

Carbon & Energy Management



Systems
and Metering



Software
and Reporting



Air Quality
and Portable Energy Monitors



Installation
and Services

CONTENTS:

Introduction to Elcomponent

Metering Package

Reporting Software

Tenant Billing

Air Quality

Smart Energy Monitoring

Services

What Makes Elcomponent Different

Fixed Metering

LoRaWAN

Industrial

Commercial

SPC Loggers



EFFECTIVE ENERGY MANAGEMENT

...for the 21ST Century

Measuring sustainable improvement

Reducing consumption through effective energy management is still the simplest, most cost-effective strategy for bringing down our individual (and collective) energy costs and carbon footprint.

The first step in achieving a sustainable improvement is energy measurement.

Elcomponent solutions range from portable energy monitors to fully integrated multi-utility metering systems comprising thousands of meters.

Combining automated measurement with the right software creates a uniquely powerful tool for achieving immediate and lasting improvements in energy efficiency and carbon reduction.

Our customers have achieved savings up to 25% and have dramatically reduced energy waste

- ✓ Eliminating waste and leakage
- ✓ Accurately managing costs and cost recovery
- ✓ Identifying and tracking energy saving opportunities

Carbon Reduction and Net Zero

With increasing energy prices and decreasing hardware costs, installing additional metering makes sound economic sense now more than ever.

Moving beyond simple compliance is essential and users must consider using energy data to identify, track and prove carbon and energy reduction.

The current drive towards improved monitoring is about much more than saving cost. Net Zero commitments mean that organisations are committed to lower carbon and therefore lower energy consumption. Reaching Net Zero will be impossible without effective and reliable metering solutions.

Clients need energy data for the long term, so robust, flexible and reliable systems are critical in the journey to Net Zero.

Flexible solutions with multi-vendor meter support

The Elcomponent approach allows us to provide clients with a full solution or specialised service for a specific requirement or problem.

Using non-proprietary equipment wherever possible, allows us to read any meter type and deliver measurement data to multiple recipients.

Elcomponent allows customers to change and enhance analytic solutions without having to change metering infrastructure.

Being agnostic to metering manufacturers also allows us to re-use existing site equipment, further reducing cost and minimising unnecessary disposal of serviceable equipment.

Energy data is recognised as a critical element for reaching Net Zero and managing utilities. The benefits include:

- ✓ Track and prove reduction initiatives
- ✓ Accurately bill tenants and recover energy costs
- ✓ Provide data for carbon reporting and demonstrate compliance

METERING SOFTWARE

MW2 is a browser-based M&T software package that's scalable, robust and efficient. Its unique multi-level approach allows you to configure, display, report, and analyse key performance data. MW2 also provides configurable and very comprehensive alerts functionality, and a fully automated reporting solution.

Easy to use with unlimited users

MW2 provides a flexible user interface that allows you to create custom graphs and reports. Assisting clients to maximise energy and carbon efficiency within your business.

MW2 links to web-based weather services. Degree day data is created automatically, so users can normalise consumption against temperature with a single click.

Occupancy, production data, and floor area can be used for energy intensity and performance reporting.

Data integration

MW2 interfaces seamlessly with our data collection systems. Data upload is far more frequent than the traditional 'day +1' interval and update intervals for near real-time can be achieved.

MW2 is also compatible with an ever-growing range of third-party data acquisition systems and GPRS meters so you can be sure of a high level of compatibility with all your data sources.

It's your data!

Most important of all, you always own all your data. Unlike some providers of SaaS M&T, we're clear about whose data we're collecting. It's yours, and always will be, and is available for your archives whenever you wish.

Elcomponent stores data in two ways:

Data is collected and stored locally on site (a copy is used by MW2).

MW2 data is available for download at any time.

Project tracking and artificial intelligence

MW2 has been built from the outset as a web-based package using the latest design tools. That means it delivers a responsive desktop that makes the very best use of a browser environment without any of the drawbacks.

It's fast! It uses sophisticated pre-aggregation algorithms to keep screen refresh times short, even with big systems with hundreds or even thousands of data points.

It's smart. Its unique ability to detect anomalies automatically (option) using artificial intelligence means you can have permanent insight 24 hours a day.

For energy project users there's the option for M&V project analysis to the IPMVP standard which allows users to track the effectiveness of energy and carbon reduction initiatives. Ensuring the best possible outcome of the project budget.

Performance reporting vs degree day or production data, allowing the user to track site performance with simple RAG report on screen or automatically sent via email.

Additional integration options are available using the system API which allows full access to metering details, configurations and data.



