

# AGRS

## ADVANCED GAMMA-RAY SPECTROMETER

Advanced Gamma-Ray Spectrometer is an intelligent, self-calibrating spectrometry system using large volume NaI(Tl) detector arrays.

AGRS is designed for wide use in geological and geophysical exploration and mapping as well as in environmental monitoring, radiation protection and nuclear surveillance.

The AGRS performs a fully automated field calibration routine which eliminates the need for undertaking daily calibrations using radioactive sources.

The self-calibration is based on automated adjustments to natural radiation peaks: no source pad is required. Featuring each individual detector processing, an AGRS unit can contain 2, 4 or 5 detectors of large volume 4L each.

The AGRS unit can be used as a stand-alone unit with simple USB-flash drive data transfer, chained up with other AGRS units to maximize effective detection surface and volume efficiency, or integrated with a data-acquisition system to full system equipped with additional sensors.

For stand-alone functioning, the AGRS unit will require only power supply and GPS data.

The AGRS can be integrated in any airborne or carborne system such as Airborne Spectrometry, Airborne Magnetic or P-THEM systems.



AGRS-5 installation in AS350 helicopter for integrated system test flight in Canada.

### SPECIFICATION HIGHLIGHTS

Channels	256/512/1024 or 2048
Spectra	20 keV to 3 MeV (+ cosmic)
Data handling	Individual detector processing and calibration
Energy Resolution	8.5% (@662 keV)
Differential nonlinearity	< 0.1%
Integral nonlinearity	< 0.01%
Gain stabilization	Automatic multi-peak on natural radioisotopes
Dynamic input range	250000 cps per detector
Baseline restoration	Digital (IPBR) Individual Pulse Baseline Restoration. The baseline is established for each individual pulse for maximum pulse height accuracy
Pulse shaping	Digital Pulse Shaping
Sampling rate	0.1 – 10 sec user defined
Power	9 to 40 VDC, 15W
Detector power	3W per detector
Operating temperature	-20°C up to +50°C
Calibration	Automatic using natural background radiation.
Expandability/Scalability	Up to 20 sensor (4 AGRS units) chained
System stabilization	Cold start-up - less than 40 sec on the ground
Verification/Calibration	No radioactive sources required
GPS connectivity	Time and position synchronization

#### AGRS-2

Two 4Liter downward-looking NaI(Tl) crystals  
Weight ~50kg

#### AGRS-4

Four 4Liter downward-looking NaI(Tl) crystals  
Weight ~95kg

#### AGRS-5

Four 4Liter downward-looking NaI(Tl) crystals  
One 4Liter upward-looking NaI(Tl) crystal  
Weight ~115kg

*Custom configuration is possible*