sifam tinsley
PRECISION INSTRUMENTATION

Application Note

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Monitoring parameters in substation at remote locations using LM1360 with GSM

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Overview

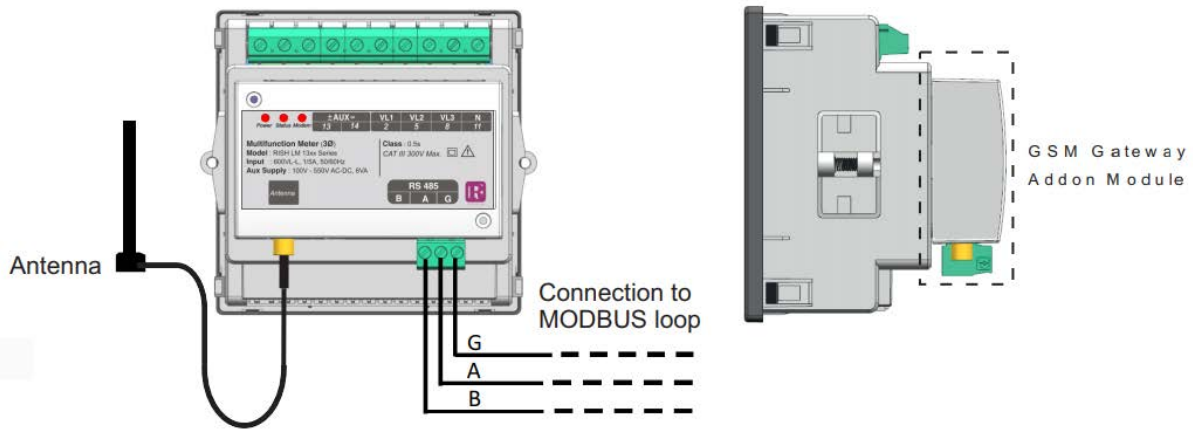
There is no comfort like being in command. In the power system utility, monitoring is a key-tool for utilities in order to shift from corrective or time-based maintenance strategies to predictive maintenance, especially for switchyards located at remote locations. The substation monitoring device described in this note meets the requirements of engineering teams by monitoring substation equipment, such as power transformers, circuit breakers, dc battery systems, and disconnect switches which are located in remote areas.

Problem Statement

With the conventional methods implemented so far, physically monitoring parameters at these remote locations is not feasible. Due to the advent of Smart Grids, it is essential to implement a centralized monitoring system which can communicate the information from and to remote control centers for controlling and monitoring purposes.

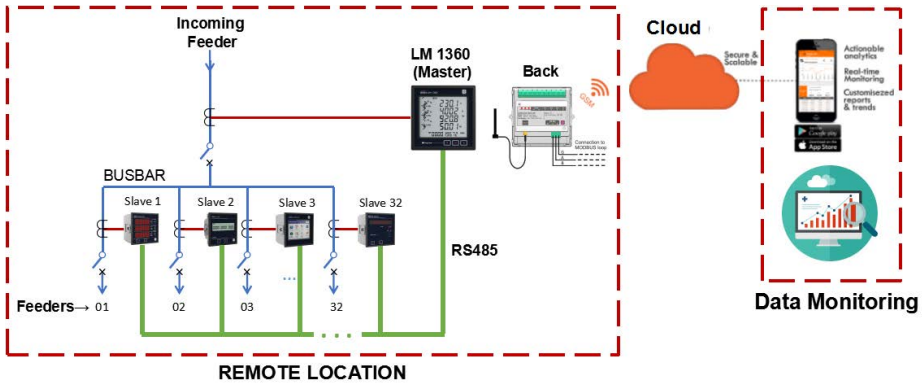
Solution

Alpha LM1360 offers the utility a simple and cost-effective solution for accurately monitoring load. It measures electrical parameters like Active / Reactive / Apparent energy , power and all basic parameters. It displays multiple parameters at a glance. The instrument has two optional relay outputs. It can be configured as pulse output for energy measurement , limit output , timer function and RTC relay.



2G GSM Gateway for MFM acts as a wireless Gateway between a group of Multifunction meters or Energy meters connected in RS-485 daisy chain & ESL Cloud Server to log all the important parameters of the meters on the cloud. Alpha GSM Gateway reduces the complexity by avoiding long communication cables, LAN ports availability on-site, ethernet switches & routers, thus saving installation time & cost. It is a ready solution for easy and cost-effective meter data monitoring.

Specifically, configured with GSM module makes a very compelling solution for Substation Monitoring due to its simple, non-disruptive installation and self-contained wireless communications capability. This is an advanced data logging solution that accurately communicates the electrical parameters. Long wired, magnetic base Outdoor Antenna to avoid network connectivity issues.



As depicted in the figure, for individual feeders in the control panel room of switchyard, located at a remote location, energy meters are installed which act as Modbus Slave. Up to 32 Slave devices can be connected at a time. Load Manager LM1360 installed for the main incoming feeder, is fitted with GSM module and can be used as a Master device to record and retrieve the data from slave devices. The parameters measured by the master and slave will be communicated to the cloud from where information can be accessed at the centralized load dispatch center of the utility for data monitoring. The data can be easily accessed from the internet enabled smart devices like Mobile, Tablet, Laptop etc. with the help of compatible software – lite.marccloud.

Featured Product

Alpha LM1360

Available Features

- Accuracy class 0.2s and 0.5s as per IEC 62053-22
- THD and Individual Harmonics Measurement up to 31st
- USB Interface with RTC(Real Time Clock)
- Event logging for daily, monthly and yearly analysis
- Load Profile Analysis with 8 Mb In built memory
- Big LCD display with Back-lit
- On-site Fully programmable CT/PT ratios
- Limit (Alarm) or Pulse or RTC relay or Timer Relay Output (optional)
- Direct remote access(Optional)
- Plug & Play CT with RJ12 option – Accuracy Class 1

Benefits

- Remote monitoring and control
- Appropriate rate of data capturing
- Data Parking

Other applications

- Internal Energy billing/monitoring/auditing
- Genset, Test Benches and Laboratories
- Sub-metering
- Industrial Load Monitoring