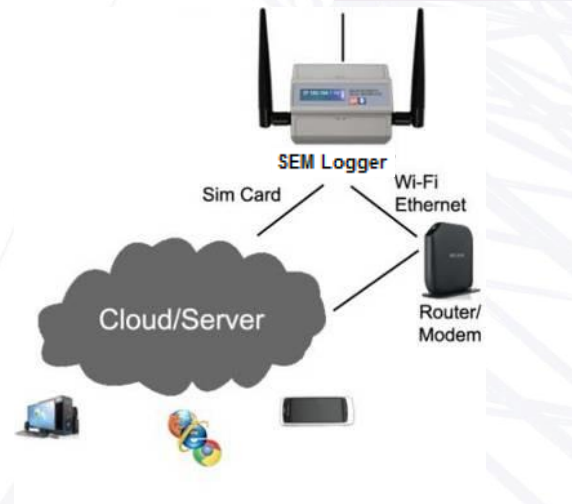


Smart Energy Management

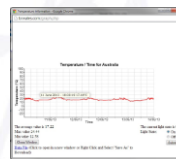
Traditional energy management systems are either based on electricity billing information, an expensive and complicated sub metering system, or portable devices that take a sample of energy usage.

The **KIGG Smart Energy Management System (SEM)** using the latest Smart Technology offers low cost continuous on line monitoring, flexibility of monitoring points and sensor types, ease of use and installation. Through the use of a self healing wireless mesh network (Zigbee) Sensors and Control Boxes can be added to the network in a plug and play arrangement. Apart from the wiring to the Sensor Box the network is wireless. Through the use of a SEM System the data can be stored and monitored on line, graphs of time vs usage created for analysis purposes. Control boxes allow a remote control of systems such as lighting, heaters, air conditioners, pumps etc. Should you find that after evaluation of the initial findings that some of the monitoring points are not ideally positioned then they can be easily moved to another location. Once the first stage is completed and energy data is being collected, you may wish to also add other sensors and control boxes and expand the system to monitor / control for example temperature, Co2, Ph of pools etc. all of which is practically achievable with the KIGG SEM System. What is more it is quite practical to start with a limited system and expand the system both in energy monitoring and other monitoring. A very wide range of compatible sensors exist beyond that of electricity monitoring.



Evaluation of energy data is not restricted to a control room nor does the operator need to dedicate his full time to this task. Data can be monitored from anywhere via browser on a secure smart tablet/phone/Laptop/PC. Anywhere an internet connection exists. Thresholds can be set to warn the operator should a threshold (e.g. amount of current used) be exceeded/triggered, even to the extent of sending an SMS or email etc.

Electricity saving occur through the intelligent switching and reduction of electricity usage. Switching off equipment is not enough. To carry out real savings in electricity costs it is necessary not only to monitor the data from the utilities electricity meter as usually occurs when using billing information, but to get inside the electrical system and monitor and control sub sections of the electrical system throughout the facility, what is more the determination of the timing of usage is important. By analysing subsections and timing as well as using control functions. Maximum Demand costs can be avoided by avoiding/controlling peaks as well as general savings. The principle of "Just in Time" is the ideal approach to electricity savings. A system should be fully working just in time for its use and reduced or put to standby afterwards.



The SEM System uses Wireless Zigbee communication connects to the ZigBee Sensors and Control Smart Device. This makes the SEM System compatible capable with any Zigbee Single and Three Phase Electricity Smart Meters, Smart Flow and Gas meters. To put it precisely the SEM System is compatible with any ZigBee enabled device as long as our engineers have access to the communications and protocol commands of the device. This allows you to build a unique custom metering, monitoring and control solutions, by mixing Zigbee enabled Smart Meters, Energy Sensors, Flow sensors, Pressure Sensors or any of the 200+ Sensors and Control Devices in the KIGG Catalogue. Not only is the SEM system is extremely versatile, but is a very easy, plug and play universal solution in reducing Your Costs, Saving You Time, Saving You Energy, Aid in Safe Guarding the Health and Well-Being of Animals and People, Security, Theft Detection and Protection of Critical Assets, Increasing Efficiency, and Monitoring the Environment. KIGG has Hundreds of Sensors and Control Smart Device, including a section of ZigBee enables Smart Meters. Simply Choose the appropriate Smart Device or Smart Meter that meet your Energy Monitoring Requirements, whether it be monitoring of Voltage, Current, Active energy & power, Reactive energy & power, Apparent Energy & power, Power Factor and Frequency. Please see catalogue for more Smart Devices.

