



LUDLUM

MEASUREMENTS, INC.



HEALTH PHYSICS RADIATION PRODUCTS

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ludlums.com

PLACING AN ORDER WITH LUDLUM

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SCAN HERE

WARRANTY

Ludlum Measurements, Inc. warrants the products it manufactures to be free of defects due to workmanship, material, and design for a period of twelve months (1 year) from the date of shipment to the purchaser (24 months from the date of shipment for our Model 4525 portal monitors). The calibration of a product is warranted to be within its specified accuracy limits at the time of shipment. In the event of instrument failure, notify Ludlum Measurements, Inc. to determine if repair, recalibration, or replacement is required.

Ludlum will notify the customer of the closest repair facility to which the item may be returned. Return to repair facility shipping will be at customer cost. Shipping from the repair facility back to the customer will be at Ludlum's cost. This warranty excludes replacement of photomultiplier tubes, GM and proportional tubes, and scintillation crystals which are broken due to excessive physical abuse or used for purposes other than intended.

There are no warranties, express or implied, including without limitation any implied warranty or merchantability or fitness, which extend beyond the description of the face thereof. If the product does not perform as warranted herein, the purchaser's sole remedy shall be repair or replacement, at the option of Ludlum Measurements, Inc. In no event will Ludlum Measurements be liable for damages, lost revenue, lost wages, or any other incidental or consequential damages arising from the purchase, use, or inability to use product.



This catalog is a current representation of the Ludlum Measurements, Inc. product line at the time of print publication. The Ludlum product line is constantly improving and growing, warranting changes that may or may not be available in this catalog. We strongly encourage potential buyers and other interested parties to contact Ludlum Measurements, Inc. directly for assistance in ordering and for more detailed information.

FEATURED PRODUCTS



MODEL 38

Compact Digital Survey Meter

PN: 48-4493

KEY FEATURES

- Compact Size Permits One-Handed Operation with Appropriate Detector Bracket
- Works with Alpha, Beta, Gamma, or Neutron Detectors
- Four Configurable Detector Settings
- High Resolution, 2.2 in Color LCD
- Can Use Rechargeable Batteries (Recharged via USB-C Connector) or Alkaline Batteries
- Optional Internal GM Detector for Survey and Accumulated Dose Measurements
- Dual Display for Alpha/Beta Measurements or Internal and External Detector
- Data Logging with Time Stamp
- Alarm/Status LEDs, Audio, Vibration
- All-Digital Calibration and Auto-Ranging
- USB Connectivity
- Bluetooth® Option
- Simple Six Button Operation
- Robust Construction with Water-Resistant Seals

KEY FEATURES

- Measures up to 0.1 Sv/h (10 R/h)
- Six Programmable Alarm Set Points
- Audible, Visual, and Aggressive Vibration Alerts
- Dose/Exposure Rate and Accumulated Dose/Exposure
- Overrange and Detector Failure Indication
- Shock, Vibration, Dust, and Water Resistant
- 600-Hour Battery Life with Standard AA Batteries
- Data Logging with Time Stamp
- RadResponder Compatible with Lumic Linker App
- Wireless BLE and USB Connectivity
- Holster with Belt Clip Included



MODEL 27G

Personal Radiation Monitor

PN: 48-4385



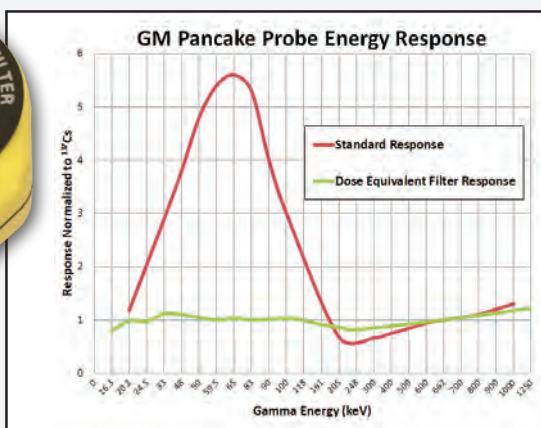
MODEL 26 & 26-2

MODEL 26-1 & 26-3

MODEL 26S

- Integrated, Lightweight Design Simplifies Frisking
- High-Impact Plastic Housing with Water-Resistant Rubber Seals
- Adjustable Alarms
- Lanyard and Wrist Strap Included

MODEL	DETECTOR	DISPLAY RANGE	EFFICIENCY (4π)	TYPE	BATTERY LIFE	ALARMS
26 PN: 48-3885	Pancake GM detector, stainless steel screen	0.1 cps to 1.99 kcps, 1 cpm to 99.9 kcpm	Alpha: ²³⁹ Pu - 11%; Beta: ⁹⁹ Tc - 14% ³² P - 32% ¹⁴ C - 2%; ⁹⁰ Sr/ ⁹⁰ Y - 22% ¹²⁵ I - 0.2% Gamma: ¹³⁷ Cs - 5.5 cps/μSv/h (3300 cpm per mR/hr) ^{99m} Tc - ≤1%	Count rate	1000 hours	Count rate and scaler alarms
26-2 PN: 48-4044					250 hours	3 red LEDs for 3 levels of count rate alarm
26-1 PN: 48-3965	Pancake GM detector, stainless steel screen	0.0 cps to 19.9 kcps 0.00 cpm to 999 kcpm 0.0 Bq to 19.9 kBq 0.00 dpm to 999 kdpm .000 to 1999 μSv/h 0.0 to 500 mR/hr (Model 26-3 goes up to 999 mR/hr)	Alpha: ²³⁹ Pu - 11%; Beta: ⁹⁹ Tc - 14% ³² P - 32% ¹⁴ C - 2%; ⁹⁰ Sr/ ⁹⁰ Y - 22% ¹²⁵ I - 0.2% Gamma: ¹³⁷ Cs - 5.5 cps/μSv/h (3300 cpm per mR/hr) ^{99m} Tc - ≤1%	Count rate and exposure	1000 hours	Count rate, dose/exposure, and scaler alarms
26-3 PN: 48-4232					200 hours	
26S PN: 48-4380	2.5 x 1.9 cm (1 x 0.75 in.) CsI scintillator	0.00 c/s to 19.9 kc/s 000 c/m to 999 kc/m 0.00 d/s to 19.9 kd/s 000 d/m to 999 kd/m 0.00 to 200 μSv/h 000 μR/h to 20 mR/h	Gamma: ¹³⁷ Cs - 165 kcpm/mR/hr			



AMBIENT DOSE EQUIVALENT FILTER

PN: 2002-1050

The GM pancake detector has a significant over-response to gamma energies between 20 keV and 150 keV (red line in graph), which produces dose measurement errors.

Ludlum offers an ambient dose equivalent filter for the Model 44-9, Model 26-1, and Model 26-3 that flattens the detector's energy response to within $\pm 20\%$ referenced to ¹³⁷Cs (662 keV) over the energy range of 20 keV to 1.2 MeV.

The filter simply snaps on over the detector window when dose measurements are required, and is easily removed when not needed. The dose filter is included with the Model 44-9DOSE (PN: 47-3789), Model 26-1DOSE (PN: 48-4007), and Model 26-3DOSE (PN: 48-4233), or it is available separately as an option (PN: 2002-1050).

GENERAL PURPOSE | ANALOG



MODEL 3

- 4-Range Analog Meter
- Supports GM & Scintillation Detectors



MODEL 3A

- 4-Range Analog Meter
- Supports GM & Scintillation Detectors
- Alarm



MODEL 12

- 4-Range Analog Meter
- Supports GM, Proportional, & Scintillation Detectors

MODEL	HIGH VOLTAGE	THRESHOLD	CONTROLS	BATTERY LIFE	WEIGHT
3 PN: 48-1605	400 to 1500 Vdc	Fixed at -30 ± 10 mV	rotary switch (off, battery test, four ranges), response switch, reset button, audio switch	> 2000 hours	1.6 kg (3.5 lb)
3A PN: 48-1408	400 to 1500 Vdc	Fixed at -30 ± 10 mV		> 2000 hours	1.6 kg (3.5 lb)
12 PN: 48-1609	400 to 2500 Vdc	Adjustable from -1 to -100 mV	rotary switch (off, battery test, four ranges), response switch, reset button, audio switch, HV check button	> 2000 hours	1.6 kg (3.5 lb)
14C PN: 48-1611	900 Vdc	Fixed at -40 ± 10 mV	rotary switch (off, five ranges), response switch, reset button, audio switch, battery test button	> 2000 hours	1.6 g (3.5 lb)
16 PN: 48-1612	400 to 2500 Vdc	Adjustable from -2 to -60 mV	rotary switch (off, battery test, four ranges), response switch, reset button, audio switch, HV check button, window in-out switch	600 hours	1.6 kg (3.5 lb)
18 PN: 48-1613	400 to 2500 Vdc	Adjustable from -2 to -60 mV	rotary switch (off, battery test, four ranges), response switch, reset button, audio switch, HV check button, window in-out switch, detector select switch	600 hours	1.6 kg (3.5 lb)

GENERAL PURPOSE | ANALOG



MODEL 14C

- 5-Range Analog Meter
- Operates Two Detectors: Internal: GM Detector External: Supports GM & Scintillation Detectors
- Overload Protection



MODEL 16

- 4-Range Analog Meter
- Supports GM, Proportional, & Scintillation Detectors
- Adjustable Window for SCA (Single Channel Analyzer) Mode



MODEL 18

- 4-Range Analog Meter
- Supports GM, Proportional, & Scintillation Detectors
- Adjustable Window
- 3 Detector Setups

MODEL 3 & 14C METER FACE SELECTION CHART

MODEL	METER FACE	DISPLAY	DETECTOR: NaI SCINTILLATOR			DETECTOR: GM				
			44-2 1 x 1 in.	44-3 1 in. x 1 mm	44-10 2 x 2 in.	44-7 End Window	44-38 Energy Comp.	44-9 Pancake	44-9DOSE Pancake w/filter	44-89 Pancake x 4
BOTH MODEL 3 & 14C	202-627	0-2 mR/hr						X		
	202-085	0-2 mR/hr				X				
	202-084	0-2 mR/hr					X			
	202-330	0-4 kcpm; 0-2 mR/hr				X				
	202-608	0-6.6 kcpm; 0-2 mR/hr						X	X	
	202-241	0-2.4 kcpm; 0-2 mR/hr					X			
	202-379	0-20 µSv/h					X			
MODEL 3	202-043	0-50 cps	X	X	X	X	X	X	X	X
	202-002	0-5 kcpm	X	X	X	X	X	X	X	X
	202-666	0-50 µR/hr	X							
	202-654	0-50 µR/hr; 0-8.5 kcpm	X					X	X	X
	202-514	0-25 µR/hr	X							

Note: This chart only includes the most common detectors. Consult with your Ludlum representative about other detectors or meter faces.

GENERAL PURPOSE | DIGITAL



MODEL 3003

- Supports GM, Proportional, Scintillation, & Neutron Detectors, Including Alpha-Beta Detectors
- Stores up to 4 Detector Setups
- Model 3003i: Internal Detector Option for Dose Measurements
- Data Logging Options



MODEL 3014

- Supports GM, Proportional, Scintillation, & Neutron Detectors
- Internal Detector for Dose Measurements
- Data Logging Options



MODEL 3001

- Supports GM, Proportional, Scintillation, & Neutron Detectors
- Internal Detector for Dose Measurements
- Data Logging Options

MODEL	HIGH VOLTAGE	THRESHOLD	CONTROLS	BATTERY LIFE	WEIGHT
3000 PN: 48-4035	400 to 1500 Vdc	-2 to -100 mVdc	on/off, units, audio, mode, log	750 hours	0.7 kg (1.6 lb)
3001 PN: 48-4036	400 to 1500 Vdc	-2 to -100 mVdc	on/ack, units, detector, mode, log	500 hours	0.7 kg (1.6 lb)
3002 PN: 48-4037	400 to 2200 Vdc	alpha: -2 to -500 mVdc beta: -2 to -99.9 mVdc	on/off, α - β , audio, mode, log	750 hours	0.7 kg (1.6 lb)
3003 PN: 48-4289	300 to 2400 Vdc	-2 to -100 mVdc	on/aud, units, detector, mode, ack/rst, log, prg	175 hours	0.9 kg (2.0 lb)
3003i PN: 48-4326					
3014 PN: 48-4365	300 to 2400 Vdc	-2 to -100 mVdc	on/aud, units, detector, mode, log	175 hours	0.9 kg (2.0 lb)
30 PN: 48-4108	400 to 1500 Vdc	-2 to -120 mVdc	on/off/ack, units, mode	100 hours	174 g (0.38 lb)
35 PN: 48-4112					



MODEL 3000

- Supports GM, Proportional, & Scintillation Detectors
- Data Logging Options



MODEL 3002

- Supports Alpha-Beta Proportional & Scintillation Detectors
- Data Logging Options



MODEL 30 & 35

- Attaches to Detector Allowing One-Handed Operation
- Supports GM, Proportional, & Scintillation Detectors
- Model 35: Vehicle Mount

GENERAL RESPONSE KITS



MODEL 3001-2RK

- Digital Meter
- Includes 2 Detectors
- Also Considered a NORM Kit



MODEL 3001-3RK

- Digital Meter
- Includes 3 Detectors



MODEL 3003i-4RK

- Digital Meter with Internal Detector
- Includes 4 Detectors



MODEL 14C-RK

- Analog Meter with Internal Detector
- Includes 2 Detectors



MODEL 3-IS NORM

- Intrinsically Safe Analog Meter
- Includes 2 Detectors
- NORM Kit

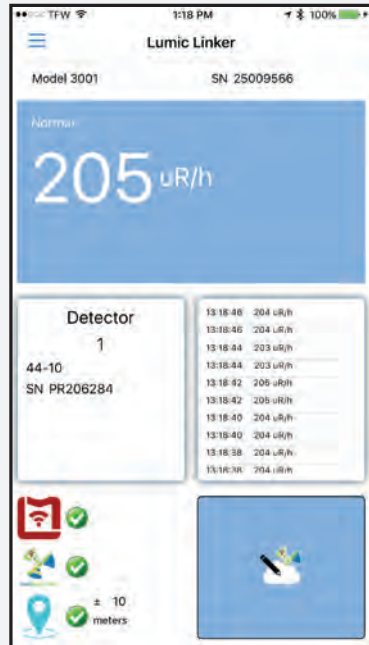


MODEL 26-RK

- Model 26-3 Alpha-Beta-Gamma GM Frisker with Dose Filter
- Model 26S Gamma Scintillator Frisker

MODEL	METER FEATURES	DETECTORS IN KIT	WEIGHT
3001-2RK PN: 48-4178	• Digital display • Up to 4 external detector settings • Rate, Max, and Count modes • Auto-ranging • Adjustable alarm settings	Model 44-2 Gamma Scintillator Model 44-9 Alpha-Beta-Gamma GM	5.9 kg (13 lb)
3001-3RK PN: 48-4179		Model 44-2 Gamma Scintillator Model 44-9 Alpha-Beta-Gamma GM Model 133-6 Gamma GM	
3003i-4RK PN: 48-4483	• Digital display • Up to 4 external detector settings • Internal GM detector for dose measurements • Rate, Max, and Count modes • Alpha, Beta, or Alpha + Beta measurements • Auto-ranging • Adjustable alarm settings	Model 44-2 Gamma Scintillator Model 44-9 Alpha-Beta-Gamma GM Model 133-6 Gamma GM Model 43-93 Alpha-Beta Scintillator	6.4 kg (14 lb)
14C-RK PN: 48-2653	• 5-range analog display • Internal GM detector for dose measurements	Model 44-2 Gamma Scintillator Model 44-9 Alpha-Beta-Gamma GM	5.9 kg (13 lb)
3-IS NORM PN: 48-3581-1	• 4-range analog display • Intrinsically safe	Model 44-2 Gamma Scintillator Model 44-9 Alpha-Beta-Gamma GM	

BLUETOOTH LE[®] OPTION



BLUETOOTH LE[®]

COMPATIBLE INSTRUMENTS

- 3000, 3001, 3002, 3003, 3004, 3007, 3014, 3078

HARDWARE MODULE

- Bluetooth 4.0 (BLE)[®] Module Wirelessly Streams Live Remote Display of Instrument Readings
- 120-Hour Battery Life
- Up to 30 m (98 ft.) Operating Distance

LUMIC LINKER APP

- For iOS & Android
- Integrated RadResponder Network Data Collection Provides "Reachback" Capability
- AES128 Encryption
- Location from Mobile Device GPS



GEIGER COUNTERS



MODEL 3005

- Auto-Ranging Digital Meter
- Internal Energy-Compensated GM Detector
- Data Logging Capabilities



MODEL 5

- 5-Range Analog Meter
- Two Internal Energy-Compensated GM Detectors



MODEL 6

- 3-Range Analog Meter
- Internal Energy-Compensated GM Detector

MODEL	RANGE	CONTROLS	INDICATED USE	BATTERY LIFE
3005 PN: 48-4231	Background to 50 mSv/h (5 R/hr) (other ranges available)	On/off, mode, audio, units, log	Gamma survey	750 hours
5 PN: 48-1607	0 to 20 mSv/h (0 to 2000 mR/hr)	Rotary switch (off, five ranges), audio switch, re- sponse switch, reset button, battery test button	Gamma survey	2000 hours
6 PN: 48-1676	0 to 10 mSv/h (0 to 1000 mR/hr)	Rotary switch (off, battery test, three ranges)	Radiographer survey	600 hours



RADIOLOGICAL DETECTION SYSTEM



RDS BASE UNIT
with Available Probes

KEY FEATURES

- **Smart Probe Technology:** Enables any RDS probe to connect to any Base Unit without the need for recalibration, streamlining operations and reducing setup time.
- **Data Storage and Transfer:** Capable of storing over 45 hours of data, which can be easily transferred to a computer for detailed analysis, facilitating comprehensive monitoring and record-keeping.
- **Ergonomic Design:** Designed for use with protective gloves, ensuring functionality in various operational environments, including those requiring personal protective equipment.
- **Stealth Mode and Headphone Functionality:** Features that support discreet operations, are particularly beneficial in combat or sensitive situations where noise discipline is crucial.

DESCRIPTION

The Radiological Detection System (RDS) is a versatile solution for identifying radiation. The system is composed of a Base Unit and six specialized probes for various radiation detection applications.

