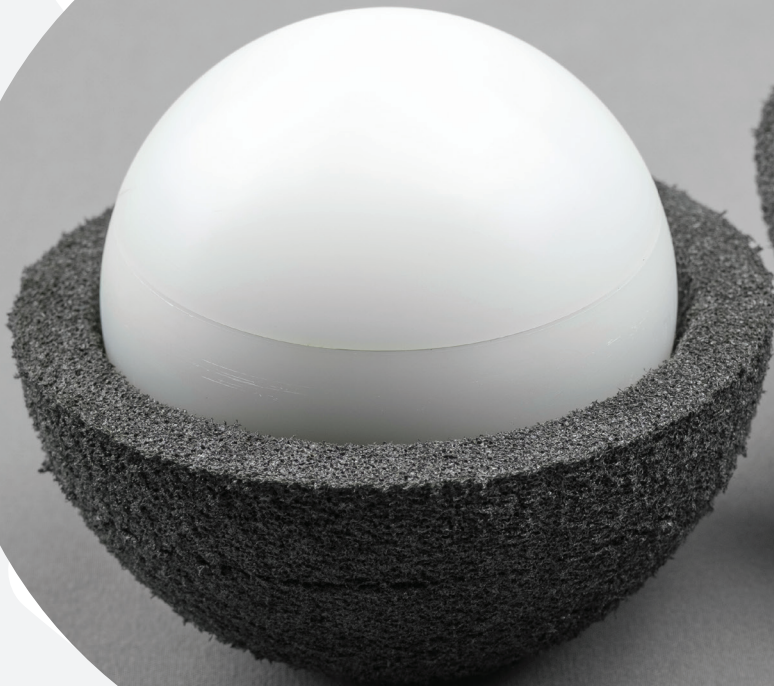# NuGBALL

A NEW GENERATION OF SENSORS NETWORK FOR REMOTE DOSE RATE MEASUREMENT & GAMMA SPECTROMETRY

The NuGBall sensor is designed to cover a wide range of applications related to radiological investigations. Shock-proof and waterproof, this sensor can be dropped at a distance to preserve operator safety. Once deployed, NuGBalls act as a network of sensors, to determine an area's condition and its evolution. NuGBalls can be applied to dose rate measurement and gamma spectrometry acquisition.

Benefits

· Sensor adaptable to your measuring needs
· Adjustable dropping height
· Real-time iterative measurement
· Autonomous and robust system
· Long battery life
· Easy and quick deployment
· Remote sensor deployment
· Parameters adjustable at a distance
· Measurement display on a PC through NuISYSoft
· Display on smartphones, tablets or connected glasses

Key Figures

CZT-Si-CsI (Tl)
➡ *Modular Sensor*

IP68
➡ *Ingress protection*

10 m
➡ *Dropping height*

NuGBALL
A new generation of sensors network
for remote dose rate measurement & gamma spectrometry

Measure: Modular Sensor

	Gamma spectrometry		Dose rate		
	S-60	**S-500**	**DR-H**	**DR-M**	**DR-L**
Sensor	CZT (60 mm³)	CZT (500 mm³)	Si	Si	Csl (Tl)
Emitter	Gamma	Gamma	Gamma	Gamma	Gamma
Unit	Count / keV	Count / keV	Gy.h^{-1}	Gy.h^{-1}	Gy.h^{-1}
Measure range	≤ 10 mGy.h^{-1}	≤ 1 mGy.h^{-1}	1 µGy.h^{-1} to 10 Gy.h^{-1}	1 µGy.h^{-1} to 100 mGy.h^{-1}	10 nGy.h^{-1} to 1 mGy.h^{-1}
Energy range	59 keV to 2 MeV	59 keV to 2 MeV	59 keV to 2 MeV	59 keV to 2 MeV	59 keV to 2 MeV
Channels	1024	1024	-	-	-
Energy resolution	<2.5% at 662 keV	<3% at 662 keV	-	-	-

Applications

➡ *Remote deployment of a network of sensors, on-site, in classic to hostile areas*

➡ *Post-incident investigation*

➡ *Radioactive source searching*

➡ *Loaded pipe investigation*

➡ *Limited-access area monitoring*

➡ *Temporary beacons in harsh environments*

Related Material

- Soft dropping shells
- Transport case
- NuISYSoft
- Dropping drone
- Connected vision (Optional)

Electrical Data

Battery..**Lithium Polymer**

Voltage...**3.7 V**

Battery power..**4 Ah**

Autonomy..**4000measures over 2 years**

Monthly discharge...............................**< 1%**

Charging system....................................**85–264 VAC @ 50/60 Hz**

Mechanical Data

Ingress protection..............................**IP68**

Hard cover dimension.......................**Ø 75 mm (PEHD)**

Soft cover dimension.........................**Ø 95 mm (Polyethylene)**

Weight..**200 g**

Dropping height...................................**10 m (soft cover Ø 95 mm), 100 m (soft cover Ø 180 mm)**
Adjustable dropping height; please contact us

Communication

Name..**iCOM**

Long-range communication ....**LoRa (868 MHz)**

Short-range communication............**Bluetooth, Wifi (820.11 b/g/n 2.4 GHz)**

Outdoor localisation..........................**GPS (+/- 3 m)**

Indoor localisation ....**Pseudolites**

Security...**AES-256 / RSA-1024**

Environment

Operational temperature ....**-20°C to +60°C**

Storage temperature.........................**-20°C to +60°C**

Charging temperature.......................**0°C to +45°C**

Norms

Compliant with CE standards and RED Directive (2014 /UE)