REPORTING SOFTWARE

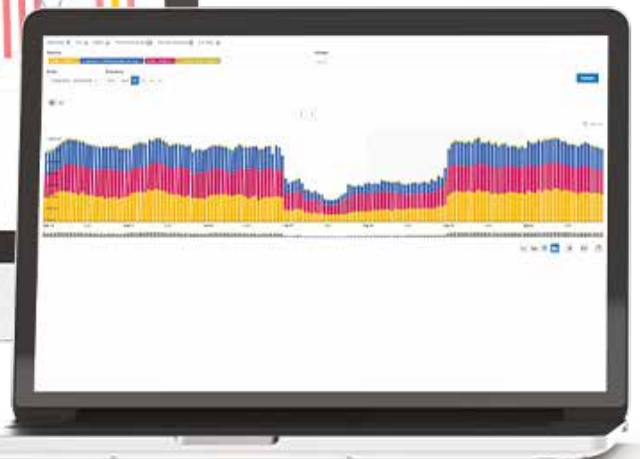


Affordable cloud analytics software



Examples:

Demonstrating the simple and effective graphic interface and a selection of reports that can be generated within **MW2**



It offers a full suite of M&T functions including:

- ✓ Web-based – no local software
- ✓ Universal access – no user limits!
- ✓ Flexible hierarchies
- ✓ User-friendly dashboards
- ✓ Automatic League Tables
- ✓ Ultra-Flexible Graph Package
- ✓ M&V Project Analysis to IPMVP
- ✓ Vendor independent data interface

TENANT BILLING

Recover costs quickly, transparently and accurately

The need to charge accurate costs for tenanted energy consumption is more important than ever. Reducing hidden costs in service charges and providing accurate transparent energy costs is a win for both landlord and tenant

In principle, allocating costs to tenanted areas is simple, however, that is far from reality.

Ensuring accurate, timely and complete readings are absolutely critical. Additionally, updating tenant 'move in' and 'move out' is key for reliable tenant billing.

After 30 years of metering experience Elcomponent understands what is required to ensure the landlord is issuing accurate bills. Managing the metering infrastructure and data is essential if landlords are to avoid misbills and billing errors.

The Elcomponent approach is founded on metering expertise, we understand how meters work and how they need to be managed.

Elcomponent can provide assistance from concept to operation and help 'make sense of your metering'.

Key elements:

- ✓ Master records
- ✓ Apportionment methods and rules
- ✓ Tenant tariff and costs
- ✓ Agreed escalation process
- ✓ Agreed meter management process

Data and process is key

All too often metering systems degrade due to a lack of meter management, tenant updates and general data management. This can take the form of missing meter readings, inaccurate tenant data, poor or outdated apportionment rules etc.

The Elcomponent tenant billing solutions offer a service-based solution that takes away the technical issues and meter management from the landlord whilst maintaining close cooperation to resolve issues, update details, manage missing readings, fix broken meters and ensure the system is maintained in serviceable condition.

Consistency and accuracy — underpinned with technical expertise

Elcomponent works with its clients to understand the metering, tenant spaces, how to deal with estimated readings, manual readings, change of tenancies, meter exchanges etc. The software system is configured and managed for changes jointly with the landlord. Elcomponent manages meter data and anomalies. Billing runs are created automatically using agreed apportionment rules and tariffs.

The result is accurate tenant billing that is fully supported by experts to provide the landlord and tenant with consistency, accuracy and transparency.



Multiple properties, tenants, and landlords. Electricity, gas, heat and water. Automated data quality and estimation. Managed service by metering experts.

- ✓ Summarised billing reports
- ✓ Flexible billing periods
- ✓ Flexible tariffs
- ✓ Partial apportionment
- ✓ Estimating
- ✓ Data quality

AIR QUALITY

AIR QUALITY AND SENSORS

Air Quality

Air quality has serious implications for employee health and wellbeing. Whether you are simply trying to make some preliminary measurements to understand the immediate air quality or requiring a permanently installed AQ monitoring system, Elcomponent can help.

Elcomponent is expert at installing devices and data logging equipment and apply the same rigorous processes to ensuring air quality data is reliable and robust.

Elcomponent provides engineered solutions from measurement sensors that allow our clients to make positive impacts for their employees and customers.

Our energy metering expertise makes us an ideal partner for AQ monitoring, whether you require simple sensors or full systems, we can help improve your indoor environments.

- ✓ System design
- ✓ Installation
- ✓ Commissioning
- ✓ Training
- ✓ Operation

Temperature and status input

Sensors for temperature monitoring and status can be used as part of a process energy management system. The addition of temperature sensing can add additional context to your system which in turn improves analysis and decision making. Status inputs can easily, and cost effectively be used to track run times, system live etc. Status monitoring is an ideal way to compare equipment running with actual energy data.