- **Base Unit:** Meter interface for compatible external probes and has internal GM detectors for beta and gamma measurements.
- **Alpha-Beta Probe:** Scintillation detector for alpha and beta radiation. Base Unit can display simultaneous alpha and beta channel readings.
- **SABG Probe:** GM pancake detector for beta and gamma radiation.
- **Beta Photon Probe:** GM tube detector for beta, gamma, and X-ray radiation.
- **Sensitive Gamma Probe:** 1.125 x 1.5 in. NaI(Tl) scintillation detector for low-level gamma radiation.
- **FIDLER Probe:** Large NaI(Tl) scintillation detector for low-energy X-ray and gamma radiation. Records data over four energy window channels, with the ability to display up to two channels at a time.
- **Neutron Probe:** Solid-state neutron detector with a high-density polyethylene moderator.

Smart Probe technology allows any probe to be used with any Base Unit. Each probe has onboard memory to store its calibration information and a microprocessor and high voltage circuitry to supply the necessary high voltage.

The RDS is designed and tested for military ruggedness meeting US military requirements. With its unrivaled versatility, smart probe compatibility, extensive data storage capabilities, and user-centric design, the RDS empowers professionals in various fields, from military and emergency response teams to nuclear facilities and environmental agencies.



MODEL 4404-16

Geo-Exploration Monitor

PN: 48-3730



MODEL 4404-16-4

Geo-Exploration Monitor

PN: 48-3848

KEY FEATURES

- Large Area Outdoor Surveying
- Can Be Used for Oil Exploration or Ore Prospecting
- Multi-Single-Channel Analyzers
- GPS Receiver
- Includes PC Software for Data Logging
- Google Earth™ Compatible Files

MODEL 4404-16

- 2 x 4 x 16 in. Nal Scintillator Detector

MODEL 4404-16-4

- 3 x 3 in. Nai Scintillator Detector
- Wireless Transceiver for Signal Output
- Backpack Compatible

AVAILABLE OPTIONS

- Toughbook® Laptop (PN: 2311792)
- GPS (PN: 2312074)

MODEL	HIGH VOLTAGE	POWER	DETECTOR	BATTERY LIFE	WEIGHT
4404-16 PN: 48-3730	0 to 2000 Vdc	7.5 - 36 Vdc at 50 mA max	5.1 x 10.2 x 40.6 cm (2 x 4 x 16 in.) Nal scintillator	9 hours	18.1 kg (40 lb)
4404-16-4 PN: 48-3848	0 to 2000 Vdc	7.5 - 36 Vdc at 50 mA max	7.6 x 7.6 cm (3 x 3 in.) Nal scintillator	9 hours	5.7 kg (12.5 lb)

KEY FEATURES

- Available With 1 to 12 Channels
- PC Program Control & Logging
- Single Channel Analysis
- User-Adjustable Parameters

SPECIFICATIONS

COMPATIBLE DETECTORS:

GM, proportional, scintillation

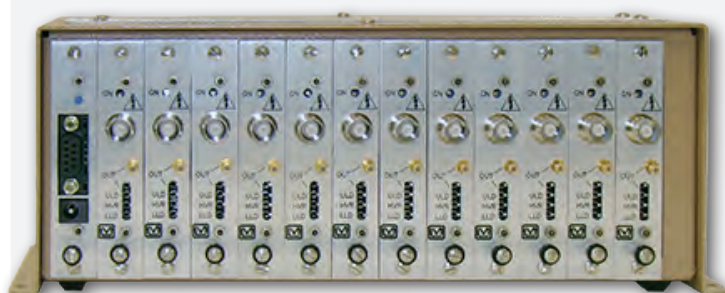
WINDOW: -5 to -3300 mV

HIGH VOLTAGE: 0 to 1500 V

THRESHOLD: -5 to -3300 mV

POWER: 7.5 to 36 Vdc at 3 W maximum

AMPLIFIER RANGE: 0 to 3 V



MODEL 4600 SERIES

Multi-Detector Benchtop Counter

INTRINSICALLY SAFE



MODEL 3-IS
Survey Meter

- 4-Range Analog Meter
- Supports Select External GM & Scintillation Detectors
(see list in table below)



MODEL 3-IS-1
Survey Meter

- 4-Range Analog Meter
- Internal Energy-Compensated GM Detector

MODEL	TYPICAL SENSITIVITY (¹³⁷ Cs)			MEASUREMENT RANGE	ALARMS	BATTERY LIFE
3-IS PN: 48-3581 (plus detector)	Model	Sensitivity	Part No.			
	44-9	3300 cpm/mR/hr	47-1539	0 to 200 mR/hr		
	44-2	175 cpm/μR/hr	47-1532	0 to 5000 μR/hr		
	44-6	1200 cpm/mR/hr	47-1535	0 to 200 mR/hr	No	2000 hours
	44-38	1200 cpm/mR/hr	47-1588	0 to 200 mR/hr		
	42-41L	350 cpm/mrem/hr*	47-3309	0 to 1000 mrem/hr		
3-IS-1 PN: 48-3651	44-7	2100 cpm/mR/hr	47-1536	0 to 200 mR/hr		
		100 cpm per mR/hr		0.1 to 1000 mR/hr	No	2000 hours

* (40 cpm per μSv/h for ²⁴¹AmBe)

CERTIFICATION

The Models 3-IS, 3-IS-1, 25-IS, and 25-IS-1 were designed and tested to the following USA & Canadian standards for intrinsic safety, permitting them to be used in potentially explosive atmospheres.

- UL 913 Class I, II, & III Division 1 Groups A, B, C, D
- CSA 22.2 No. 157
- UL 61010-1 CSA C22.2 No. 61010-1



MODEL 25-IS
Personal Radiation Monitor (R)
PN: 48-3661



MODEL 25-IS-1
Personal Radiation Monitor (Sv)
PN: 48-3686

MODEL 25-IS & 25-IS-1 KEY FEATURES

- Sensitivity: 1800 cpm per mSv/h (18 cpm per mR/hr)
- Measurement Range: 0.001 mSv/h to 9.99 Sv/h (0.01 mR/hr to 999 R/hr)
- Audible & Visual Alerts and Alarm
- Battery Life: 6000 hours
- Water Resistant
- See more on p. 18



MODEL 9DP & 9DP*

- Color LCD Digital Meter
- Chamber Pressure: 9 atm (122 psig)
- Model 9DP*: Provides ICRU-Based Ambient Dose Measurements (Sv)



MODEL 9DP-1 & 9DP-1*

- Color LCD Digital Meter
- Chamber Pressure: 2.5 atm (22 psig)
- Low-Pressure Chamber is Non-Hazmat
- Model 9DP-1*: Provides ICRU-Based Ambient Dose Measurements (Sv)

MODEL	OPERATING RANGE	CHAMBER VOLUME/PRESSURE	ENERGY RESPONSE	RANGE MULTIPLIERS	BATTERY LIFE
9DP PN: 48-3742	Background to 50 mSv/h (5 R/hr)	230 cm ³ (14 in ³) / 9 atm (117 psig)	± 25% from 60 keV to 1.25 MeV	Auto ranging	12-30 hours between charges
9DP* PN: 48-3942					
9DP-1 PN: 48-3899	2 µSv/h to 500 mSv/h (200 µR/hr to 50 R/hr)	220 cm ³ (13.4 in ³) / 2.5 atm (22 psig)	± 20% of true value from 40 keV to 2 MeV	5-Range Analog Meter	1050-1500 hours (scale dependent)
9DP-1* PN: 48-4358					
9-3 PN: 48-3633	0 to 500 mSv/h (0 to 50 R/hr)	220 cm ³ (13.4 in ³)	± 20% of true value from 40 keV to 2 MeV	5-Range Analog Meter	400 hours
9-4 PN: 48-3739	0 to 500 mSv/h (0 to 50 R/hr)	220 cm ³ (13.4 in ³)	± 20% of true value from 40 keV to 2 MeV	5-Range Analog Meter	400 hours
9-4RF † PN: 48-4338					

† **RF Immunity:** Improved components and shielding to pass RF susceptibility tests at military levels up to 18 GHz, suggested replacement for the Model 440RF/D



MODEL 9-3

- Temperature Compensated
- Retractable Beta Shield
- Vented Ion Chamber
- Audio



MODEL 9-4 & 9-4RF

- Temperature & Pressure Compensated
- Retractable Beta Shield
- Vented Ion Chamber
- 9-4RF: RF Immune Version

ION CHAMBERS



MODEL 9-7

PN: 48-3689

KEY FEATURES

- Digital Meter
- Display Range: 0.001 R/hr to 19.99 kR/hr
- 4 Available Detectors
- Replacement for Eberline Model RO-7
- Options Include Extension Cables, Rigid Detector Extensions, and Underwater Housing for Detectors

ALSO AVAILABLE

- Model 9-7-1 (PN 48-3689): Variant with Sv/h units
- Model 9-7S (PN 48-4449-1): Variant with integrated telescoping pole (see p. 21)

9-7 DETECTOR MODEL	RANGE	VOLUME	RESOLUTION	PART NO.
9-7-BLD 	0.001–1.99 R/hr	50 cm ³ (3.1 in ³)	0.001 R/hr (1.0 mR/hr)	47-3693-1
9-7-BHL-1 (requires instrument modification) 	0.01–19.99 R/hr	7 cm ³ (0.43 in ³)	0.01 R/hr (10 mR/hr)	47-3882-1
9-7-BM 	0.1–199.9 R/hr	7 cm ³ (0.43 in ³)	0.1 R/hr (100 mR/hr)	47-3694
9-7-BH 	0.01–19.99 kR/hr	7 cm ³ (0.43 in ³)	0.01 kR/hr (10 R/hr)	47-3696

ISOTOPE IDENTIFIERS

MODEL	DETECTOR(S)	TYPICAL GAMMA SENSITIVITY (¹³⁷ Cs)	WEIGHT
732 PN: 48-3834	Nal(Tl), 5.1 x 5.1 cm (2 x 2 in.)	900 cpm per μ R/hr (1500 cps per mSv/h)	0.9 kg (2.0 lb)
733 PN: 48-3835	Nal(Tl), 7.6 x 7.6 cm (3 x 3 in.)	2300 cpm per μ R/hr (3800 cps per μ Sv/h)	1.8 kg (4.0 lb)

KEY FEATURES

1024 Channel MCA • USB PC Interface • 1k Multi-Channel Analyzer



MODEL 732 & 733

Isotope Identifiers

microR/microSv METERS



MODEL 3019

- Easy-to-Read Digital Display
- Internal CsI Detector
- Lightweight, Rugged & Splash Resistant
- Sigma Alarm - Red LED in Handle



MODEL 3192

- Easy-to-Read Digital Display
- Internal NaI(Tl) Detector
- Lightweight, Rugged & Splash Resistant
- Sigma Alarm - Red LED in Handle



MODEL 19

- 5-Range Analog Meter
- Internal NaI(Tl) Detector



MODEL 19A

- Logarithmic Meter
- Internal NaI(Tl) Detector
- Adjustable Alarm

MODEL	DETECTOR	RANGE	BATTERY LIFE	TYPICAL SENSITIVITY
3019 PN: 48-4091	2.5 x 1.9 cm (1 x 0.75 in.) CsI scintillator	Background to 500 μ Sv/h (50 mR/hr)	750 hours	175 cpm per μ R/hr
3192 PN: 48-4329	5.1 x 2.5 cm (2 x 1 in.) NaI(Tl) scintillator	Background to 50 μ Sv/h (5000 μ R/hr)	750 hours	650 cpm per μ R/hr
19 PN: 48-1615	2.5 x 2.5 cm (1 x 1 in.) NaI(Tl) scintillator	0 to 5000 μ R/hr	2000 hours	175 cpm per μ R/hr
19A PN: 48-2117	2.5 x 2.5 cm (1 x 1 in.) NaI(Tl) scintillator	0 to 5 μ Sv/h (0 to 500 μ R/hr)	600 hours	175 cpm per μ R/hr
192 PN: 48-2945	5.1 x 2.5 cm (2 x 1 in.) NaI(Tl) scintillator	0 to 50 μ Sv/h (0 to 5000 μ R/hr)	600 hours	650 cpm per μ R/hr
193 PN: 48-2959	Can be used with a variety of gamma scintillator detectors	0 to 5000 μ R/hr	600 hours	Detector dependent
12S PN: 48-1610	2.5 x 2.5 cm (1 x 1 in.) NaI(Tl) scintillator	0 to 3000 μ R/hr	600 hours	175 cpm per μ R/hr
12SA PN: 48-2621	2.5 x 2.5 cm (1 x 1 in.) NaI(Tl) scintillator	0 to 3000 μ R/hr	600 hours	175 cpm per μ R/hr



MODEL 192

- 4-Range Analog Meter
- Internal NaI(Tl) Detector
- Sigma Based & Fixed Alarm



MODEL 193

- 4-Range Analog Meter
- Supports External Gamma Scintillation Detectors
- Sigma Based & Fixed Alarm



MODEL 12S

- 4-Range Analog Meter
- Internal NaI(Tl) Detector



MODEL 12SA

- 4-Range Analog Meter
- Internal NaI(Tl) Detector
- Adjustable Alarm

EXTENDED REACH microR/microSv METERS



MODEL 3006

- Digital Meter
- External Detector on Pole
- 4 Buttons for Easy Operation
- Sigma Alarm



MODEL 193-6

- 4-Range Analog Meter
- External Detector on Pole
- Sigma Based Alarm



MODEL 30-6

- Digital Meter
- External Detector on Pole with Ergonomic Handle
- Our Lightest Extended Reach Instrument
- Adjustable Length from 111 to 161 cm (43.6 to 63.4 in.)

MODEL	CONTROLS	BATTERY LIFE	RANGE	WEIGHT
3006 PN: 48-4284	On/off, units, audio, mode, log	750 hours	Background to 20 μ Sv/h (2000 μ R/hr)	3.2 kg (7.0 lb)
193-6 PN: 48-3063	Rotary switch (off, battery test, four ranges), response switch, reset button, audio switch	600 hours	Background to 10 μ Sv/h (0 to 1000 μ R/hr)	3.9 kg (8.5 lb)
30-6 PN: 48-4195	On/off/ack, units, mode	100 hours	Background to 20 μ Sv/h (2000 μ R/hr)	2.9 kg (6.5 lb)

COMMON FEATURES

- Sensitivity: 1500 cpm per μ R/hr • High Voltage: 400-1500 Vdc

PERSONAL RADIATION DETECTORS



MODEL 25 SERIES

MODEL	DISPLAY RANGE	GAMMA RESPONSE	INTRINSICALLY SAFE
25 PN: 48-3584	0.01 mR/hr to 999 R/hr 0.01 mR to 999 R	18 cpm per mR/hr	No
25-1 PN: 48-3629	0.001 mSv/h to 9.99 Sv/h 0.001 mSv to 9.99 Sv	1800 cpm per mSv/h	No
25-IS PN: 48-3661	0.01 mR/hr to 999 R/hr 0.01 mR to 999 R	18 cpm per mR/hr	Yes
25-IS-1 PN: 48-3686	0.001 mSv/h to 9.99 Sv/h 0.001 mSv to 9.99 Sv	1800 cpm per mSv/h	Yes

MODEL 25 SERIES SPECIFICATIONS

DETECTOR: Internal energy-compensated GM

ENERGY RANGE: 60 keV to 2 MeV

ALERT & ALARMS: Adjustable over entire display range. Distinct alerts and alarms for exposure and accumulated dose.

AUDIO: Built-in speaker (typically 95 dB at 0.3 m [1.0 ft])

LOSS OF COUNT PROTECTION: If no pulses are received from the detector in 60 minutes, instrument failure is indicated by an audible and visual alarm, and the display alternating between "0.0" and "F."

CALIBRATION: Requires no tools or software when exposed to a traceable radiation field

CALIBRATION RANGE: Normally calibrated from 2 mR/hr to 999 R/hr, or 0.02 mSv/h to 9.99 Sv/h (units are model dependent)

POWER: 2 each lithium coin cell batteries

BATTERY LIFE: Typically 6000 hours. Provides 8 hours warning of low battery.

TEMPERATURE RANGE: -40 to 65 °C (-40 to 150 °F)

SIZE (H x W x L): 7.6 x 5.4 x 1.7 cm (3.0 x 2.1 x 0.69 in.)

WEIGHT: 144 g (5.1 oz) including batteries

INTRINSICALLY SAFE CERTIFICATION (Models 25-IS, 25-IS-1): Class I, Division 1, Groups A-D; Class II, III, Division 1, Groups E, F, and G, T6 (UL 61010-1/CSA C22.2 No. 61010-1, UL 913/CSA C22.2 No. 157)

WARNING (Models 25-IS, 25-IS-1): Use only DL2450 (NEDA / ANSI / IEC / #5029LC) coin cell batteries. To reduce the risk of ignition of a flammable or explosive atmosphere, batteries must be changed only in a location known to be a non-hazardous area.

WARNING (Models 25-IS, 25-IS-1): When repairing this unit, substitution of components may impair intrinsic safety.

KEY FEATURES

- Sensitivity: 1800 cpm per mSv/h (18 cpm per mR/hr)
- Audible & Visual Alerts and Alarm
- Battery Life: 6000 hours
- Water Resistant

MODEL 25 SERIES ACCESSORIES



ARM BAND

PN: 21-8974



MODEL 25 SERIES NYLON CASE

PN: 2311485

NEUTRON METERS



MODEL 30-7B

- Digital Meter
- Moderator: 7.7 in. dia.
- Lighter Weight Design
- ³He Proportional Detector



MODEL 3007Bi

- Digital Meter
- Moderator: 7.7 in. dia.
- Lighter Weight Design
- ³He Proportional Detector
- Internal Detector for Gamma Dose Measurements*



MODEL 30-4

- Digital Meter
- Moderator: 9 in. dia.
- ³He Proportional Detector



MODEL 3004i

- Digital Meter
- Moderator: 9 in. dia.
- ³He Proportional Detector
- Internal Detector for Gamma Dose Measurements*



MODEL 12-4-7

- 4-Range Analog Meter
- Moderator: 7.7 in. dia.
- Lighter Weight Design
- ³He Proportional Detector

MODEL	MEASUREMENT RANGE	TYPICAL SENSITIVITY	NEUTRON ENERGY RESPONSE	GAMMA REJECTION	WEIGHT
30-7B PN: 48-4309	0 to 99.9 mSv/h (0 to 9.99 rem/hr)	4.5 cpm per μ Sv/h (45 cpm per mrem/hr)	Provides approximate inverse RPG curve for neutrons from thermal through 7 MeV, provides response up to 12 MeV	< 10 cpm through 10 R/hr	4.8 kg (10.6 lb)
3007Bi PN: 48-4443B	0 to 100 mSv/h (0 to 10,000 mrem/hr)	4.5 cpm per μ Sv/h (45 cpm per mrem/hr)		< 10 cpm through 10 R/hr	5.5 kg (12.2 lb)
30-4 PN: 48-4191	0 to 99.9 mSv/h (0 to 9.99 rem/hr)	10 cpm per μ Sv/h (100 cpm per mrem/hr)		< 10 cpm through 10 R/hr	6.6 kg (14.5 lb)
3004i PN: 48-4442	0 to 100 mSv/h (0 to 10,000 mrem/hr)	10 cpm per μ Sv/h (100 cpm per mrem/hr)		< 10 cpm through 10 R/hr	8.3 kg (18.3 lb)
12-4-7 PN: 48-4280	0 to 100 mSv/h (0 to 10,000 mrem/hr)	10 cpm per μ Sv/h (100 cpm per mrem/hr)		< 10 cpm through 10 R/hr	5.4 kg (12 lb)

ALSO AVAILABLE

MODEL 30-7 (PN: 48-4192) & MODEL 3007i (PN: 48-4443)

The Models 30-7 and 3007i use the same detector as the Models 30-7B and 3007Bi respectively, except the internal borated layer has a lower boron concentration. These instruments offer greater sensitivity, typically 10 cpm per μ Sv/h (100 cpm per mrem/hr), but tend to overrespond in the 5 keV range.

