

GDP-3224 Geophysical Receiver

Multi-Function Receiver

The GDP-3224™ is an integrated, 24-bit multi-channel receiver for acquisition of controlled and natural source geoelectric and EM data.

ENHANCEMENTS

- 24-bit analog system
- Expanded keyboard
- ½-VGA graphics display
- 100BaseT Ethernet port
- GPS timing, plus high-accuracy quartz clock
- Multiple, selectable data storage modes in a single data cache
- Remote control operation
- Broadband time-series recording
- High-speed data transfer

FEATURES

- 1 to 16 channels, user expandable
- Alphanumeric keypad
- 133 MHz 586 CPU
- Real-time data and statistics display
- Easy to use menu-driven software
- Resistivity, Time/Frequency Domain IP, CR, CSAMT, Harmonic analysis CSAMT (HACSAMT), AMT, MT, TEM & NanoTEM®
- Screen graphics: plots of time-domain decay, resistivity and phase, complex plane plots, etc., on a 480 x 320 ½-VGA, sunlight readable LCD
- Internal humidity and temperature sensors
- Time schedule program for remote operation with the XMT-32S transmitter controller
- Optional GPS time synchronization with transmitter
- Use as a data logger for analog data, borehole data, etc.
- Full compatibility with GDP-32 series receivers.
- 0.015625 Hz to 8 KHz frequency range standard, 0.0001 Hz minimum for MT and 10240 Hz maximum for AMT
- One 24-bit A/D per channel for maximum speed and phase accuracy.
- 512 MB Compact Flash Card (up to 4 GB) for program and data storage, sufficient to hold many days worth of data.
- 128 MB dRAM (up to 256 MB) for program execution.
- Optional data storage device (up to 40 GB) for time series data recording.
- Anti-alias, powerline notch, and telluric filtering
- Automatic SP buckout, gain setting, and calibration
- Rugged, portable, and environmentally sealed
- Modular design for upgrades and board replacement
- Complete support: field peripherals, service network, software, and training



SPECIFICATIONS FOR THE GDP-32/24 MULTI-FUNCTION RECEIVER

General

Broadband, multichannel, multifunction digital receiver
 Frequency range: 1/64Hz - 8KHz (0.0001Hz - 8KHz for MT and
 1 Hz to 10240Hz for AMT)
 Number of channels: Large case, 1 to 16 (user expandable)
 Small case, 1 to 6 (user expandable)
 Standard Survey capabilities:
 Resistivity, Frequency- and Time Domain IP, Complex
 Resistivity, CSAMT (scalar, vector, tensor), Harmonic Analysis
 (CSAMT, Frequency-Domain EM, Transient Electromagnetics,
 NanoTEM®, MMR, Magnetic IP, Magnetotellurics,
 Downhole Logging.
 Software language: C++ and assembly.
 Size: Large case 43x41x23cm (17x16x9")
 Small case 43x31x23cm (17x12x9")
 Weight: (including batteries and meter/connection panel):
 Small case 13.7 kg (29 lb)
 Large case:
 8 channel, 10 amp-hr batteries, 16.6 kg (36.5 lb)
 8 channel, 20 amp-hr batteries, 20.5 kg (45 lb)
 16 channel, disk, 10 amp-hr batteries, 19.1 kg (42 lb)
 Enclosure: Heavy-duty, environmentally sealed aluminum
 Power: 12V rechargeable batteries (removable pack)
 Over 10 hours nominal operation at 20°C
 (8 channels and 20 ampr batteries)
 External battery input for extended operation in cold climates,
 or for more than 8 channels
 Temperature range: -40° to +45°C (-40° to +115°F)
 Humidity range: 5% to 100%
 Internal temperature and humidity sensors
 Time base: Oven-controlled crystal oscillator; aging rate <5x10-10
 per 24 hours (GPS disciplining optional)

Displays & Controls

High-contrast sunlight readable ½-VGA (480x320) DFT-
 technology LCD graphics display, with continuous view-angle
 adjustment (optional heater for use down to -40°C).
 Sealed 80-key keyboard
 Analog signal meters and analog outputs
 Power On-Off

Standard Analog

Input impedance: >10 MΩ at DC
 Board Dynamic range: 212 db
 Minimum detectable signal: 0.03 nV
 Maximum input voltage: ±32V
 SP offset adjustment: ±2.25V in 69µV steps (automatic)
 Automatic gain ranging in binary steps from 1/8 to 1024
 Common-mode rejection at 1000 Hz: >80 db
 Phase accuracy: ±0.1 milliradians (0.006 degree)
 Adjacent channel isolation at 100 Hz: >90 db
 Filter Section: Quadruple-notch digital telluric filter
 (50/150/250/450 Hz, 50/150/60/180 Hz, 60/180/300/540 Hz,
 specified by user)
 Analog to Digital Converter (Standard Channel)
 Resolution: 24 bits
 Conversion time: 30 µ sec
 One A/D per channel for maximum speed and phase accuracy

NanoTEM® Analog

Input impedance: 20 KΩ at DC
 Dynamic range: 120 db
 Minimum detectable signal: 4 µV
 Automatic gain ranging in binary steps from 10 to 160
 Analog to Digital Converter: 14 bits ± ½ LSB, 16 bits optional
 Conversion time: 1.2 µsec
 One A/D per channel for maximum data acquisition speed

Digital Section

Microprocessor: 133 MHz 586
 Memory: 128 MB dRAM (up to 256 MB)
 Mass Storage (program & data storage):
 512 MB Compact Flash Card (up to 4 GB)
 Data storage device with capacities to 40 GB optional
 Serial ports: 2 RS-232C ports (16650) standard
 Network Adapter: Ethernet adapter standard (100BaseT)
 Mouse, CRT (VGA), and standard keyboard ports
 Optimized Operating System

Additional Options

Number of channels: (maximum of 3 NanoTEM® channels)
 Large case: 1-16
 Small case: 1-6
 External battery and LCD heater for -40°C operation

Other Acquisition Software

External RPIP/TDIP/CR Control: Remote control through
 serial port on GDP-3224 for electrical resistance tomography (ERT)

Streaming RPIP/TDIP:

Continuous acquisition of TDIP or RPIP data (time domain or
 resistivity/phase IP) using a towed electrode array

Borehole TEM:

Remote control through GDP-3224 serial port for efficient logging of
 borehole TEM and MMR data
 Compatible with Crone and Geonics 3-component probes

Extended Broadband Time Series Data Recording:

Continuous recording of up to 5 standard analog channels sampling at
 32 K samples/sec (bandwidth 8 KHz with 2x oversampling) with no
 loss of data
 Developed for recording broadband magnetotelluric measurements

Equal-Interval Mode TEM (TEME):

Uniform sampling and storage of TEM transients as time series
 Used for LOTEM data acquisition and any application that requires
 uniformly sampled TEM transients.