LEGOLAND Opt for Enercom's AMR System with eSight Energy Software Solution

Introduction

In 1996 LEGOLAND Windsor opened on the site of the old Windsor Safari Park; the park is one of 4 LEGOLAND parks in the world, and extends over 150 acres. Owned by Merlin Entertainments, LEGOLAND Windsor currently offers over 50 interactive rides and attractions, 11 restaurants and cafés and seven shops. At its peak, LEGOLAND Windsor employs up to 155 full time staff and a further 775 seasonal staff.

LEGOLAND - Objective

LEGOLAND Windsor wanted the ability to monitor the energy used across the site by each individual ride. To achieve this, the application of an Automatic Meter Reading system (AMR) with a software facility to analyse the data, was agreed. The AMR system involves the installation of data loggers across the park and the data collected could then be processed. LEGOLAND had clear objectives, they were to:

- Monitor electrical energy consumption automatically
- Have a system which was capable of expansion
- Analyse energy consumption and observe peak demand
- Create exception reports that would automatically alert anomalies allowing them to act accordingly.

The Solution

By using Enercom's Automatic Meter Reading (AMR) System in conjunction with eSight® software both Enercom and eSight provided a complete solution to LEGOLAND. After a thorough site survey, specific requirements were identified for both hardware and software, the technology was then installed.
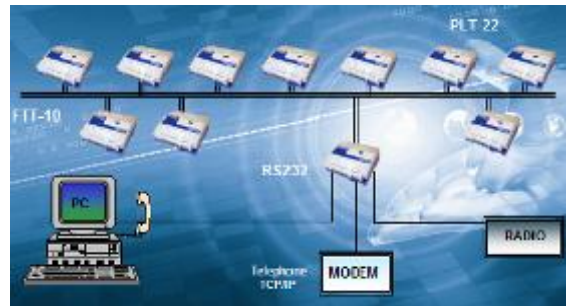
Technology - Data Provision for Energy Management

The AMR system is a system of data loggers called Multilog units which receive meter pulses (from any type of meter: gas, electric, water, oil, heat etc.) and convert the pulse count into a KWh energy usage figure for each half hour (or other programmed unit and time period) and stores the time-stamped values for up to 60 days, continuously updating the most recent sixty days worth of half hourly figures in readiness to repeat/download this data when requested by the host PC.

Multilog controller software running on the host PC initiates regular automatic downloads of the half hourly data and copies it into easy to use CSV/ASCII files for interpretation by eSight® Software (or any proprietary M&T Software or into a Building Management System (BMS)) for analysis. This allows the software to check that meter data arrives in unbroken order and to re-initiate a download if communication is incomplete. The system has proven to be resilient and reliable in operation. The Multilog system also provides useful raw meter data such as instant meter readings, time-stamped readings, energy use profile charts and the means to easily view, analyse and copy data from a Web-Browser application into Microsoft applications such as excel.

Convenient and Clean Installation
Multilog units are equipped for communication over a variety of media including existing single or multiphase mains cables using an in-built PLT-22 Powerline interface and twisted pair using an in-built LONworks communications chip. This means that installation is clean and local, there is no requirement to drill walls and lift carpets and floorboards to lay extra cabling, there would be no disruption to power supplies and also any work can be carried out during opening hours

Where network components or host PC are remotely situated, communications are extended via the internal telephone network or PSTN using dial-up modem or via TCP/IP Ethernet LAN interface to a Multilog "gateway" unit. Given that the there was a requirement for minimum disruption to the clients. The Multilog system is easily expanded or altered to allow for changes at the site, or where continuous plant operation necessitates a phased approach to implementation.

The Outcome
Following the installation of Enercom's Loggers a thorough breakdown of the energy being consumed across the site (including all the rides and the main office block) at LEGOLAND could now be provided. The half hourly data being collected by the data loggers was being imported back into eSight Energy suite eSight®, allowing LEGOLAND to:

- View meter readings without looking at another meter
- Examine peak consumption rates
- Optimise performance by making energy saving changes and in turn schedule alarms when energy data breached such levels
- Construct and issue energy reports automatically across its site

Testimonial

"This System has saved LEGOLAND Windsor time and money and I highly recommend it to anyone looking for a flexible, intuitive and complete M&T solution"

Keith Johnson
Facilities Director, LEGOLAND Windsor

Many Thanks to eSight for the provision of materials used in this case study.