GeoSIG
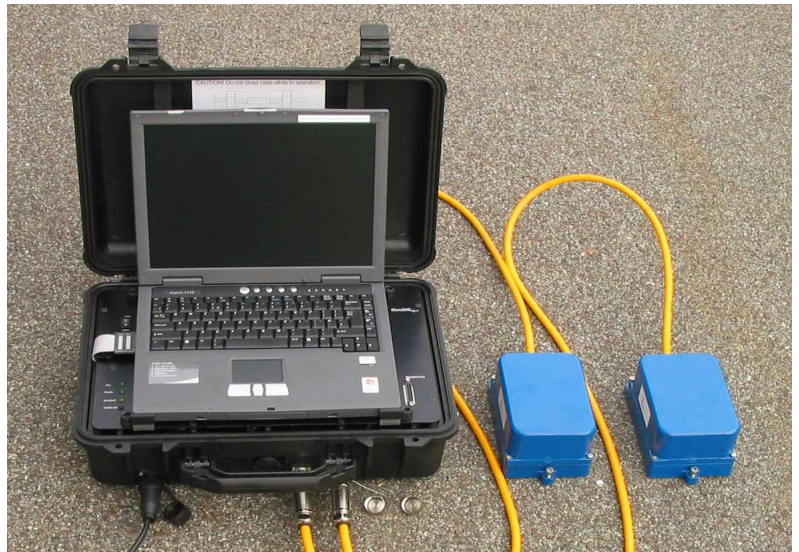
GSR-12PC / GSR-16PC Recorders

Features

- ☐ **Integrated 12 or 16 Bit Digitiser System**

- ☐ **2 x 3 differential or 5 x 3 single ended channels**

- ☐ **GeoDAS Data Acquisition Program**

- ☐ **Comprehensive Data Analysis Tool**

- ☐ **GPS Time Receiver (Option)**

- ☐ **Sets a new Standard in the PC-based Recording Technology**

- ☐ **Minimal Maintenance**

- ☐ **Broad Application Field**

Outline

The **GSR-12PC/GSR-16PC** Seismic Recorder is a high performance PC based Data Acquisition System for a wide application field using the **GeoDAS** data acquistion and data analysis software. GeoDAS offers data acquisition facilities as well as **comprehensive data analysis tools**. It provides a complete solution to researchers for seismic profiling, after shock studies, noise measurements, vibration measurements and structural monitoring.

The **GSR-12PC/GSR-16PC** is capable to perform both continuous and event-based recording of data. These recording facilities in combination with the reliable, field-proven **GeoDAS** data analyis tools make this instrument one of the most accurate and versatile portable recorders available today. This unique combination of highest performance digitiser and the powerful software allows for the acquisition of micro seismic, broad band and strong motion signals in a single field unit.

The standard **GSR-12PC/GSR-16PC** recorder allows 3 signals from either seismometers, accelerometers or geophones to be acquired using a 12 Bit or 16 Bit Digitiser.

Level Triggering, STA/LTA triggering as well as permanent recording can be configured as per the demand of the particular application.

The **GeoDAS** software runs under **Windows 2000/XP**. The **GSR-12PC/GSR-16PC** is available with up to 2 x 3 differential or 5 x 3 single ended channles. It facilitates therefore monitoring of a complete structure with just one recorder. Using the standard Windows networking tools TCP/IP access from the office to a remotely operating GSR-12PC/GSR-16 is possible for both data retrieval and the configuration of the recorder.

Different output options are available such as data streaming, alarm signals, alert and notification messages through SMS or E-Mail.

The **GSR-12PC/GSR-16PC** in combination with **GeoDAS** is the ideal, compact and extremely cost effective PC-based recording approach.

Specifications GSR-12PC / GSR-16PC

Data Acquisition System
GSR-12PC/GSR-16PC is based on GeoSIG GeoDAS software. GeoDAS is a highly versatile and flexible data acquisition system. GeoDAS is capable of recording continuous data or triggered event data very efficiently using all comprehensive features of the Microsoft Windows operating systems.

Sensor
All GeoSIG sensors as well as other sensors compatible with input hardware specifications can be connected.

AC-63 Force Balance Accelerometer
Frequency Response: DC to 100 Hz
Largest signal: ± 2 g Std. (± 1, ± 4 g optional)

AC-23 Geophone-based Accelerometer
Frequency Response: 0.2 Hz to 50 Hz
Largest signal: ± 2 g Std. (±1, ±0.5, ±0.2 g optional)

CMG-5T Güralp™ Accelerometer
Frequency response: DC to 100 Hz
Largest signal: ± 2 g

VE-23 Velocity Sensor
Frequency response: 4.5 Hz to 315 Hz
Largest signal: ± 100 mm/s

VE-13 Velocity sensor
Frequency response: 1 Hz to 315 Hz
Largest signal: ± 100 mm/s

Laptop Computer: Pentium III Processor or analog
                          14-inch LCD Screen
                          256 Mbyte RAM
                          20 Gbyte Harddisk
                          Windows 2000/XP
(due to the rapid changes in the PC technology the specifications herein represents the minimum specifications)

Recording Period
The minimum hard disk capacity (20 Gbyte) allows several days (Approximately 5 Gbyte per day using maximum configuration) up to weeks of continuous recording depending on the sampling rate and the number of channels selected. When the disk is full the oldest data is replaced with new data and therefore at any time the recorder stores the current pre history data. However, if a trigger occurs, the event data is saved and will not be over-written in case the disk gets full.

Trigger
A software event trigger is incorporated in the **GSR-12PC/GSR-16**. Trigger parameters can be configured locally or from an external computer. Based on GeoDAS's fully-tested STA/LTA and the level trigger algorithms the trigger facility is ideal for recording event files containing the most relevant data for the area of interest.

Data Transfer
To retrieve data from the recorder the standard Windows network protocols can be used. Alternatively data can be backed up on CD's using the laptop's CD-Writer or copied to an external PCMCIA hard disk.

Digitiser
A/D Converter: 2 x 3 differntial or 5 x 3 single ended 12 or 16 Bit
Sampling rates: 25, 50, 100, 200, 500, 1000 SPS per channel
Noise RMS: < 1 Bit peak to peak for 12 Bit differntial mode
                         < 4 Bit peak to peak for 16 Bit differential mode

Bandwidth: 25% of sampling rate
Input Fullscale Voltage: ± 5 V

Storage Medium: Internal fixed Hard Disk with a capacity depending on the application. Minimum 20 Gbyte is recommended

Power Supply
Internal battery: Rechargeable, 12 VDC Lead battery
Autonomy: 2 hours continuous
DC Voltage: 12 VDC

Timing
Internal time interface: Computer Real-Time clock;

External time interface: GPS (optional)

External Connections:
POWER: 230 VAC or 12 VDC Power Input
SENSOR: Sensor Analog Inputs (1 – 5 connectors)
GPS: GPS Time Receiver (optional)

Environment / Housing
Operational temperature: -20 °C to +50 °C
Size: 470 x 370 x 180 mm
Weight: 10 kg (incl. 1 battery)
Type: Weather sealed box
Protection: IP65

LED indicators
AC   green, AC available
RUN   green, operation
EVENT   yeallow no, permanent, or event recording
ERROR   red, warnings and errors

Self Test
Sensor Test signal and permanently active battery charging controller.