* Versions of the Model 3007 and Model 3004 instruments are also available without the internal detector.

NEUTRON METERS



MODEL 12-4

- 4-Range Analog Meter
- Moderator: 9 in. dia.
- ^3He Proportional Detector



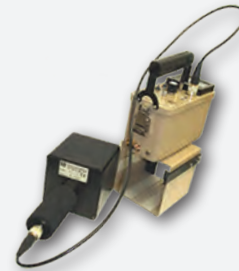
MODEL 375-31H

- Digital Area Monitor
- Moderator: 9 in. dia.
- ^3He Proportional Detector



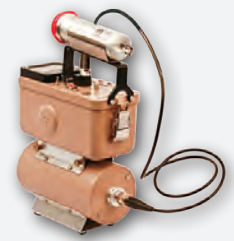
MODEL 3014 WITH 42-41L

- Digital Meter
- Neutron and Gamma Detection
- PRESCILA Scintillator Detector
- Internal Energy-Compensated GM



MODEL 2363 WITH 42-41L

- 4-Range Analog Meter
- Neutron and Gamma Detection
- PRESCILA Scintillator Detector
- Internal Energy-Compensated GM



MODEL 15

- Analog + Digital Scaler-Meter
- Neutron and Alpha-Beta-Gamma Detection
- ^3He Proportional Detector
- Model 44-7 End Window GM Detector

MODEL	MEASUREMENT RANGE	TYPICAL SENSITIVITY	NEUTRON ENERGY RESPONSE	GAMMA REJECTION	WEIGHT
12-4 PN: 48-1200	0 to 100 mSv/h (0 to 10,000 mrem/hr)	10 cpm per $\mu\text{Sv/h}$ (100 cpm per mrem/hr)	Provides approximate inverse RPG curve for neutrons from thermal through 7 MeV, provides response up to 12 MeV	< 10 cpm through 10 R/hr	8.3 kg (18.3 lb)
375-31H PN: 48-4370	0 to 100 mSv/h (0 to 10 rem/hr)	10,000 cpm per mSv/h (100 cpm per mrem/hr)		< 10 cpm through 10 R/hr	9.5 kg (21 lb)
3014 W/ 42-41L PN: 48-4507	<u>Neutron:</u> 1 $\mu\text{Sv/h}$ to 10 mSv/h (0.1 to 1 rem/hr) <u>Gamma:</u> Background to 50 mSv/h (5 R/hr)	<u>Neutron:</u> 35 cpm per $\mu\text{Sv/h}$ (350 cpm per mrem/hr) <u>Gamma:</u> 100 cpm per $\mu\text{Sv/h}$ (1000 cpm per mR/hr)	Thermal to 100 MeV	≈ 400 cpm @ 100 mR/hr (^{137}Cs)	<u>with 42-41L:</u> 3.5 kg (7.7 lb) <u>without 42-41L:</u> 1.4 kg (3 lb)
2363 W/ 42-41L PN: 48-3514	<u>Neutron:</u> 1 $\mu\text{Sv/h}$ to 10 mSv/h (0.1 mrem/hr to 1 rem/hr) <u>Gamma:</u> 1 $\mu\text{Sv/h}$ to 10 mSv/h (0.1 mR/hr to 1 R/hr)	<u>Neutron:</u> 35 cpm per $\mu\text{Sv/h}$ (350 cpm per mrem/hr) <u>Gamma:</u> 100 cpm per $\mu\text{Sv/h}$ (1000 cpm per mR/hr)	Thermal to 100 MeV	≈ 400 cpm @ 100 mR/hr (^{137}Cs)	<u>with 42-41L:</u> 4.2 kg (9.2 lb) <u>without 42-41L:</u> 2.0 kg (4.5 lb)
15 PN: 48-1614	0 to 500,000 cpm	<u>Neutron Detector:</u> 55 cpm per mRem/hr (bare $^{241}\text{AmBe}$) <u>Gamma Detector:</u> 2100 cpm per mR/hr $\alpha\beta$ Efficiencies: 2% for ^{14}C 7% for ^{239}Pu 10% for $^{90}\text{Sr}/^{90}\text{Y}$ 7% for ^{99}Tc	Not linear through energy spectrum (0.025 - 12 MeV)	< 10 cpm through 10 R/hr	3.7 kg (8.1 lb)

STRETCH SCOPES



MODEL 3078 SERIES

- Digital Meter
- Carbon-Fiber Pole
- Extends to 4.7 m (15.3 ft)
- Gamma Survey
- Model 3078i: Internal Detector Option for Dose Measurements
- Selectable Alarms



MODEL 79 SERIES

- Digital Meter
- Carbon-Fiber Pole
- Extends to 4.5 m (14.75 ft)
- Gamma Survey
- Selectable Alarms
- Our Lightest Stretch Scope



MODEL 9-7S

- Digital Meter
- Stainless Steel Pole
- Extends to 3.8 m (12.6 ft)
- Beta-Gamma Survey
- No Alarms

MODEL	DETECTOR	MEASUREMENT RANGE	BATTERY LIFE	WEIGHT
3078 PN: 48-4332	2 Energy-compensated GM tubes	1 $\mu\text{Sv/h}$ to 10 Sv/h (0.1 mR/hr to 1 kR/hr)	85 hours	2.5 kg (5.4 lb)
3078i PN: 48-4337	External: 2 Energy-compensated GM tubes Internal: 1 Energy-compensated GM tube (other internal detectors available)	1 $\mu\text{Sv/h}$ to 10 Sv/h (0.1 mR/hr to 1 kR/hr)	85 hours	2.5 kg (5.4 lb)
79 PN: 48-3966	Energy-compensated GM tube	40 $\mu\text{Sv/h}$ to 10 Sv/h (4 mR/hr to 999 R/hr)	100 hours	1.4 kg (3.0 lb)
79/1 PN: 48-4241	CsI(Tl) crystal scintillator	0.01 μSv to 0.5 mSv (1 μR to 50 mR/hr)	100 hours	1.4 kg (3.0 lb)
79/2 PN: 48-4203	Energy-compensated GM tube	0.001 mSv/h to 0.04 Sv/h (0.1 mR/hr to 4 R/hr)	100 hours	1.4 kg (3.0 lb)
9-7S PN: 48-4449-1	Ion chamber (See Model 9-7 detectors, p. 15)	Detector dependent (see p. 15) <u>Display Range:</u> 0.001 R/hr to 19.99 kR/hr	160 hours	2.9 kg (6.4 lb)



MODEL 78 & 78-1

- Analog + Digital Meter
- Stainless Steel Pole
- Extends to 3.6 m (12 ft)
- Gamma Survey
- No Alarms



MODEL 78-6

- Analog + Digital Meter
- Stainless Steel Pole
- Extends to 3.6 m (12 ft)
- Gamma Survey
- No Alarms



MODEL 78-9

- Analog + Digital Meter
- Stainless Steel Pole
- Extends to 3.6 m (12 ft)
- Beta-Gamma Survey
- No Alarms

MODEL	DETECTOR	MEASUREMENT RANGE	BATTERY LIFE	WEIGHT
78 PN: 48-2832	2 Energy-compensated GM tubes	0.1 mR/hr to 1000 R/hr (no Sv)	250 hours	2.9 kg (6.4 lb)
78-1 PN: 48-3743		0.1 μ Sv/h to 9999 mSv/h (no R)		
78-6 PN: 48-3411	Photomultiplier coupled to a 1 x 1 in. NaI(Tl) crystal	1 to 5000 μ R/hr (0.01 to 50 μ Sv/h)	1000 hours	2.9 kg (6.4 lb)
78-9 PN: 48-3808	Halogen-quenched GM pancake	000.0 to 999.9 cps (000.0 to 999.9 μ Sv/h)	250 hours	2.9 kg (6.4 lb)

SPECIALIZED METERS



MODEL 3-97

- Gamma Survey
- Internal Na(Tl) Scintillator Detector
- External Energy-Compensated GM Gamma Detector (Model 44-38), Others Available



MODEL 3-98

- ^{125}I & Alpha-Beta-Gamma Survey
- Internal Pancake GM Detector
- External Low-Energy Gamma Detector (Model 44-3), Others Available



MODEL 195 WITH 43-132

- Alpha Survey
- External Model 43-132 Alpha Ion Chamber Detector

MODEL	INDICATED USE	TYPICAL SENSITIVITY	DISPLAY
3-97 PN: 48-1410	Wide range gamma detection	Internal NaI (2.5 x 2.5 cm [1 x 1 in.]): 175 cpm per $\mu\text{R/hr}$ External GM: 1200 cpm per mR/hr	4-Range analog meter
3-98 PN: 48-1135	Alpha-Beta-Gamma for nuclear medicine	External Model 44-3: 675 cpm per $\mu\text{R/hr}$ Internal pancake GM: 3300 cpm per mR/hr	4-Range analog meter
195 W/ 43-132 PN: 48-3233/47-3234	High-range alpha detection	Up to 900 Mdpm	Digital meter



MODEL 194 SERIES Dose Equivalent Ratemeter

- Accurate (Energy-Flat) Ambient Dose Equivalent Rate Measurements
- Eliminates High False readings of Typical microR Meters
- Improved Replacement for Bicron Microrem
- "E" Extended Detector Version Has Low-Energy, 3.2 mg/cm² Window for Operation Below 50 keV

MODEL	DESCRIPTION
194 PN: 48-4364	Internal detector with (μ)(m)rem/hr display
194/E PN: 48-4388	Extended detector with (μ)(m)rem/hr display
194/S PN: 48-4364-1	Internal detector with μSv/hr display
194/SE PN: 48-4388-1	Extended detector with μSv/hr display

SPECIFICATIONS

DETECTOR: Internal rugged plastic scintillator, EJ-256

LOW RANGE: Background to 19.99 μSv/h (1999 μrem/hr)

HIGH RANGE: 1 to 1999 μSv/h (0.1 to 199.9 mrem/hr)

POWER: Two AA batteries

BATTERY LIFE: Approximately 200 hours

SIZE (L x W x H): 19.0 x 8.9 x 21.6 cm (7.5 x 3.5 x 8.5 in.)

WEIGHT: 1.1 kg (2.5 lb), including batteries

BENCHTOP METERS



MODEL 3276

- Digital Display
- Supports GM, Proportional, & Scintillation Detectors
- See also p. 39



MODEL 3277/1

- Touch Screen Display
- Supports Alpha-Beta Scintillation or Proportional Detectors



MODEL 177

- 4-Range Linear Analog Meter
- Supports GM & Scintillation Detectors



MODEL 177-50

- 5-Range Logarithmic Analog Meter
- Supports GM, Proportional, & Scintillation Detectors



MODEL 177-56

- 4-Range Linear Analog Meter
- Operates with Two Detectors: Scintillation for Alpha, GM for Beta



MODEL 177-61

- 4-Range Linear Analog Meter
- Supports GM, Proportional & Scintillation Detectors



MODEL 177-84

- Dual 3-Range Logarithmic Analog Meter
- Supports Alpha-Beta Proportional & Scintillation Detectors



MODEL 4600

- 1- to 12-Detector, Single-Channel Analyzer
- Supports GM, Proportional, & Scintillation Detectors
- See also p. 11

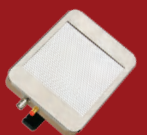
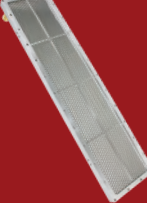
MODEL	DISPLAY RANGE	CONTROLS	THRESHOLD	HIGH VOLTAGE
3276 PN: 48-4160	0.00 cps to 999 kcps 0.00 cpm to 999 kcpm 0.00 Bq to 999 kBq 0.00 dpm to 999 kdpm 0.00 μ R/h to 999 R/h 0.00 μ Sv/h to 999 Sv/h	on/off, units, audio, mode	-4 to -100 mV	400 to 1500 Vdc
3277/1 PN: 48-4357	0.00 cps to 999 kcps 0.00 cpm to 999 kcpm 0.00 Bq to 999 kBq 0.00 dpm to 999 kdpm	touch screen	Alpha: -2 to -350 mVdc Beta: -2 to -99.9 mVdc	400 to 2200 Vdc
177 PN: 48-1632	0 to 500,000 cpm	on/off switch; volume knob; range selector switch; reset button; response switch; test buttons for battery, HV, and alarm; alarm set knob	-10 to -100 mV	400 to 1500 Vdc
177-50 PN: 48-1202	10 to 1,000,000 cpm (logarithmic)	on/off switch; volume knob; reset button; test buttons for battery, HV, and alarm; alarm set knob	-2 to -100 mV	400 to 2500 Vdc
177-56 PN: 48-1323	0 to 500,000 cpm	on/off switch; volume knob; range selector switch; reset button; response switch; test buttons for battery and HV; alpha/beta switch	Alpha: -10 to -100 mV Beta: -10 to -25 mV	Alpha: 400 to 1500 Vdc Beta: 900 Vdc
177-61 PN: 48-1382	0 to 500,000 cpm	on/off switch; volume knob; range selector switch; reset button; response switch; test buttons for battery, HV, and alarm; alarm set knob	-2 to -100 mV	400 to 2500 Vdc
177-84 PN: 48-2727	Alpha: 0 to 1000 cpm Beta: 100 to 100,000 cpm (logarithmic)	on/off switch, ack/reset button, meter mode knob (HV, alarm, ratemeter)	Alpha: -1 to -180 mV Beta: -1 to -4 mV	200 to 2500 Vdc
4600 Inquire about PN	NA	controlled via software	-5 to -3300 mV	0 to 1500 Vdc or 0 to 2500 Vdc

ALPHA		COMMON FEATURES: Used for contamination survey • Typical Background (10 µR/hr) : 3 cpm				
MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/OPEN)	EFFICIENCY (4π)	OPERATING VOLTAGE (Vdc)	PART NO.
 43-1*	ZnS(Ag) scintillator	0.8 mg/cm ²	83 cm ² / 75 cm ²	²³⁹ Pu – 33%	500 to 1200	47-1516
 43-2*	ZnS(Ag) scintillator	0.8 mg/cm ²	9.7 cm ² / 9.7 cm ²	²³⁹ Pu – 30% ²³⁰ Th – 30%	500 to 1200	47-1517
 43-202	ZnS(Ag) scintillator	0.8 mg/cm ²	17.8 cm ² / 14.1 cm ²	²³⁹ Pu – 18%	500 to 1200	47-4254
 43-5	ZnS(Ag) scintillator	0.8 mg/cm ²	79 cm ² / 52 cm ²	²³⁹ Pu – 13%	500 to 1200	47-1521
 43-65*	ZnS(Ag) scintillator	0.8 mg/cm ²	63 cm ² / 50 cm ²	²³⁹ Pu – 17% ²³⁰ Th – 17%	500 to 1200	47-1441
 43-90	ZnS(Ag) scintillator	0.8 mg/cm ²	125 cm ² / 100 cm ²	²³⁹ Pu – 20%	500 to 1500	47-2448
 43-92	ZnS(Ag) scintillator	0.8 mg/cm ²	100 cm ² / 88 cm ²	²³⁹ Pu – 20%	500 to 1500	47-2555
 43-136	ZnS(Ag) scintillator	0.8 mg/cm ²	65.3 cm ² / 57.4 cm ²	²³⁹ Pu – 20%	500 to 1500	47-3829
 43-44	Air proportional	0.4 mg/cm ²	76 cm ² / 50 cm ²	²³⁹ Pu – 8%	Altitude dependent 1875 to 2050	47-1169
 43-44-1	Air proportional	0.4 mg/cm ²	154 cm ² / 100 cm ²	²³⁹ Pu – 8%	Altitude dependent 1875 to 2050	47-2385