Office Sensor (RESET Compliant)



Office Sensor (RESET Compliant)



4MOD-S Status to RS485

Elcomponent data collection systems can communicate with any MODBUS sensor. For specific details or alternative measurements, contact Elcomponent.

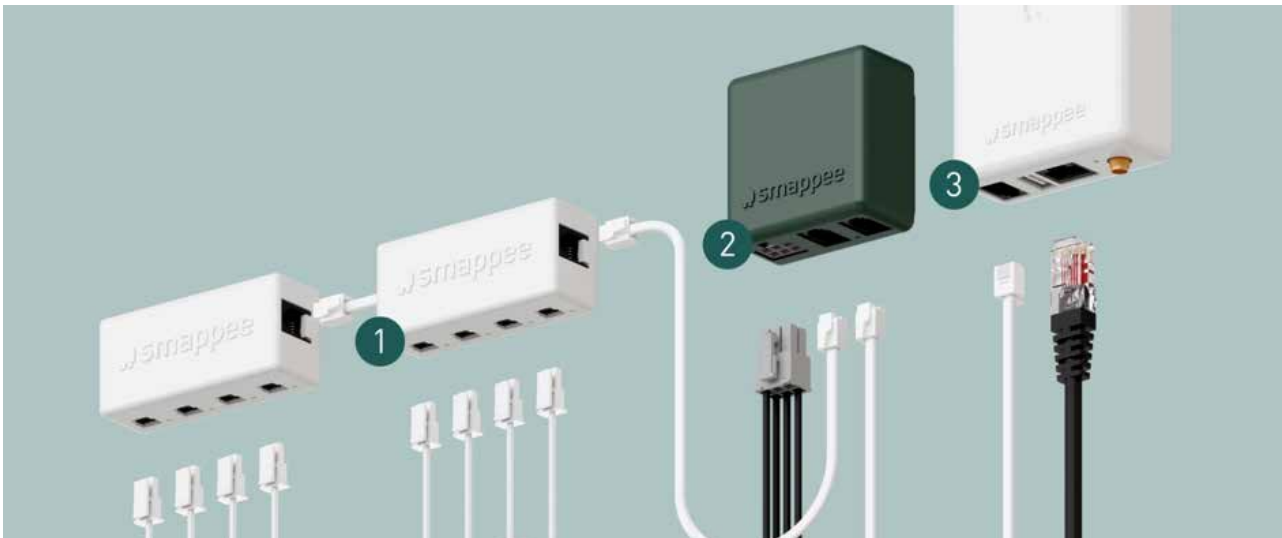
SMART ENERGY MONITORING

Smart energy monitoring technology for commercial and industrial applications

- ✓ MCEM modular energy meter provides a cost-effective solution for any metering situation.
- ✓ Allows sub metering of supplies previously considered too expensive.
- ✓ Adaptable, easy to install and configure, MCEM is ideal as a standalone system or part of a larger energy management solution.

Low-cost, quick installation – ideal for multi-site customers

Thanks to its quick and easy installation, and low maintenance costs, AEM-MCEM Infinity's total cost of ownership compares favourably with other competing solutions.



1 CT Hub

The CT Hub is the main component of the monitoring system. You can connect up to 4 CTs or Rogowski coils to the CT Hub to measure different currents, ranging from 50A to 1,000A. Daisy chain up to 7 CT Hubs to measure different installations, up to a distance of 100 metres (109 yards).

2 Power Box

The Power Box is the heart of the monitoring system as it provides power to all components. It measures the line voltage of the different connected phases and transfers the data via the AEM-MCEM Bus. The Power Box is compatible for direct communications to Elcomponent data collection systems.

3 Genius Gateway

The Genius is the gateway between the monitoring system and the Smappee Cloud, ensuring secure data storage from different components. It also interacts with third party components, MCEM Gas & Water and MCEM Switch. The gateway can also provide control and additional communication options for special projects.

SMART ENERGY MONITORING

Dashboard

This comprehensive web-based tool can be used for graphic and numerical analysis, to track data on a periodic basis (regular intervals: 5 minute, hourly, daily, monthly and yearly). Add the 'Cards' to visualize the data for each site according to your preference, easily compare results and export the required data as a .csv file using the download button.



Mobile App

The user-friendly consumer App is available for iOS and Android. It visualizes real-time energy data and graphs with historical overviews by day, week, month and year. Monitors can be added and configured via the App.

The Dashboard and App allows users to share data and devices and is ideal for centralised and local interrogation. The system comes with a 5-year data license so your ongoing costs are low.

MCEM can also integrate with other systems directly via hardware or software API.

Elcomponent's expert installation team can deploy MCEM for SME sites where previously this was cost prohibitive, and MCEM allows larger sites to meter at much more granular level than ever before at a significantly lower cost.

