HDS-101G/GN
Handheld Search and Identification

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Handheld Search and Isotope Identification
Device

The HDS-101G/GN's are handheld devices designed to search for and identify radioactive materials and to respond to radiological threats such as illicit trafficking and RDDs.

They are able to identify radionuclides and classify them as medical, industrial, naturally occurring radioactive materials (NORM) and special nuclear materials (SNM).

They can be used to detect, localize and characterize threats during radiological surveys or for secondary screening as perfect complement for installed radiation detection portals.

The HDS-101G/GN devices are ideally suited for first responders, border & customs inspectors, law enforcement, site security in critical infra-structures, and for all applications related to the control of radioactive and nuclear materials.

VERSIONS:

- HDS-101G: gamma version
- HDS-101GN: gamma and neutron version

FEATURES

- Gamma & neutron independent measuring channels
- Wide gamma measurement range
- Very high sensitivity and fast response
- Absolute relative alarm thresholds based on radiation background
- Real time rejection of sudden background variation (VBS algorithm)
- Automated spectra acquisition on alert and automatic identification (NMD algorithm)
- Clear discrimination of risk categories
- LCD display with backlight
- Spectrum display
- Visual and audible alarms
- Wireless communication interface
- Designed to meet/exceed IAEA, IEC, ANSI standards

NUCLEAR CHARACTERISTICS

- **Detectors:**
  - CsI(Tl) scintillator for spectrometry and low gamma dose rate measurement
  - Silicon Diode for high gamma dose rate measurement
  - LiI (Eu) scintillator for neutron measurement
- **Energy range:**
  - 30 keV to 3 MeV (gamma and X-rays)
  - 0.025 eV to 15 MeV (neutrons)
- **Measurement and identification range (gamma):**
  - 0.01 μSv/h to 100 μSv/h (1 μrem/h to 10 mrem/h)
- **Extended gamma range:**
  - Continuous: 0.1 mSv/h to 10 mSv/h, 10 mrem/h to 1 rem/h,
  - Temporarily: up to 1 Sv/h (100 rem/h)

ALGORITHM PROCESSING

- Continuous spectra acquisition (0.2s time slot) and stabilization without source
- Continuous dose rate and count rate comparison to background
- **V**arying **B**ackground **S**uppression algorithm (**VBS**) continuously analyses the spectra shape and rejects alerts due to sudden background changes
- **N**ORM **M**edical **D**iscrimination algorithm (**NMD**) categorizes and identifies up to 4 isotopes simultaneously

NORM:	40K, 226Ra and daughters, 232Th and daughters
Medical:	18F, 51Cr, 67Ga, 75Se, 99mTc, 111In, 123I, 125I, 131I, 133Xe, 201Tl
Industrial:	22Na, 57Co, 60Co, 133Ba, 137Cs, 152Eu, 192Ir, 241Am, Bremstrahlung
SNM:	233U, 235U, 237Np, 238U, 239Pu

- Cumulated spectra can be triggered by alert detection or on request

FUNCTIONAL FEATURES

- Three operation modes: detection, search and integration
- Three user's profiles: routine, expert, custom
- Alert threshold configurable for dose rate and/or number of sigma level increase
- Radiation safety alarm
- LCD display with backlight
- Pre-loaded languages

- Memory to store more than 1000 events/ measurements and over 100 spectra in different modes
- Real time data and spectrum transmission
- Bluetooth®, RS232 and USB interfaces
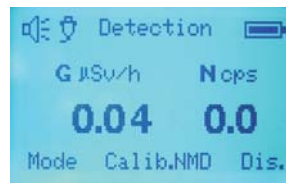
- Audio output for earphone
- Designed to meet/exceed ANSI 42-33, Type I & II and to IAEA standards

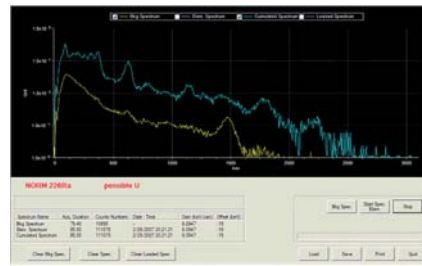## ELECTRICAL & MECHANICAL CHARACTERISTICS

- Power supply: 6 x AA batteries (Ni-MH rechargeable), built-in charger
- Battery life time: 30 hours typical
- Dimensions: 280mm x 78 mm (11in x 3.1 in)
- Weight: 1500 g (52.9 oz)

ENVIRONMENTAL CHARACTERISTICS

- Temperature range: -20°C to 50°C (-4°F to 122°F)
- Humidity: < 90% at 42°C (108°F)
- EMI, shock, vibration and drop resistant
- Water protection (IP54)
- CE compliant

ACCESSORIES

- Shoulder strap
- USB cable
- Transportation case
- HDSMASS and SMI software
- Power supply/charger/wall or car cradle

HDSMass software spectra