

BROADBAND MULTIFUNCTION EM RECEIVER



Gepard-4

DESCRIPTION:

All-in-One multifunction geophysical EM receiver GEPARD-4 is intended for sensitive and accurate registration of electrical and magnetic fields in wide frequency range, both in natural source and control source modes and wide exploration depth intervals. System works with variety of sensors, including grounded and non-grounded electric lines, high frequency and long period induction coil magnetic sensors, fluxgate magnetometers, aircoils and airloops. Flexible configuration of electrical and magnetic channels allows to increase productivity in the field and collect data sets for several methods and sites with one geometrical field layout

MAIN FEATURES:

- **ALL-IN-ONE SYSTEM** - Time and Frequency Domain ground EM data acquisition
- **STAND-ALONE SYSTEM** - no external devices (PC, tablets, etc.) needed to carry out field DAQ
- Field Survey Capabilities:
 - **NATURAL SOURCE:** SP, AMT, MT, LMT, MVP, TC
 - **CONTROL SOURCE:** EP, VES, DES, Electrotomography, Misse-a-la-masse, TDIP, FDIP (Amplitude & Phase), SIP, CSAMT, CSMT, VLF, FDEMS, IEP, TDEM
- 24-bit geophysical EM data acquisition
- 4 independent channels (E or H with flexible configuration)
- 43,000 to 0.0001 Hz effective frequency band
- Flexible sampling rates / operator defined
- Real-time DAQ parameters monitoring
- On-screen data processing and results viewing
- High-speed data transfer modes
- GPS and cable synchronization options
- Unlimited number of channels/receivers in data acquisition system
- Intuitive Hi-Res color touchscreen GUI
- Manual and Automatic operation modes
- Short and long range wireless monitoring (optional)
- Portable, lightweight

SYSTEM APPLICATIONS:

- Near-Surface / Mid-Range / Deep Investigations
- Mining, kimberlites (diamonds), groundwater, oil & gas and geothermal exploration
- Geological, landslide, faults, melt rock, aquifer and karst mapping
- Geological engineering, pipeline condition analysis, land reclamation, environmental studies
- Geodynamic, archaeological, dike and sills, ecological investigations
- Geological, volcano and earthquake monitoring
- Permafrost & glacier, deep crust & mantle research

Advanced Geophysical Operations and Services Inc. (AGCOS)

162 Oakdale Road, Toronto, Ontario, M3N 2S5 Canada

Tel: 1(416)747-8800 Fax: 1(416)747-5761

e-mail: info@agcos.ca website: www.agcos.ca



GEPARD-4

TECHNICAL SPECIFICATIONS:

HARDWARE:

NUMBER OF CHANNELS:	4 independent (E or H with flexible configuration)
ELECTRICAL SENSORS:	ACE-84 / ALCE-84A / ASCE-84AG / Steel Stakes
MAGNETIC SENSORS:	AMS-15 / AMS-12 AMS-37 / AMS-27 Fluxgate MTEM-200 FTEM-100 LTEM-25
ADC:	24 bit
EFFECTIVE FREQUENCY BAND:	43,000 - 0.0001 Hz
DYNAMIC RANGE:	140dB
GAIN:	5 options per channel / operator defined
SAMPLING RATES:	flexible / operator defined / method specific
SENSITIVITY OF EACH CHANNEL:	0.1 μ V
NOISE LEVEL OF EACH CHANNEL:	\leq 0.1 μ V
INPUT IMPEDANCE:	10 M Ω
ACCURACY OF MEASUREMENTS:	\pm 0.5%
FILTERS:	50 / 60Hz / Harmonics / High-Pass / Low-Pass / Band-Pass / Band- Reject / Analog / Digital
SYNCHRONIZATION:	GPS / Crystal / Cable
ACCURACY OF SYNCHRONIZATION:	\pm 1 x 10 ⁻⁶
DATA TRANSFER MODES:	SD card / Ethernet
DATA STORAGE CAPACITY:	8Gb standard / expandable to 128Gb
DISPLAY:	7" colour touchscreen LCD, 800x480, sunlight-readable
USER INTERFACE:	Intuitive GUI / touchscreen
OPERATION MODES:	Manual / Automatic
REMOTE OPERATION:	Bluetooth / Long Range RF (optional)
POWER SUPPLY:	12V Internal battery 12V External battery
OPERATING TEMPERATURE RANGE:	-40 to +70C
CASE:	Dust-moisture protective / shielded / all-season
DIMENSIONS:	26 x 24 x 17 cm
WEIGHT:	7 kg with internal battery

FIELD SURVEY CAPABILITIES & METHODS:

NATURAL FIELD EM:

Direct:	Self-Potential (SP)
Alternating:	Audiomagnetotellurics (AMT) Magnetotellurics (MT) Low Period Magnetotellurics (LMT) Magnetovariational Profiling (MVP) Telluric Currents (TC)

CONTROL SOURCE EM:

Quasi Direct Current:	Resistivity Electrical Profiling (EP) Vertical Electric Soundings (VES) Dipole Electric Soundings (DES) Electrotomography (ET)
	Induced Polarization (IP) Time-Domain (TDIP) Frequency Domain (FDIP - Amplitude) Frequency Domain (FDIP - Phase) Spectral IP (SIP)
	Misse-a-la-Masse
Alternating Current:	CSAMT CSMT VLF Frequency Domain EM Soundings (FDEMS) Induction Profiling (IEP) TDEM (FasTEM / LowTEM / MulTEM)
DEPTH OF INVESTIGATION:	Method dependent / 0 -150 000 meters

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