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

Terraplus Inc.
52 West Beaver Cr. Rd. #12, Richmond Hill, ON, Canada L4B 1L9
Tel: 905-764-5505 Fax: 905-764-8093 Email: sales@terraplus.ca Website: www.terraplus.ca
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 16.8 kg (36.5 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 amp/hr 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%
- **Time base**: Oven-controlled crystal oscillator; aging rate <5x10^-10 per 24 hours (GPS disciplining optional)

**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
- **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

**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.

**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 μsec
  - One A/D per channel for maximum speed and phase accuracy