**Models 43-1, 43-2, and 43-65 are also available in an alpha-beta version.*

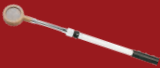
ALPHA-BETA

COMMON FEATURES: Used for Contamination Survey

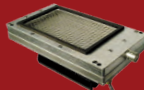
MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/ OPEN)	EFFICIENCY (4n)	TYPICAL BKG (10 μ R/hr)	CROSSTALK	OPERATING VOLTAGE (Vdc)	PART NO.
43-89 	ZnS(Ag) on 0.03 cm (0.01 in.) plastic scintillator	1.2 mg/cm ²	125 cm ² / 100 cm ²	²³⁹ Pu – 17.5% ⁹⁹ Tc – 10% ⁹⁰ Sr/ ⁹⁰ Y – 17.5%	Alpha: ≤ 3 Beta: ≤ 300	Alpha-Beta: < 10% Beta-Alpha: < 1%	500 to 1500	47-2430
43-93 	ZnS(Ag) on 0.03 cm (0.01 in.) plastic scintillator	1.2 mg/cm ²	100 cm ² / 88 cm ²	²³⁹ Pu – 20% ⁹⁹ Tc – 15% ⁹⁰ Sr/ ⁹⁰ Y – 20%	Alpha: ≤ 3 cpm Beta: ≤ 300 cpm	Alpha-Beta: < 10% Beta-Alpha: < 1%	500 to 1200	47-2556
43-147 	ZnS(Ag) on 0.03 cm (0.01 in.) plastic scintillator	1.2 mg/cm ²	200 cm ² / 176 cm ²	²³⁹ Pu – 20% ⁹⁹ Tc – 13% ⁹⁰ Sr/ ⁹⁰ Y – 20%	Alpha: ≤ 3 cpm Beta: ≤ 400 cpm	Alpha-Beta: < 10% Beta-Alpha: < 1%	500 to 1200	47-4092
43-68 	Rechargeable gas proportional	0.8 mg/cm ²	126 cm ² / 100 cm ²	Gross Counting: ²³⁹ Pu – 20% ¹⁴ C – 15% ⁹⁹ Tc – 23% ⁹⁰ Sr/ ⁹⁰ Y – 20% gamma < 1% Alpha-Beta: ²³⁹ Pu – 17.5% ⁹⁹ Tc – 16% ⁹⁰ Sr/ ⁹⁰ Y – 20%	Alpha: ≤ 3 cpm Beta-Gamma: 350 cpm	Alpha-Beta: < 10% Beta-Gamma: < 1%	Alpha: 1100 to 1400 Beta-Gamma: 1600 to 1800	47-2005
43-143-1 	Gas proportional (requires continuous gas flow)	0.8 mg/cm ²	100 cm ² / 70 cm ²	Gross Counting: ²³⁹ Pu – 20% ⁹⁰ Sr/ ⁹⁰ Y – 20% ⁹⁹ Tc – 23% ¹⁴ C – 15% gamma < 1% Alpha-Beta: ²³⁹ Pu – 17.5% ⁹⁰ Sr/ ⁹⁰ Y – 20% ⁹⁹ Tc – 16%	Alpha: ≤ 3 cpm Beta-Gamma: ≤ 350 cpm	Alpha-Beta: < 10% Beta-Gamma: < 1%	Alpha: 1100 to 1400 Beta-Gamma: 1600 to 1800	47-4011
43-37 6 43-37-1 	Large-area gas proportional	Alpha only: 0.8 mg/cm ² Beta-Gamma: 3.4 mg/cm ² Gamma: 11.8 mg/cm ²	43-37: 584 cm ² / 434 cm ² 43-37-1: 821 cm ² / 609 cm ²	Gross Counting: ²³⁹ Pu – 20% (alpha only); ⁹⁹ Tc – 23% (beta only); ⁹⁰ Sr/ ⁹⁰ Y – 30% gamma < 1% Alpha-Beta: ²³⁹ Pu – 17.5% ⁹⁹ Tc – 16% ⁹⁰ Sr/ ⁹⁰ Y – 20% gamma < 1%	Alpha: < 10 cpm 43-37 Beta-Gamma: 800-1300 cpm 43-37-1 Beta-Gamma: 1000-1800 cpm	Alpha-Beta: < 10% Beta-Gamma: < 1%	Alpha: 1100 to 1400 Beta-Gamma: 1700 to 1800	43-37: 47-1143 43-37-1: 47-2243
43-135-1 	Gas proportional (pressurized gas chamber)	Windowless	2300 cm ²	²³⁹ Pu – 42% ²³⁰ Th – 33% ⁹⁹ Tc – 55% ⁶³ Ni – 37% ⁹⁰ Sr/ ⁹⁰ Y – 55%	Alpha: 0.06 cps Beta: 30 cps	Alpha-Beta: < 10% Beta-Gamma: < 1%	< 2500	47-4117

ALPHA-BETA-GAMMA

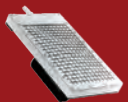
COMMON FEATURES: Operating Voltage: 900 Vdc

MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/ OPEN)	EFFICIENCY (4n)	TYPICAL BKG (10 µR/hr)	TYPICAL SENSITIVITY (¹³⁷ Cs) (cpm)	PART NO.
44-7 	GM, end window	2.0 ± 0.3 mg/cm ² mica	6 cm ² / 5 cm ²	¹⁴ C – 2% ⁹⁰ Sr/ ⁹⁰ Y – 10% ⁹⁹ Tc – 6% ²³⁹ Pu – 7% ¹²⁵ I – 0.1%	40 cpm	2100 cpm per mR/hr *energy dependent	47-1536
44-9 	GM, pancake	2.0 ± 0.3 mg/cm ² mica	15.5 cm ² / 12.3 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 15% ³² P – 32% ²³⁹ Pu – 15%	30 - 60 cpm	3300 cpm per mR/hr *energy dependent	47-1539
44-9 DOSE 						3300 cpm per mR/hr *energy compensated	47-3789
44-9-18 	Telescoping GM, pancake	2.0 ± 0.3 mg/cm ² mica	15.5 cm ² / 12.3 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 15% ³² P – 32% ²³⁹ Pu – 15%	30 - 60 cpm	3300 cpm per mR/hr *energy dependent	47-2940
44-40 	GM, pancake with lead housing	1.7 ± 0.3 mg/cm ² mica	15.5 cm ² / 12.3 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ¹⁹⁹ Tc – 15% ³² P – 32% ^{15%} – ²³⁹ Pu	25 cpm	3300 cpm per mR/hr *energy dependent	47-1538
44-40-2 	GM, pancake with lead housing	1.7 ± 0.3 mg/cm ² mica	15.5 cm ² / 12.3 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 19% ³² P – 32% ²³⁹ Pu – 15%	25 cpm	3300 cpm per mR/hr *energy dependent	47-2758
44-88 	Cylindrical GM, pancake	1.7 ± 0.3 mg/cm ² mica	15 cm ² / 12 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 19% ³² P – 32% ²³⁹ Pu – 15%	60 cpm	3300 cpm per mR/hr *energy dependent	47-2356
44-89 	GM, pancake array	1.7 ± 0.3 mg/cm ² mica	62 cm ² / 50 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 19% ³² P – 32% ²³⁹ Pu – 15%	240 cpm	13,200 cpm per mR/hr *energy dependent	47-2357
44-94 							47-2390
44-25 	GM, pancake array	1.7 ± 0.3 mg/cm ² mica	31 cm ² / 18 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 19% ³² P – 32% ²³⁹ Pu – 15%	120 cpm	6600 cpm per mR/hr *energy dependent	47-1508
44-26 	GM, pancake array	1.7 ± 0.3 mg/cm ² mica	46 cm ² / 27 cm ²	¹⁴ C – 5% ⁹⁰ Sr/ ⁹⁰ Y – 22% ⁹⁹ Tc – 19% ³² P – 32% ²³⁹ Pu – 15%	180 cpm	9900 cpm per mR/hr *energy dependent	47-1509

BETA

MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/ OPEN)	EFFICIENCY (4n)	TYPICAL BKG (10 μ R/hr)	OPERATING VOLTAGE (Vdc)	PART NO.
44-1 	4.3 cm (1.7 in.) dia x 0.03 cm (0.01 in.) thick plastic scintillator	1.2 mg/cm ²	9.7 cm ² / 9.7 cm ²	¹⁴ C – 7%	100 cpm	500 to 1200	47-1531
43-65-1 	0.03 cm (0.01 in.) thick plastic scintillator	0.8 mg/cm ² (1.2 mg/cm ² recommended for outdoor use)	63 cm ² / 50 cm ²	⁹⁹ Tc – 15% ⁹⁰ Sr/ ⁹⁰ Y – 20% ¹⁴ C – 1%	≤ 200 cpm	500 to 1200	47-2061
44-116 	0.03 cm (0.01 in.) thick plastic scintillator	1.2 mg/cm ²	125 cm ² / 100 cm ²	⁹⁹ Tc – 15% ¹⁴ C – 4% ⁹⁰ Sr/ ⁹⁰ Y – 30%	≤ 300 cpm	500 to 1000	47-2696
44-142 	0.03 cm (0.01 in.) thick plastic scintillator	1.2 mg/cm ²	100 cm ² / 88 cm ²	⁹⁹ Tc – 15% ¹⁴ C – 4% ⁹⁰ Sr/ ⁹⁰ Y – 30%	≤ 300 cpm	500 to 1200	47-3161
44-215 	5.1 cm (2.0 in.) dia x 0.03 cm (0.01 in.) thick plastic scintillator	1.2 mg/cm ²	20 cm ² / 16.65 cm ²	⁹⁹ Tc – 33% ¹⁴ C – 10% ⁹⁰ Sr/ ⁹⁰ Y – 33%	100 cpm	500 to 1200	47-4143
44-110 	Gas flow proportional	Windowless	126 cm ² / 100 cm ²	³ H – 25%	400 cpm	1700	47-2585

BETA-GAMMA

MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/ OPEN)	EFFICIENCY (4n)	TYPICAL BKG (10 μ R/hr)	OPERATING VOLTAGE (Vdc)	PART NO.
44-21 	2.54 cm (1.0 in.) dia x 0.1 cm (0.04 in.) NaI(Tl) scintillator and 0.03 cm (0.01 in.) plastic scintillator	3.4 mg/cm ²	5.1 cm ² / 5.1 cm ²	¹⁴ C – 4% ³² P – 28% ¹²⁵ I – 38% ¹²⁹ I – 19%	450 cpm	500 to 1200	47-1560
44-98 	Bismuth germanate (BGO) scintillator, 2.5 cm (1.0 in.) dia x 1 mm thick	1.2 mg/cm ²	5 cm ² / 5 cm ²	¹⁴ C – 3% ¹²⁵ I – 15% ¹²⁹ I – 8%	650 cpm	500 to 1200	47-2465
44-92 	Sealed, xenon gas proportional	6 mg/cm ² titanium	169 cm ² / 140 cm ²	¹⁴ C – 10% ⁹⁹ Tc – 13% ³⁶ Cl – 24% ⁹⁰ Sr/ ⁹⁰ Y – 26% ¹²⁹ I – 3% ⁵⁷ Co – 1.6% ⁵⁵ Fe – 1.2% ²³⁹ Pu – 10%	< 1000 cpm	1600 to 1900	47-2362

DETECTORS

GAMMA GM

MODEL	DETECTOR TYPE	LINEAR RANGE WITHOUT DEAD TIME CORRECTION	TYPICAL SENSITIVITY (¹³⁷ Cs)	ENERGY RESPONSE	TYPICAL BKG (10 µR/hr)	TYPICAL DEAD TIME	OPERATING VOLTAGE (Vdc)	PART NO.
133-2* 	Energy-compensated GM	1 µSv/h to 2 mSv/h (0.1 to 200 mR/hr)	1000 cpm per mR/hr	± 25%	12 cpm	50 µs	550	47-1717
133-3* 	Energy-compensated GM	1 µSv/h to 10 mSv/h (0.1 mR/hr to 1 R/hr)	450 cpm per mR/hr	± 25%	6 cpm	50 µs	550	47-1314
133-4* 	Energy-compensated GM	10 µSv/h to 20 mSv/h (1 mR/hr to 2 R/hr)	100 cpm per mR/hr	± 25%	≤ 1 cpm	50 µs	550	47-1674
133-6* 	Energy-compensated GM	40 µSv/h to 60 mSv/h (4 mR/hr to 6 R/hr)	18 cpm per mR/hr	± 25%	≤ 1 cpm	50 µs	550	47-1718
133-7* 	Energy-compensated GM	250 µSv/h to 300 mSv/h (25 mR/hr to 30 R/hr)	4.2 cpm per mR/hr	± 25%	≤ 1 cpm	50 µs	500	47-1216
44-6 	GM w/ Beta window	± 10% up to 50 mR/hr	1200 cpm per mR/hr w/ window closed	Energy dependent	Closed: 20 cpm Open: 25 cpm	95 µs	900	47-1535
44-38 	GM w/ Beta window	0.5 to 500 µSv/h (0.05 to 50 mR/hr)	1200 cpm per mR/hr w/ window closed	Within 20% of ¹³⁷ Cs (662 keV)	Closed: 20 cpm Open: 25 cpm	95 µs	900	47-1588
44-150-1 	Energy-compensated GM	1 to 500 µSv/h (0.1 to 50 mR/hr)	4000 cpm per mR/hr	Energy dependent	48 cpm	50 µs	550	47-3335-1
44-150-3 	Energy-compensated GM	0.1 to 80 µSv/h (0.01 to 8 mR/hr)	13,500 cpm per mR/hr	Within 30% from 60 keV to 1.3 Mev	300 cpm	50 µs	900	47-4039
44-183 	Shielded, directional, energy-compensated GM	10 to 20 mSv/h (1 mR/hr to 2 R/hr)	100 cpm per mR/hr	± 15%	≤ 1 cpm	50 µs	550	47-3758

***Models 133-2, 133-3, 133-4, 133-6, and 133-7 are also available in a waterproof version.**

GAMMA SCINTILLATOR

MODEL	DETECTOR TYPE	EFFICIENCY (4π)	TYPICAL SENSITIVITY	ENERGY RESPONSE	TYPICAL BKG (10 μR/hr)	OPERATING VOLTAGE (Vdc)	PART NO.
44-2 	Nal(Tl) scintillator, 2.5 x 2.5 cm (1 x 1 in.)	¹²⁵ I – 7% ⁵⁷ Co – 10% ¹³⁷ Cs – 3% ⁶⁰ Co – 3%	175 cpm per μR/hr	Energy dependent	1800 cpm	500 to 1200	47-1532
44-10 	Nal(Tl) scintillator, 5.1 x 5.1 cm (2 in. x 2 in.)	¹²⁵ I – 4% ⁵⁷ Co – 20% ¹³⁷ Cs – 9% ⁶⁰ Co – 15%	900 cpm per μR/hr	Energy dependent	9750 cpm	500 to 1200	47-1540
44-62 	Nal(Tl) scintillator, 1.3 x 2.5 cm (0.5 x 1 in.)	¹³⁷ Cs – 3.8%	49 cpm per μR/hr	Energy dependent	600 cpm	500 to 1200	47-1238
44-11 	Nal(Tl) scintillator, 5.1 x 5.1 cm (2 x 2 in.)	¹³⁷ Cs – 11.2%	900 cpm per μR/hr	Energy dependent	9750 cpm	500 to 1200	47-1541
44-20 	Nal(Tl) scintillator, 7.6 x 7.6 cm (3 x 3 in.)	¹²⁵ I – 29%	2300 cpm per μR/hr	Energy dependent	23,000 cpm	500 to 1200	47-1104
44-159-1 	CsI (cesium iodide) scintillator, 18 x 18 mm (0.7 x 0.7 in.)	⁵⁷ Co – 14% ¹³⁷ Cs – 3% ⁶⁰ Co – 5%	120 cpm per μR/hr	Energy dependent	750 cpm	700 to 1200	47-3820
44-132 	EJ-212 plastic scintillator, 14.6 x 2.5 cm (5.75 x 1 in.)	NA	1500 cpm per μR/hr	Energy dependent	≤ 10,000 cpm	700 to 1100	47-3074

LOW-ENERGY GAMMA SCINTILLATOR

MODEL	DETECTOR TYPE	WINDOW	AREA (ACTIVE/ OPEN)	EFFICIENCY (4π)	TYPICAL BKG (10 μR/hr)	OPERATING VOLTAGE (Vdc)	PART NO.
44-3 	Nal(Tl) scintillator, 2.5 x 0.1 cm (1 x 0.04 in.)	18.4 mg/cm ²	5 cm ² / 5 cm ²	¹²⁵ I – 33.5% ¹²⁹ I – 18%	300	500 to 1200	47-1533
44-17 	Nal(Tl) scintillator, 5.1 x 0.2 cm (2 x 0.08 in.)	86 mg/cm ²	17.8 cm ² / 17.8 cm ²	¹²⁵ I – 40% ¹²⁹ I – 22%	< 1500	500 to 1200	47-1547
44-172 	YSO (Yttrium Oxyorthosilicate) scintillator, 2.5 cm x 1 mm (1 x 0.04 in.)	1.2 mg/cm ²	5 cm ² / 5 cm ²	¹²⁵ I – 40% ¹²⁹ I – 25% ¹⁴ C – 8% ⁵⁵ Fe – 7% ¹³⁷ Cs – 2.5% ²⁴¹ Am – 11.2% ⁵⁷ Co – 7.4%	≤ 250	500 to 1200	47-3543
44-213 FIDLER 	CsI crystal scintillator, 12.7 cm x 1.2 mm (5 x 0.050 in.)	10.6 mg/cm ²	127 cm ² / 127 cm ²	²⁴¹ Am – 13% U ^{Nat} – 8%	≤ 9000	500 to 1200	47-4134

DETECTORS

NEUTRON

MODEL	INDICATED USE	DETECTOR TYPE	MODERATOR	ENERGY RESPONSE	TYPICAL SENSITIVITY	OPERATING VOLTAGE (Vdc)	PART NO.
42-30H 	Wall mount area monitor	2 atm ³ He tube	10 in. dia polyethylene sphere	Follows the RPG curve for neutron dose from thermal to 12 MeV	200 cpm per mrem/hr	1200	47-3582
42-31H 	Survey and/or area monitoring	2 atm ³ He tube	9 in. dia cadmium-loaded polyethylene sphere	Follows RPG curve for neutron dose from thermal to 12 MeV	100 cpm per mrem/hr	1200	47-3583
42-49 SERIES 	Survey and/or area monitoring	<u>42-49 & 42-49B:</u> 2 atm ³ He tube <u>42-49-1 & 42-49B-1:</u> 10 atm ³ He tube	7.7 in. dia high density polyethylene sphere	Follows RPG curve for neutron dose from thermal to 12 MeV	<u>42-49:</u> 100 cpm per mrem/hr <u>42-49B:</u> 45 cpm per mrem/hr <u>42-49-1:</u> 168 cpm per mrem/hr <u>42-49B-1:</u> 76 cpm per mrem/hr	1200	<u>42-49:</u> 47-4057 <u>42-49B:</u> 47-4307 <u>42-49-1:</u> 47-4057-1 <u>42-49B-1:</u> 47-4307-01
42-5 	Determining neutron fluences and dose throughout energy spectrum	⁶ LiI Scintillator Crystal, 0.16 in. x 0.16 in.	Includes 6 high-density polyethylene spheres	Thermal to approximately 12 MeV	45 cpm per mrem/hr (with 10 in. moderator)	400 to 900	47-1505
42-41L 	Survey measurement	PRESCILA proton recoil scintillator	N/A	Follows RPG curve for neutron dose from thermal to 100 MeV	350 cpm per mrem/hr	500 to 700	47-3309
42-38 	Wide energy neutron detection instrument (WENDI-2)	2 atm ³ He tube	Polyethylene cylinder	Follows RPG curve for neutron dose from 0.1 MeV to 5 GeV	450 cpm per mrem/hr	1000 to 1200	47-3127

