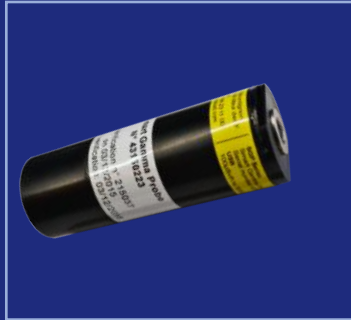
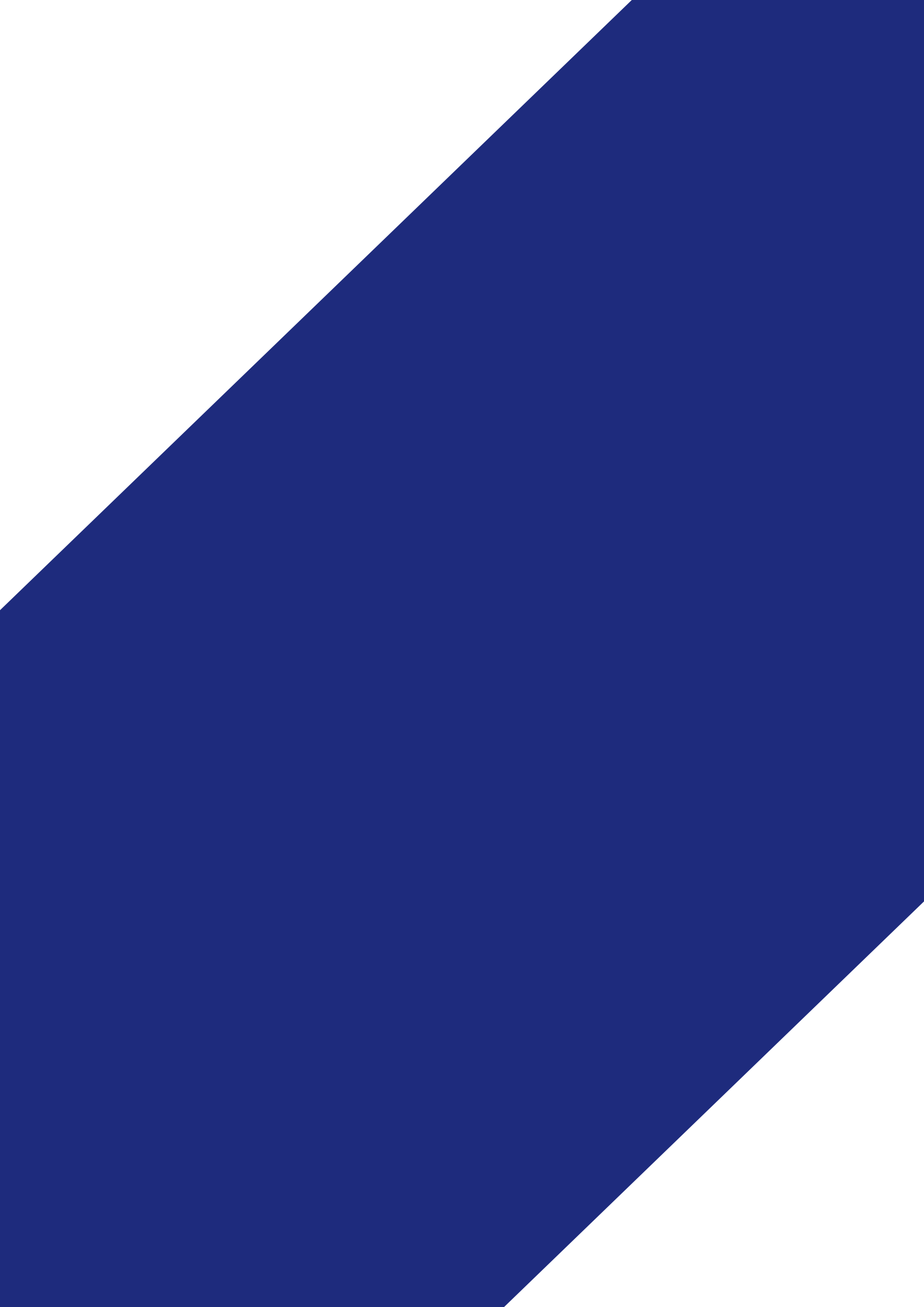




