SEN> GEOLON-MLS

Marine Longterm Seismic Recorder

Description

The seismocorder GEOLON-MLS provides long-term acquisition, pre-processing and storage of seismic signals. Therefore, the following properties have been optimized:

- power consumption
- size
- data storage capacity
- time base stability

Each GEOLON-MLS offers 4 input channels for 4C data acquisition: Three for seismometers, one for a hydrophone or pressure sensor based on strain gauges.

The input sensitivity of its low-noise preamplifier can be set via switches. The analog front-end is plugreplaceable depending on the interface requirements of the sensors used. The parameterisation of the instrument can easily be carried out and all parameters are permanently stored in non-volatile memory.





Applications

- In combination with an Ocean Bottom Hydrophone (OBH) or Ocean Bottom Seismometer (OBS) system it permits autonomous data recording over a time period of up to 15 months and in up to 6000 m depth at a power consumption of only 250 mW.
- Due to its compact size and simple handling the instrument can also be used for continuous land seismology recording. Protected by a suitable housing, e.g. a sealed tube, it may be buried in the ground. Thus invisible it is well suited for oscillator may be resynchronised after regular time intervals using the GPS receiver option.



...the signal integrity experts

SEISMOCORDER

GEOLON-MLS

Technical Data

Preparation for measurement campaign:

The instrument can be parameterised using an ASCII terminal via its RS232 interface. The high precision oscillator is synchronised using DCF77 compatible pulses.

Data recording:

After low pass filtering, the signals of the four input channels are digitised using Sigma-Delta A/D converters. A final decimating sharp digital low-pass filter is realised in software by a Digital Signal Processor. The effective signal resolution depends on the sample rate as shown in the table below.

Finally the samples are permanently stored on PCMCIA flash- or hard-disk memory modules.

Data analysis:

The recorded data is played back by plugging the PCMCIA storage modules into a PC. The software package which supports the play back of the data onto the PC hard disk drive is part of the standard deliverables. The PASSCAL format is used as standard data transfer format allowing the generation of the SEG-Y format. Different data formats can be made available on request.

Samples per Second	f-3dB (Hz)	Resolution (Bits)	Signal-to-Noise Ratio (dB)
1	0.3	21	120
2	0.7	21	120
5	1.7	21	120
10	3.3	20	114
20	6.7	20	110
30	10.0	19	106
50	16.7	18	100
100 *	33	17	96
200 *	67	14	78

*optional



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Technical Details:

Analog inputs:		
- Seismometer	3 channels	
Input sensitivity	custom configurable	
- Hydrophone	1 channel with low-	
(or pressure	noise preamplifier	
sensor)	(gain switch-selectable)	
Time base deviation:	< 0.05 ppm, < 1.5 sec/year	
	(o 30°C)	
Synchronisation:	DCF77 or single pulse	
Storage medium:	PCMCIA flashdisk/	
	harddisk	
Storage capacity:	12 PCMCIA slots Type 2	
	or	
	6 PCMCIA slots Type 3	
	at present appr. 24 GByte	
Power supply:		
- external:	6.2 V 16.5 V	
- internal:	3 AA alkaline cells to ease	
	handling after	
	synchronisation	
Power consumption:	depends on sample rate,	
	< 250 mW @ 50 sps	
	< 100 mW standby	

Compact Physical Dimensions:

The compact size allows its installation in a pressure cylinder of 15 cm inner diameter or in a small glass sphere. Its length is only 19 cm. Its weight without batteries and PCMCIA memory modules is 1.5 kg.



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