PMC-5151 used in Power & Air Conditioning Monitoring System Application in Campus

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For the resources of the earth are getting depleted faster in recent years, industries in all fields all set off a wave of energy saving and carbon reduction in order to avoid rising energy costs and save money. Under the trend of energy saving and carbon reduction, power monitoring gradually becomes an important project. In this application, PMMS (Power Monitor & Management Solution) from ICP DAS is used to monitor power & air conditioning in a campus. By using PMMS, the administrators in school can perceive the power consumption information of each building, classroom and electrical device in real time, and is able to analyze, assess or manage the usage of electricity, and then establish appropriate policy to achieve effective electricity usage, reduce the electricity bill and avoid penalties for exceeding contract capacity.

WISE/PMC

Description:

The power & air conditioning monitoring System in Campus features the following 3 aspects:

- Collection and recording of power, temperature and humidity data in classroom.
- Real-time evaluation for electricity demand by logical rules setting.

- Real-time operation of air-conditioning, fans and lighting devices to avoid waste and improve efficiency of electricity usage.

This application adopts ICP DAS PMC-5151 power meter concentrator. With built-in Modbus RTU / TCP protocol, it allows connections with the ICP DAS PM-31xx series (both 3-phase and single-phase power meters) smart power meters for power consumption information gathering and DL-100 series temperature and humidity data logger modules to record and show the change in temperature & humidity for each classroom in various buildings. The real-time power demand and statistic reports are provided so that the administrator can monitor, assess and determine the reasonable power demand, and by IF-THEN-ELSE logic rules setting function in PMC-5151, it makes possible for automatic instant reaction and even send SMS or email to notify authorized receivers for real-time response.

With ICP DAS IR-712A Infrared Remote Control Module, the administrator can pre-set the IR commands such as startup,
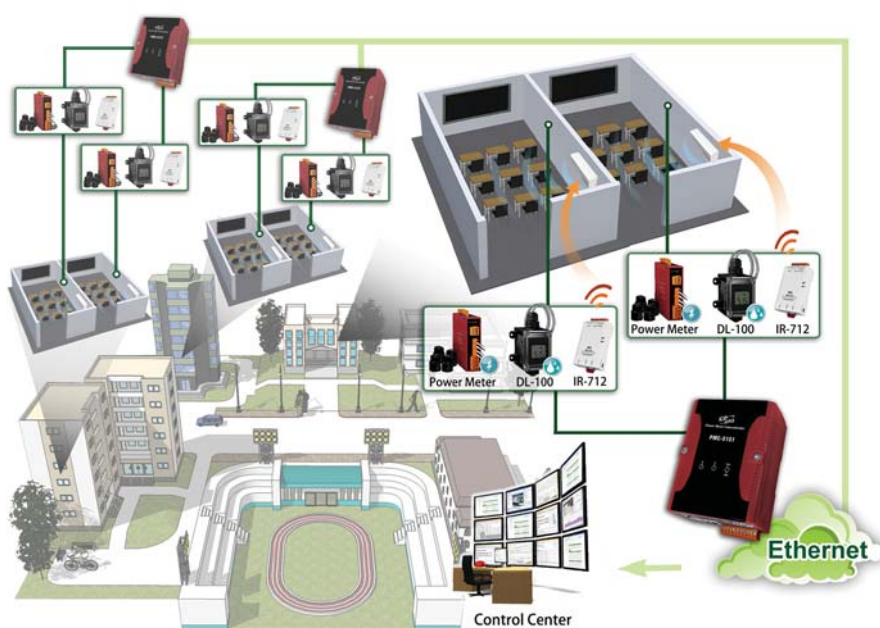
shutdown, raise or lower the temperature for IR-712A, and then connect to PMC-5151 via Modbus RTU protocol. Then by using the Schedule function and IF-THEN-ELSE logic rule settings on PMC-5151, the IR-712A will send infrared commands to the air conditioning devices automatically for real-time operations. And according to real-time demand, forecast demand, ambient temperature or other conditions, it is able to adjust the temperature settings or perform rotational load shedding to dynamically adjust the electricity consumption and avoid penalties for exceeding contract capacity.

In addition, the PMC-5151 can regularly send back data files to FTP. The control center in school can obtain complete power data log files for data aggregation and analysis. By collecting and analyzing the data of each device of buildings in the campus, the electricity consumption can be fully tracked and further more is able to establish effective policy to achieve energy saving and carbon reduction.

Devices:

PMC-5151 Power Meter Concentrator

The PMC-5151 is a web-based intelligent Power Meter Concentrator developed by ICP DAS. It offers webpage interface, and features various functions such as: power data collection, logic control, power demand management, data logger, schedule setting and alarm notification functions.

PM-31xx Series Smart Power Meter

PM-31xx series is Smart Power Meter. With its high accuracy, the PM-31xx series can be applied to both low voltage primary side and/or medium/high voltage secondary side and enables the users to obtain reliable and accurate energy consumption readings from the monitored equipments in real time.

DL-100T series temperature and humidity data logger module

The DL-100 Series is a temperature and humidity data logger module developed by ICP DAS. It contains an RS-485 communication interface and an LCD display to show a variety of temperature, humidity and module ID data. The data storage memory can store up to 4088 temperature and humidity records.

IR-712A IR learning remote module

IR-712A is a universal IR learning remote module which can learn IR remote commands and interact with various electronic devices (with IR remote control function).

Benefits:

- Easy-to-use and no programming required PMMS system allows reduce cost for building power monitoring system and shorten application development time.
- Each classroom adopts distributed power information management and data logging, providing a more reliable and stable power information data logging mechanism.
- The operations of data logging of temperature & humidity and air conditioning monitoring are performed independently for each region. It fastens the response time for temperature control & load shedding and makes real-time management of power consumption possible.
- Real-time monitoring of power demand to avoid penalties for exceeding contract capacity.
- Enables automation of power consumption management to make more efficient energy usage and reduce labor costs.

For more PMC-5151 product information, please refer to the following sites: http://www.icpdas.com or http://pmms.icpdas.com/en/PMC_5151.html.