

OBS.Vault

Ocean Bottom Seismic Data Recorder

The develogic Ocean Bottom Seismic Data Recorder is a high capacity, low power system that allows simultaneous recording of up to 16 geophone or seismometer signals.

Depending on the system configuration, the system can acquire seismic data over deployments lasting one year and longer.

The application of the system includes energy exploration, tsunami advance warning and general long term seismic data recording for research purposes. The recorder was primarily developed for ocean bottom observatories.

The seismic data recorder consists of at least 3 units: At least one data acquisition module, one interface module and one or more storage modules. A precision clock module hosting a Symmetricom CSAC time base is optional.

Each data acquisition module has 4 channels with a resolution of 31bit that are sampled simultaneously at up to 4ksps. Each channel has a programmable high and low pass filter.

SDHC or SDXC memory cards are used for storage of data which allows cost-efficient and low power consumption.

The basic configuration of the seismic data recorder can be equipped with a memory capacity of up to 768 GB (6 x 128GB SDXC cards). With additional storage modules, the memory can be extended to up to 4TB. Access to recorded data while sampling is possible.

A GPS synchronizable CSAC clock is optional.

Product Specification

Data Acquisition Module

- 4 channels
- Sampling rate: 10-250sps configurable in 10sps steps, 250sps, 500sps, 1ksps, 2ksps, 4ksps
- 31 bit resolution, 24 bit mode selectable
- Programmable gain amplifier, gain = 1,2,4,16,32,64
- 130dB SNR @ 250sps / gain = 2
- Differential inputs, range max +/- 2.5V
- Input impedance: Common mode > 1M0hm; differential 100M0hm; configurable damping resistors
- Up to 4 acquisition modules in one system
- Programmable high and low pass filter
- Calibration / Test DAC
- Low power consumption: <300mW when simultaneous sampling 4 channels @ 4ksps; consumption is lower for sampling rates <250ksps

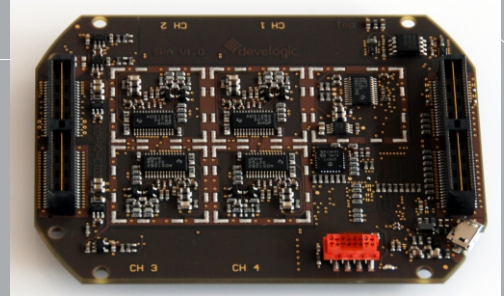
Storage Module

- 6 slots for hosting SDHC or SDXC memory cards (formatted to FAT32)
- Up to 4 TB of storage in one system
- Access to recorded data while sampling
- Low power consumption depending on recording rate and individual SD card model

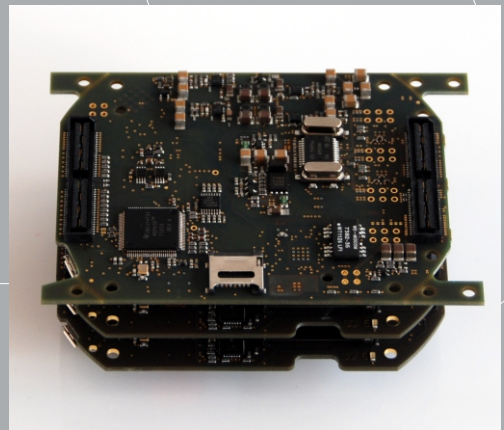
System Controller and Power Supply Module

- Voltage range 9 to 50V
- Low power consumption, <100mW in standby with precision time base active

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develogic OBS.Vault acquisition module



develogic OBS.Vault Interface on top, two storage modules underneath



develogic OBS.Vault Storage



Geophone Gimbal Unit



OBS.Vault with fully gimbaled Geophdevelopic



develogic Modular Seafloor Lander
MSL.3000/6000

System controller and power supply module

- Voltage range 9 to 50V
- Low power consumption, <100mW in Standby with precision time base active
- On-board SDHC card slot for configuration and logging
- On-board inclinometer and compass module
- 100 Base - TX Ethernet interface
- 3 RS232 interfaces for auxiliary sensors with switchable supply voltage
- GPS based time calibration (PPS input, NMEA via interface)
- Precision temperature compensated time base (frequency deviation < 0.035 ppm from 0°C to 40°C)
- Input for external clock reference
- Configuration via XML config file or serial interfaces
- Data access via serial interfaces or Ethernet
- Required once per system

Precision Clock Module

- Based on Symmetricom SA45.s CSAC
- <3.0 10⁻¹⁰ monthly aging
- +/-5.0E-11 initial accuracy
- < +/-5.0E-10 frequency deviation from -10°C to +70°C
- GPS synchronizable (1pps input)
- Low power consumption, < 140mW

Common Specifications for all System Modules

- Module diameter: 109 mm
- Operation temperature range: -40°C to 85°C (no condensation)
- On-board connectors: Tyco AMP Micro MNL
- The system is available with develogic MCH pressure housings

Housing

- No housing / electronics only (OEM version)
- IP68 housing with Souriau connectors
- MCH pressure housing with or without battery container

Options

- Mechanically gimbaled three axis geophone with hydraulic locking (SDL.TAG)
- Differential Hydrophone (RESON TC4037 or HTI-97-DA)
- Modular seafloor lander