm 10\%$ of true value with detector connected Response: Typically three seconds from 10% - 90% of final reading Status: (Green light) instrument functioning properly

Alarm: Low alarm - indicated by yellow light and slow beep (one per second) audible tone (can be set at any point from 0.0 - 9999); high alarm indicated by red light and fast beep (4 per second) audible tone (can be set at any point from 0.0 - 9999); NOTE: Audible indicators can be configured as a single beep if desired

Det $\tilde{F}ail:$ Detector overload, no count from detector, or instrument failure – indicated by red light and audible tone (greater than 68 dB at 2 feet)

Low Bat: (Yellow) indicates less than two hours of battery power remaining High Voltage: Adjustable from 200 - 2500 volts

Threshold: Adjustable from 2 - 100 mV

Dead Time: Adjustable to compensate for dead time of detector and electronics (can be read on display)

Overload: Senses detector saturation (indicated by display reading "-OL-") Overrange: Indicates radiation field being measured has exceeded counting range of instrument (indicated by display reading "- - - -")

Data Output: 9 pin connector providing 5 decade logarithmic output, RS-232 output, signal ground connection, FAIL and ALARM signals (current sink), and direct connection to battery and ground

Calibration Controls: Accessible from front of instrument (protective cover provided)

Power: 90-260 VAC auto ranging or battery power

Battery Life: Typically 48 hours in non-alarm condition;

12 hours in alarm condition

Battery Charger: Battery is continuously trickle charged when instrument is connected to line power and turned on

Battery Dependence: <3% change in readings to battery endpoint Construction: Wall mount aluminum housing with ivory polyurethane enamel paint

Dimensions: 7.4" h x 9.7" w x 2.5" depth (18.7 x 24.6 x 6.4 cm) Weight: 6.7 lb (3 kg)

- 051-275 Monitor, Digital Area, 90-260 VAC Indudes: Built-in GM Gamma Detector display in mR/hr
- 051-273 Monitor, Digital Area, 90-260 VAC Indudes: Built-in GM Gamma Detector display in µSv/h

ALARM RATEMETER WITH PANCAKE GM PROBE AND FOOT MONITOR

Portable multi-purpose unit for area monitoring and surveying



- Monitors alpha, beta, and gamma radiation
- Audible alarm with red indicator light for continuous area monitoring
- Portable surveying with Pancake GM Probe (39" cable included)
- 0-500K cpm range
- Operates on wall current or rechargeable battery
- Equipped for simultaneous hand and shoe contamination monitoring

his multi-function instrument can be used as a continuous Larea monitor, a portable survey meter, or a hand and shoe contamination monitor. It can be powered by wall current, or by its built-in rechargeable battery. Audio features include a builtin speaker with volume control providing click-per-event or an audible full-volume alarm. The alarm can be set at any point on the meter scale and locked. A red lamp on the meter's front panel also indicates an alarm condition. A push-button resets the alarm and zeros the meter. The built-in battery is continuously trickle charged when the unit is operating on line power.

The external pancake probe monitors alpha, beta, and gamma radiation, and is the preferred detector for the majority of medical surveying applications. The Pancake GM Foot Monitor serves as a convenient shoe contamination monitor. Four multiplier settings (x1, x10, x100, x1000), threshold adjustment from 10 to 100 mV, and a toggle switch for FAST (2.2 sec.) or SLOW (22 sec.) response make this unit suitable for a wide range of medical applications.