SAMPLE COUNTER HEADS

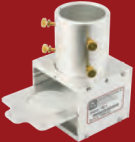
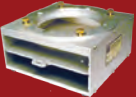
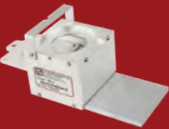
MODEL	TYPE	DETECTOR	WINDOW	EFFICIENCY	TYPICAL BKG (10 μ R/hr)	VOLTAGE (Vdc)	SAMPLE SIZE (DIA.)	PART NO.
43-9 	Alpha	ZnS(Ag)	0.4 mg/cm ²	²³⁰ Th – 30%	≤ 3 cpm	500 to 1200	2.5 cm (1 in.)	47-1525
43-10 	Alpha	ZnS(Ag)	Windowless	²³⁰ Th – 37%	≤ 3 cpm	500 to 1200	5.7 cm (2.24 in.)	47-1526
43-78 	Alpha	ZnS(Ag)	Windowless	²³⁰ Th – 37% ²³⁹ Pu – 37%	≤ 3 cpm	500 to 1200	12.7 cm (5 in.)	47-2180
43-10-1 	Alpha/Beta	ZnS(Ag) on plastic scintillator	0.4 mg/cm ²	²³⁹ Pu – 37% ²³⁰ Th – 32% ²³⁸ U – 39% ¹⁴ C – 5% ⁹⁹ Tc – 27% ⁹⁰ Sr/ ⁹⁰ Y – 26% ¹³⁷ Cs – 29%	<u>Alpha:</u> ≤ 3 cpm <u>Beta:</u> 80 cpm	500 to 1200	5.7 cm (2.24 in.)	47-1305
43-10-10 	Alpha/Beta	ZnS(Ag) on plastic scintillator	Windowless	²³⁹ Pu – 37% ²³⁰ Th – 32% ²³⁸ U – 39% ¹⁴ C – 5% ⁹⁹ Tc – 27% ⁹⁰ Sr/ ⁹⁰ Y – 26% ¹³⁷ Cs – 29%	<u>Alpha:</u> ≤ 3 cpm <u>Beta:</u> 80 cpm	500 to 1200	5.7 cm (2.24 in.)	47-4114
43-78-2 	Alpha/Beta	ZnS(Ag) on plastic scintillator	0.4 mg/cm ²	²³⁹ Pu – 37% ⁹⁰ Sr/ ⁹⁰ Y – 37%	<u>Alpha:</u> ≤ 7 cpm per 10 min count <u>Beta:</u> ≤ 100 cpm	800 to 1200	7.6 cm (3 in.)	47-2620

SAMPLE COUNTER HEADS

MODEL	TYPE	DETECTOR	WINDOW	EFFICIENCY	TYPICAL BKG (10 μ R/hr)	VOLTAGE (Vdc)	SAMPLE SIZE (DIA.)	PART NO.
44-110-4 	Low energy Alpha/Beta	Gas flow proportional	Windowless	^3H – 3% ^{14}C – 21% ^{63}Ni – 36% ^{239}Pu – 42%	<u>Alpha:</u> ≤ 3 cpm <u>Beta:</u> 150 cpm	1600 to 1900	5.1 cm (2 in.)	47-3929
120 	Alpha/Beta/Gamma	Gas flow proportional	0.4 mg/cm^2	^{14}C – 10% $^{90}\text{Sr}/^{90}\text{Y}$ – 42% ^{230}Th – 35% gamma < 1%	<u>Alpha:</u> ≤ 3 cpm <u>Beta:</u> ≤ 100 cpm	<u>Alpha:</u> 900 to 1300 <u>Beta-Gamma:</u> 1300 to 1700	5.1 cm (2 in.)	47-1625
180-8 	Alpha/Beta/Gamma	End-window halogen-quenched GM	1.7 $\pm$ 0.3 mg/cm^2 mica	^{14}C – 2% $^{90}\text{Sr}/^{90}\text{Y}$ – 10% ^{239}Pu – 7%	14 cpm with end window GM	900	5.1 cm (2 in.)	47-1549
43-78-1 	Beta	Plastic scintillator	Windowless	$^{90}\text{Sr}/^{90}\text{Y}$ – 40% ^{14}C – 12% ^{99}Tc – 35%	≤ 500 cpm	500 to 1200	12.7 cm (5 in.)	47-2307
203 	Gamma	Integral NaI(Tl) well scintillator, 2 in. dia. x 1.8 in. thick	N/A	^{129}I – 65% ^{137}Cs – 33% ^{60}Co – 43%	≤ 500 cpm	500 to 1200	1.7 x 3.9 cm (0.7 x 1.6 in.) [dia. x L]	47-1638
243 	Gamma	Integral NaI(Tl) well scintillator, 1.8 in. dia. x 2 in. thick	N/A	^{125}I – 80% $^{99\text{m}}\text{Tc}$ – 90% ^{137}Cs – 33% ^{60}Co – 43%	≤ 1000 cpm	500 to 1200	1.7 x 3.9 cm (0.7 x 1.6 in.) [dia. x L]	47-1621
182 	Radon flask counter	ZnS(Ag)	N/A	40% using nickel-plated ^{239}Pu source on top of ZnS(Ag) coated light pipe	≤ 2 cpm	400 to 1500	6.1 x 12.7 cm (2.4 x 5.0 in.) [dia. x L]	47-1633

SAMPLE HOLDERS

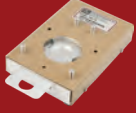
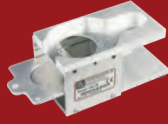
KEY FEATURES: Used for Repeatable Counting of Wipes, Filter Paper, or Slides

MODEL	SAMPLE SIZE (DIA.)	CONSTRUCTION	WEIGHT	COMPATIBLE DETECTORS	PART NO.
180-1 	5.1 cm (2.0 in.) max	Anodized aluminum frame and sample tray	0.5 kg (1.1 lb)	43-2 43-2-2 44-1 44-2 44-3 44-21 44-98	47-1675
180-1L 	5.1 cm (2.0 in.) max	Painted lead collimator with aluminum frame and sample tray	1.4 kg (3 lb)	Same as Model 180-1	47-2988
180-24 	5.1 cm (2.0 in.) max	Anodized aluminum frame and sample tray	0.4 kg (0.8 lb)	Same as Model 180-1	47-2631
180-7 	5.1 cm (2.0 in.) max	Anodized aluminum frame and sample tray	0.5 kg (1.1 lb)	44-10 44-17	47-1582
180-16 	10.2 cm (4 in.) max	Anodized aluminum frame and sample tray	1.2 kg (2.7 lb)	43-1 43-1-1	47-1132
180-4 	5.1 cm (2.0 in.) max	Anodized aluminum frame and sample tray	0.35 kg (0.76 lb)	44-7	47-1667
180-2 	5.1 cm (2.0 in.) max	Anodized aluminum frame and sample tray	0.4 kg (0.9 lb)	44-9 44-9DOSE 44-9-18	47-1665

TRAY HEIGHTS:

• 0.32 cm (0.125 in.) • 0.64 cm (0.25 in.) • 1.3 cm (0.5 in.) • 2.5 cm (1.0 in.) • 5.1 cm (2.0 in.)

SAMPLE HOLDERS

MODEL	INDICATED USE	SAMPLE SIZE (DIA.)	TRAY HEIGHTS	CONSTRUCTION	WEIGHT	COMPATIBLE DETECTORS	PART NO.
180-15 	Repeatable counting of wipes, filter paper, or slides	5.1 x 1.5 cm (2 x 0.6 in.)	0.2 cm (0.08 in.)	Powder-coated and anodized aluminum	1.1 kg (2.3 lb)	44-40	47-1111
180-15-3 	Repeatable counting of wipes, filter paper, or slides	5.1 x 1.5 cm (2 x 0.6 in.)	0.2 cm (0.08 in.)	Powder-coated and anodized aluminum	1.1 kg (2.3 lb)	43-92 43-93 44-142	47-3865
180-8 	Low-background sample counting	5.1 cm (2.0 in.) max	0.32 cm (0.125 in.) 0.64 cm (0.25 in.) 1.3 cm (0.5 in.) 2.5 cm (1.0 in.) 5.1 cm (2.0 in.)	3.8 cm (1.5 in.) thick lead housing with beige powder-coat paint	107 kg (235 lb)	Includes end window GM detector	47-1549
180-9 	Low-background sample counting	5.1 cm (2.0 in.) max	same as Model 180-8	3.8 cm (1.5 in.) thick lead housing with beige powder-coat paint	118.1 kg (260 lb)	43-2 43-2-2 44-1 44-2 44-3 44-10 44-11 44-17 44-21 44-98	47-1591
180-12 	Repeatable low-background counting of wipes, filter paper, or slides	5.8 x 2.97 cm (2.3 x 1.17 in.)	0.2 cm (0.08 in.)	Powder-coated lead and aluminum	12.5 kg (27.5 lb)	44-10 44-11 44-17	47-1562
180-28 	Repeatable counting of wipes, filter paper, or slides	5.1 cm (2.0 in.) max	Same as Model 180-8	Anodized aluminum frame and sample tray	0.4 kg (0.9 lb)	Model 26 series integrated friskers	47-3948

SCALERS/COUNTERS



MODEL 2200



MODEL 2000

KEY FEATURES

- High Voltage: Adjustable from 200 to 2500 Vdc
- Scaler Range: 0 to 999,999 counts
- Supports GM, Proportional, & Scintillation Detectors

MODEL	INDICATED USE	CONTROLS	THRESHOLDS
2200 PN: 48-1651	Single-channel analyzing, gross counting	count button, count time multiplier switch, count time setter, HV adjustment knob, range selector switch, meter mode knob, window adjustment knob, threshold adjustment knob, response switch, zero button, discriminator adjustment, window on/off switch, power switch	Adjustable from 0.0 to -100 mV
2000 PN: 48-1648	Gross counting	count button, count time multiplier switch, count time setter, HV/battery switch, threshold adjustment knob, HV adjustment knob, power switch	Adjustable from 0.0 to -100 mV

PULSERS



MODEL 500



MODEL 500-1



MODEL 500-2

KEY FEATURES

- Provides the functions required to calibrate scaler/ratemeter radiation detection instruments
- Digital Pulse Rate Display: 1 to 9,900,000 cpm
- Pulse Amplitude Display: 0 mV to 5 V

MODEL	DISPLAY	CONTROLS
500 PN: 48-1677	Analog HV meter: 0 to 2.5 kVdc Analog pulse amplitude	• Pulse frequency multiplier knob • Pulse frequency coarse and fine adjustment knobs • Pulse amplitude range switch • Pulse amplitude adjustment knob • Negative/Positive pulse switch • On/Off switch
500-1 PN: 48-1166	Digital HV meter: 0 to 1999 Vdc Analog pulse amplitude	
500-2 PN: 48-1340	Digital HV meter: 0 to 1999 Vdc Digital pulse amplitude	

SAMPLE COUNTING SYSTEMS



MODEL 3030P

- PC Interface
- Units: cpm, dpm
- Optional Detector Shield



MODEL 3030 & 3030-2

- PC Interface
- Model 3030 units: cpm, dpm
- Model 3030-2 units: cps, cpm, Bq



MODEL 3030E WITH 43-10-1

- PC Interface
- Units: cpm, dpm
- 3030E-2 Units: cps, cpm, Bq
- The Model 3030E can be purchased separately or with other detectors listed on our website

MODEL	DETECTOR	WINDOW	EFFICIENCY (4 π)	TYPICAL BKG (10 μ R/hr)	WEIGHT
3030P PN: 48-3509	Internal solid-state PIPS™ silicon	None	<u>Alpha:</u> ²³⁹ Pu – 35% <u>Beta:</u> ⁹⁹ Tc – 15% ¹³⁷ Cs – 23% ⁹⁰ Sr/ ⁹⁰ Y – 34%	Alpha: 0.3 cpm Beta: 30 cpm	3.9 kg (8.5 lb)
3030 & 3030-2 PN: 48-3204/3992	Internal ZnS(Ag) on plastic scintillation disk	0.4 mg/cm ²	<u>Alpha:</u> ²³⁹ Pu – 37% ²³⁰ Th – 32% ²³⁸ U – 39% <u>Beta:</u> ¹⁴ C – 8% ⁹⁹ Tc – 27% ¹³⁷ Cs – 29% ⁹⁰ Sr/ ⁹⁰ Y – 26%	Alpha: ≤ 3 cpm Beta-Gamma: ≤ 50 cpm	13.2 kg (29 lb)
3030E W/ 43-10-1 PN: 48-3456	External ZnS(Ag) on plastic scintillation disk	0.4 mg/cm ²	<u>Alpha:</u> ²³⁹ Pu – 37% ²³⁰ Th – 32% ²³⁸ U – 39% <u>Beta:</u> ¹⁴ C – 5% ⁹⁹ Tc – 27% ¹³⁷ Cs – 29% ⁹⁰ Sr/ ⁹⁰ Y – 26%	Alpha: ≤ 3 cpm Beta-Gamma: ≤ 80 cpm	4.5 kg (10 lb)



SAMPLE PLANCHETS

Ludlum Measurements offers a select range of sample planchets available in quantities of 500 pieces. The 51 mm (2 in.) diameter planchets are available in either stainless steel or aluminum and can have depths of 3 mm (1/8 in.), 6 mm (1/4 in.), or 8 mm (5/16 in.). They are also available with either a flat bottom or a bottom with concentric rings.

See p. 63 for more information.

SAMPLE COUNTING SYSTEMS



MODEL 2100

- Automated Gamma Sample Counter
- Conveyor



MODEL 2100-1

- Gamma Sample Counter
- Sliding Sample Drawer



SIMULATED ⁶⁰CO SOURCE

- Calibrated 0.1 Bq/g (10 Bq) simulated ⁶⁰Co radiation source for use with the Model 2100 Sample Counter. (PN: 2433-504.)

MODEL	DETECTOR	CHAMBER SIZE	TYPICAL BKG (10 µR/hr)
2100 PN: 48-3780	Nal scintillator 5.1 x 5.1 cm (2 x 2 in.)	1.3 x 5 x 7 cm (0.5 x 2 x 2.75 in.)	1200 cpm (sum channel)
2100-1 PN: 48-3781	Nal scintillator 5.1 x 5.1 cm (2 x 2 in.)	7 x 1.3 cm (2.75 x 0.5 in.)	1200 cpm (sum channel)

KEY FEATURES

- Designed to Measure Steel Slug Samples for Radiation
- Alarms at 0.1 Bq/g (⁶⁰Co)



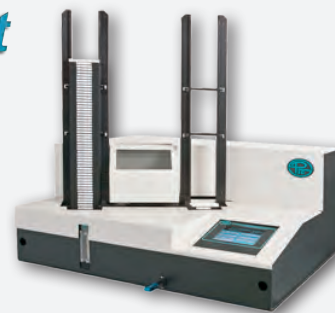
ASC-950-DP-G Alpha-Beta Counting System

- Automatic Sample Changer
- Dual Phosphor Scintillation Detector (Gasless)



MPC-9604 Alpha-Beta Counting System

- Manual Sample Changer
- Four 5.7 cm (2.25 in.) dia. Pancake Gas Flow Detectors



WPC-1050 Alpha-Beta Counting System

- Automatic Sample Changer
- 5.7 cm (2.25 in.) dia. Pancake Gas Flow Detector

A division of Ludlum Measurements, Protean Instrument is a leading manufacturer of high performance sample counting systems for measuring alpha and beta activity at very low environmental levels. View more information about their products at proteaninstrument.com.

AREA MONITORS



MODEL 375

- Digital Controller for Radiation Monitoring
- Supports GM, Proportional, Scintillator & Neutron Detectors
- Photo Represents Models 375, 375/1, 375/2, and 375/4

MODEL 375-DUAL

- Digital Controller for Radiation Monitoring
- Dual Channel
- Supports GM, Proportional, Scintillator & Neutron Detectors

MODEL 375-9

- Area Monitor with Ion Chamber
- Pulsed Radiation Field Monitoring
- 1.01 MPa (10 atm) Aluminum Ion Chamber

MODEL 375-31H

- Area Monitor with Neutron Detector
- Moderator: 9 in. dia.
- ^3He Proportional Detector

MODEL	DETECTOR	DETECTOR RANGE
375 PN: 48-2230	Supports GM, proportional, scintillation, and neutron	Controller only, no detector included
375-DUAL PN: 48-2369		
375/1 PN: 48-3831	Internal, 18 x 18 mm CsI scintillator	0.001 to 99.99 $\mu\text{Sv/h}$ (0.1 to 9999 $\mu\text{R/hr}$)
375/2 PN: 48-2410	Internal, Energy-compensated GM	1 $\mu\text{Sv/h}$ to 10 mSv/h (0.1 mR/hr to 1.0 R/hr)
375/4 PN: 48-2411	Internal, Energy-compensated GM	10 $\mu\text{Sv/h}$ to 100 mSv/h (1.0 mR/hr to 10 R/hr)
375-9 PN: 48-3560	External, 1.01 MPa (10 atm) ion chamber (Model 45-9)	Low: 0.1 to 999.9 mR/hr or 1 to 9999 $\mu\text{Sv/h}$ Mid: 1 to 9999 mR/hr or 0.01 to 99.99 mSv/h High: 0.01 to 99.99 R/hr or 0.1 to 999.9 mSv/h
375-10 PN: 48-3443	Internal, NaI scintillator 5.1 x 5.1 cm (2.0 x 2.0 in.)	0.1 $\mu\text{Sv/h}$ to 20 $\mu\text{Sv/h}$ (1.0 $\mu\text{R/hr}$ to 2.0 mR/hr)
375-31H PN: 48-4370	External, 2 atm ^3He proportional detector with 22.9 cm (9 in.) dia. moderator	0 to 100 mSv/h (0 to 10 rem/hr)

KEY FEATURES

- Adjustable Alarms
- Dead Time Correction
- Auto-Ranging Digital Meter
- Functions as a Frisker or Area Monitor
- Supports GM, Proportional, & Scintillation Detectors

MODEL	DETECTOR	DETECTOR RANGE
3276 PN: 48-4160	Controller only, no detector included	NA
3276/1 PN: 48-4169	18 x 18 mm CsI scintillator	0.010 to 500 $\mu\text{Sv/h}$ (1.0 $\mu\text{R/hr}$ to 50.0 mR/hr)
3276/2 PN: 48-4170	Energy-compensated GM	1.0 $\mu\text{Sv/h}$ to 50 mSv/h (0.10 mR/hr to 5.00 R/hr)
3276/4 PN: 48-4171	Energy-compensated GM	10 $\mu\text{Sv/h}$ to 500 mSv/h (1.0 mR/hr to 50 R/hr)
3276/6 PN: 48-4283	Energy-compensated GM	40 $\mu\text{Sv/h}$ to 10 Sv/h (4 mR/hr to 999 R/hr)



MODEL 3276



MODEL 375 CONTROLLER



MODEL 375 SERIES OPTIONS

A complete list of available options is listed on our website, ludlums.com.