Using the **SEM System** you can monitor energy and manually control equipment wirelesses from anywhere or you can automate the process by setting thresholds and triggers. Triggers can control other Smart Devices, Send messages, Alerts via Email, SMS and visually/audible alarms with the right Smart Devices. Voltage and current are fundamental factors when looking at measuring energy consumption of equipment inside a Building or outside at Site. These are the basic tools required to start lowering power consumption and saving you money. The SEM System is a very easy, versatile, plug and play, wireless, industrial and reliable self healing system.

The SEM System is Plug and Play so no technical knowledge or engineering is required and included is a user manual with all required information. Upgrading or adding Smart Device is easy; simply purchase, place and switch on.



Smart Energy Meter (Sub metering)

Single Phase Smart Meter (Zigbee) Class 1
Three Phase Smart Meter (Zigbee) Class 1, 0.5

More SEM Smart Sensor and Control Devices

• Appliance & Equipment control Switch Smart Box:
Latching relay Max. Voltage: 250V Current ranges options: 3A (720W), 5A (1200W), 100A (24,000W / 2.4kW) (UK Socket, others on request)

• Single Phase voltage Smart sensor

Input range: 1V to 1000V AC Accuracy: 0.2% or 0.5% depending on requirements (Direct Connect)

• 3 Phase voltage Smart sensor

Input Range: 50V to 500V AC Accuracy: 0.2% or 0.5% depending on requirements (Direct Connect)

• Current Smart Sensors

Input current: 0A - 10A Measurement resolution: 10mA, Max. Error: 0.5% Other Current ranges available: 25A, 50A, 100A (Intrusive).

• Current Smart Sensors Fixed (split-core CT).

Input Current: 0A - 600A (must specify required max value), Accuracy/ Max Error: 1%, Window size: 1.25" (Non-Intrusive)

• Current Smart Sensors Fixed (Intrusive).

Input current: 0A - 10A Measurement resolution: 10mA, Max. Error: 0.5% Other Current ranges available: 25A, 50A, 100A

• Single Phase & 3 Phase Multi-parameter Smart Energy transducer:

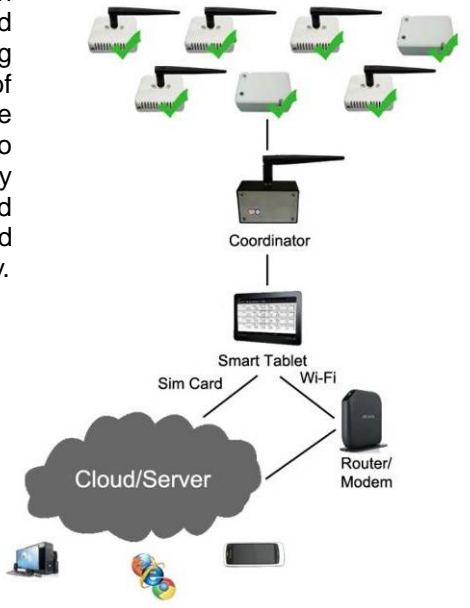
Input measurement range: Frequency: 45 to 65 Hz (AC), Voltage: 0 to 500V AC (must specify required voltage), Current: 0 to 50A (must specify required current), Measures Voltage, Current, Frequency, Active Power, Reactive Power, Power Factor, Active Energy and Reactive Energy. Accuracy: 0.5% Frequency measurement accuracy: 0.05Hz, Refresh Rate: 100mS

