

GeoSys provides Geophysical Measuring Solutions

Sapphire Line Introduction

GeoSys AG together with its alliance partner **Terra Technology** are proud to present the new **Sapphire Line**.

The **Sapphire Line** introduction represents a major release of new products developed over the last two years at **GeoSys** and **Terra** including new 12 Bit and 16 Bit strong motion and seismic recorders with a wide range of sensors and accessories. It provides measuring solutions for customer applications with high performance servo accelerometers, low cost accelerographs, advanced recorder networks and multi-channel acquisition systems.

The Sapphire name was selected to tie **GeoSys'** and **Terra's** overall company philosophy and instrument development goals to the customers' needs and expectations for instruments of exceptional value and gem quality.

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In Europe, Africa, Middle East up to India, contact **GeoSys** or your local representative.



In North- and South America and the Asia Pacific region, contact **Terra** or your local representative.

New Recorders and Sensors

Our **Accelerometer Technology** remains a superior offering to measure ground motion. We have modernised and repackaged this technology into a new accelerometer product family, the **SSA-20 series**, with the goal of higher quality, easier customer use and deployment flexibility, higher performance and lower cost.

The new **IDS-3602A 16 Bit Accelerograph** has been modernised and repackaged with exciting new features and functions with the goal of making this product the technology leader, highest quality, cost effective, flexible and overall best 16 bit instrument available today.

The **GSR-12 Strong Motion Recorder** is rich in features, flexible and has the market's leading price/performance design.

The new **GSR-16 Strong Motion Recorder** in combination with the high performance **SSA-320 Servo (Force Balance) Accelerometer** brings a 96 dB dynamic range. The **GSR-16** is the ideal compact and most cost effective 16 Bit approach.

SEE US IN ATHENS OR VIENNA!!! GeoSys will be presenting two papers at the ESC XXIV General Assembly in Athens on the Taiwan CWB 16 Bit Strong Motion Array and on Strong Motion Instrument Networks and also will exhibit at the EAEE Conference in Vienna.

GSR-12 Strong Motion Recorder

Most Advanced 12 Bit Recorder

Measuring device for strong motion vibrations.

The **GSR-12** is a data acquisition system representing the state of the art technology in earthquake monitoring. A variety of trigger conditions can be selected to start data capture into Solid State Memory or PCMCIA Memory Cards. Recorded data are transferred to the central station using PC / RS-232 port or modem.

GSR-16 Strong Motion Recorder

Sets New Standards in Price for 16 Bit Technology

Measuring device for seismic vibrations, caused by earthquakes.

As a matter of fact the 16 Bit technology brings an additional dynamic range in combination with the high performance Force Balance Sensor **SSA-320**. The **GSR-16** is the ideal compact and most cost effective 16 Bit approach.

IDS-3602A Accelerograph

Sets New Performance and Features in 16 Bit Recording

The **IDS-3602A** 16 Bit Digital Accelerograph provides a completely integrated Digital System (IDS) for applications requiring high accuracy records over a broad range of acceleration levels. The cast aluminium enclosure is NEMA6P rated for prolonged submersion in water and provides exceptional corrosion resistance. Standard battery-backed CMOS RAM supplies up to 45 minutes of recording time (for 2 MByte version). The optional PCMCIA interface supports Flash or RAM Memory Cards, Hard-disk Drives and internal Modem Cards.

GCR-12 Vibration Recorder

Universal Civil Engineering Recorder

Modern processor technology makes it possible nowadays to carry out vibration measurements with the Vibration Recorder **GCR-12** according to DIN 4150 part 1 and 2 and Swiss Norm SN 640312a. Out of a wide range of sensors you may choose the one your application fits best. Different configuration of the recording parameters allow the **GCR-12** to be used either as a blasting surveillance recorder or as a permanent data recorder for ramming works, tunnel, bridge or traffic surveillance. Transferring data to PC while recording is possible and can be done through a modem.