- Enclosures
- Remote displays
- Alarm annunciators
- Alarm signal outputs
- Networking options
- Software

UNIVERSAL SOFTWARE PN: 1370-093

Ludlum Universal Software is a network software package that allows users access to the collected and displayed radiation levels and alarm statuses from multiple LMI radiation detection instruments, such as area monitors, sample monitors, and portal monitors. A standard web browser allows authorized users to view data across the network. Different users may have access to different sets of instruments either by instrument type (e.g. area monitors) or by location (e.g. all connected instruments in a certain building). The system can be set up to send email or text alerts on alarm or failure events to responsible personnel. If optional cameras are connected to the network, they can be configured to take an image when an alarm or error event occurs and store it in the database. (Note: For Model 375 systems, requires Ethernet Kit option).

See p. 56 for other Model 375 Software options.

SPECIFICATIONS

DISPLAY: 4-digit LED display with 2 cm (0.8 in.) character height

DISPLAY RANGE: 000.0–9999 (Series one: 00.00–9999)

DISPLAY UNITS: Can be made to display in $\mu\text{R/hr}$, mR/hr , R/hr , $\mu\text{Sv/h}$, mSv/h , Sv/h , $\mu\text{rem/hr}$, mrem/hr , rem/hr , cpm , cps , and others

LINEARITY: Reading within 10% of true value

RESPONSE TIME: Typically three seconds from 10% to 90% of final reading

INDICATORS

- **STATUS:** Green light, instrument functioning properly
- **LOW ALARM:** Yellow light, 1 beep/second audible, selectable range: 0–9999
- **HIGH ALARM:** Red light, 4 beeps/second audible, selectable range: 0–9999
- **DETECTOR FAIL:** Red light, constant audible tone > 68 dB at 61 cm (2 ft)
- **LOW BAT:** Yellow light, indicates less than two hours of battery life remaining
- **OVERLOAD:** Displays “–OL–” and activates FAIL alarm, indicates detector saturation
- **OVER-RANGE:** Displays “----” and activates LOW and HIGH alarms, indicates radiation field being measured has exceeded counting range of instrument

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)

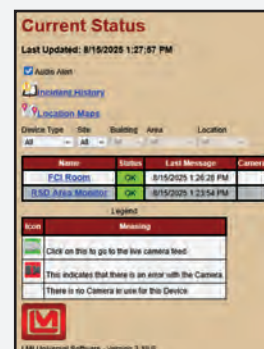
POWER: 95–135 Vac (178–240 Vac available), 50–60 Hz single phase (includes 6-volt sealed lead-acid rechargeable battery)

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

SIZE (H x W x D): 18.7 x 24.6 x 6.4 cm (7.4 x 9.7 x 2.5 in.) *controller only

WEIGHT: 2.1 kg (4.7 lb) *controller only



MONITORING SYSTEMS

Model 375P-336
(indoor use only)

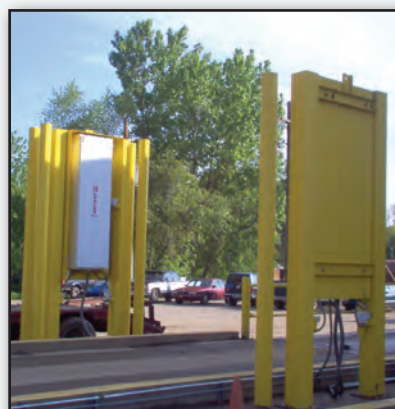


Model 375P-336-1
(weatherproof for outdoor use)



MODEL 375P-336 SERIES

MODEL 375P-1000



MODEL 375P-2000

MODEL 4525-7000

APPLICATIONS: Medical, Scrap Metal, or Landfill Monitoring

MODEL	DETECTORS	TYPICAL SENSITIVITY ^{137}Cs	ALARM DETERMINATION	CONTROLLER
375P-336 PN: 48-3285	2 ea. 2753 cm ³ (168 in ³) plastic scintillation detectors with 3 mm (0.125 in.) lead shielding	200 cps per $\mu\text{R/hr}$ per detector	Sigma & sum	Model 375P
375P-336-1 PN: 48-3535	2 ea. 2753 cm ³ (168 in ³) plastic scintillation detectors with 3 mm (0.125 in.) lead shielding in weather-tight housings	200 cps per $\mu\text{R/hr}$ per detector	Sigma & sum	Model 375P
375P-1000 PN: 48-3470	2 ea. 7866 cm ³ (480 in ³) plastic scintillation detectors with 3 mm (0.125 in.) lead shielding in weather-tight housings	400 cps per $\mu\text{R/hr}$ per detector	Sigma & sum	Model 375P
375P-2000 PN: 48-4236	4 ea. 7866 cm ³ (480 in ³) plastic scintillation detectors with 3 mm (0.125 in.) lead shielding in weather-tight housings	400 cps per $\mu\text{R/hr}$ per detector	Sigma & sum	Model 375P
4525-7000 PN: 48-3605	2 ea. 57 L (3500 in ³) plastic scintillation detectors with 6.4 mm (0.25 in.) lead shielding in weather-tight housings	3000 cps per $\mu\text{R/hr}$ per detector	Sigma, sum, & gamma	Model 4525 control system

More information about our Model 4525 Series can be found on our website, ludlums.com.

TRITIUM MONITORING



MODEL 3100



MODEL 3101



MODEL 3102/O



MODEL 3102/B

KEY FEATURES

- Portable Tritium in Air Monitors
- No Zero Adjust Control Needed
- Easily Calibrated with ^{137}Cs Gamma Range
- Temperature and Altitude Compensation
- "Check Mode" Self-Test Feature Determines Instrument State of Health
- Digital Backlit Display with Status, Airflow Readout, and Diagnostic Information
- Internal Heater Element Purge Mode to Dry Ion Chamber
- Passed USA Military Testing

	MODEL 3100	MODEL 3101	MODEL 3102/O	MODEL 3102/B
PART NUMBER	48-4282-1	48-4366	48-4432	48-4433
DISPLAY UNITS	MBq/m ³ , µCi/m ³			
MEASUREMENT RANGE	Up to 740 MBq/m ³ (20,000 µCi/m ³)			
MDA	0.074 MBq/m ³ (2 µCi/m ³)		0.37 MBq/m ³ (10 µCi/m ³)	0.037 MBq/m ³ (1 µCi/m ³)
GAMMA COMPENSATION	Allows for tritium monitoring in gamma fields up to 0.05 mSv/h (5 mR/hr)			
DISPLAY	6.9 cm (2.7 in.) transfective backlit LCD			
ALARM	1 adjustable setpoint (set via control knob), 1 fixed setpoint (optional, set via software), audio and visual indicators			
POWER	8 NiMH AA rechargeable batteries, or 115 Vac, 50/60 Hz	8 NiMH AA rechargeable batteries, or +12 Vdc power supply	8 alkaline AA batteries or +12 Vdc power supply	
OUTPUT PORT	9-pin D connector, externally mounted	9-pin D connector, internally mounted	9-pin D connector, externally mounted	
AIR FILTER	0.2 µm PTFE	glass fiber, 25 mm GF/F, 0.7 µm retention		
INTERNAL DESICCANT CHAMBER	yes	no		
SNIFFER HANDLE & TUBING	yes	no		
CASE	included	available as an option		
DIMENSIONS (H X W X L)	20 x 16 x 30 cm (7.9 x 6.3 x 11.8 in.)	20 x 16 x 30 cm (7.9 x 6.3 x 11.8 in.)		
WEIGHT	4.1 kg (9 lb)	3.6 kg (8 lb)		

TRITIUM MONITORING

TRITIUM DETECTORS

(Require separate meter)



DETECTOR TYPE: Windowless gas flow proportional

WINDOW AREA:

Active: 126 cm² (19.5 in²)

Open: 100 cm² (15.5 in²)

EFFICIENCY: ³H - 25%

See also p. 28

MODEL 44-110

PN: 47-2585



DETECTOR TYPE: Windowless gas flow proportional

GAS FLOW: Typically 0.1 L/min., detector equipped with 3.2 mm (0.125 in) hose fittings and two position switch flow valve

EFFICIENCY:

³H - 3% ⁶³Ni - 36%

¹⁴C - 21% ²³⁹Pu - 42%

MAX SAMPLE SIZE (D X L):

5.1 x 0.9 cm (2.0 x 0.4 in.)

See also p. 33

MODEL 44-110-4

PN: 47-3929



MODEL 336

Tritium In-Air Collector

PN: 48-4482

The Model 336 Tritium In-Air Collector is a desktop or rack-mounted tritium sample collecting solution. It features a maintenance-free diaphragm air pump to pull air through six cascaded 20 mL vials. The first three vials collect HTO (tritiated water vapor) from the air being monitored, the first vial catching the bulk of the HTO, while the second and third vials ensure that virtually all of the HTO is collected.

The air is then oxidized by an internal catalyst, converting all the HT (tritium gas) still in the air to HTO to get collected by the last three vials. Backflow prevention ensures the catalyst is protected from sampling fluid. Airflow is measured with a mass-flow sensor, with the value displayed on the front LCD. Catalyst temperature setpoint and real-time reading are conveniently displayed on the front panel. The instrument has only a few simple controls, making it easy to use, and comes in a case which can be installed in a standard 19-inch rack or set on a desktop.

SPECIFICATIONS

SENSITIVITY: 1 x 10⁻⁹ µCi/cc for 7-day collection time at 100 cc/min

AIRFLOW: 0 - 600 cc/min, real-time LCD readout with current and totalized readings

TEMPERATURE DISPLAY: real-time readings and temperature setpoint

SAMPLE TUBING CONNECTIONS: 1/8 inch MNPT connections on back of instrument; one inlet, one exhaust

TEMPERATURE RANGE: 0 to 50 °C (32 to 122 °F)

UNIT COOLING: 2 ea. 27 cfm (cubic feet per minute) parallel continuous duty fans

PUMP: maintenance-free diaphragm pump, typically 100 cc/min

POWER: 120 Vac input with two 5A fuses

CONSTRUCTION: powder-coated aluminum, stainless steel tubing

SIZE (W x H x D):
48.3 x 26.4 x 59.2 cm (19 x 10.4 x 23.3 in.)

WEIGHT: 14 kg (30 lb)

CONNECTORS:

- 9-pin D connector provides data out for streaming measurements or calibration use.
- 4-pin connector provides potential-free relay contacts for failure conditions.

PORTAL MONITORS



MODEL 52

- Beta-Gamma Portal Monitor
- Very Sensitive Beta Detection



MODEL 52-1, 52-5, & 52-6

- Beta-Gamma Portal Monitor
- Very Sensitive Gamma Detection



MODEL 52-8

- Can Be Used to Monitor Vehicles as Well as Personnel
- Available in Two Sizes

MODEL	DETECTORS	INSIDE WIDTH	DETECTOR VOLUME (TOTAL)
52 PN: 48-2471	6 pancake GM detectors per side, 2 pancake GM detectors on top, 4 thin wall GM tubes on bottom	81 cm (32 in.)	N/A
52-1* PN: 48-3172	4 plastic scintillators, 2 on each side	61 cm (24 in.)	11 L (672 in ³)
52-1-1* PN: 48-3258	4 plastic scintillators, 2 on each side	81 cm (32 in.)	11 L (672 in ³)
52-5 PN: 48-3393	5 plastic scintillators, 2 on each side, 1 on the bottom	61 cm (24 in.)	12.8 L (780 in ³)
52-5-1 PN: 48-3571	5 plastic scintillators, 2 on each side, 1 on the bottom	81 cm (32 in.)	12.8 L (780 in ³)
52-6 PN: 48-3611	6 plastic scintillators, 2 on each side, 1 on the bottom, and 1 on top	61 cm (24 in.)	14.6 L (888 in ³)
52-6-1* PN: 48-3603	6 plastic scintillators, 2 on each side, 1 on the bottom, and 1 on top	81 cm (32 in.)	14.6 L (888 in ³)
52-8/1 PN: 48-4251	2 plastic scintillators, 1 on each side	Adjustable	15.7 L (960 in ³)
52-8/2 PN: 48-4237			32.7 L (2000 in ³)

*Model 52-1, 52-1-1, and 52-6-1 also have a waterproof option



OPTIONS

Various options are available for the Model 52-1, 52-5, and 52-6 series.

- Vehicle conversion kit
- Stabilizer legs
- Remote electronics
- Extension cable
- Printer

A complete list of available options is listed on our website.

PORTAL MONITORS



MODEL 53

Personnel Portal Monitor

PN: 48-3784

KEY FEATURES

- Monitors Gamma Contamination on Personnel
- Large Plastic Scintillation Detectors
- Bidirectional – Personnel Can Enter from Either Side
- 25.7 cm (10.1 in.) Color LCD Touchscreens
- Voice Prompts Guide Personnel Through Counting Process
- 2.5 cm (1 in.) or 5.1 cm (2 in.) Lead Shielding
- Audible and Visual Alarms
- Ethernet Port for Connection to Local Network and Ludlum Universal Software

DESCRIPTION

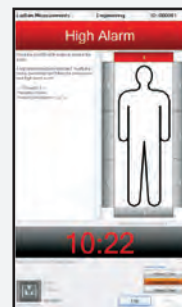
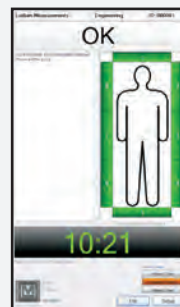
The Model 53 Gamma Personnel Portal Monitor detects gamma radiation from personnel passing through the portal from either direction. This highly sensitive portal uses eight large plastic scintillation detectors with 2.5 cm (1 in.) or 5.1 cm (2 in.) thick lead shielding.

The user-friendly interface guides personnel through the portal monitor via automated voice prompts, and 25.7 cm (10.1 in.) color LCD articulating screens display the instrument status at the ingress and egress. Alarms are manifested both audibly and visually, and can be silenced and acknowledged via control buttons located on either side of the instrument.

Three statistical counting modes are available to maximize throughput, maximize sensitivity, or fix the count time. Fast alarm and clean options provide the ability to quickly determine if personnel are contaminated or clean before the entire count cycle has ended.

Accessible USB ports facilitate connecting a keyboard to implement changes, input user ID, or upload revised software. Ethernet connectivity allows the monitor to connect to the local network. Ludlum's optional Universal Software (PN 1370-093) can be used to log instrument status, user activity, and other information from one or more portals on a network.

Also available in Beta-Gamma version: Model 53B (PN: 48-3925)





HBP-29
Body Contamination Monitor

- Beta, Alpha-Beta, or Gamma Detection
- 29 Plastic Scintillation Detectors
- 17 in. Touchscreen Display



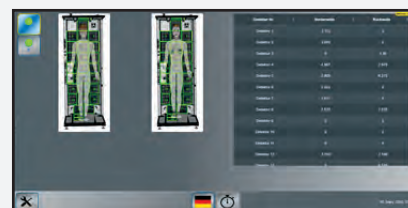
HBP-22
Body Contamination Monitor

- Beta, Alpha-Beta, or Gamma Detection
- 22 Plastic Scintillation Detectors
- 12 in. Touchscreen Display

DESCRIPTION

The Model HBP-29 and Model HBP-22 are body contamination monitors designed to measure radioactive contamination on personnel leaving controlled areas. Both systems consist of an array of beta plastic scintillation detectors designed to measure one side of the body (front, back) at a time.

A range of options are available to customize each instrument to your specific needs, such detectors for alpha-beta discrimination or for gamma radiation. Contact us or visit our website for more information.



KEY FEATURES

- Whole body measurement in 2 easy steps
- Automated measurement process with audio-visual guidance
- Integrated touch-screen display
- Intuitive user-friendly software
- Hand detector on the side
- Energy filter settings to optimize discrimination of background radiation
- Stainless steel housing for easy cleaning and durability



ARTICLE MONITORS

MODEL 54



MODEL 54A



HWM-21



HWM-38



HWM-65



HWM-100



HWM-180



HWM-300



HWM-400



HWM-400S



HWM-550



HWM-550S



HWM-1800



HWM-1800C



COMMON SPECIFICATIONS: Plastic scintillation detectors

MODEL	CHAMBER DIMENSIONS (H X W X L)	CHAMBER VOLUME	NO. OF DETECTORS	EXTERNAL DIMENSIONS (H X W X L)	LEAD SHIELDING
54 PN: 48-3263	508 x 508 x 508 mm (20 x 20 x 20 in.)	130 L (4.6 ft ³)	4 or 6	1,390 x 909 x 953 mm (54.7 x 35.8 x 37.5 in.)	25 mm (1 in.) or 50 mm (2 in.)
54A PN: 48-3792	356 x 356 x 356 mm (14 x 14 x 14 in.)	45 L (1.6 ft ³)	4 or 6	940 x 686 x 800 mm (37 x 27.0 x 31.5 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-21	190 x 295 x 370 mm (7.5 x 11.6 x 14.6 in.)	21 L (0.75 ft ³)	2	653 x 450 x 460 mm (25.7 x 17.7 x 18.1 in.)	15 mm (0.6 in.) or 30 mm (1.2 in.)
HWM-38	281 x 352 x 390 mm (11.1 x 13.9 x 15.4 in.)	38 L (1.34 ft ³)	4 or 6	951 x 657 x 785 mm (37.4 x 25.9 x 30.9 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-65	400 x 400 x 400 mm (15.75 x 15.75 x 15.75 in.)	65 L (2.3 ft ³)	4 or 6	1,160 x 694 x 808 mm (45.7 x 27.3 x 31.8 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-100	460 x 460 x 460 mm (18.1 x 18.1 x 18.1 in.)	97 L (3.43 ft ³)	4 or 6	1,186 x 784 x 855 mm (46.7 x 30.9 x 33.7 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-180	600 x 550 x 550 mm (23.6 x 21.7 x 21.7 in.)	181 L (6.4 ft ³)	4 or 6	1,346 x 844 x 991 mm (53 x 33.2 x 39 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-300	600 x 600 x 860 mm (23.6 x 23.6 x 33.9 in.)	340 L (12 ft ³)	6	1,813 x 995 x 977 mm (71.3 x 39.2 x 38.5 in.)	25 mm (1 in.) or 50 mm (2 in.)
HWM-400	900 x 700 x 750 mm (35.4 x 27.6 x 29.5 in.)	473 L (16.7 ft ³)	6	1,979 x 1,095 x 1,118 mm (77.9 x 43.1 x 44 in.)	30 mm (1.2 in.) or 50 mm (2 in.)
HWM-400S	900 x 700 x 750 mm (35.4 x 27.6 x 29.5 in.)	473 L (16.7 ft ³)	6	1,979 x 1,095 x 1,118 mm (77.9 x 43.1 x 44 in.) [without conveyor]	30 mm (1.2 in.) or 50 mm (2 in.)
HWM-550	1,100 x 700 x 700 mm (43.3 x 27.6 x 27.6 in.)	539 L (19 ft ³)	10	2,520 x 1,580 x 2,954 mm (99.2 x 62.2 x 116.3 in.) [with conveyor & signal lamp]	50 mm (2 in.) or 75 mm (3 in.)
HWM-550S	1,100 x 700 x 700 mm (43.3 x 27.6 x 27.6 in.)	539 L (19 ft ³)	10	2,160 x 1,274 x 1,138 mm (85 x 50.2 x 44.8)	50 mm (2 in.) or 75 mm (3 in.)
HWM-1800	1,210 x 1,120 x 1,380 mm (47.6 x 44.1 x 54.3 in.)	1,870 L (66 ft ³)	24	2,223 x 1,913 x 1,765 mm (87.5 x 75.3 x 69.5 in.) [without conveyor]	50 mm (2 in.) or 75 mm (3 in.)
HWM-1800C	1,210 x 1,120 x 1,380 mm (47.6 x 44.1 x 54.3 in.)	1,870 L (66 ft ³)	24	2,591 x 2,438 x 2,991 mm (102 x 100 x 118 in.) [without conveyor]	50 mm (2 in.) or 75 mm (3 in.)