SPECIFICATIONS:

Alarm Ratemeter: Dimensions: 8" w x 5" h x 6" l (20 x 13 x 15 cm) Range: 0-500 cpm with multipliers of x1, x10, x100, x1000 Meter: 2.5" (6 cm) panel meter reading 0.500 cpm and BAT TEST Response: FAST (2.2 sec.) or SLOW (22 sec.) for 90% of full scale Input Sensitivity: Factory set at 40 mV, ±15 mV Linearity: Typically $\pm 2\%$ of full scale High Voltage: Adjustable from 400-1500 volts with HV readout Reset: Zeros meter after over range or alarm reading Speaker: Built-in unimorph speaker Alarm: Indicated by a red lamp on the front panel (when in an alarm state, the speaker goes to full volume overriding the volume control); non-locking alarm available upon request Alarm Set: Located on front panel and may be checked with Test Switch; alarm reading will be indicated by audio and visual alarms Recorder: Correlated to meter movement and is adjustable to 1.5 volts at 1 mA Data-out Connector: 9-pin type "D" type series plug with connections as follows: Pin 1: Battery terminal; Pin 2: Unregulated supply; Pin 3: Instrument common ground; Pin 4: Alarm sink; Pin 5: Pulse out; Pin 6: Unbuffered output; Pin 7: Recorder output; Pins 8 and 9: Spare pins. Power: 95 to 250 VAC wall adapter or battery power Battery: 6 volt Gel-Cell rechargeable, with 50 hours typical life (not included) Battery Charger: Continuously trickle charged when the power switch is in the ON position and the instrument is connected to AC power; optional external charger required for fast charge Battery Dependence: Less than 3% calibration change when batteries read within battery test limits on meter Finish: Polyurethane paint, beige Weight: 4.2 lb (2 kg) including batteries Pancake GM Probe Indicated use: alpha, beta, gamma surveying Detector: Pancake type halogen quenched GM Window: 1.7 ±0.3 mg/cm² mica Window Diameter: 1.75" (4 cm) Window Area: Active area approximately 15.5 cm² Efficiency: 10% for C-14, 45% for Sr-90, 38% for Tc-99, 70% for P-32, Alpha 30% Sensitivity: Typically 3300 cpm/mR/hr for Cs-137 gamma Protective Screen: 79% open, stainless steel Mounting: Aluminum holder, handle and window protector Detector Cable: 39" (99 cm), type "C" connectors Dimensions: 8.5" 1 x 2.75" diameter (21 x 7 cm), handle diameter: 1" (3 cm)

Weight: 1 lb (0.5 kg)

Pancake GM Foot Monitor: Indicated use: alpha, beta-gamma foot monitor Detector: 3 ea. pancake type halogen quenched GM Window: $1.7 \pm 0.3 \text{ mg/cm}^2$ mica Window Area: Active 46 cm², open 27 cm₂

- Sensitivity: Typically 9900 cpm/mR/hr
- Energy Response: Energy dependent
- Efficiency (2pi geometry): 10% for C-14, 45% for Sr-90, 38% for Tc-99, 65% for P-32, Alpha 30%
- Housing: Aluminum
- Dimensions: 10.8" h x 7" w x 9" l (27 x 18 x 23 cm)
- Weight: 4.4 lb (2 kg)
- Cable: 60" (152 cm), type "C" connectors ("T" connector included for simultaneous use with Pancake Probe)

051-027 Ratemeter, Alarm, 95-250 VAC Indudes: Pancake GM Probe and Foot Monitor

SURVEY METER WITH PANCAKE GM PROBE

Indudes Exposure Filter to flatten energy response



Ideal for Ra-223

- Monitors alpha, beta, and gamma
- 0-2 R/hr range

SPECIFICATIONS:

• Five counting scales (x0.1, x1, x10, x100, x1000)

The Model 14C Survey Meter meets the essential monitoring and surveying needs of most nuclear medicine facilities. The exposure filter flattens the response for energies between 33 keV to 1.2 MeV. For background readings, the unit's built-in GM detector handles counts up to 2 R/hr. For beta emitters, the pancake probe has approximately twice the counting efficiency as an end-window detector. For high-range gamma detection, the internal detector with the x1000 multiplier range is used.