GCR-12/VC Vibration Controller

The Ideal Measuring Device for Blasting and Ramming

Each vibration is being recorded and evaluated. The data output is shown by either the internally mounted printer or the light tower or through an RS-232. The light tower informs about the intensity of the blasting as well as whether the critical value has been passed. An external sensor can be adapted optionally. The **GCR-12/VC** is very compact and immediately ready for action at any place.

GSV / GSA / SSA Acceleration and Velocity Sensors

Depending on the application the most suitable sensor can be selected. Force balance accelerometers, capacitive silicon sensors or geophones are available. All sensors are housed in a compact case for external or internal use (within the recorder). The sealed cast aluminium housing contains a water resistant connector or a sealed cable inlet. The housing also is equipped with a single bolt mount with three levelling screws. Optional available is also a current loop (0 to 20 mA) to allow long distance transmission and a gain ranging to extend the signal range.

GSP-57 External Printer

Sometimes it is important to have the vibration data available immediately after an event has occurred. The external printer with continuous printout can be connected to any of the **GeoSys** recorders.

GSC-50 / GSC-100 Cable Rolls

Cable rolls in lengths of 50 and 100 meters are available. The same cable roll can be used to connect external sensors with the recorder or to connect different recorders with each other when using them in a network.

This unique feature in the market place optimises the instrument investment efficiency.

FieldView and CloseView Software

A comprehensive package of advanced, menu driven, analysis software is available. **FieldView** is the communication software included in all the recorder devices.

It can be used also on-site for a first impression of the recorded data. **CloseView**, available as an option, covers the requirements of detailed laboratory analysis for most earthquake and civil engineering applications.

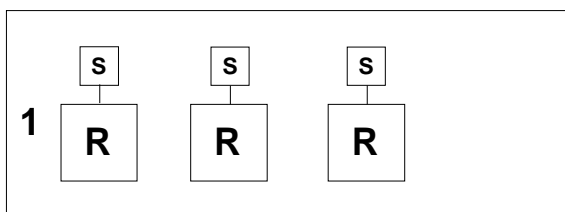
CloseView analyses GSR, IDS and SUDS data.

The GeoSys' developed new **Version 1.3 CloseView** program is now available. **CloseView** includes detailed analysis tools for the GSR, GCR and IDS generated files and files in PC SUDS's format. Key file processing tools include baseline correction, high pass and low pass filters and special filters (Hanning, Welch, Parzen, Hamming).

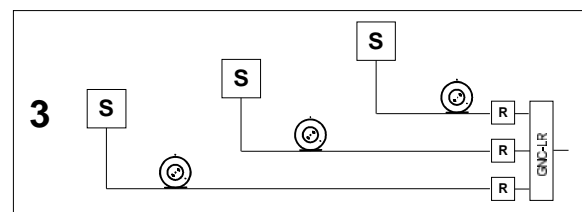
Analytical tools includes FFT, Power Spectrum, Response Spectrum, Velocity and Displacement integration and CAV. Processed data can be displayed and saved as a PC file. Drivers are also included for most popular printers.

Instrument Configurations

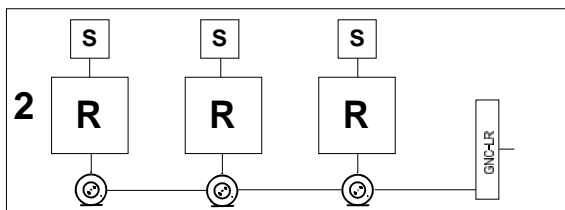
The recorders can be interconnected each other in different ways. The diagrams below show the general principles.