INNOVATION &
MEASUREMENT
SYSTEMS

MICRO-SIZED COMMUNICATING SOLUTIONS FOR REMOTE DETECTION & IDENTIFICATION OF RADIOACTIVE & NUCLEAR MATERIAL





IMS offers radioprotection and radiation measurements solutions in the framework of Nuclear and Radiological threats *via* micro-sized detectors, electronic interfaces and communication protocols guaranteeing the functional durability of the system if already existing.



INNOVATION & MEASUREMENT SYSTEMS

Instruments were born from CEA technological licensing, (the French Alternative Energies and Atomic Energy Commission)

Qualified according to mechanical EU standards in force

- Temperature, shocks, electromagnetic, water-resistant
- Electronic robustness

Qualified according to radiological EU standards in force

- Reliability and speed efficiency of ambient dose rate measurements
- Fast and efficient radioelements identification

Ease of use for non-expert staff

- Plug & Play
- Very light for wearability and practical use
- Autonomous: power supply and connectivity *via* USB, Ethernet (PoE), RS485 (and Modbus)

Time saving for implementation

- Interoperability: adaptable to any existing customer terminal and use through non proprietary communication protocols or user-friendly interface

PRODUCTS OFFER

Smart Gamma Probe SGP Series

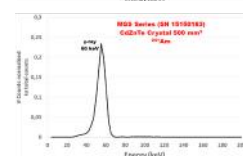
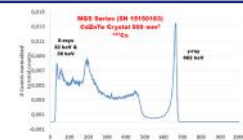
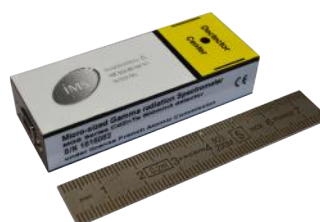
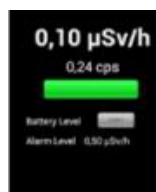
Detection of X and Gamma-rays
Equivalent dose rate H*10 measurement

- Geiger-Müller
- Fast response operated at same room temperature
- Very light (< 100 g)
- Wide dose rate measurement range
Option 1: 0.1 μ Sv/h to 100 mSv/h
Option 2: 0.1 mSv/h to 10 Sv/h
- Qualified according to standards EN 60 846 (CEI, CE, CEM, ISO)
- Quick implementation
- Interoperability: USB, RS485 (and Modbus) and Ethernet (PoE) *Wireless on demand*
- Patented smart algorithms for electronic signal processing
- User-friendly software or non-proprietary protocol
- Softwares adapted to PC tablets and smartphones

Micro-sized Gamma Spectrometer MGS Series

Detection of X and Gamma-rays
Identification of radionuclides *via* spectrometry

- Crystal CdZnTe (CZT) – 60 mm³ ou 500 mm³
- Fast response operated at same room temperature
- Very light (< 50 g)
- Low energy detection and wide energy measurement range: 30 keV – 3 MeV
- High energy resolution (at ¹³⁷Cs)
60 mm³: < 1.5 %
500 mm³: < 2.5 %
- Quick implementation
- Interoperability: USB
RS485 (and Modbus), Ethernet (PoE) and Wireless on demand
- Patented smart algorithms for electronic signal processing
- User-friendly softwares:
Data acquisition software
Isotopic identification in real-time & in motion
Or non-proprietary protocol



IMS YOUR RADIOLOGICAL DETECTION PARTNER

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Smart Gamma Spectrometer

Gamma-rays detection
Identification of radionuclides *via* spectrometry
Higher sensitivity at high Energy (vs. CdZnTe)

