

XLeMs – eXcel-based energy Monitoring software

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Introduction

XLeMs is a software package for use with dataloggers from SHM Communications.

XLeMs is a full-function energy monitoring system that presents results in Microsoft Excel format. By using the familiar Excel environment, it leverages the user's Excel skills to produce high quality reports and graphs. This means that the "learning curve" for XLeMs is very short.

Because XLeMs reports are Excel workbook files, reports and graphs can easily be incorporated into other Microsoft Office applications.

At the heart of XLeMs is a relational database. This stores both the system configuration information (channels, loggers and communication details) and the historical meter readings which form the basis of the energy monitoring system.

XLeMs consists of two software applications – the Scheduler and the Control Centre.

NB. Excel is a trademark of Microsoft Corporation.

Scheduler

The scheduler is an application that runs continuously and interrogates SHM dataloggers (via serial port, modem or TCP/IP) at regular intervals. For each channel, it stores the latest Historic Data in the Readings Database. This Historic Data consists of meter readings taken by the logger at regular intervals (typically every 30 minutes) and stored in the datalogger memory. The Readings Database stores each meter reading and the date and time at which it was logged.

XLeMs can also collect data exported by Northern Design CubelP Internet-enabled meters.

The Scheduler collects data at regular user-programmable intervals, or the user can request "Collect Now".

The Scheduler can also automatically run Reports (see below) at regular hourly, daily, weekly, monthly or yearly intervals.

Control Centre

The Control Centre is where the system configuration can be viewed and modified. A simple intuitive user interface allows the user to browse the configuration (Loggers, Channels etc.) and modify it. It is a quick and simple process to build up the configuration database for a user's system.

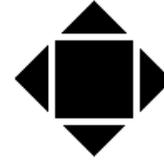
The Control Centre also allows the user to browse the stored Historic Data readings for any channel.

The Control Centre is also where XLeMs performs its most important function, that of generating Reports.

Reports

The most powerful feature of XLeMs is its ability to generate Excel workbooks with data based on Historic Data readings automatically inserted.

A Wizard helps the user create an XLeMs Template, which is an Excel file with a sample set of data. The Wizard allows the user to specify the date range of the data (daily, weekly, monthly or user-defined), interval (30 minute, hourly, daily etc.) and also the type of data (absolute readings, differences, minimum, maximum, average, ½ hour maximum demand etc.) and the channels



required. You can optionally specify a date offset for each channel, which allows you to do comparisons with (for example) last year's data.

The user can then add other worksheets to the workbook to produce charts, analysis, reports, invoices etc. and save the result as an XLeMs Template.

Subsequently it only takes a few "clicks" to generate a new report from the XLeMs Template. The user is prompted to enter the start date for the report and XLeMs will generate a new Excel workbook file filled with the appropriate data from the Readings Database and open it with Excel. Thus the user is immediately presented with the new data in the desired report format.

In addition, the Scheduler can automatically run Reports at particular times on an hourly, daily, weekly or monthly basis. When Reports are run automatically by the Scheduler, you have the following additional options :-

- **Reports via Email** - The Report can be sent to someone via Email as an attachment.
- **Reports via FTP** - Reports can be exported to an FTP Server.
- **Charts displayed on Website** - Any Charts in the Report can be converted to a graphics file (GIF format) and exported to your Website using FTP.
- **Automatic Print** - Selected worksheets can be sent to a printer.
- **Alarms** - You can configure a cell in a worksheet to show an alarm condition based on the data. If this cell shows an alarm condition when the report is run, then an Email is sent.

XLeMs can also produce simple reports in CSV (Comma Separated Variable) format which allows logged data to be easily exported to other software applications for further processing and analysis.

Below is a sample chart produced by XLeMs.

