

# NuSEARCH Kit

Radioactivity Measurement Kit  
for Scrapyards



Letting radioactive sources skip into the recycling chain can lead to a substantial liability for the companies involved. Monitoring of scrap metal for contamination is therefore an essential step for the recycling sector as well as for the 3rd parties processing the materials thereafter. With NuSEARCH Kit, you can be prepared in case of such an emergency. The combination of the easy-to-use handheld device DoIMo with a highly sensitive NaI-probe allows measurements of high dose-rates as well as measurements as small as the natural background radiation.

## Benefits

- All-inclusive action kit
- User-friendly handheld device
- Easy-to-use menu with clear-text display
- A wide range of different attachable probes to fit the purpose

## Key Figures

1.0  $\mu\text{Sv/h}$  to 100  $\text{mSv/h}$   
 ↳ Measurement range DoIMo

Background to  
 > 100  $\text{mSv/h}$   
 ↳ Measurement range NaI-probes

45  $\text{keV}$  to 1.3  $\text{MeV}$   
 ↳ Energy range

## Why radiation measurements?

Significant health risks and financial losses can be incurred by introducing material with radioactive contamination into the recycling chain. Portal monitors at the site entrance will monitor radioactivity, some of it coming from NORM (Naturally Occurring Radioactive Material) or from other origins:

- Medical, training or calibration sources
- Scrap metal with radioactive sources unintentionally melted in
- Residues: fire protection materials, industrial debris etc.
- Machinery and components from the chemical industry (e.g. fertilizer production)

## Why NuSEARCH Kit?

Radioactivity control in the recycling business is based on four steps. Three of which can be performed with the NuSEARCH Kit:

### 1. Alarm

- Stationary installed alarm monitors (e.g. NuCLEARANCE) detect an elevated radiation signal.
- The alarm is reproducible by re-measuring.

### 2. Measure the dose-rate level

- The dose-rate is determined to initiate an adequate response.

The DoMo in combination with the NaI-probe allows a user to assess all levels of radiation and classify accordingly.

### 3. Securing the transport vehicle

- The vehicle will be transferred to a dedicated sorting area. Entrance points and barriers to this area can be marked and placed based upon the measurements performed with the tools from the NuSEARCH Kit

### 4. Sorting the load

- Objects with a noticeable level of radioactivity are secured.

Locate the position of the source with the NuSEARCH Kit.

## Customized Case

The customized case will be designed for the device and accessories you choose. The components will be protected against any damage during handling or storage.





## Technical Data Base Unit

### Alarm threshold:

User customisable

### Electronics:

Microprocessor-based

### Keypad:

On/Off, Acoustic Alarm and 5 function keys (menu-driven functions; clear-text instructions for the user)

### Display:

Large LCD (128 x 64 pixel)

### Acoustic Alarm:

Approx. 85 dB at 30 cm

### External Probes:

Automatic recognition of different probes

### Extras:

Torch function

## Technical Data Detectors

The base unit DoIMo with its integrated GM tube warns the user in case of significant health risks. The additional NaI probes offer different levels of sensitivity and dose-rate ranges. This allows to precisely localise the sources.

	DoIMo	Budget Version Probe 25B38	Recommended Version Probe V70
Detector Type	GM counter tube	NaI crystal	NaI crystal
Dose rate range	1 $\mu\text{Sv/h}$ 100 $\text{mSv/h}$	Background 200 $\mu\text{Sv/h}$	Background – approx. 13 $\mu\text{Sv/h}$ linear; usable up to approx. 20 $\mu\text{Sv/h}$
Energy range	45 keV – 1,3 MeV	25 keV – 1,3 MeV	25 keV – 2 MeV
Sensitivity (with respect to Cs-137)	1,6 cps/( $\mu\text{Sv/h}$ )	400 cps/( $\mu\text{Sv/h}$ )	1000 cps/( $\mu\text{Sv/h}$ )
Detector size	46 x 19,5 mm Ø	38 x 25 mm Ø	70 x 70 x 13 mm <sup>3</sup>
Total size	110 x 68 x 30 mm <sup>3</sup>	145 x 32 mm Ø	80 x 85 x 35 mm <sup>3</sup> with 200 mm handle (33 mm Ø)
Weight	270 g	210 g	530 g
IP Rating	IP 65	IP 55	IP 55
Operation range	-20°C – + 50°C; 0-95 % humidity	-20°C – + 50°C; 0-95 % humidity $\Delta t < 10^\circ \text{C/h}$	-20°C – + 50°C; 0-95 % humidity $\Delta t < 10^\circ \text{C/h}$
Miscellaneous	Base unit	External detector for use with a DoIMo	Sensitivity matches criteria of relevant professional associations. Display only in cps; External detector for use with a DoIMo



NUVIATech Instruments provides a large range of radiation detection and measurement solutions for decades in many countries.

## Fields of application

From modelling to implementation, we supply exclusive know-how and state-of-the art technologies in monitoring systems dedicated to the major fields of application:

- RADIATION PROTECTION
- WASTE MANAGEMENT
- ENVIRONMENTAL MONITORING
- LABORATORIES
- HOMELAND SECURITY
- RADIATION MONITORING SYSTEMS
- GEOPHYSICS



## NUVIATech Instruments manufacturing sites

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