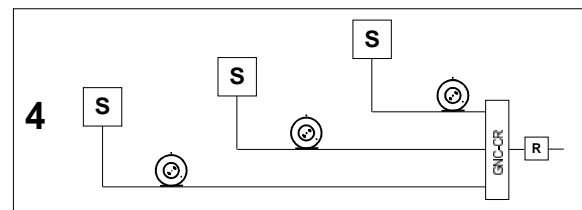
Independent Recording Network



Local Recording Network



Interconnected Recording Network



Central Recording Network

High Quality Earthquake Instrumentation Special Low Prices

GeoSys' and Terra Technology's innovative **Sapphire Line** product designs and advanced manufacturing techniques enables us to offer these special prices through the remainder of 1994.

SSA-320 Triaxial Servo (Force Balance) Accelerometer US\$ 1'995.00*

- 120 dB range, 50 Hz response
± 4 g, ± 2 g, ± 1 g, ± 0.5 g, ± 0.25 g Full Scale Ranges available
- ± 2.5 V Full Scale Output with 2.5 V reference
- Uses single +12 V power supply
- NEMA 6P Enclosure with single Bolt Mount and ± 10° Leveling Adjustment, military type MS connector

GSR-12/FB 12 Bit digital Strong Motion Recorder US\$ 2'995.00*

- 12 bit A/D converter, 72 dB Dynamic Range
For earthquake acceleration from 0.001 g to 2 g
- Built-in Triaxial SSA-320 Servo Accelerometer (2 g full scale range, 50 Hz)
- Standard Realtime Clock (20 ppm)
- 18 minute Recording Time (512 kByte RAM Memory)
- FieldView Setup and CloseView Data Analysis Software (PC compatible)
- NEMA 12 Aluminium Enclosure, Battery for 2 days of operation, AC Charger, industrial series 693 connectors

GSR-16/FB 16 Bit digital Strong Motion Recorder US\$ 3'995.00*

- 16 bit A/D converter, 96 dB Dynamic Range
For earthquake acceleration from 0.000'01 g to 2 g
- Built-in Triaxial SSA-320 Servo Accelerometer (2 g full scale range, 50 Hz)
- Standard Realtime Clock (20 ppm)
- 12 minute Recording Time (512 kByte RAM Memory)
- FieldView Setup and CloseView Data Analysis Software (PC compatible)
- NEMA 12 Aluminium Enclosure, Battery for 2 days of operation, AC Charger, industrial series 693 connectors

IDS-3602A 16 Bit High Performance Digital Accelerograph..... US\$ 4'995.00*

- 16 bit A/D converter, 96 dB Dynamic Range with gain and range selection
For earthquake accelerations from 0.000'01 g to 2 g
- Built-in Triaxial SSA-320 Servo Accelerometer (2 g full scale range, 50 Hz)
- Accurate Realtime Clock (1 ppm)
- 23 minute Recording Time (1 MByte RAM Memory)
- IDSMENU Setup and CloseView Data Analysis Software (PC compatible)
- NEMA 6P Aluminium Enclosure, Battery for 1 day operation, AC Charger, military type MS connectors

IDS-3602A Network Station with Flash Memory Card..... US\$ 5'995.00*

- 16 bit A/D converter, 96 dB Dynamic Range with gain and range selection
For earthquake accelerations from 0.000'01 g to 2 g
- Built-in Triaxial SSA-320 Servo Accelerometer (2 g full scale range, 50 Hz)
- TCXO Realtime Clock (0.3 ppm)
- Includes Serial Datastream Port (U.S.G.S. Realtime Digital Telemetry Format)
- 90 minute Recording Time (4 MByte Removable PCMCIA Flash Memory Card)
- IDSMENU Setup and CloseView Data Analysis Software (PC compatible)
- NEMA 6P Aluminium enclosure, Batteries for 3 day operation, AC Charger, military type MS connectors

*These special prices are for the exact configurations described above. Options noted in the product leaflets and Sapphire Line brochure are also available at special prices. Contact us or your local representative for a quotation including your selected options. **Prices are based on GeoSys' standard terms and conditions of sale, FOB Glatbrugg, Switzerland. International orders are subject to additional charges such as handling and shipping charges and import duties.** This is a limited time offer and orders are subject to approval by GeoSys AG.