MODEL 54R SERIES
Retrofit Option

Small article monitors tend to be large, cumbersome instruments with multiple sensitive plastic scintillator detectors, case-mounted electronics, and heavy lead shielding. These characteristics tend to make them difficult to update when upgraded performance is desired or the monitor is no longer supported by the original manufacturer. However, Ludlum Measurements offers an option to update a small article monitor with comparative ease. The Model 54R Series is a set of electronics designed to retrofit existing small article monitors, giving them the same operational performance and features as the Ludlum Model 54 small article monitor.

MODEL	DESCRIPTION	PART NO.
54R	Retrofit for Eberline BWM-10, electronics only	4540-823
	Retrofit for Eberline BWM-10, electronics and detectors	4540-993
54R-11	Retrofit for Thermo SAM-11 and SAM-9	48-4212-11

HAND & FOOT MONITORS



MODEL 4906 SERIES

Hand & Foot Monitor

The Model 4906 Series are low-cost, industrial duty, alpha and alpha/beta contamination monitoring systems for checking hands and feet of personnel. A large, color touch-screen LCD presents users with the system status and points out any potential contamination. The system employs six detectors with counting activated by optical switches.

Alarms are annunciated locally and can be augmented with optional relays and/or a light stack. The built-in Ethernet interface supports connection to a network for gathering all count cycles and remote monitoring of the status. All maintenance can be performed from the front of the instrument. Detector access for quick replacement or repair is facilitated by hinged top covers.

MODEL	DETECTION	DETECTOR TYPE	PART NO.
4906A	Alpha	Air proportional	48-3687
4906AB	Alpha-Beta	Gas flow proportional	48-3688
4906P	Alpha-Beta-Gamma	GM pancake	48-3919

MODEL	INDICATED USE	DETECTOR(S)
3276HFM PN: 48-4160-2	Alpha-Beta-Gamma hand and foot monitor	Pancake-type, halogen-quenched GM 2 for hand, 3 for foot
3277HFM PN: 48-4333-1	Alpha-Beta hand and foot monitor	ZnS(Ag) on 0.03 cm (0.01 in.) thick plastic scintillator 1 for hand, 1 for foot
HFC-8	Beta, Alpha-Beta, or Beta-Gamma hand and foot monitor	<u>Beta</u> : plastic scintillator <u>Alpha-Beta</u> : ZnS(ag) on plastic scintillator or gas proportional <u>Beta-Gamma</u> : plastic scintillator 2 for each hand, 2 for each foot (8 total)
HF-2S	Beta, Alpha-Beta, or Beta-Gamma hand and foot monitor	<u>Beta</u> : plastic scintillator <u>Alpha-Beta</u> : ZnS(ag) on plastic scintillator or gas proportional <u>Beta-Gamma</u> : plastic scintillator 1 for hand, 1 for foot
4901P PN: 48-3009	Beta-Gamma hand and foot monitor	Pancake-type, halogen-quenched GM 5 for each hand, 6 for each foot (22 total)
215 PN: 48-3695	Alpha frisker and hand monitor	Alpha air proportional probe with integrated electronics
177HFM PN: 48-2213	Alpha-Beta-Gamma hand and foot monitor	Pancake-type, halogen-quenched GM 2 for hand, 3 for foot

HAND & FOOT MONITORS



MODEL 3276HFM

- Alpha-Beta-Gamma Hand & Foot Monitor
- Model 3276 Controller
- Pancake GM Detectors
- Optional Model 44-9 Pancake GM for Frisking



MODEL 3277HFM

- Alpha-Beta Hand & Foot Monitor
- Model 3277 Controller with Touch-Screen Display
- Dual-Phosphor Scintillation Detectors
- Automatic Background Subtract
- Optional Alpha-Beta Frisker



MODEL HFC-8

- Beta, Alpha-Beta, or Beta-Gamma Hand & Foot Monitor
- Plastic Scintillation or Gas Proportional Detectors
- Touch-Screen Display
- Detachable Hand Detector for Frisking



MODEL HF-2S

- Beta, Alpha-Beta, or Beta-Gamma Hand & Foot Monitor
- Plastic Scintillation Detectors That Can Fold Up
- Touch-Screen Display



MODEL 4901P

- Beta-Gamma Hand & Foot Monitor
- Pancake GM Detectors
- Automatic Background Subtract



MODEL 215

- Alpha Frisker & Hand Monitor
- Can Be Used as Both a Stationary Detector and Mobile Frisker
- No Cables or Gas Required



MODEL 177HFM

- Alpha-Beta-Gamma Hand & Foot Monitor
- Model 177 Controller
- Model 44-25 & Model 44-26 Pancake GM Detectors

CONTAMINATION MONITORS



MODEL 239-1F SERIES

Alpha-Beta Floor
Monitor

The Model 239-1F Floor Monitor is a gas proportional floor monitor detector mounted on a roll-around cart. The instrument features a flow system, quick-connects, a gas bottle mount, and adjustable detector height for optimum performance.

Several different ratemeters equipped with scaler and data logging functionality can be used with this instrument. See list below.

The basic system shown here is equipped with the Model 2221 general purpose ratemeter. The counting-gas bottle and gas regulator are not included.

DETECTOR: Gas proportional, 584 cm² active area,
Size: 2.0 x 16.0 x 46.5 cm (0.8 x 6.3 x 18.3 in.) (H x W x L).

RECOMMENDED COUNTING GAS: P-10

COMPATIBLE METERS:

- 3002
- 12
- 2221
- 2350-1
- 2360

More information on the available configurations can be found on our website

The Model 3002/FM Series Alpha-Beta Floor Monitors allow a user to quickly survey large areas for alpha-beta contamination. They combine the dependable Model 3002 Alpha-Beta Survey Meter with two alpha-beta scintillation detectors in configurations ideal for floor monitoring. The use of scintillation detectors creates an instrument that requires much less maintenance than traditional gas flow proportional detectors. See available detector configurations below.

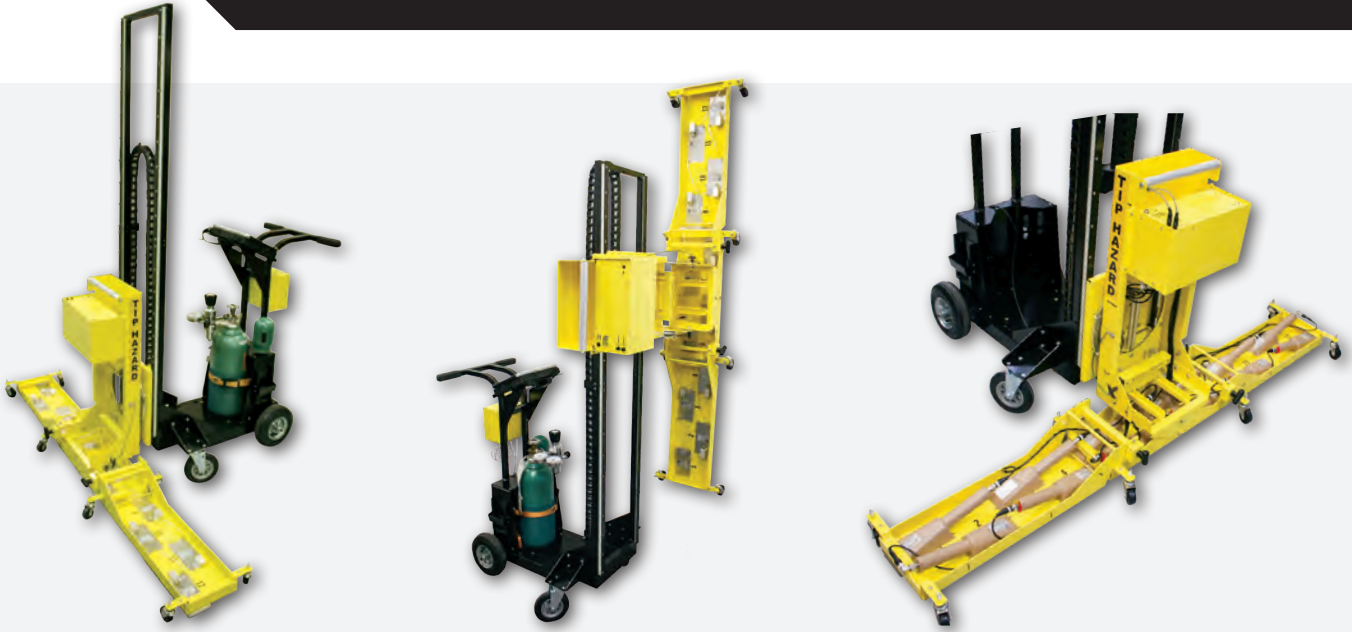
MODEL	DETECTOR	TOTAL ACTIVE AREA / TOTAL WINDOW WIDTH	EFFICIENCY (4π)
3002/FM1 PN: 48-4037-1	2 ea. Model 43-147 alpha-beta scintillator (side by side)	400 cm ² (62 in ²) / 22.4 cm (8.8 in.)	²³⁹ Pu – 20% ⁹⁹ Tc – 15% ⁹⁰ Sr/ ⁹⁰ Y – 20%
3002/FM2 PN: 48-4037-2	2 ea. Model 43-147 alpha-beta scintillator (staggered)	400 cm ² (62 in ²) / 40.9 cm (16.1 in.)	²³⁹ Pu – 20% ⁹⁹ Tc – 15% ⁹⁰ Sr/ ⁹⁰ Y – 20%
3002/FM3 PN: 48-4037-3	2 ea. Model 43-204-2 alpha-beta scintillator (staggered)	1080 cm ² (167.4 in ²) / 65.7 cm (25.9 in.)	²³⁹ Pu – 18% ⁹⁹ Tc – 10%



MODEL 3002/FM SERIES

Alpha-Beta Floor
Monitor

CONTAMINATION MONITORS



MODEL 240 SERIES

Alpha-Beta Array Floor and Wall Monitor

The Model 240 Alpha-Beta Array allows a user to quickly survey large areas for alpha-beta contamination. Compatible with either gas-proportional or scintillation detectors, the Model 240 cart comes in a floor-style only version, or a version that supports both floor and wall monitoring. Detector-to-surface spacing is adjustable and detectors are positioned for no "dead" zones when scanning. Gas proportional models come with a gas regulator, flowmeters, and gas lines, but a P-10 gas bottle is not included. The cart also provides two holders for spare detectors, to provide for replacement if a detector becomes damaged.

Utilizing an array of detectors instead of a single detector provides several advantages:

Smaller detectors have lower backgrounds and thus lower minimum detectable activity (MDA).

Smaller detectors allow the user to pinpoint the contamination.

Smaller detectors make it easier to maintain and replace fragile metallized polyester windows necessary for alpha detection.

KEY FEATURES

- Quickly Survey and Data Log Large Areas with 173 cm (68 in.) Wide Path
- Hinged Array Can Be Folded for Easy Transportation
- 12 Alpha-Beta Detector Capability
- Can Use Either Gas Proportional or Scintillation Detectors
- Measures and Warns Operator About Excessive Speed

MODEL	DESCRIPTION
240 PN: 48-3956	Gas Proportional Floor and Wall Monitor Includes 12 gas proportional detectors (Model 43-198, 126 cm ²); Toughbook® laptop; gas regulator; and input, output, and space (purge) flowmeter. (P-10 gas bottle not included.)
240S PN: 48-4131	Scintillation Floor and Wall Monitor Includes 12 scintillation detectors (Model 43-93, 100 cm ²) and Toughbook® laptop.
240-1 PN: 48-4122	Gas Proportional Floor Monitor Same as Model 240, except floor version only.
240S-1 PN: 48-4132	Scintillation Floor Monitor Same as Model 240S, except floor version only.

AIR MONITORS



MODEL 334A

- Alpha Air Monitor
- Integrated LCD & Touchscreen Display
- Non-SI or SI Units of Measurement
- Acute and Chronic Dose Modes



MODEL 334AB-G

- Alpha-Beta Air Monitor
- Integrated LCD & Touchscreen Display
- Non-SI or SI Units of Measurement
- Radon Compensation
- Built-In Gamma Guard Detector

MODEL	INDICATED USE	DETECTOR	DETECTOR RANGE
334A * PN: 48-3859	Alpha monitor	Solid-state silicon (450 mm ² active area)	Typical sensitivity of 1.0 DAC-h (chronic) and 30 DAC-h (acute)
334AB-G * PN: 48-3864-G	Alpha-Beta Monitor	Solid-state ion-implanted silicon (450 mm ² active area, 300 µm depletion)	MDC is less than 2 x 10 ⁻⁹ µCi/cc for Cs-137 using a 30-minute chronic analysis time in a 10 µR/h gamma background
3100 PN: 48-4282-1	Tritium Monitor	Dual ion chambers	0.074 MBq/m ³ to 740 MBq/m ³ (2 µCi/m ³ to 20,000 µCi/m ³)
3101 PN: 48-4366			
3102/O PN: 48-4432			
3102/B PN: 48-4433			

**Sensitivity is dependent on several factors, including radon background, filter type, flow rate, acute and chronic window settings, and the energy of the isotope of interest.*

TRITIUM IN AIR MONITORS

See also p. 42



MODEL 3100



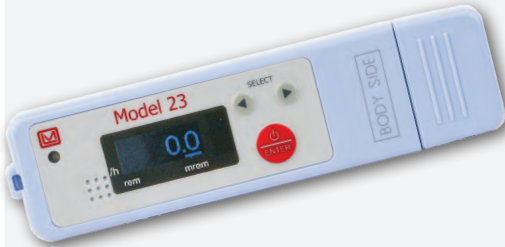
MODEL 3101



MODEL 3102/O



MODEL 3102/B



MODEL 23 (mrem) & 23-1 (mSv)

Electronic Personal Dosimeter

PN: 51-2961 & PN: 51-2958

The Ludlum Model 23 series Electronic Personal Dosimeter (EPD) is a compact and lightweight (55.9 g / 2 oz) pen-type personal dosimeter. It is ideal for the measurement and general monitoring of gamma and X-ray radiation in medical and laboratory environments, as well as any controlled or restricted area where personal radiation monitoring is required or desired. The unit is sensitive to a wide range of energies from 35 keV to 3 MeV. Dose, dose equivalent rate, and alarm values are easily seen on the four-digit LCD screen. An audible alarm is activated if the dose or dose rate exceeds the preset value of the dosimeter. The alarm set points are adjustable from the face of the unit.

The optional Model 23 Series Dosimeter Setting Device and Software Kit (PN: 51-2959) can be used to configure the dosimeter settings and to quickly take data directly from the dosimeter via infrared communication to a PC. Up to 600 data points can be stored in the dosimeter. Note that all collected data is erased when the dosimeter is turned off, so the data must be transferred before the dosimeter is turned off in order to be recorded.

Warning: This dosimeter may not measure pulsed radiation accurately.



MODEL AT SERIES

Direct Reading Pencil
Dosimeters

These direct-reading dosimeters are rugged instruments that measure accumulated quantities of gamma and X-ray radiation. Applications include personal and environmental monitoring.

The low-energy feature has hospital applications including fluoroscopy, portable radiography, and angiography. This pocket-size instrument is lightweight and has a sturdy clip to attach to an individual's pocket.

MODEL	DOSE RANGE	PART NO.
AT-138	0 to 200 mR	51-2936
AT-138S	0 to 2 mSv	51-2937
AT-725	0 to 5 R	51-2939

MODEL AT SERIES CHARGER OPTIONS



MODEL AT-909

PN: 51-2938

The Model AT-909 is a compact, lightweight instrument designed to charge direct-reading pocket dosimeters. This unit requires batteries.



THE CHARGER

PN: 51-2940

The Charger can zero a variety of quartz and carbon fiber dosimeters by squeezing the lever of a piezoelectric generator. This unit does not require batteries.



LUDLUM UNIVERSAL SOFTWARE

PN: 1370-093

Ludlum Universal Software is a network software package that collects and displays radiation levels and alarm statuses from an unlimited number of Ludlum radiation detection instruments. Using this interface, instruments can be connected to the network allowing for real-time monitoring of radiation data, email alerts, and database logging. A standard web browser is used to view the current status and to query the data. (Uses Ethernet connection.)

COMPATIBLE INSTRUMENTS: 53, 54 Series, 375 Series, 375P Series, 2100 Series, 3276, 4906 Series



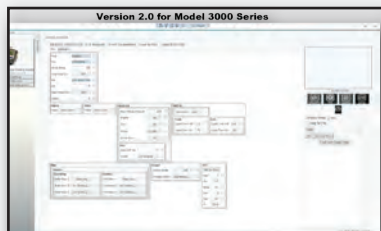
LUMIC CALIBRATION KIT

PN: 4519-865

The LUMIC Calibration Software is a useful tool that allows the reading and writing of important parameters via a USB port in the Model 3000 Series and Model 30 family of instruments. Instrument parameters may be loaded or saved to files, and an instrument parameter report may be printed. The software allows the streaming and viewing of current readings and measurements of the instrument. Two "wizard" features are also included: a gamma exposure/dose calibration routine wizard and an automatic plateau wizard.

The kit includes both versions 1.0 and 2.0 of the LUMIC Calibration Software, as well as two USB cables, one for Model 3000 Series instruments and one for the Model 30 family of instruments.