Survey Meter: Compatible Detector: GM Meter Face: 0-2 mR/hr, 0-2 mR/hr, 0-6.6k cpm Meter Face Dimensions: 2.43" l x 1.43" w (6.1 x 3.6 cm) Multiplier Ranges: x0.1; x1; x10; x100 for external detector; x1000 for internal detector Internal Detector: Energy-compensated GM, for high range gamma detection only; 2000 mR/hr Reset: Push button to zero meter after over-range exposure Sensitivity: 2100 cpm/mR/hr for Cs-137 Batteries: Two each, size "D", typical life 600 hours Dimensions: 8.5" l x 3.5" w x 6.5" h (22 x 9 x 16.5 cm) Weight: 3.5 lb (1.6 kg) including batteries Pancake GM Probe Indicated use: Alpha, beta, and gamma surveying; sample counting Detector: Pancake type halogen quenched GM Window: 1.7 ±0.3 mg/cm2 mica with exposure filter Window Diameter: 1.75" (4 cm) Window Area: 15.5 cm2 active, 12 cm2 open Efficiency (4pi): 5% for C-14, 22% for Sr-90/Y-90, 19% for Tc-99, 32% for P-32, 15% for Pu-239 Dimensions: 1.8" h x 2.7" w x 10.7" l (4.6 x 6.9 x 27.2 cm) Weight: 1 lb (0.5 kg)

051-045 Survey Meter, Model 14C Indudes: Internal Energy-Compensated GM Detector, External Pancake GM Probe with Exposure Filter, cable and mounted check source (Cs-137, .25 µCi)

CUTIE PIE SURVEY METER

Ion chamber detector for fast and reliable measurements of exposure and dose



- Detects alpha, beta, gamma, x-ray
- Axial detection of gamma or x-ray below 5 keV
 - Rate Range: 0.1 mR/hr 9.999 R/hr
- Dose Range: 0.01 mR 99.9 R
- Digital LCD display 8-digit rate, 8-digits integrate

Based on stable and essentially drift-free electrometer techhology, this sensitive ion chamber instrument has high sensitivity for alpha and low-to-high energy beta particles, and to gamma and x-ray radiation. The compact and lightweight Digital Cutie Pie is useful for measuring exposure and dose rates, determining shielding effectiveness, checking source containers, monitoring radiation areas, and checking results following decontamination procedures. Readout is in mR/hr or mR. Rate range is 0.1 mR/hr – 9.999 R/hr in a single range. Dose range is 0.01 mR – 99.9 R in a single range. Because of their energy independent response, ion chamber survey meters are recommended for any dose rate measurements made for regulatory compliance (i.e. licensing, state regulations).

SPECIFICATIONS: Detector: Free air ion chamber 2.5" diameter x 3.5"1 (6.4 x 8.9 cm), 260 cc internal volume Wall, Cap: Graphite-lined 180 mg/cm2 walls, 540 mg/cm2 cap Window: 2.0" diameter x 0.5 mg/cm2 Mylar Readout: LCD 8-digit Indicator Lamp: Green LED, 10 pulses/sec per mR/h Range: Rate: 8-digit, 0.1 mR/hr to 9.999 R/hr Integrate: 8-digit, 0.01mR-99.9 R in a single range Electrometer: Solid State MOSFET input Electronics: A-D converter, LCD drivers Batteries: 10 ea. (button) NEDA CR-1220 (7-yr shelf life), 6 ea. (AA) NEDA 15A (typically 1000 hr) Dimensions: 5.5" h x 3.5" w x 8" l (14 x 8.9 x 20.3 cm) includes handle Weight: 26 oz (.74 kg) with batteries

051-366 Survey Meter, Cutie Pie, Digital, mR/h

SURVEY METER WITH PANCAKE GM PROBE

Satisfies NRC requirements for nuclear medicine departments





- Monitors alpha, beta, and gamma
- 0-2 R/hr range
- External pancake GM probe (39" cable included)
- · Internal energy compensated GM detector
- Five counting scales (x0.1, x1, x10, x100, x1000)

