



Distributed Meter Processing Infrastructure

This infrastructure is used to collect data, specifically meter, from each remote site and stores them into the system for enquiry, analysis and reporting. The remote site can be communicated securely from the central server through mobile network, terrestrial phone line and TCP/IP network. The site can contain one single meter, chain of meter or cluster of meter connected together through DCU (Data Concentrator Unit). In addition, DCU can also work with other data collection device in the site to upload data to central server. DCU is a separate component in this infrastructure.

Features

- Central System
 - Core
 - Schedule based data retrieval from the remote site
 - Working on Elster meter protocol (both UK and German types of meter)
 - Secure protocol with DCU for data transfer
 - Load Profile and instrumentation historical data
 - Time synchronization with the devices in remote site
 - Switch on/off German type of Elster meter remotely
 - Non-Elster meter data collection from either DCU or other system through file or database
 - Ad-hoc meter reading
 - Daily meter data monitoring on problematic data
 - Error reporting on data retrieval
 - Daily data collection statistics
 - Weekly data statistics
 - Log and data file archiving
 - GUI
 - Role based management
 - Account and role mapping for access control
 - Site group mapping to account for data permission
 - Site device management
 - Meter group management for electric bill calculation
 - Bill calculation with reference to energy charge and demand charge using on-peak, off-peak and holiday together with fuel cost
 - Virtual group management for data analysis
 - Simple interactive meter data chart
 - Data exported in CSV file format in additional of display
 - Data transmission report
 - Audit log
- DCU
 - ARM based embedded device
 - Collect Elster meter data using Elster meter protocol periodically
 - Load profile and instrumentation of Elster meter data



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- 2 operation modes (central server and MODBUS server)
- Non-Elster meter data collection through TFTP file transfer
- MODBUS client to collect non-Elster meter (coming soon)
- Elster meter time synchronization
- Get instruction from central server to switch on or off German type of Elster meter
- Watchdog timer to monitor the health of the device
- Backup battery to allow the device to shutdown properly

System Requirements

- Less than 50 Elster meter (30-minute daily data kept in 3 years)
 - Core i5 or better CPU with minimum 8 GB RAM and 500 GB Harddisk
 - MS-SQL Express edition on Windows 7 Professional
- More than 50 Elster meter
 - Xeon grade CPU with minimum 12 GB RAM and 1 TB harddisk
 - Core and GUI components on Windows Server
 - MS-SQL Server on separate hardware when more than 100 Elster meter

The scalability of the infrastructure is achieved through the additional of hardware for different core components in the infrastructure.

Where can it deployed?

This infrastructure can be deployed in utility and property management company who concerns energy consumption.