

GBD-316 / GBD-116 Seismic Digitising System

Features

- External Sensor Connection Option (Geophone, Seismometer, etc.)
- On-line Diagnostics and Self Checking System
- Detailed Analysis Tool with dedicated GeoDAS Data Analysis Package
- SEISLOG and SEISAN compatible
- 1 or 3 Channels
- Internal Gain selection: 10, 100, 1000
- 16 Bit / 96 dB dynamic range
- Quick Installation
- Minimal Maintenance
- Highest Performance for lowest price



Outline

The **GBD-316 and GBD-116** is a 3 or 1 channel seismic signal digitiser. Based on the gained experience in the field of seismic instrumentation, GeoSIG is in the excellent position to offer a high performance instrument for an attractive price. Additionally to the standard features of a digitiser, full compatibility with both the Bergen University **SEISLOG** logging software as well as with the **SEISAN** analysis software is added.

The GBD digitiser makes use of an external sensor. For standard sensors either the Guralp CMG-40V-1 or the Mark L-4 can be used. Other sensors are supported by GeoSIG on request.

A specially designed selectable high gain amplifier (10, 100, and 1000) allows appropriate adjustment of the overall system to the ambient noise situation.

The GBD is well suited for all typical microseismicity studies that require high quality digitising performance. Especially in applications where the ancient analogue drum recorders must be replaced by digital drum recorders the GBD system in combination with a sensor

and a digitiser is the future oriented choice. Optionally the **GBD-x16** can be equipped with a GPS for full time accuracy.

A comprehensive package of advanced, menu-driven analysis software is available. **SEISLOG** is included in the Seismic Data Acquisition System consisting of a Laptop or PC and is the base of the recording function for the **GBD-x16**. SEISLOG allows also the graphical display of the recorded data.

With **GeoDAS Data Analysis Package** and **SEISAN**, we provide two dedicated analysis programs for earthquake and civil engineering as well as for seismologist.

The **GBD-x16** represents a real breakthrough in seismic recording. The demand for having more dense recording arrays for the same budget now becomes reality. A state of the art solution for drum recorders exists.

Specifications GBD-316 / GBD-116

Set-up and Configuration

All the necessary parameter and configuration settings are selectable with the easy-to-use **GeoDAS** Windows program. The configuration of the **GBD-X16** is stored in an internal EEPROM, which secures the configuration set-up independent of any backup battery requirements.

SEISLOG

The **GBD-X16** is used as a seismic digitiser providing 1 second packaged data for direct recording in a PC running the SEISLOG software from Bergen University.

GeoDAS-Analysis Package and SEISAN

The **GeoDAS** and **SEISLOG** programs provide basic time history data evaluation in the field. The **GBD-X16** supplies data available in binary format or as ASCII files. The **GeoDAS Data Analysis Package** covers the requirements of detailed laboratory analysis for most earthquake and civil engineering applications. Other well-known software packages can be used as well. With the **SEISAN** seismic data analysis package from Bergen University complete seismic data analysis can be performed.

Sensor

Type: External
Input Range: 2.5 V \pm 2.5 V

Preamplifier

Gain: 10, 100, 1000 jumper selectable

Digitiser

A/D Converter: 16 Bit (1:65'536)
Noise at Gain 1000: \pm 1 count
Least significant bit for 16 Bit: 0.0015 % of full scale
Sampling rate: 25, 50, 100, 200 SPS per channel
Bandwidth: 20 Hz or 50 Hz (to be specified)
Input range: 2.5 VDC \pm 2.5 VDC
Anti Aliasing Filter: 5 poles
RS-232 output: 1 sec. Data Buffer or sample-by-sample

Recording

Type: SEISLOG based recording in a PC connected to the GBD digitiser

Power Supply

Type: External power supply, 16 to 30 VDC or 12 VDC solar power supply
Internal battery: Rechargeable, 12 VDC, 6.5 Ah
Battery Regulator: Lead battery internal
Autonomy: 2 days
Power consumption: 1.2 W @ 12 VDC typically

Time Base

Standard clock accuracy: 10 ppm (10 min/year @ - 10 °C to + 50 °C)
External time interfaces: GPS (optional)

Indicators

Green: Charger LED
Green: Run/Stop LED
Yellow: -
Red: Warning/Error LED
LCD display: Optional:
User selectable choice of display parameters

Communication

Serial ports: 2 (1 for communication / datastream, 1 for GPS)
Baud rates: 2400, 4800, 9600, 19200, 38400, 115200
Communication protocol: Binary
Protocol securities: Checksum and software handshaking
Communication: PC/RS-232

Environment / Housing

Operational temperature: - 20 °C to + 70 °C
Storage temperature: - 40 °C to + 85 °C
Humidity: 0 % to 100 % (non condensing)
Type: Aluminium housing
Size: 180 x 180 x 100 mm
Weight: 5.2 kg (incl. 6.5 Ah battery)
Protection: IP54

Connectors

RS-232: - either parameter set-up or time tagged data buffer output for SEISLOG based data recording
GPS: - continuous or cycled operation for power saving
External Sensor: - Connection of external Sensor
Power: - either external power supply, ext. battery or Solar power supply

TCP/IP Communication Option

Using a RS-232-TCP/IP device server, **GBD** can be seamlessly integrated in a TCP/IP computer network for instrument set-up and data acquisition. Doing so each GBD must be assigned a unique IP Address.

Specifications subject to change

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