- Crystal NaI(Tl) or BGO
- d 3/4" × h 1.5" (D 19 mm × h 38 mm)
- ATEX (option)
- Light (~ 400 g non-ATEX or 1 kg ATEX)
- Energy range
BGO: 30 keV – 8 MeV
NaI(Tl): 30 keV – 3 MeV
- Sensitive detection (vs. CdZnTe) at high Energy
Efficient for low dose rate or long distance measurements
- Energy resolution < 7 % NaI(Tl)

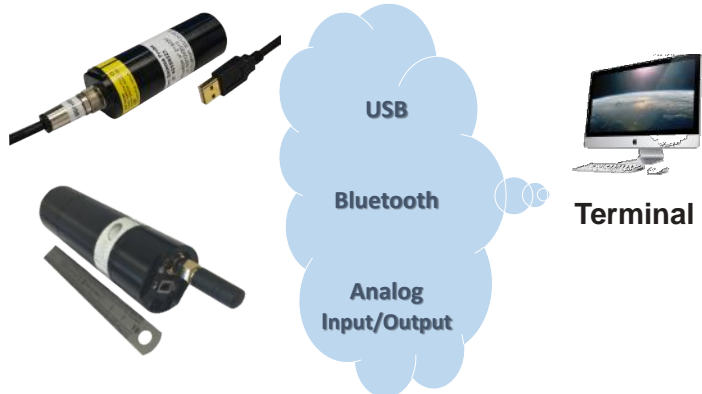


Dosimeter Remote Alarm System

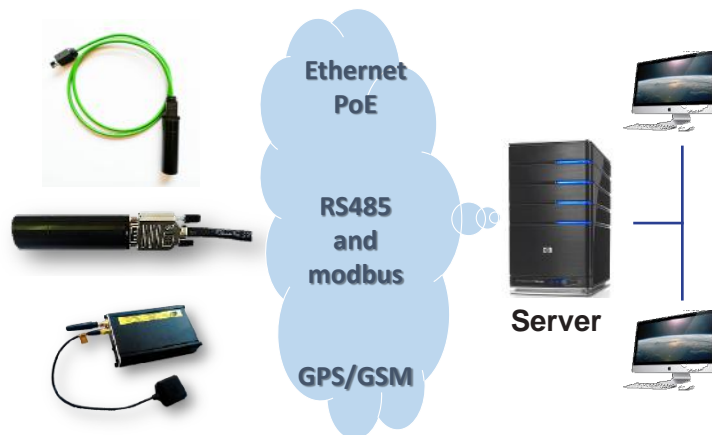
- Very light (< 50 g) and robust
- Wireless & vibrate remote alarm
- Strengthen operator dosimeter alarm perception in harsh noisy environment
- Carrying:
Wrist
Waist
Ankle
Chest
- Secured peering
- Inductive charging system



Connections *user-friendly* to terminals *Plug & Play*



Integrations *user-friendly* to networks *Plug & Play*



MARKETS & APPLICATIONS

Nuclear Safety, Nuclear Power Plants (NPPs)
Reprocessing plants of nuclear waste management
Homeland Security
Nuclear dismantling sites
Radionuclides detection and identification online integrated to UAVs or UGVs
Emergency interventions in case of radiological accidents
Radiological control in industrial or environmental sites (grounds, waters)
Security in nuclear medicine

Nuclear Safety



Centralized Yellow Smart Box

SGPs as a cluster connected to central unit in RS485 Modbus in an EDF Nuclear Power Plant (NPP)
Or Wireless *via* radiofrequency communication up to 5km away

Integration to systems in place



Filter radiological control system (certified EDF)

SGP integration on a pressure-control device for the radiological and remoted automatic control of the ventilation filter to reduce the dose received by the operator

Homeland Security

Deployment of probes as a network in RATP Paris (underground major metro station) for the radioactive materials transport control in public places