- Sample rate: Variable based on Logger: Tablet : Min 1 Second & SEM Logger Min 1Second
- Sampling methods: See Smart Sensor or Control Smart Device Specs
- Data Storage: On SEM Logger device and online via Cloud
- Software: Optional data analysis software is available.
- Power Supply: 230V+ 10%, 50Hz as standard (others on request)
- Housing: Relevant IP rated housing, Options include: Vented Indoor, Outdoor Water Proof, DIN Rail, More on request
- Operating Temp: -10 to +60°C & Max storage Temp: 70°C
- Relative Humidity: 10 to 80%

Smart Energy Management

Smart Tablet

A Tablet is not only a display and control tool used in addition to a Smart Logger; it can also be a very cost effective and easy to use alternative to the Smart Logger. Tablets are common and it is the next logical step to use it as a Logger for the SEM Wireless Smart Sensors. Tablets are extremely reliable and have all the communications needed to collect data and relay it onto the internet through Wi-Fi or built in Mobile SIM (4G/3G/GPRS/GSM). Additionally the screen, ease and familiarity of the software and interface, its own battery supply if mains power fails, makes it an ideal Logger and child's play for anybody to build their own monitoring system. This is aimed at people who want rapid deployment of a mobile or fixed monitoring solution. Imagine having your Tablet next to you showing instantaneous sensor reading of multiple Smart Sensors outside, across fields, or scattered inside buildings, across a plant or in workshops. Imagine being able to setup up a mobile or fixed monitoring solution extremely quickly through plug and play, and having access to historical data, backed up to an online server for later analysis. All of this is quick and easy and using the tablet as a logger will save you time and money.



Smart Tablet
 Ideal for Site
 monitoring, portable
 monitoring, and Small
 Scale Systems



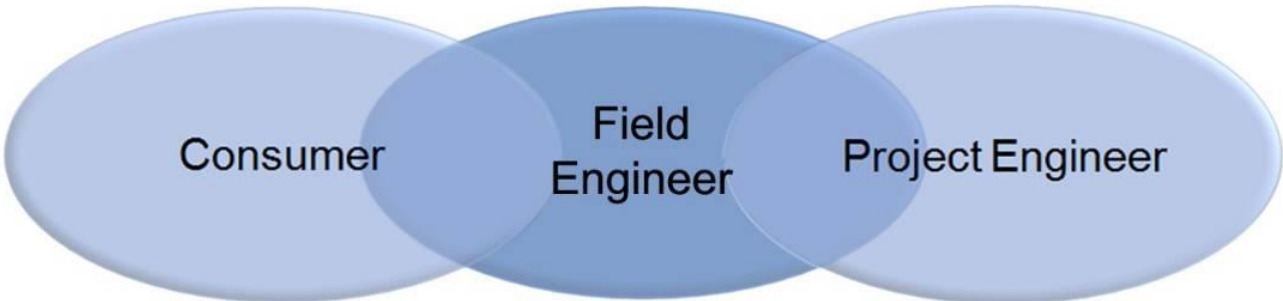
Smart Tablet



Smart Logger



Smart Station



SEM System Smart Logger

The Smart Logger is ideal solution for fixed or unsecure environments where a tablet could be stolen. The Smart logger provides nearly all the functionality that the tablet does without the Touch Screen interface. The Smart Logger comes with a built in Co-ordinator, unlike the tablet you do not require to purchase a separate Co-ordinator. In addition to the Wi-Fi and Mobile SIM (3G/GPRS/GSM) the Smart Logger has an Ethernet Port (LAN) for direct connection. Again setup and installation is plug_and_play, just simply power on the Smart Box Sensors and they Auto connect with the Smart Logger. When using Wi-Fi and Ethernet (LAN) with secure networks we have provided an LCD display for you network administrator to configure the Smart Logger.

The Smart logger uses an industrial housing and is mountable using bracket DIN rail Standard. We provide a DIN rail for users to easily mount it on a Wall. Simply fix the Small DIN rail to a Wall using Screws and Clip the Smart Logger onto it. Removing is simple just pull the latch to unclip. The Smart Logger is suitable for Industrial, Commercial, Home and Scientific environments.



Smart Logger
Ideal for Fixed
Monitoring for SME's,
Industrial and
Small/Medium Scale
Systems

SEM System with Multiple
Smart Sensors devices

