

# SAFEWATER

Water Monitoring System



The SAFEWATER drinking water monitoring system is designed for fast and precise online monitoring of potential drinking water contamination by beta or gamma radioactive substances. The system can operate autonomously in continuous mode with real-time data transmitting to the monitoring centre equipped with a RAMON software system. If measured gamma or beta radiations exceed critical limits, visual alarm is triggered and a text message and/or e-mail is sent to a selected phone number or e-mail address.

## Benefits

- Ability to react very quickly to water contamination
- Dual monitoring of beta and gamma radiation
- Advanced data transmission to the monitoring centre
- Real-time data processing and immediate alert notification by text message or e-mail
- Autonomous operation at distant locations
- Water leakage detection
- Interface to water sampler system

## Key Figures

<7.5%

→ Energy resolution  
at 662 keV

4 liters

→ Measured water  
volume

50 keV - 3 MeV

→ Energy range

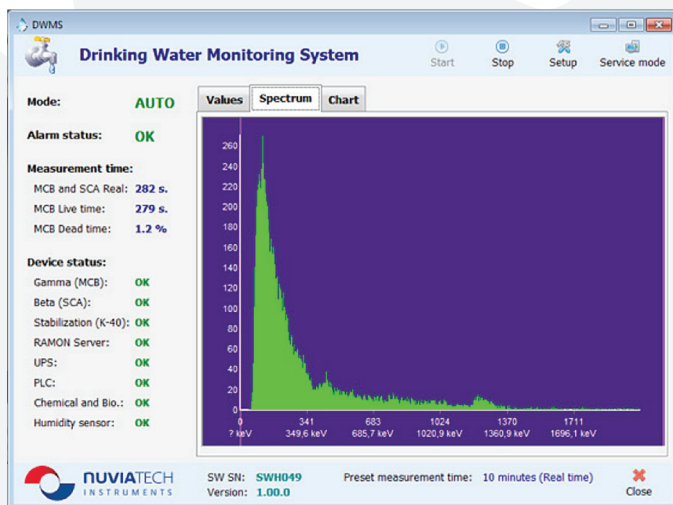
## Product Description

The system is incorporated in a robust stainless steel housing. The main cabinet comprises beta and gamma radiation detectors, water pipelines, main water shut valve, pressure and sampling valves, water leakage detector and stainless-steel vessel with Marinelli beaker. Electronic equipment, wiring, alarm signal lights and embedded PC are incorporated in a separate cabinet on top of the main cabinet to enhance protection of electronic parts.

LCD display on the front panel shows measured data in real time and current state of measuring detectors (status, alarm occurrence, date and time of last transfer and other parameters).

Water is lead in using the inlet valve placed at the bottom of the Marinelli beaker. Water flows through Marinelli beaker and is continuously measured by two individual beta and gamma detection systems. Outer stainless-steel vessel allows water to fall over the beaker edge. This assembly enables to use fixed geometry of Marinelli beaker and allows real-time continuous measurement.

Data from the station is automatically transmitted in a defined period of time to the monitoring centre over Ethernet and/or GPRS. Monitoring centre is equipped with RAMON software for central evaluation and display of possible water radioactive contamination using data from on-site water monitoring station network.



## Product Applications

- Operative beta and gamma radiation monitoring of drinking water
- Warning against rising levels of radioactivity in various water tanks, rivers, lakes and other natural and artificial water reservoirs
- Various water environmental monitoring

### Product Specifications

Total dimensions (w x d x h)	656 x 923 x 1602 mm
Total weight	90 kg

### Gamma Spectroscopy Module

Detector	NaI(Tl) detector 3" x 3"
Resolution	1024 channels
Energy range	50 keV - 3 MeV
Detector resolution	<7.5% on <sup>137</sup> Cs at 662 keV
Measured water volume	4 litres
Automatic spectra stabilisation	<sup>40</sup> K at 1461 keV

Minimum detectable activity (MDA)

<sup>241</sup> Am	- 120 Bq/l
<sup>57</sup> Co	- 20 Bq/l
<sup>58</sup> Co	- 11 Bq/l
<sup>60</sup> Co	- 11 Bq/l
<sup>103</sup> Ru	- 12 Bq/l
<sup>131</sup> I	- 14 Bq/l
<sup>134</sup> Cs	- 11 Bq/l
<sup>137</sup> Cs	- 12 Bq/l (Based on 10 minutes measurement interval and background of 120 nSv/h.)

### Beta Radiation Detector Module

Detector	Plastic scintillation foil
Detector surface	314 cm <sup>2</sup>