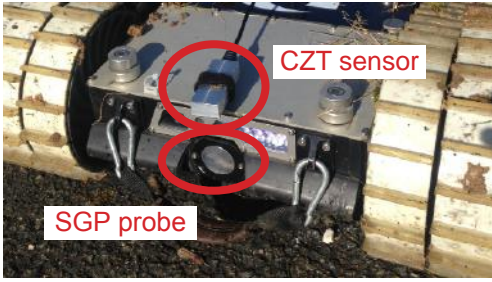
Nuclear dismantling sites



IMS SGP Series* embedded in Novadem U-130* UAV

SGP on a UAV for radiological remoted measurements in dismantling sites (*e.g. indoors measures*) for non accessible areas

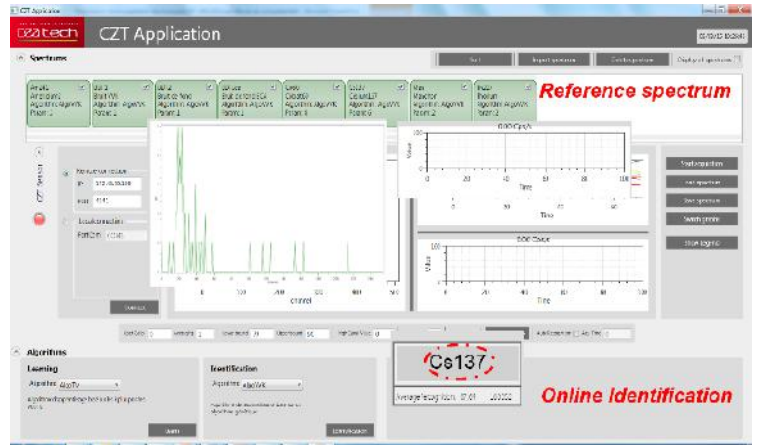
Remoted detection on UAVs & UGVs



SGP & MGS embedded on a robot designed for CBRNe (e.g. radiological fires or dirty bombs) interventions



Non-expert dose rate measurement in real time and in motion on the operation interface



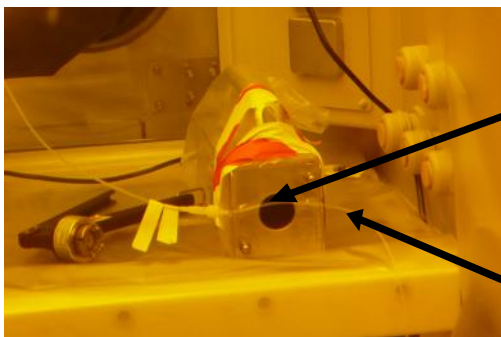
* Chemical, Biological, Radiological, Nuclear, and Explosive

Emergency interventions on radiological accidents



SGP on a UAV for fast intervention in case of CBRNe accidents

Security in nuclear medicine



SGP probe embedded in a metal box

Tube containing a radioactive fluid to be injected to the patient

SGP successfully and systematically allows by setting an accurate cumulated dose that once reached, the radioactive fluid is injected to patient

• **Ordering Information - SGP Probe**

Communication Type	Option 1 Ordering Part Number	Option 2 Ordering Part Number
USB ¹	SGP1USB	SGP2USB
Ethernet (POE) ²	SGP1ETH	SGP2ETH
RS485 ³	SGP1RS485	SGP2RS485
RS485 Modbus ³	SGP1RS485BUS	SGP2RS485BUS



Notes

1. 7 pins binder connector
2. Push-pull RJ45 8 wires IP67 connector
3. Sub-D9 connector

IMS proposes a specific magnetic flange to securely maintain its SGP probe on your equipment for fixed monitoring operations.