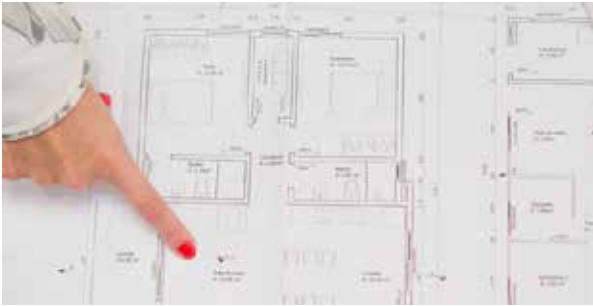


Reduce the cost of sub metering by 30–40%

MCEM is compatible with Elcomponent metering systems meaning you can combine technologies without the need for hardware or software upgrades.

✓ Compatible with MW2 Cloud Energy Management

SERVICES



Meter Audits

Site meter audits for billing suitability, function and capability.



Solution Design

Creation of a sub metering designed based on best practice and user requirements.



AMR Enablement

Converting your existing meters for remote reading and accurate data collection.



Installation

Highly experienced metering installers. All work is guaranteed.



Tenant Billing

Help define appropriate cost apportionment strategies based on site metering.



Commissioning

Commissioning services for metering. Detailed setup, testing and documentation.



Bureau Services

Providing backend bureau services to ensure your metering and systems are operating as designed.



Remote Management

Tracking site alarms, system issues. Backend remote services to manage your meter data.

WHAT MAKES ELCOMPONENT DIFFERENT?

- ✓ Elcomponent does not lock customers into technology solutions
- ✓ Elcomponent promotes non-proprietary solutions
- ✓ Elcomponent does not replace serviceable meters – we re-use site meters where possible
- ✓ Elcomponent allows customers to choose how or who analyses their data

Deploying the right skills and solutions

A metering system comprises of three main elements, Elcomponent will work across any or all of these three elements. Whether providing a full turnkey package or a targeted solution for a specific need, Elcomponent deploys the appropriate expertise for the job and work across all elements of metering.

Metering

- ✓ Physical meters, electricity, heat, gas, water
- ✓ Measurement connections (current transformers, sensors etc)
- ✓ Surveys, verification, expert advice

Analysis Software

- ✓ Cloud based aM&T / Tenant billing software
- ✓ Data only solutions
- ✓ Data to one or many partners
- ✓ Data services and targeted support

Data Collection

- ✓ Networking infrastructure
- ✓ Data loggers and communications
- ✓ Surveys and expert advice

Agnostic to meter type and analytic platforms, Elcomponent allows the customer to evolve and grow their metering capability without being locked into a technology, software or meter manufacturer.

FIXED METERING

FIXED METERING SYSTEMS

How We **Work**

More than 30 years experience in aM&T, AMR and sub metering.

1. UNDERSTANDING THE CLIENT'S REQUIREMENTS

To evaluate the client's requirements, producing a viable and cost-effective system specification.

5. SUPPORT AND MAINTENANCE

Ongoing support and services to ensure the maximum value is realised from the metering investment.

2. ESTABLISH A FIRM SPECIFICATION

Creating a 'Master' document for the project, providing the information required for the quotation, installation, and preparation for the commissioning and handover documentation.

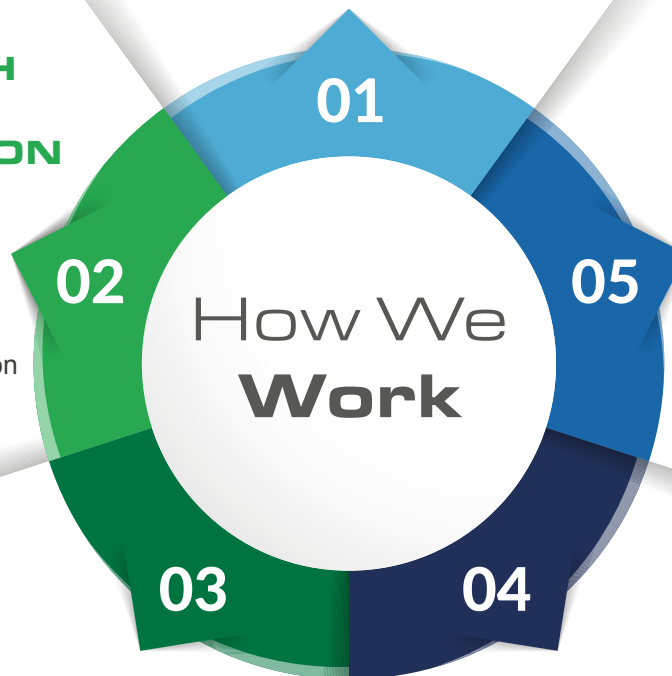
3. PROJECT MANAGED INSTALLATION

The 'Project Manager' is responsible for delivering the system up to and including commissioning and testing.

