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Research on cloud-edge AC Power Monitoring Systems based on MODBUS

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Mu, Xiangcheng[1]; Du, Yuyuan[1] ✉; Wang, Hui[1]

Corresponding author: Du, Yuyuan ✉

Author affiliation:
[1] Northeastern University, Shenyang, China

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Abstract

With the development of the Internet of Things and automation technology in the industry, the types of equipment in the industrial field are increasing, and the data parameters of the industrial process are gradually becoming complex. It puts forward higher requirements for the system perception layer's real-time performance, reliability, and maintainability. The original data acquisition architecture is not easy to ensure the reliable transmission and real-time processing of massive industrial data. In order to solve these problems, this paper designs an AC Power Monitoring System. It proposes a cloud edge computing framework based on MODBUS: First, the data is collected and sent to the edge server by MODBUS through the RS485 bus. Second, combined with the advantages of the powerful service capability of cloud computing resources and the low transmission delay of edge computing, the edge side and cloud side will work together. Finally, the functions of data reading, uploading and sending, correction, configuration, and fault alarm are realized. The field operation shows that using a cloud edge computing framework can reduce the processing pressure of cloud computing, reduce network latency and lower requirements for network bandwidth and make the system efficient and safe for collecting and analyzing big data. The cooperation of MODBUS protocol enhances the reliability and practicability of communication. The cloud edge computing system based on MODBUS is easy to design and maintain and is suitable for many monitoring systems, which have high promotion value.

Indexing

Main heading:
Edge computing

Controlled terms:
Big data | Data acquisition | Electric power transmission | Electric power transmission networks

Uncontrolled terms:
Automation technology | Cloud-computing | Computing frameworks | Edge computing | Industrial fields | Industrial processs | Inter | Performance reliability | Real time performance | System perception

Search for Computing frameworks

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723.2 Data Processing and Image Processing

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