The portable Model 14C Survey Meter with Pancake GM Probe meets the essential monitoring and surveying needs of most nuclear medicine facilities. The external pancake probe is used to check hands, clothing, floors, furniture, equipment, and package surfaces for contamination. For background readings, the unit's built-in energy-compensated GM detector handles counts up to 2 R/hr. For beta emitters, the pancake probe has approximately twice the counting efficiency as an end-window detector. For high-range gamma detection, the internal detector with the x1000 multiplier range is used. The meter features a built-in speaker with ON/OFF switch, front-access calibration controls, push-button reset to zero the meter, and a toggle switch to select FAST (4 sec.) or SLOW (22 sec.) response.

SPECIFICATIONS: Survey Meter: Compatible Detectors: GM Meter Face: 0-2 mR/hr, 0-2 mR/hr, 0-6.6k cpm Meter Face Dimensions: 2.43" l x 1.43" w (6.1 x 3.6 cm) Threshold: $30 \text{ mV} \pm 10 \text{ mV}$ Multiplier Ranges: x0.1; x1; x10; x100 for external detector; x1000 for internal detector Internal Detector: Energy-compensated GM, for high range gamma detection only; 2000 mR/hr High Voltage: 900V Response: Toggle switch for FAST (4 seconds) or SLOW (22 seconds) for 90% of final reading Reset: Push button to zero meter after over-range exposure Audio: Built-in unimorph speaker with ON/OFF switch Sensitivity: 2100 cpm/mR/hr for Cs-137 Batteries: Two each, size "D", typical life 600 hours Construction: Painted aluminum housing Dimensions: 8.5" l x 3.5" w x 6.5" h (22 x 9 x 16.5 cm) Weight: 3.5 lb (1.6 kg) including batteries

Pancake GM Probe

Indicated use: Alpha, beta, and gamma surveying; sample counting Detector: Pancake type halogen quenched GM Window: $1.7 \pm 0.3 \text{ mg/cm}^2$ mica Window Diameter: 1.75" (4 cm) Window Area: 15.5 cm^2 active, 12 cm^2 open Efficiency (4pi): 5% for C-14, 22% for Sr-90/Y-90, 19% for Tc-99, 32% for P-32, 15% for Pu-239 Gamma Sensitivity: 3300 cpm/mR/hr for Cs-137 Energy Response: Energy dependent Operating Voltage: 900 volts Protective Screen: 79% open, stainless steel Housing: Painted aluminum Cable: 39" 1 (99 cm), type "C" connectors Dimensions: 1.8" h x 2.7" w x 10.7" 1 (4.6 x 6.9 x 27.2 cm) Weight: 1 lb (0.5 kg)

051-013 Survey Meter, Model 14C Indudes: Internal Energy-Compensated GM Detector, External Pancake GM Probe, cable and mounted check source (Cs-137, .25 μCi)

SURVEY METER WITH END-WINDOW GM PROBE

Satisfies NRC requirements for nuclear medicine departments



- Monitors alpha, beta, and gamma
- 0-2 R/hr range
- External end window GM probe (39" cable included)
- Internal energy-compensated GM detector
- Five counting scales (x0.1, x1, x10, x100, x1000)
- Alpha efficiency 15%
- Beta efficiency 5% for C-14, 20% for Sr-90
- Gamma efficiency 14% for Tc-99
- Sensitivity 2100 cpm/mR/hr for Cs-137

Astandard survey instrument for nuclear medicine departments, the portable Model 14C Survey Meter with Endwindow Probe meets the essential surveying needs of most nuclear medicine facilities. The end-window probe is used to check hands, clothing, packages, and other surfaces for contamination, and for background readings. For high-range gamma detection, the built-in energy-compensated GM detector with the x1000 multiplier range handles counts up to 2R/ hr. The meter features a built-in speaker with ON/OFF switch, front-access calibration controls, push-button reset to zero the meter, and a toggle switch to select FAST (4 sec.) or SLOW (22 sec.) response.