4. COMMISSIONING AND HANDOVER

Handing over to the client includes a five part process:

- ✓ Commissioning the hardware and software with expert engineers
- ✓ Checking the functionality of all parts of the system
- ✓ Checking the 'end-to-end' veracity of the data
- ✓ Training of all personnel responsible
- ✓ Completion of commissioning records



Energy Monitoring Solution with LoRaWAN Technology



Overview:

This comprehensive web-based tool can be used for graphic and numerical analysis, to track data periodically (regular intervals: 5 minute, hourly, daily, monthly and yearly). Visualise the data for each site according to your preference, easily compare results and export the required data as a .csv file using the download button.

Key features:

- ✓ **LoRaWAN Connectivity:** Utilises LoRaWAN wireless technology for long-range communication, enabling seamless data transmission over extended distances with minimal power consumption.
- ✓ **Real-time Data Acquisition:** Captures energy consumption data in real-time, providing insights into usage patterns, anomalies, and trends.
- ✓ **Remote Monitoring:** Enables remote monitoring of energy consumption across multiple sites from a centralised dashboard, facilitating proactive management and troubleshooting.
- ✓ **Customisable Dashboards:** Offers customisable dashboards tailored to specific user requirements, allowing stakeholders to visualise and analyse energy data in intuitive formats.
- ✓ **Data Analytics:** Employs advanced analytics tools to process and analyse energy data, identifying optimisation opportunities and potential areas for improvement.
- ✓ **Integration Capabilities:** Seamlessly integrates with existing energy management systems, and third-party applications for enhanced interoperability and data exchange.
- ✓ **Scalability:** Scalable architecture accommodates the expansion of monitoring capabilities to adapt to evolving business needs and growing infrastructure.



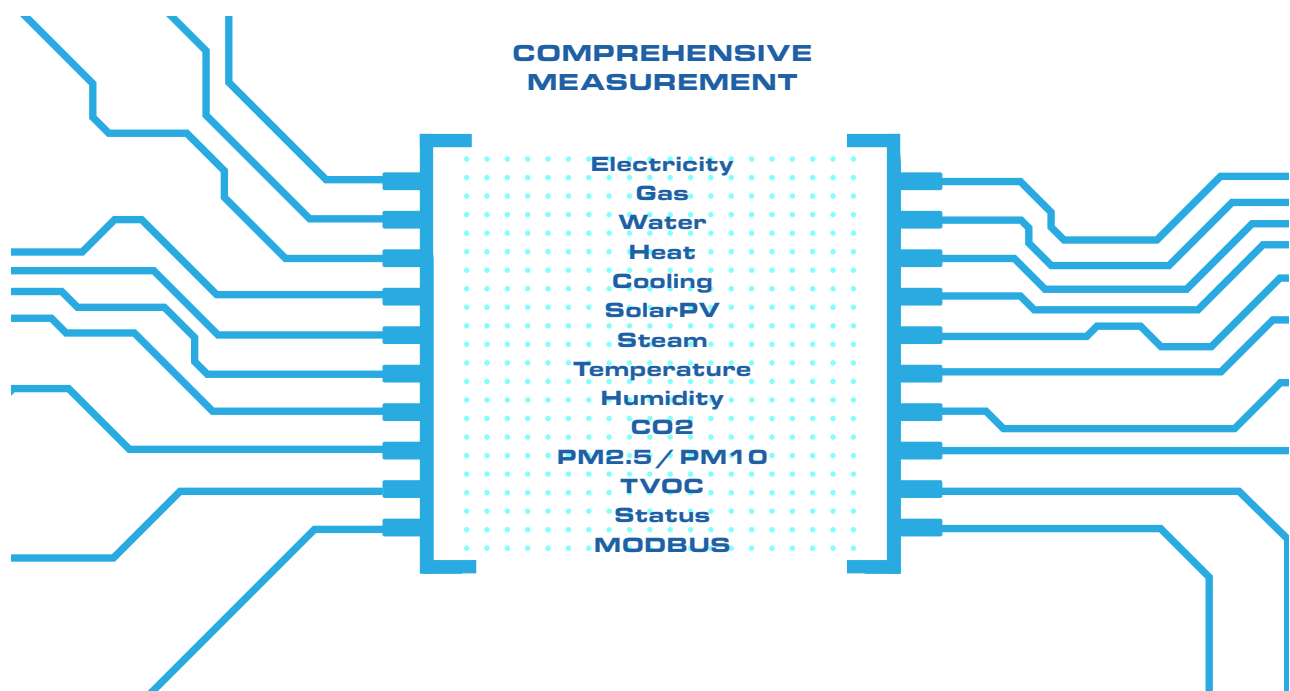
Elcomponent guarantees success by deploying the appropriate skills and resources to all aspects of the project