COMPATIBLE INSTRUMENTS: 30, 30-4, 30-6, 30-7, 35, 79, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3014, 3019, 3078, 3192, 3276, 3277



LUMIC CONFIGURATION KIT

PN: 4519-747

The LUMIC Configuration Software is similar to the LUMIC Configuration Software, but without the calibration routine and automatic plateau wizards.

The kit includes the LUMIC Configuration Software and two USB cables, one for Model 3000 Series instruments and one for the Model 30 family of instruments.

COMPATIBLE INSTRUMENTS: 30, 30-4, 30-6, 30-7, 35, 79, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3014, 3019, 3078, 3192, 3276



LUMIC DATA LOGGER KIT

PN: 4498-1019

The LUMIC Data Logger Software enables the data I/O feature on Model 3000 Series instruments that are configured to have internal data storage. Features vary by instrument, but in general the operator is able to view/change data log parameters, read/change the device's real time clock (RTC), read/save data log records, read location ID fields, and load all or part of the data log settings.

The kit includes the LUMIC Data Logger Software and the required Model 3000 Series USB cable.

COMPATIBLE INSTRUMENTS: 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3014, 3019, 3078, 3192

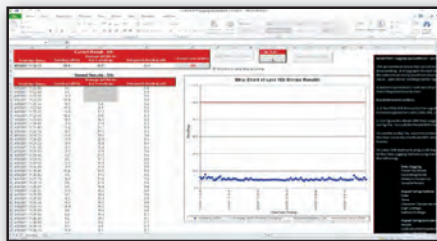


DIMENSION INTERFACE KIT

PN: 4293-763

The Dimension Configuration Manager Software enables calibration and setup of 9DP Series instruments. This kit includes the Dimension Configuration Manager Software and the required Model 9DP Series USB cable.

COMPATIBLE INSTRUMENTS: 9DP, 9DP*, 9DP-1, 9DP-1*



MODEL 9DP LOGGING SPREADSHEET SOFTWARE

PN: 4293-998

The Model 9DP Logging Spreadsheet Software allows the user to log real-time data from the instrument directly to an Excel spreadsheet. The software comes with configuration (.cfg) files that can be loaded onto a USB thumbdrive and inserted into the Model 9DP to easily configure the instrument to log data. A USB keyboard can also be used to configure the instrument to download. The part number listed here includes the required Model 9DP Series USB cable, but both the software and the cable are available separately.

COMPATIBLE INSTRUMENTS: 9DP, 9DP*, 9DP-1, 9DP-1*

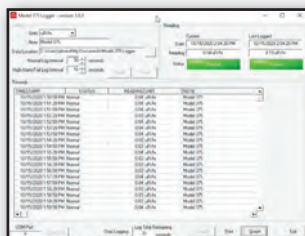


MODEL 375 ETHERNET SOFTWARE

PN: 1370-055

The Model 375 Ethernet Software monitors and stores data from up to fifty Ethernet-enabled Model 375 systems. The software shows current readings and statuses from connected instruments and logs the data to a database. (Uses Ethernet connection.)

COMPATIBLE INSTRUMENTS: 375 Series, 375P Series, 3276



MODEL 375 LOGGING SOFTWARE

PN: 1370-035

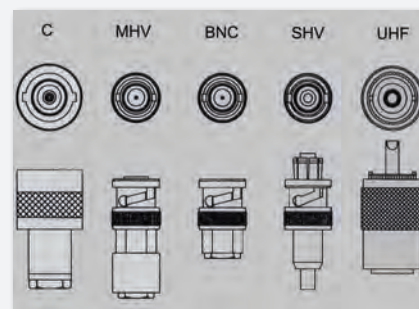
The Model 375 Logging Software displays the reading and status from one connected Model 375 Series instrument and logs the data to a database. (Uses RS-232 connection.)

COMPATIBLE INSTRUMENTS: 375 Series, 375P Series, 3276

CABLES & CONNECTORS

Ludlum offers straight cables with either type C, BNC, SHV, MHV, or UHF connectors. (SHV and UHF connectors are available for an additional charge).

Unless specified otherwise, Ludlum survey meters and detectors come equipped with "C" type connectors. When a meter and accompanying detector are ordered as a matched set, Ludlum automatically includes a 99 cm (39 in.) straight type cable with "C" connectors at no additional charge.



CABLE TYPE	LENGTH		PART NO.
C STRAIGHT	99 cm	39 in.	40-1004
C STRAIGHT	152 cm	5 ft.	40-1004-5
BNC STRAIGHT	99 cm	39 in.	40-1008
BNC STRAIGHT	152 cm	5 ft.	40-1008-5
SHV STRAIGHT	99 cm	39 in.	8303-134
SHV STRAIGHT	152 cm	5 ft.	8303-134-5
MHV STRAIGHT	99 cm	39 in.	40-1011
MHV STRAIGHT	152 cm	5 ft.	40-1011-5
UHF STRAIGHT	99 cm	39 in.	8303-263
UHF STRAIGHT	152 cm	5 ft.	8303-263-5

DETECTOR CABLES

ITEM	PART NO.
SERIES C TEE CONNECTOR	13-7788
SERIES BNC TEE CONNECTOR	13-7769
SERIES C - BNC ADAPTER	13-7759
SERIES BNC - C ADAPTER	13-7768

SIGNAL CONVERTER BOXES



MODEL 296
Signal Switch Box
PN: 47-1101

The Model 296 switches between 2 input signals for a single output.



MODEL 296-1
Signal Switch Box
PN: 47-1180

The Model 296-1 switches between 3 input signals for a single output.



MODEL 297
Signal Splitter
PN: 47-1578

Separates HV and counting signal.

- Input connector: type "C"
- HV output connector: MHV
- Signal output connector: BNC



MODEL T-1016
HV Divider Box
PN: 48-2147

For use with a digital voltmeter to measure the HV up to 3000 V.

- Detector connector: type "C"
- DMV connector: binding posts
- Impedance: 2.5 GΩ



PLASTIC DISK CHECK SOURCE

SOURCE	SIZE (DIAMETER X THICKNESS)	PART NO.
0.25 µCi ¹³⁷Cs	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5723
0.50 µCi ¹³⁷Cs	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5203
1.0 µCi ¹³⁷Cs	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5196
5.0 µCi ¹³⁷Cs	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5186
10 µCi ¹³⁷Cs	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5231
1.0 µCi ¹³³Ba	2.5 cm x 3.2 mm (1.0 x 0.125 in.)	01-5818



MECHANICAL CHECK SOURCE HOLDER

Ludlum's traditional mechanical type check source holder is screwed on to the instrument can and has a nice swing-away door that exposes the source whenever needed. (Only for instruments with cast aluminum housing.)

PN: 4062-166



LAMINATE CHECK SOURCES WITH STICK-ON HOLDER

These sources include a very thin (0.15 mm/0.006 in.) plastic laminate source and an industrial strength adhesive holder for attaching directly to an instrument. The adhesive type holder is the only one approved for use on any Ludlum intrinsically safe instrument.

The table below presents two of the more common sources including the stick-on holder. Other source activities and isotopes are available upon request.

SOURCE	SIZE (DIAMETER X THICKNESS)	PART NO.
0.25 µCi ¹³⁷Cs	2.5 cm x 0.15 mm (1.0 x 0.006 in.)	4464-473-02
1.0 µCi ¹³⁷Cs	2.5 cm x 0.15 mm (1.0 x 0.006 in.)	4464-473-01

INSTRUMENT CASES



GENERAL PURPOSE INSTRUMENT CASES

Ludlum offers carrying cases to facilitate equipment protection, transportation, or storage. These cases come in varying sizes to best accommodate each particular need.

The carrying cases have a hard durable shell and foam inserts that offer excellent protection for the contents, and are designed to be air- and water-tight. These cases are an excellent choice whenever shipping equipment via common carriers and are ideal for shipping GM pancake-style detectors or other fragile detectors.

TYPE	INTERIOR SIZE (H X W X L)	PART NO.
SMALL CASE	37.1 x 26.6 x 15.3 cm (14.6 x 10.5 x 6.0 in.)	2311062
MEDIUM CASE	44.4 x 30.1 x 15.9 cm (17.5 x 11.9 x 6.3 in.)	2311063
LARGE CASE	55.7 x 43.1 x 21.3 cm (21.9 x 17.0 x 8.4 in.)	2311064



MODEL 3000 SERIES CASE

PN: 2312958



REM BALL NEUTRON METER CASES

For Models 12-4, 12-4-7, 30-4, 30-7, 3004, 3007

PN: 2310377 & PN: 2311487



MODEL 78, 79 & 3078 SERIES CASES

Model 78 PN: 4272-444, Model 79 PN: 2312979,

Model 3078 PN: 4272-730



MODEL 193-6 CASE

PN: 2312562



DETECTOR CLIPS

These simple clips offer great convenience and gripping capability to attach detectors to the instrument. They are made from durable stainless steel to last a long time.

KEY FEATURES

- Brushed Stainless Steel
- Holds Detector Conveniently
- Helps Protect Detector
- Simplifies Transporting Meter & Detector in the Field
- Allows One-Handed Carrying of Instrument and Detector(s)
- Attaches to Carrying Handle or the Case of the Meter

DETECTOR MODEL NO.	CLIP PART NO.
43-5	4002-115
43-92 & 43-93	4085-759
44-1, 44-2 & 44-3	4002-026-01
44-6, 44-9 & 44-38	4010-008-01
44-7	4010-007-01
44-10 & 44-17	4002-020-08
44-40	4283-013
44-88	4002-304
44-142	4085-759
133 SERIES (25 mm [1 in.] DIA.)	4285-018
133 SERIES (22 mm [0.875 in.] DIA.)	4285-049
L-8390-344 BARCODE SCANNER FOR MODEL 2360	4002-020-08

DETECTOR MODEL	EXTERNAL DIMENSIONS (D X L) (in.)	ID (in.)	ACTIVE OPENING (in.)	SHIELDING (in.)	WEIGHT (lbs)	PART NO.
44-2	2.135 x 2.0	1.9	1.9	0.118	1.5	7002-107
44-2	2.63 x 1.875	1.9	1.0	0.365	6.6	4002-084-08
44-2 44-2-5 44-3	2.37 x 3.0	1.91	1.91	0.23	2.3	4002-227
44-10 44-17 44-22	3.125 x 2.5	2.665	2.0	0.23	2.0	4260-076
44-10 44-17 44-22	3.125 x 6.0	2.665	2.0	0.23	5.1	4260-079
44-11	2.182 x 2.5	2.332	2.0	0.24	2.0	4260-120
44-20	3.782 x 4.0	3.29	3.29	0.25	4.5	7032-051



DETECTOR COLLIMATORS

Ludlum offers a number of collimators for its gamma series detectors to accommodate a wide variety of applications. All collimators are constructed from lead (99% Lead & 1% Antimony) and are coated with beige powder-coat paint.

ACCESSORIES

PART NO.	ITEMS INCLUDED	EXTENSION LENGTH	INSTRUMENT VARIATION
4085-184*	Detector clamp only	1 to 2.4 m (4 to 8 ft)	Any
4498-865	Detector clamp and Model 30	1 to 2.4 m (4 to 8 ft)	Model 30 only
4085-185*	Detector clamp only	1.8 to 3.7 m (6 to 12 ft)	Any
4498-865-01	Detector clamp and Model 30	1.8 to 3.7 m (6 to 12 ft)	Model 30 only

NOTE: The above poles do not include detectors.

***Does not include instrument/meter**

Clamp will fit detector diameters from 1.3 to 6.7 cm (0.5 to 2.625 in.).

(The picture at right features the Model 43-92, but various detectors can be used with the fiberglass extension pole. Inquire about other options.)



FIBERGLASS EXTENSION POLES



MODEL 44-9-18

PN: 47-2940

A variant of the Model 44-9 alpha-beta-gamma pancake detector with a 0.9 m (36 in.) extension handle.

See also p. 27.



EXTENSION POLE FOR MODEL 26

PN: 4519-077

0.55 to 1.5 m (21.6 to 59 in.) telescoping extension pole with clamp for the Model 26 Series.



SHOULDER STRAP

PN: 4363-413

This kit supplies an adjustable nylon strap and two replacement latches that attach to most Ludlum meters with cast aluminum housings.



MODEL 3000 SHOULDER STRAP

PN: 4498-868

The Model 3000 series shoulder strap supports the meter over-the-shoulder allowing a detector pole to be held with both hands. Requires instrument case modification.



STANDARD ROLLED HANDLE

PN: 7363-139



FLAT HANDLE

PN: 7363-203



ROLLED HANDLE WITH SCALER CONTROL

PN: 4408-178



FLAT HANDLE WITH SCALER CONTROL

PN: 4408-179

Ludlum offers a variety of metal handles to go with our line of portable survey meters. The two basic handle types are rolled and flat. The flat handle is designed to accommodate a detector clip for convenient placement of the instrument detector.

Instruments equipped with a scaler function receive a rolled handle with an integrated scaler start button. When a detector clip is also desired, a flat handle with a control button is supplied.



LIGHTED HANDLE

PN: 4464-154

This handle incorporates an LED to illuminate the instrument display while in dark ambient conditions.

The 3-position rocker switch is conveniently located along the handle top allowing the operator to either turn the light on momentarily (while pressure is applied), turn it on indefinitely, or shut off the light. Two attachment points are additionally included along the top side to facilitate mounting a detector clip if desired. Power is supplied from a single AA size battery located within the handle that will allow over 500 hours of operation.



HEADSET

PN: 22-9313

Comfortably reduces ambient sounds while working in a crowded or noisy area. This headset plugs into any Ludlum survey meter equipped with an audio output jack.

The headphone cord comes with a 3.5 mm plug and a snap-on 1/4 inch adapter, and is attached to the earpiece with a reinforced connection. Dual volume control is available on the ear cups.

ACCESSORIES



HEADPHONE JACK

INSTRUMENT	PART NO.
CAST ALUMINUM HOUSING INSTRUMENTS	4464-464
MODEL 9DP SERIES	4293-891
MODEL 26 SERIES	4498-538
MODEL 30 SERIES	4498-697
MODEL 3000 SERIES	4498-555

This modification for survey meters adds a headphone jack to the instrument body so headphones can be used to monitor click-per-event audio and audio alarms. Headphones are helpful when the instrument is being used in areas with high ambient noise levels or in areas where the audio would be distracting to others, such as in a medical or office environment.



Ludlum Measurements offers a select range of sample plachets available in quantities of 500 pieces. The 51 mm (2 in.) diameter plachets are available in either stainless steel or aluminum and can have depths of 3 mm (1/8 in.), 6 mm (1/4 in.), or 8 mm (5/16 in.). They are also available with either a flat bottom or a bottom with concentric rings.

SAMPLE PLACHETS

MATERIAL	BOTTOM TYPE	SIZE (DIA. X H)	PART NO.
Aluminum	Flat	51 x 3 mm (2 x 1/8 in.)	7525-371-3A-500
		51 x 6 mm (2 x 1/4 in.)	7525-371-6A-500
		51 x 8 mm (2 x 5/16 in.)	7525-371-8A-500
	Concentric rings	51 x 3 mm (2 x 1/8 in.)	7525-371-3CA-500
		51 x 6 mm (2 x 1/4 in.)	7525-371-6CA-500
		51 x 8 mm (2 x 5/16 in.)	7525-371-8CA-500
Stainless Steel	Flat	51 x 3 mm (2 x 1/8 in.)	7525-371-3S-500
		51 x 6 mm (2 x 1/4 in.)	7525-371-6S-500
		51 x 8 mm (2 x 5/16 in.)	7525-371-8S-500
	Concentric rings	51 x 3 mm (2 x 1/8 in.)	7525-371-3CS-500
		51 x 6 mm (2 x 1/4 in.)	7525-371-6CS-500
		51 x 8 mm (2 x 5/16 in.)	7525-371-8CS-500

SUPPORT SERVICES

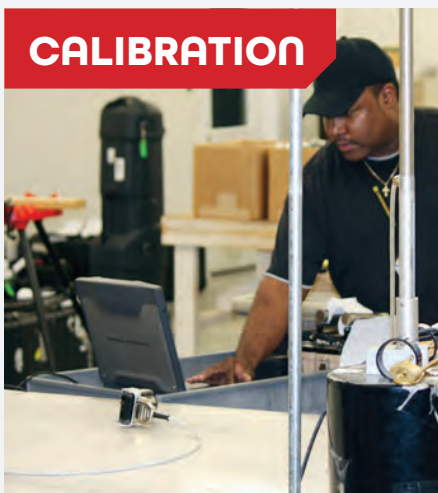
REPAIR



Ludlum Measurements offers a full-service repair and calibration department. We not only repair and calibrate our instruments, but most other manufacturers' instruments as well. Repair estimates are offered at no cost, and repair and modification charges are based on material cost plus labor. Labor rates are billed for actual time at the currently published rate. We also have a second location, Protean Instrument in Knoxville, Tennessee, that is able to repair most instruments.

Visit our website to view the current rates.

CALIBRATION



Ludlum Measurements has two calibration locations, our headquarters in Sweetwater, Texas and our sister office, Protean Instrument in Knoxville, Tennessee. Both locations have been accredited by A2LA (American Association for Laboratory Accreditation) in accordance with the ISO/IEC 17025:2017 standard, as well as the ANSI/NCSL Z540-1-1994 standard. Calibrations are performed on Ludlum instruments, as well as many instruments from other manufacturers.

Consistent with our commitment to excellent customer service, this accreditation affirms the quality and reliability of our calibration service for both newly manufactured instruments and instruments sent in for calibration.

Visit our website to view the current rates.

TRAINING



Ludlum Measurements offers three two-day training courses at our facility in Sweetwater, Texas:

- **Calibration Training:** This course covers the calibration of four generations of Ludlum instrumentation - the Model 3, the Model 2241, the Model 3000, and the Model 26-1. The class also includes a detailed overview of Ludlum detectors and how to pair them with Ludlum instrumentation.
- **Instrument Repair Training:** Designed for users interested in performing their own repairs, this course provides a review of electronic components and the different types of circuits found in radiation detection instrumentation, including examples from Ludlum instruments.
- **Radiation Detection Fundamentals:** This course covers the practical use of Ludlum radiation detection instruments. Attendees will learn the basics of what radiation is and the various detector and meter types used in radiation detection. Hands-on labs with Ludlum instruments provide attendees experience with detecting and measuring radiation.

The Calibration Training and Instrument Repair Training courses are also offered at Protean Instrument in Knoxville, Tennessee.

See our website for the current course schedule and course registration.



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SCAN HERE



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