

- **Versatile and easy to use**
 - Allows different uses (pedestrians , luggage and parcels monitoring ...)
 - Suitable for on board detection (train, subway, vehicle, aircraft,...). GPS option
 - Easy to install

- **Autonomous**
 - 24h/24, 7d/7 monitoring
 - Automatic stabilisation. No embedded calibration source
 - Real time automatic spectra analysis and isotope detection

- **Powerful and efficient**
 - Identification of a wide range of nuclides
 - Estimates the potential threat level with each alarm
 - Low false alarm rate



DIRAD™

Spectroscopic Portal Monitor

The **DIRAD™** is an automatic and real time gamma spectroscopic portal monitor. It is designed to monitor and identify illegal intrusion of radioactive materials (SNM or RDD) in critical infrastructure facilities and checkpoints.

The **DIRAD™** can continuously monitor people and goods even in dense flow without traffic interruption.

The algorithms have been specially developed by a leading CEA laboratory. It allows high performance detection of radioactive sources in real-time as well as:

- Nuclides identification,
- Source activity calculation,
- Level of threat calculation.

DIRAD™ includes:

- A large volume NaI (TI) crystal and its associated photomultiplier in the higher part,
- An electronic unit for data acquisition and processing in the lower part.

DIRAD™ is equipped with:

- An optional GPS for localization and dating of each event,
- An optional occupancy sensor
- An optional video camera which records the vehicle or the person image.

Physical characteristics

- 4 liters NaI(Tl) detector (10 cm x 10 cm x 40 cm)
- Enhanced Digital Multi Channel Analyzer (1024 channels) with constant performance even when submitted to high counting rate
- Automatic stabilization and calibration: no radioactive source required during operation or commissioning.
- The **DIRAD™** system was tested according to ANSI 4238 and IEC 62484 standards. The following table shows the identification performances at 1 meter with an acquisition time of 1 second :

Radionuclide	Activity (kBq)	Energy (keV)	Performance of identification (%)
²⁴¹ Am	1740	59	99.6
¹³³ Ba	33	80	98.0
¹³³ Ba	333	356	100
⁵⁷ Co	555	123	99.7
¹³⁷ Cs	260	662	100
⁶⁰ Co	590	1333	100

Environmental characteristics

- Operating temperature: -30°C to + 50°C
- Storage temperature: -40°C to + 70°C
- Weather and dust proof (IP 54 according to IEC 60529)

Mechanical characteristics

- Dimensions: 80 cm x 20 cm x 20 cm
- Weight: 30 kg
- Vertical or horizontal operating mode

Electrical characteristics

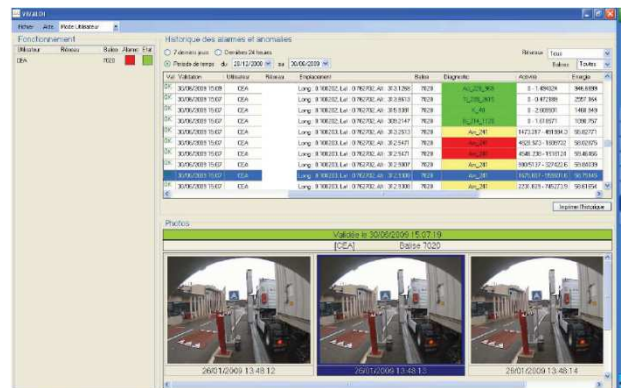
- Power supply: 230 V-110V/50 Hz-60 Hz or 12 – 28VDC
- Power consumption: 50 W

Interfaces

- Data transmission via Ethernet network (TCP/IP)
- VPN Encryption in option

Options

- 3G/GSM/GPRS wireless data transmission
- GPS
- Vivaldi supervision software:
 - detailed view of detection
 - threat level for each alarm
 - picture capture during alarm
 - display beacon status
- Battery
- Neutron detection (available soon)



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