GEOSYN / KMS 870-VectorSeisEM Broad Band - Ocean bottom station

BB seismic/electromagnetic system

Product description

KMS Technologies, an electromagnetics technology provider, has teamed up with Geosyn International that has over 20 years of ocean bottom seismic operations and integrated interpretation experience. This results in novel patented technology in electromagnetics and ocean bottom seismics that uses well proven components.

We are providing, VectroSeisEM, a broad-band (BB) 4C seismic/ 6 C electromagnetic node for shallow and deep-water geophysical applications. The BB Seismic/EM system can be operated in a passive or active mode. Active source operations require an air gun or controlled EM source of appropriate frequency band.

KMS initially developed the EM sensor technology as marine cable, implementing this in the KMS-820 land wireless array magnetotelluric system, which is commercially used in more than a dozen countries.

GEOSYN provides the BB seismic sensor, marine packaging and based on over 20 years of shallow and deep-water seismic operation experience.

The BB Seismic/EM system is mechanically optimized to satisfy all technical requirements for simultaneous acquisition of seismic and electromagnetic data. This technical advancement permits a tuned modeling and interpretation procedure of both data sets at the same time, minimizing acquisition cost.

Highlights

- Broad band seismic / electromagnetic receiver
- Seismic: 1 Hz to 300 Hz or 60 s to 50 Hz
- Electromagnetics: DC – 180 Hz
- 4C seismic sensors
- 5 (6) C electromagnetic sensor (2 or 3 E-fields and 3 H-fields)
- Low noise input: 0.3 nV/sqrt(Hz) (for export control > 0,5 nV/ sqrt(Hz))
- Memory: 32/64 GB standard SD card
- Telemetry wireless and/or cabled for onshore operations
- Battery life sufficient for 2 months continuous recording
- Crystal/atomic clock synchronization with GPS onshore
- Acquisition scheduler file saved in SD card enables flexible operation

Applications

- Oil exploration
  - Sub-basalt & sub-salt imaging
  - Basin mapping
- Reservoir monitoring
- Crustal studies

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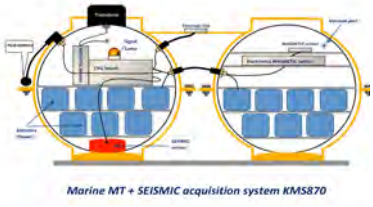
BB Seismic/EM system technical specifications*

Frequency bandwidth	Seismic: 1 Hz – 300 Hz or 60 s to 50 Hz Electromagnetic: DC - 180 Hz
Sampling rate	Seismic sensor: variable selectable EM sensor: up to 4 kHz customizable selectable
A/D resolution	32 bit
Input range	-2.5 V ~ + 2.5 V
Communication protocol	Long-range wireless
Supply voltage	+5 – 24 V DC
Power consumption	Typical < 2.5 W
Operating temperature range	-25° to 85° C
Packaging	Two glass sphere
Water depth	Up to 4000 m (limited by electrodes)
Recording time with refloating	2 months
Timing accuracy	$\pm 10^{-9}$ s
*KMS/Geosym reserve the right of specification change without notice	



Patents

- Strack, K.M., L.A. Thomsen, & H. Rueter, 2007, Method for acquiring transient electromagnetic survey data, US 07203599. (EM & seismic acquisition)
- Strack, K. M., H. Rueter, & L. Thomsen, 2008, Integrated earth formation evaluation method using controlled source electromagnetic survey data and seismic data, US 07328107. (combining seismic & EM in inversion).
- Loekhen, J., K.M. Strack, S. Helwig & T. Hanstein, 2009, Multi-component marine electromagnetic signal acquisition method, US 2009/0243616 A1.
- Strack, K.M., I. McMillan, & S. Helwig, 2010, Buoy-based marine electromagnetic signal acquisition system, US 7705599.
- Jiang, J., A.A. Aziz, Y. Liu, & K.M. Strack, 2015, Geophysical acquisition system, US 9,057,801 (seismic & EM acquisition system)
- Patents and derivative patents are filed also in other geographic territories.