

论文

基于DL/T 645—2007协议的智能电表嵌入式通信软件研发

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摘要:

DL/T 645—2007多功能电能表通信协议是为统一和规范多功能电能表与数据终端设备之间的数据交换而制订的。为精简电能表中嵌入式通信软件的代码量,提高软件的执行效率,在分析DL/T 645—2007协议数据标识编码表特点的基础上,将电能表计量、处理和记录的数据进行合理组织与存储。当从站收到主站的通信命令后,将主站发送的数据标识作简单转换后,就可得到所需数据的存储地址,缩短从站数据检索花费的时间。该设计方法旨在为智能电网中具有与用户互动、多种电参量计量和大量信息交换功能的智能电表软件设计提供参考。

关键词: DL/T 645—2007协议 数据标识 数据提取 嵌入式软件 软件效率

Research and Development of Embedded Communication Software for Smart Meters Based on DL/T 645—2007 Protocol

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Abstract:

The DL/T 645—2007 protocol for multi- function watt-hour meter is drafted to unify and standardize the data exchange between multi-function watt-hour meters and data terminal equipments. To reduce code amount of embedded communication software in watt-hour meter and improve the execution efficiency of communication software, on the basis of analyzing characteristics of encoding table for data identification in DL/T 645—2007 protocol, data that is metered, processed and recorded by a watt-hour meter is organized and stored rationally. A smart meter acts as a slave station, which receives communication commands from a master station. After simply transferring data identification sent from the master station, the store address of required data can be calculated, thus the time used for data retrieval from storage space outside a MCU embedded in the meter is obviously shorten. The proposed method is available for design of a smart meter possessing such functions as interacting with consumers, metering diverse electricity parameters and exchanging large amount of information with a master station.

Keywords: DL/T 645—2007 protocol data identification data retrieve embedded software software efficiency

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