SPECIFICATIONS: Survey Meter: Compatible Detectors: GM Meter Face: 0-2 mR/hr, 0-4.2k cpm, battery test Threshold: $30 \text{ mV} \pm 10 \text{ mV}$ Multiplier Ranges: x0.1; x1; x10; x100 for external detector; x1000 for internal detector Internal Detector: Energy-compensated GM, for high range gamma detection only; 2000 mR/hr High Voltage: 900V Response: Toggle switch for FAST (4 seconds) or SLOW (22 seconds) for 90% of final reading Reset: Push button to zero meter after over-range exposure Audio: Built-in unimorph speaker with ON/OFF switch Sensitivity: 2100 cpm/mR/hr for Cs-137 Batteries: Two each, size "D", typical life 600 hours Construction: Painted aluminum housing Dimensions: 3.5" w x 6.5" h x 8.5" l (9 x 16.5 x 22 cm) Weight: 3.5 lb (1.6 kg) including batteries

End-Window GM Probe

Indicated Use: Alpha, beta, and gamma surveying; sample counting Detector: End-window halogen quenched GM Window: $1.7 \pm 0.3 \text{ mg/cm}^2$ mica Window Area: 6 cm^2 active, 5 cm^2 open Efficiency (4pi): 2% for C-14, 10% for Sr-90 and Y-90, 7% for Tc-99, 7% for Pu-239 Gamma Sensitivity: 2100 cpm/mR/hr for Cs-137 Energy Response: Energy dependent Operating Voltage: 900 volts Protective Screen: 79% open, stainless steel Housing: Anodized aluminum Dimensions: 1.8" diameter x 5.8"1 (4.6 x 14.7 cm) Weight: 1 lb (0.5 kg) Detector Cable: 39" (99 cm), type "C" connectors

051-014 Survey Meter, Model 14C

Includes: Internal Energy-Compensated GM Detector, External End-Window GM Probe, cable and mounted check source (Cs-137, .25 μ Ci)

SURFACE SURVEY METER

Easy contamination monitoring of bench-tops, dothing, and hands



- Monitors alpha, beta, and gamma
- Built-in pancake detector
- Range: 0 to 50,000 cpm, 0 to 15 mR/hr
- Three multiplier ranges: x1, x10, x100
- Built-in speaker
- Anti-saturation circuit prevents false "zero" readings
- One-handed operation

This compact 3-range surface rate meter is equipped with an internal 2-inch diameter pancake GM detector and built-in speaker. The detector's thin window is recessed and protected by an aluminum grill. Its small size, light weight, and one-hand operation make this unit an ideal tool for surveying bench tops and other surfaces, and for checking hands and clothing for radioactive contamination. The meter face reads in both cpm and mR/h. Anti-saturation circuitry keeps meter needle at full scale in high radiation fields.



SPECIFICATIONS: Meter Dial: 2.5" (6 cm) rectangular Ranges: Three linear: 0-500; 0-5,000; 0-50,000 cpm (0-0.15; 0-1.5; 0-15 mR/h) Switch Positions: Off, Battery Test, X100, X10, X1 Audio: Internal speaker Detector: Halogen-quenched pancake GM tube Diameter: 2" (5 cm) Window Diameter: 1.75" (4.5 cm) Window Thickness: 1.5 mg/cm² Background: Typical 50 cpm Efficiency: 100% for all betas and alphas that have the energy to penetrate the thin window Gamma Sensitivity: Nominal is 3000 cpm/mR/h (based on Cs 137) Calibration: Single master calibration potentiometer, individual potentiometers for each range Voltage: 900V nominal Current Drain: 3 mA typical Power: 9-volt battery (Eveready 1222 carbon, E146X mercury, or equivalent) Battery Life: Typically 100 hours under normal operation Feet: Neoprene feet for placement on surface without contaminating bottom surface of unit Handle: Swivel type, polished anodized aluminum Dimensions: 3" w x 5.25" l x 2.25" h (8 x 13 x 6 cm) excluding meter and handle Weight: 22 oz (625 g)

