

The identiFINDER®-U* hand-held instrument, a FLIR Systems Inc. product, is used to find and identify radionuclides in harsh environments, employing gamma spectrometry with dose rate display, accumulated dose display, source finder and automatic nuclide identification capability.

identiFINDER®-U

Ruggedized, Underwater Hand-Held Radioisotope Identification Device

- Coast Guard, Navy and Marine Interdiction
- Underwater covert operations
- Transportation safety
- Emergency response
- Waste monitoring
- Contamination monitoring
- Environment control



identiFINDER-U is a user-friendly instrument that distinguishes man-made and natural isotopes and combines high sensitivity with a wide dose rate range. The instrument is a dual purpose design to facilitate locating missing or offending sources and then identifying the source via its gamma spectrometry and nuclide identification capability. IdentiFINDER-U employs a unique approach of template matching for more accurately identifying shielded and unshielded sources.

The identiFINDER-U is a complete digital gamma spectroscopy and dose rate system. It integrates multi-channel analyzer, amplifier, high voltage power supply, and memory with an integral scintillation detector.

The identiFINDER-U is suited for remote applications, advanced warning systems, hazardous environments and nuclear inven-

tory monitoring. It is used with a standard 1.2 x 1.5" (30 mm x 38 mm) NaI (TI) detector or CZT detector.

A built-in ¹³⁷Cs reference source (< 500 Bq/15 nCi) is used for online stabilization and in-situ calibration without user interaction. This special identiFINDER-U feature allows operational temperatures between -15 and 55 °C (4 to 131 °F) and large temperature gradients. The instrument is waterproof to 1 atm (10 m (33')), and the integrated display and three push-button operations provide easy handling.

Connected to a desktop or notebook PC through a water-tight connector. There is no need to open the instrument to change the battery or download to PC. Up to 60 spectra of 1024 channels can be stored in the unit and directly transferred to any PC for further advanced analysis.

identiFINDER-U Specifications

User Selectable Nuclide Library

More than 72 reference spectra of gamma nuclides are categorized based on their main practical occurrence, including:

Medical:	¹³¹ I; ^{99m} Tc; ⁶⁷ Ga; ¹²³ I; ¹²⁵ I; ¹¹¹ In; ¹⁰³ Pd; ²⁰¹ Tl
On Site Inspection (OSI):	¹⁴⁰ Ba; ¹¹⁶ Cd; ¹⁴¹ Ce; ¹⁴⁴ Ce; ¹³² I; ¹⁴⁰ La; ⁹⁹ Mo; ⁹⁸ Nb; ¹⁴⁷ Nd; ¹⁴⁴ Pr; ¹⁰⁶ Rh; ¹⁰⁹ Ru; ¹²⁵ Sb; ¹³² Te; ^{131m} Xe; ¹³³ Xe; ^{133m} Xe; ¹³⁵ Xe; ⁹⁵ Zr
Nuclear:	²³⁹ Pu; ²³³ U; ²³⁵ U; ²³⁷ Np
Industrial:	^{110m} Ag; ²⁴¹ Am; ¹³⁸ Ba; ²⁰⁷ Bi; ¹⁰⁹ Cd; ⁵⁷ Co; ⁵⁸ Co; ⁶⁰ Co; ¹³⁴ Cs; ¹³⁷ Cs; ⁵¹ Cr; ¹⁵² Eu; ¹⁵⁵ Eu; ⁵⁹ Fe; ¹⁹² Ir; ⁴⁰ K; ⁵⁴ Mn; ²² Na; ²²⁶ Ra; ⁷⁵ Se; ²³² Th-232; ²³⁸ U; ⁶⁵ Zn; ²²⁸ Ac; ^{109m} Ag; ⁷ Be; ²¹² Bi; ²¹⁴ Bi; ¹³⁸ Ce; ¹⁸¹ Hf; ¹³³ I; ¹³⁴ I; ¹³⁵ I; ⁵⁶ Mn; ²¹⁴ Pb; ¹⁰⁶ Ru; ¹²⁴ Sb; ¹²⁷ Sb; ²⁰⁸ Tl; ⁸⁸ Y; Annihilation Radiation

The operator can choose from 6 categories (Nuclear, Industrial, Medical, Customs (Medical, Nuclear and Industrial combined), OSI and USER). All sub-libraries, except the OSI library can be edited by adding or deleting specific nuclides from the list. Ten (10) reference spectra can be measured by the user and added to the predefined library spectra. Identification is done by a template-matching correlation procedure.

Features

Functions:	Nuclide identification, spectrum analysis, dose rate calculation, total dose display, source finding
Integrated electronics:	Multi-Channel-Analyzer, PMT preamplifier, spectroscopy amplifier, power supply
Integrated detectors:	31 x 38 mm (1.2 x 1.5") NaI (TI) (standard)
Optional:	Standard: ³ He detector for neutron indication.

Physical Dimensions

Weight:	1340 g (2.95 lbs) with 30 mm x 38 mm (1.2" x 1.5") NaI and batteries
Temperature range:	-15 to 55 °C (4 to 131 °F)
Protection:	water proof to 10 m (33') or 1 atm, dust tight
Protection class:	IP 65
Durability:	ANSI Standard (10 x 50 g over 18 ms in 3 orthogonal axis)
Dimensions:	230 x 90 x 70 mm (9" x 3.5" x 2.75")

Spectrometry System Specifications

Detector Type:	NaI, CdZnTe
HV-Bias:	50 - 1275 V selectable
Shaping type:	digital filter
INL, top 99%:	>0.05%
DNL, top 99%:	>0.01%
Spectrum length:	1024 channels
Pileup rejection:	400 ns, pulse pair res.
Throughput rate:	>50,000 cps
Input rate:	>500,000 cps
Spectrum memory:	60 spectra at 1024 channels
Real time presets:	1 s - 1,000,000 s
Live time presets:	1 s - 1,000,000 s

Dose / Dose-rate Measurement Specifications

Sensitivity:	>500 cps/ μSv/h (>5 cps/μrem/h) for 30 x 38 mm (1.2 x 1.5") NaI (TI) detector
Dose-rate range:	10 nSv/h - 1 Sv/h (1 μrem/h - 100 rem/h)
Dose range:	100 nSv - 1 Sv (10 μrem - 100 rem)
Energy range:	NaI: 20 keV - 3 MeV; GM: 60 keV - 1.5 MeV
Alarm levels:	Four preset levels (2 dose and 2 dose rate)

Special Features

Stabilization:	Temperature stabilization; HV current. stabilization; Internal ¹³⁷ Cs reference source for stabilization.
Calibration:	Automatic energy calibration; Detector efficiency calibration; Automatic dose calibration.
Remote control:	Real time measurements, setup and control.
Language:	German, English, French, Russian.



identiFINDER-U supplied in hard shell travel case with batteries, chargers, USB PC interface cable, holster, PC download software & operators manual

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