

Interactive comment on “Development of a New Centralized Data Acquisition System for Seismic Exploration” by Feng Guo et al.

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RC: The abstract need to be revised to emphasized the technical improvements. AR: The abstract is revised as “Seismic exploration equipment has developed rapidly over the past few decades. One such piece of equipment is a centralized seismograph, which plays an important role in engineering, so improving its performance is of great scientific significance. In this research, the core part of general seismic data acquisition devices is packaged to develop a centralized seismic data acquisition system (Named as CUGB-CS48DAS) that has independent operating ability and high scalability, which can be used for seismic exploration in varies engineering usage. Furthermore, by extending and modifying the acquisition circuit and corresponding software, the function of electrical method data acquisition has also been achieved. Thus, the

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proposed CUGB-CS48DAS makes it possible for joint exploration of seismic and electrical data in a single acquisition station, which is implicitly of great convenience in engineering prospecting as well as a solution to reduce the ambiguity problem. The low-power-consumption computer of the system comprises a 24-bit Σ - Δ modulation A/D converter and 48 sampling channels with an optional sampling rate of 50 Hz to 64 kHz. With regard to the host computer, the architecture of the control software is smart, and it can integrate the multiple functions of data acquisition, preprocessing, and self-testing. To complete the networking ability and remote monitoring of this proposed system, the technology of Narrow Band Internet of Things (NB-IoT) was introduced and tested. Field experiments was implemented to prove that the system is stable and convenient to use, and the performance could meet the demand of high-precision joint exploration.

RC: Is it possible for a single CUGB-CS48DAS to connect with another CUGB-CS48DAS? AR: Surely a proposed CUGB-CS48DAS can connect with another single instrument to extend acquisition traces to 96.

RC: P3 “Basic performance parameters and functions of the acquisition system depend on the hardware circuit, which is essential for ensure the quality of the acquired data” the word “ensure” should be “ensuring”. AR: Corrected as suggested.

RC: P8, “The acquisition systems should be able meet project performance requirements” is supposed to be “The acquisition systems should be able to meet project performance requirements” AR: The sentence is corrected as “The acquisition systems should be able to meet project performance requirements”.

RC: P9, “The Figure 9(c) and 8(d) are illustrations of apparent polarizability.” is supposed to be corrected as “The Figure 9(c) and 9(d) are illustrations of apparent polarizability.” AR: The incorrect label has been corrected to 9(d).

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