069-310 Survey Meter, Surface

SURVEY METER

Low-level radiation sensitivity in a compact hand-held unit



Excellent sensitivity to low levels of alpha, beta, gamma and x-ray radiation

- Count range: 1 to 9,999,000 counts
- Range: 0-350,000 cpm
- Red LED count light
- Audible beeper (can be switched off)
- External calibration controls
- Adjustable timer from 1 to 24 hours; default is 10 minutes
- User selectable display for mR/hr or Sieverts
- Internal Memory
- Observer USB Software can be downloaded
- Includes case
- Wipe test Plate positions wipe directly in front of detector at 1 cm distance; protects GM from damage/contamination when meter is not in use

The Inspector is a microprocessor controlled radiation measuring instrument which offers excellent sensitivity to low levels of alpha, beta, gamma and x-rays. The digital readout is displayed with a red count light and audible beep, providing instant indications of the radiation level. Additional benefits include an adjustable timer and external calibration controls. Now with USB and the included Observer USB Software, you can download your data from the internal memory, set computer alarms and calibrate your instrument.

Shielded Holder

Maintain full function of the 078-513 Inspector Survey Meter while shielding it laterally to reduce the influence of background radiation. Constructed of steel with 0.5" thick lead lining built into left and right sides, the holder conveniently supports the Inspector while allowing full operation of the optional sliding wipe test plate -- without having to lift the meter. This accessory is especially suited for use in mobile units, or locations where the meter is frequently used for standardized procedures in a single location. The unit is supplied with strips of reclosable fastening material for affixing to countertops or other surfaces.

SPECIFICATIONS:

Detector: Halogen-quenched uncompensated GM tube with thin mica window, 1.4-2.0 mg/cm2 area density.

Window: 1.77" (45 mm) effective diameter

Display: Four-digit liquid crystal display with indicators

Averaging Periods: Display will update every three seconds; at low background levels, the update is the moving average for the past 30-second time period; time period for moving average decreases as radiation level increases Gamma Sensitivity: 3340 cpm/mR/hr (referenced to Cs-137); smallest detectable level for I-125 is .02 µCi at contact

Operating Range:

mR/hr - .001 (1 μ R) to 100; CPM - 0 to 350,000

 μ Sv/hr - .01 to 1000; CPS - 0 to 5000

Energy Sensitivity: Detects Alpha down to 2 MeV. Detects Beta down to .16 MeV; typical detection efficiency at 1 MeV is approx. 25%.

Accuracy (Referenced to Cs-137): Typically \pm 15% from 0 to 100 mR/hr Timer: One minute to 24 hours, default is 10 minutes

Count Light: Red LED flashes with each radiation event

Audio Indicator: Internally mounted beeper (can be switched off for silent operation)

Outputs: Dual miniature jack drives CMOS or TTL devices for counting to computer or data logger

Utility Menu: Options accessed by holding down "+" button while turning instrument on: 3-second (fast response), switch from mR/hr and CPM to μ Sv/hr and CPS, adjust probe settings, reset all setting to original factory setting (default)

Anti-Saturation: Meter will hold at full scale in fields as high as 100 times the maximum reading

Built-In Efficiencies: ⁵Sulfur (S35), ⁹⁰Strontium (Sr/y90),

¹³⁷Cesium (Cs137), ³²Phosphorus (P32), ¹⁴Carbon (C14), ¹³¹Iodine (I131), ⁶⁰Cobalt (Co60), and Alpha

Power Requirements: (1) 9-volt alkaline battery.