Flange Ordering Part Number
FLGSGP



• **Ordering Information - MGS Spectrometer**

Communication Type	Ordering Part Number
USB	MGSUSB

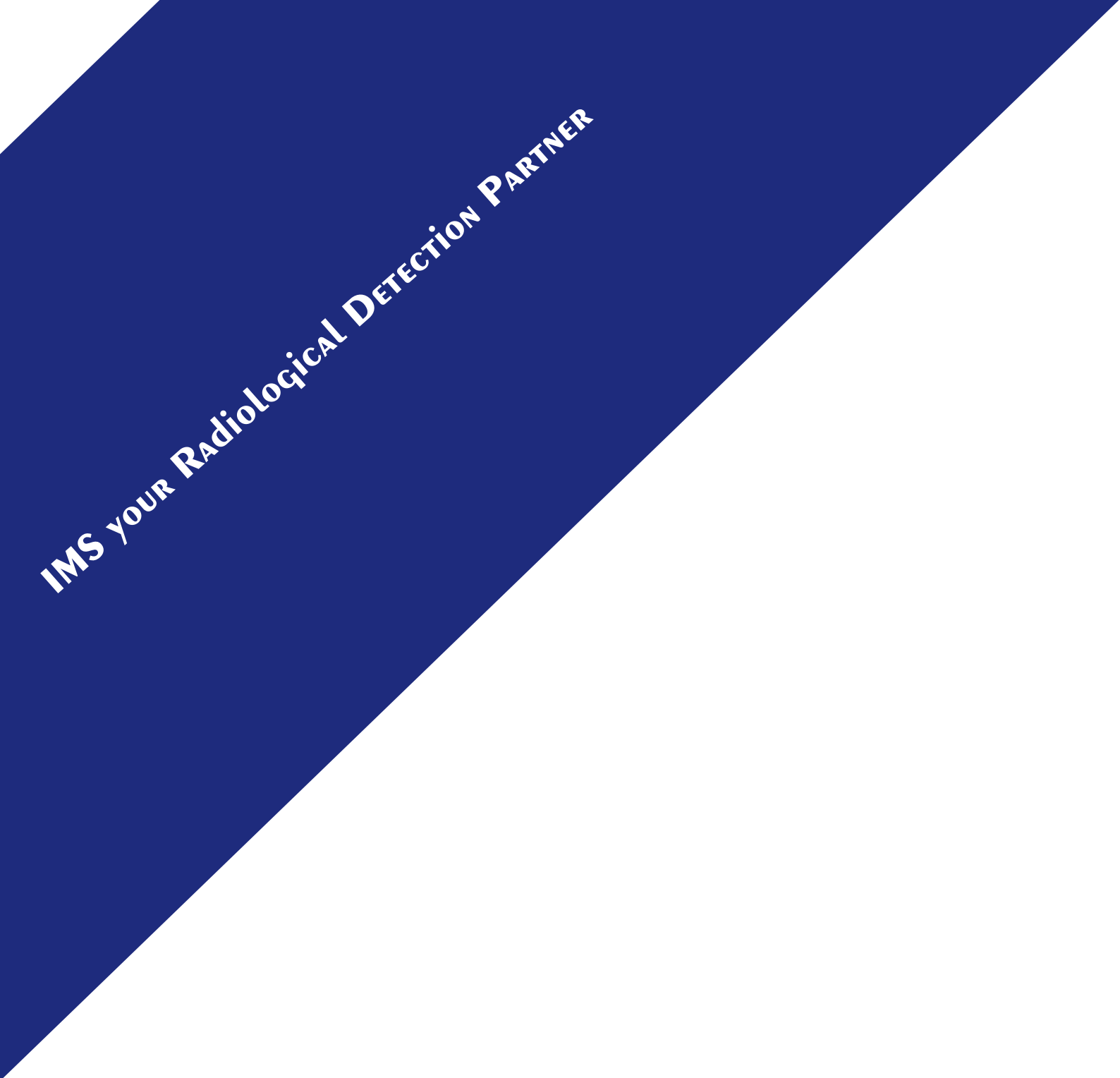


IMS proposes a magnetic flexible rotating arm SGP probe and MGS spectrometer mounting bracket

Mechanical Arm Part Number
BMMSGPMGS



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