

# GDP-32<sup>II</sup> Geophysical Receiver

## *Multi-Function Receiver*

The GDP-32<sup>II</sup> is Zonge International's fourth generation multi-channel receiver for acquisition of controlled- and natural-source geoelectric and EM data.

### ENHANCEMENTS

- 133 MHz 586 processor
- Expanded keyboard
- ½-VGA graphics display
- Ethernet port

### UNIQUE CAPABILITIES

- Remote control operation
- Broadband time-series recording
- High-speed data transfer

### FEATURES

- 1 to 16 channels, user expandable
- 133 MHz 586 CPU
- Alphanumeric keypad
- 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 480x320 ½-VGA, sunlight readable LCD
- Internal humidity and temperature sensors
- Time schedule program for remote operation with the XMT-32S transmitter controller
- Use as a data logger for analog data, borehole data, etc.



- Full compatibility with GDP-16 and GDP-32 series receivers.
- 0.015625 Hz to 8 KHz frequency range standard, 0.0007 Hz minimum for MT
- One 16-bit A/D per channel for maximum speed and phase accuracy.
- 512 Mb flash RAM (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 40 Gb hard disk for time series data storage.
- 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<sup>II</sup> MULTI-FUNCTION RECEIVER

## General

Broadband, multichannel, multifunction digital receiver.  
Frequency range: 1/64Hz - 8KHz (0.0007Hz - 8KHz for MT)  
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<sup>®</sup>, 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 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%  
Internal temperature and humidity sensors  
Time base: Oven-controlled crystal oscillator; aging rate <math>5 \times 10^{-10}</math> per 24 hours (GPS disciplining optional)

## Displays & Controls

High-contrast sunlight readable 1/2-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 M $\Omega$  at DC  
Dynamic range: 190 db  
Minimum detectable signal: 0.03  $\mu$ V  
Maximum input voltage:  $\pm$ 32V  
SP offset adjustment:  $\pm$ 2.25V in 69 $\mu$ V steps (automatic)  
Automatic gain ranging in binary steps from 1/8 to 65,536  
Common-mode rejection at 1000 Hz: >80 db  
Phase accuracy:  $\pm$ 0.1 milliradians (0.006 degree)  
Adjacent channel isolation at 100 Hz: >90 db  
Filter Section: Four-pole Bessel anti-alias filter (software-controlled) 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: 16 bits  $\pm$  1/2 LSB  
Conversion time: 17  $\mu$ sec  
Continuous self calibration  
One A/D per channel for maximum speed and phase accuracy

## NanoTEM<sup>®</sup> Analog

Input impedance: 20 K $\Omega$  at DC  
Dynamic range: 120 db  
Minimum detectable signal: 4  $\mu$ V  
Automatic gain ranging in binary steps from 10 to 160  
Analog to Digital Converter: 14 bits  $\pm$  1/2 LSB, 16 bits optional  
Conversion time: 1.2  $\mu$ sec  
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 flash RAM (up to 4 Gb).  
Hard disk drives with capacities to 40 Gb optional  
Serial ports: 2 RS-232C ports (16650) standard  
Network Adapter: Ethernet adapter standard (100 Base-T)  
Mouse, CRT (VGA), and standard keyboard ports  
Optimized operating system

## Additional Options

Number of channels: (maximum of 3 NanoTEM<sup>®</sup> 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-32<sup>II</sup> 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-32<sup>II</sup> 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. The recording time is limited only by the size of the hard disk drive. 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.

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