Benefits:

- ✓ **Cost Savings:** Identify energy inefficiencies and wastage, enabling targeted interventions to reduce operational costs and improve cost-effectiveness.
- ✓ **Efficiency Optimisation:** Gain actionable insights to optimise energy usage, equipment performance, and operational processes, enhancing overall efficiency and productivity.
- ✓ **Sustainability:** Support sustainability initiatives by minimising carbon footprint and promoting environmentally responsible energy practices.
- ✓ **Compliance:** Facilitate compliance with regulatory requirements and industry standards through accurate monitoring, reporting, and documentation of energy usage data.
- ✓ **Predictive Maintenance:** Anticipate equipment failures and maintenance needs through predictive analytics, minimising downtime and maximising asset lifespan.

Managed by Elcomponent Metering Experts:

- ✓ **Expertise:** Benefit from the experience and expertise of Elcomponent metering specialists in implementing and managing energy monitoring solutions tailored to your specific requirements.
- ✓ **Support:** Receive comprehensive support throughout the lifecycle of the solution, including installation, configuration, maintenance, and ongoing optimisation.
- ✓ **Training:** Access training and resources to empower staff with the knowledge and skills required to leverage the full potential of the energy monitoring solution.



Elcomponent can monitor these parameters and more



Supported Sensors:

- ✓ Eastron (3ph MID & 1ph MID) kWh
- ✓ Gridmate kWh
- ✓ Dual Pulse (Battery operated 10years)
- ✓ Single Pulse (Battery operated 5-10 years)
- ✓ Temperature (Battery)
- ✓ Humidity (Battery)
- ✓ MODBUS (supports Elcomponent kWh meters)
- ✓ Other Sensors and Measurement types on application

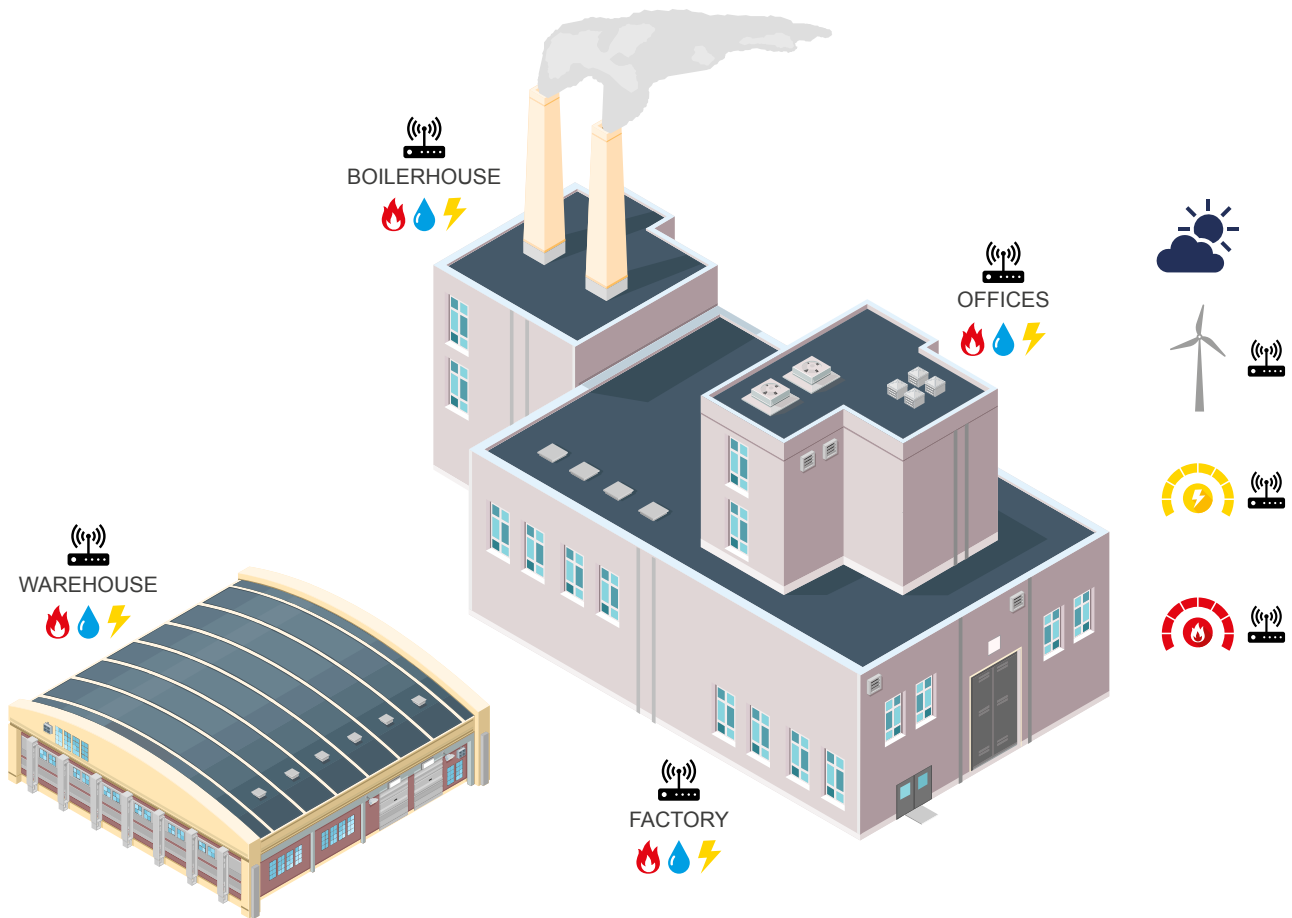
MW2 Energy Analytics:

