

## G-Array

### Features

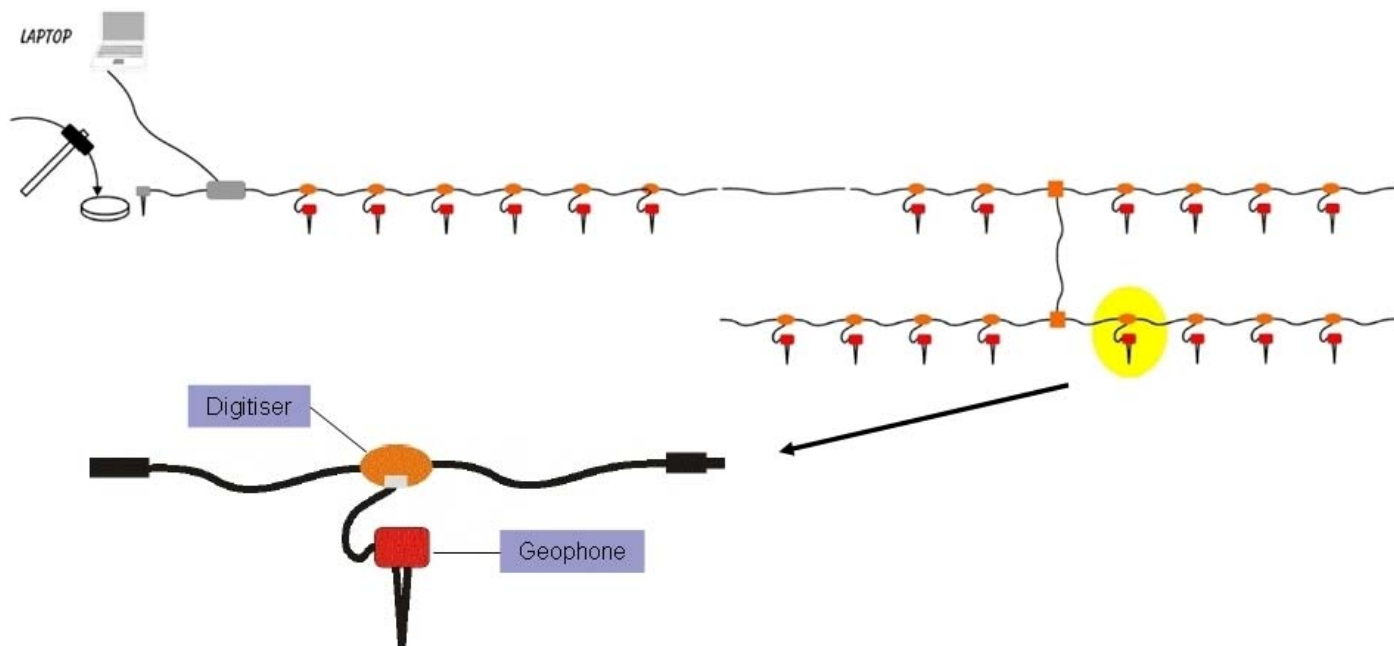
- ❑ Multichannel Geophysical Seismograph for Refraction and Microtremor, MASW and SASW, as well as Reflection applications
- ❑ Dynamic Range: 155 dB
- ❑ Independent memory unit for each channel
- ❑ Sampling rate programmable: 5 to 0.05 milliseconds (-> Frequencies from 200 to 20 000 Hz.)
- ❑ Sampling Length: 0,1 to 60 seconds.
- ❑ Refraction Surveys over 70 meters in length
- ❑ Outstanding signal-to-noise ratio



### Outline

The G-Array string system is a digital multi-channel geophysical seismograph for use in refraction, microtremor, MASW, SASW and reflection applications. It is characterized by great flexibility, easy-of-use and operation.

Positioned on a string that can have multiple branches, independent geophones can be added or removed. This guarantees maximum flexibility and adaptability of the system's topology for any given application's particular requirements.



#### System

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#### Dynamic Range

# Specifications G-Array

Topology: RS485 multipoint differential network (half-duplex)  
 Max. network length: 1'200m (without repeaters)  
 Max number of channels per line: 255

## Sampling

Memory: 64 kB (>30'000 samples)  
 Frequencies Hz: 200, 300, 400, 500, 800, 1'000, 2'000, 3'000, 4'000, 8'000, 10'000, 20'000;  
 Corresponding to intervals of ms: 5,3.33, 2.5, 2, 1.25, 1, 0.5, 0.33, 0.25, 0.125, 0.1, 0.05;

## Memory use examples

Refraction Microtremor: 500 Hz, t-max 60 sec  
 Surface Wave Analysis (Multichannel): 4'000 Hz t-max 7.5 sec  
 Reflection: 20'000 Hz, t-max 1.5 sec

## Power supply

Voltage: 10-15 VdC

## Consumption

Per channel: 40 mA  
 12 channel system: 510 mA

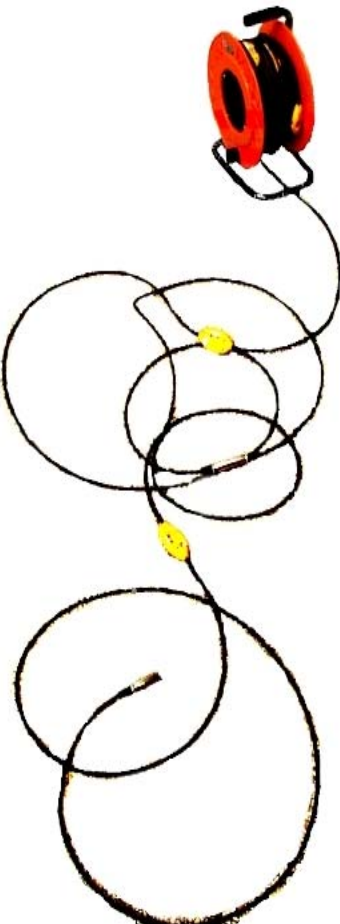
Total dynamic range: 155 dB  
 Resolution with gain 10x: 7.600  $\mu$ V  
 Resolution with gain 1000x: 0.076  $\mu$ V  
 Basic dynamic range: 96 dB (16 Bit)  
 Max dynamic range of pre-amplifier: 80 dB  
 Signal to noise ratio RMS 0.5-30Hz: >90dB  
 Full range at 10x: 0.5V p-p  
 RMS resolution at 1'000x aand 4'000SPS: 0.0000002V p-p  
 Theoretical total dynamic range: 155 dB  
 Total dynamic range without postprocessing: >127 dB  
 Total dynamic range with postprocessing: >140 dB

## Pre-amplifier

Noise: Ultra-low  
 Input: Differential  
 Filters: 3 Hz high-pass (1 pole), 200 Hz low-pass (4 poles)  
 Gain ranges: From 10x to 8'000x  
 Common mode rejection factor: >80 dB  
 Input impedance: >10 k $\Omega$

## A/D Converter

Resolution: 16 Bit  
 Dynamic range: 96 dB



Part Number	Description
GS-GRA-dig16	Digitiser (16bit per sensor)
GS-GRA-Sv4.5	Vertical geophone 4.5 Hz
GS-GRA-reel	Reel, max 12 sensors
GS-GRA-intf-rs232-usb	G-Array interface RS232-USB
GS-GRA-ShP220	Shot Plate, diameter 220 mm
GS-GRA-MS	Trigger sensor
GS-GRA-STExt-125	Trigger Extension Coard 125m

