

7.5 KMS ARRAY SYSTEM FOR CSEM/MT

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ABSTRACT

The KMS array system is founded on an innovative array concept that seamlessly integrates wireless and wired data acquisition, with full cloud connectivity. The system comprises both land-based acquisition units, the KMS-820, and borehole receivers, the KMS-888, along with transmitters, KMS-5100. Specialized marine versions are also available. Each individual unit is capable of functioning as an independent node while also having the ability to create sub-arrays when connected to a wired sub-acquisition controller, thereby expanding the channel count to virtually unlimited number of channels.

Our target market primarily consists of applications that demand long-term stability and precision, made possible through our patented technology. While it finds widespread use in magnetotellurics, our system is designed with a focus on the more exacting requirements of Controlled Source Electromagnetics, particularly in borehole environments. Our receivers can seamlessly connect to various sensor types, facilitating data acquisition across a frequency range spanning from DC to 40 KHz, with support for up to 6 channels simultaneously. Our super broadband MT sensors extend from 0.0001 to 10 kHz, offering the lowest noise levels in the industry. Low frequency fluxgate sensors can be added via the digital port. These induction coils are trusted by numerous space research institutions.

For reservoir monitoring applications, the system demonstrates exceptional long-term stability for both transmitters and receivers, as evidenced by several monitoring projects in which it successfully detected conductive and resistive anomalies. Real-time monitoring of any receiver from anywhere in the world is easily achievable. Additionally, part of the Quality Assurance process is already available through a machine learning modules within the cloud. Currently, we are further integrating 3D survey design and quality assurance with the data acquisition process, enabling seamless merging of borehole, marine, and land receivers/transmitters.

KEYWORDS: Real time monitoring; fluid imaging; controlled source electromagnetics (CSEM); magnetotellurics; array acquisition.