- ✓ Unlimited Users / Pay as you go
- ✓ Energy Analysis and graphing
- ✓ Monitoring & Verification (M&V)
- ✓ Dashboards and display screens
- ✓ Alerts
- ✓ Automated Reports
- ✓ Custom Reports

INDUSTRIAL

Recover costs quickly, transparently and accurately

- ✓ Energy
- ✓ Management
- ✓ Group
- ✓ Carbon
- ✓ Reporting
- ✓ aM&T
- ✓ Net Zero
- ✓ Consultants
- ✓ 3rd Party
- ✓ Reporting (BI)



Evaluate



Design



Install



Commission



Support



Deploying the appropriate skilled resources to the project

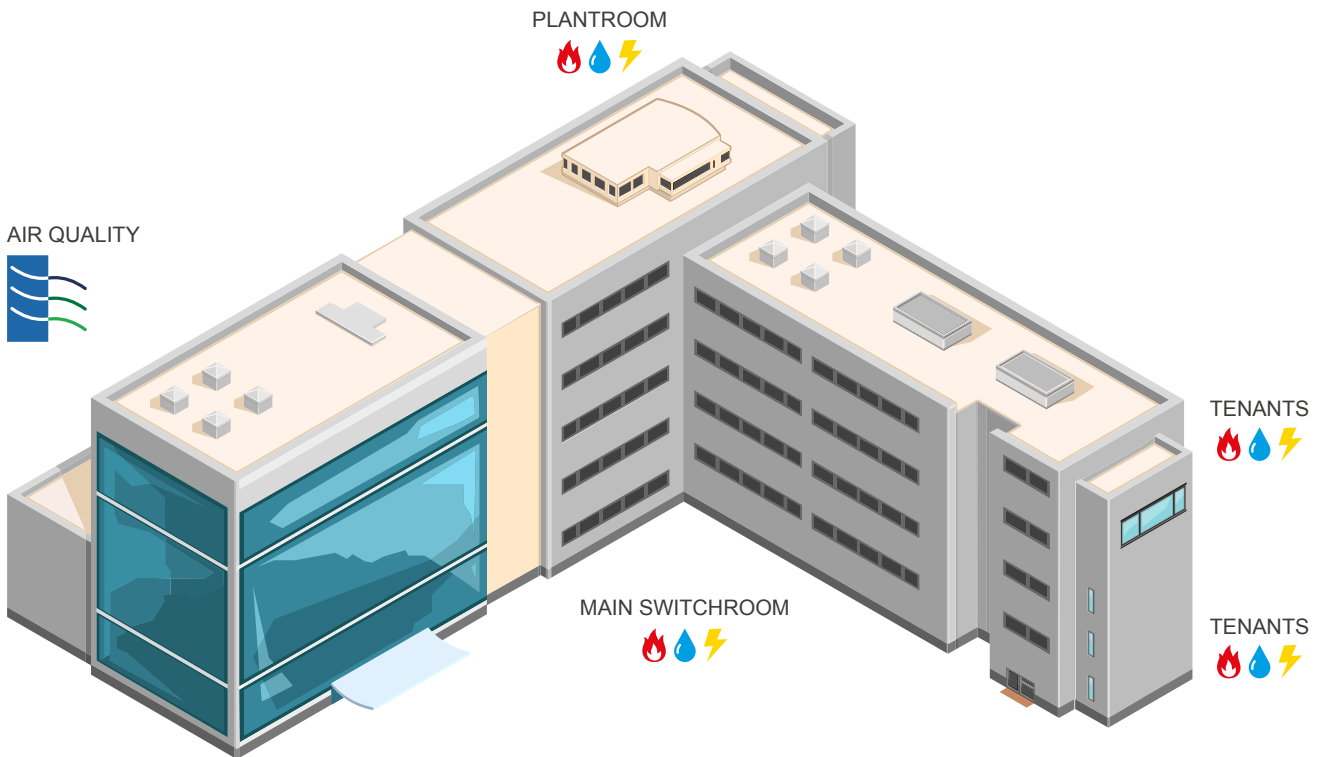
Re-using existing equipment where possible