Temperature Range: 14°F to 122°F (-10°C to +50°C)

Battery Life: Typically 2000 hours at normal background radiation levels Dimensions: 5.9" h x 3.2" w x 1.2" d (15 x 8 x 3 cm)

Weight: 9.6 oz (300 grams) without battery

078-514 Inspector Survey Meter Shield:

Dimensions: 10.3" l x 4.8" w x 1.5" h (26 x 12 x 4 cm) Construction: Steel, with lead lining in left and right side walls Lead Shielding: 0.5" thick (1.3 cm) laterally Weight: 7.8 lb (3.5 kg)

- 078-510 Survey Meter, Inspector
- 078-513 Survey Meter, Inspector

Includes: Wipe test plate and adapter (installed)

Related:

078-514 Survey Meter Shield, Inspector For 078-513

MONITOR 4 SURVEY METER

Pocket-sized monitor with meter, LED count light, and beeper



- Monitors alpha, beta, gamma, and x-ray radiation
- Dual-scale analog meter (CPM and mR/hr)
- Operating range: 0-50 mR/hr, 0-50,000 cpm
- Multiplier selections: x1, x10, x100
- Audible beep indicates rising radiation level
- Weighs less than 9 ounces (including battery)

The Monitor 4 Survey Meter is lightweight, ergonomically designed and includes its own carrying case. Used to measure alpha, beta, gamma and x-ray radiation, it provides extremely accurate results with both audible and visual indication. The easy-to-read scale features three ranges for maximum sensitivity and runs up to 2,000 hours on a 9V battery.

SPECIFICATIONS

Detector: Halogen-quenched uncompensated GM tube with thin mica win-
dow 1.5-2.0 mg/cm ² thick
Energy Sensitivity: Detects alpha down to 2.5 MeV; typical detection effi-
ciency at 3.6 MeV is greater than 80%
Detects beta at 50 keV with typical 35% efficiency
Detects beta at 150 keV with typical 75% efficiency
Detects gamma and x-rays down to 10 keV typical through the end window,
40 keV minimum through the case
Accuracy: $\pm 15\%$ of full scale (referenced to Cs-137)
Visual Indicators: .875" x 1.75" (2 x 4 cm) dual scale analog meter, marked
0-500 cpm and 0-0.5 mR/hr; LED count light
Audio Indicator: Internally mounted beeper
(can be switched off for silent operation)
Range Switch: x1, x10, x100, battery check
Ranges: 0-500, 0-5,000, 0-50,000 cpm and 0-0.5, 0-5, 0-50 mR/hr
Current Drain: Typically 190 μ A at background radiation levels
Operating Voltage Range: 7-11 Volts DC
Voltage Regulation: High and low voltage fully regulated
Power Requirement: One 9-volt alkaline battery,
NEDA #1604A, or equivalent
Battery Life: Up to 2,000 hours at normal background radiation levels
Temperature Range: -4°F to +131°F (-20°C to 55°C)
Dimensions: 8.25" x 2.75" x 1.87" (210 x 70 x 48 cm)
Weight: 9.7 oz (.28 kg) including battery, 7.2 oz (.21 kg) without battery

078-400 Survey Meter, Monitor 4 Indudes: Protective case (battery not induded)

DIRECT READING





For personnel working in radiation areas, Direct Reading Dosimeters provide an accurate and instantaneous indication of accumulated exposure.

Accurate to 10% of True Dose for Cs-137 or Co-60 gamma. Less than 0.5% leakage of full scale in 24 hours at 50° C. Hermetically sealed.

Resembling fountain pens in size and appearance, they contain a quartz fiber electrometer and compound microscope.

The fiber is set at zero with a battery operated charger. As Xor gamma rays strike the charged Dosimeter, the fiber moves up scale in proportion to the radiation exposure.

019-201 Dosimeter, Direct Reading, 200 mR 019-500 Dosimeter, Direct Reading, 500 mR 019-010 Dosimeter, Direct Reading, 2 R

DOSIMETER CHARGER



The Dosimeter Charger is used to "zero" all Direct-Reading Dosimeters. It includes two "AA" batteries, sufficient for thousands of chargings.

020-001 Dosimeter Charger Note "AA" batteries included