Agnostic to meter type allowing full flexibility and future expansion

COMMERCIAL

Recover costs quickly, transparently and accurately

- ✓ Energy
- ✓ Management
- ✓ Group
- ✓ Tenant
- ✓ Reporting
- ✓ aM&T
- ✓ Net Zero
- ✓ Consultants
- ✓ Billing
- ✓ 3rd Party
- ✓ Reporting (BI)



Evaluate



Design



Install



Commission



Support



Deploying the appropriate skilled resources to the project

Re-using existing equipment where possible

Agnostic to meter type allowing full flexibility and future expansion

SPC PORTABLE

Data Loggers

The SPC Data Loggers make it easier than ever to measure your electricity consumption. In fact, you can measure your energy, your costs, your carbon footprint and much more too. All the SPC Loggers feature high-speed USB data download to PC, and with the SPC Pro 2 units you get the additional flexibility of downloading to memory stick.



NOW COMES WITH A FLASH DRIVE

SPC Pro 2 (Three Phase)

- ✓ Non-Invasive
- ✓ Safe Hook-up
- ✓ Battery Backup
- ✓ 2000A Range
- ✓ Flash Drive Interface
- ✓ Built-in Magnetic Feet



NOW COMES WITH A FLASH DRIVE

SPC Pro 2 enviro (Three Phase)

- ✓ *IP66 Rating*
- ✓ Non-Invasive
- ✓ Safe Hook-up
- ✓ 2000A Range
- ✓ Flash Drive Interface
- ✓ Large Internal Battery

SAFELY

The SPC electrical energy data loggers are non-invasive, and may be used safely by non-technical personnel. There are no live connections to make!

ACCURATELY

The SPC loggers are the result of over 30 years experience. They use state-of-the-art digital design to combine excellent accuracy with reliability, rugged performance and great value.

EASILY

All these instruments are designed to be simple and straightforward to use even for novices. All units ship with our acclaimed PowerPackPro software package which combines a feature-rich specification with a user-friendly desktop that gets you up and running in no time at all!



GLOSSARY

... of Terms

aM&T Automatic Monitoring and Targeting. The combination of AMR and M&T to create an package where the monitoring element is automated, and usually fine-grained.

M&T Monitoring and Targeting. Monitoring and Targeting is a well-proven energy management discipline, but the term is now often used to describe a software package designed to assist in the M&T process. Some of these packages are now very feature-rich and provide energy and carbon management functionality way beyond the original concept of M&T.

AMR Automatic Meter Reading. A system which provides automatic reading of a utility meter or meters, usually on a half-hour (HH) interval.

RS485 A cabled communications network used in AMR systems. Elcomponent systems use the RS485 MODBUS protocol to provide a simple, reliable and low-cost network architecture that links directly to a standard LAN.

MODBUS Is a data communications protocol originally published by Modicon. Modbus has become a de facto standard communication protocol and is now a commonly available means of connecting industrial electronic devices. Modbus is predominantly used for electricity meters and heat meters. It is less common in water and gas meters (where pulses are still prevalent).

M-BUS Is a European standard (EN 13757-2 / EN 13757-3) for the remote reading of, predominantly, heat meters. It is less commonly used for water meter, gas or electricity meters.

Utility Meter vs Sub Meter This is often confused as the terms are not very specific. However, a utility meter is normally defined as one owned by a utility company and used for main billing to site. These meters are controlled by the utility and permission is required to make any connections to these meters (and costs usually apply). Sub meters are normally client owned meters that are downstream (supply side) of the Utility meters. The client should have full control of sub meters. Elcomponent is capable of connecting to utility meters and existing client sub meters.

Related Technical Guidance

TM22 Energy Assessment & Reporting Methodology

TM36 Climate change and the indoor environment: Impacts and adaptation

TM38 Renewable energy sources for buildings

TM39 Building energy metering

TM40 Health and wellbeing in building services

TM46 Energy benchmark

TM47 Operational ratings and Display Energy Certificates

TM54 Evaluating operational energy performance of buildings at design stage



www.elcomponent.co.uk

t 01279 503173 e sales@elcomponent.co.uk

Unit 5, Southmill Trading Centre, Bishop's Stortford, Hertfordshire CM23 3DY