best
British Energy Saving Technology

ENISCOPE
Proof of Concept

Eniscope Hybrid 8
24 Channel

Eniscope 4
12 Channel
(with optional GPRS)

Eniscope 1
3 Channel

ENERGY MONITORING SYSTEM

What is Eniscope?

Eniscope is probably the most complete energy management solution in the world, helping you to identify waste and eliminate costs. It combines unmatched hardware with a class leading software platform in one holistic solution.

Eniscope collates real-time energy data from multiple sources in addition to its highly accurate on-board metering capability and delivers critical information via stunning, easy to understand graphics.

Eniscope has been developed and honed over the last 10 years to become a powerful energy monitoring and energy saving targeting solution. Designed and built in the UK, It offers the world's first truly integrated energy monitoring ecosystem.

It's Customisable Reporting Tool and Energy Alerts in the Cloud means you have your very own Virtual Energy Manager 24/7/365.

It measures all the required electrical parameters, then delivers second by second live data to a real-time dashboard. It offers easy to understand analytical displays, showing energy consumption patterns either by individual pieces of equipment, circuits, departments or buildings at a one-minute resolution. It is the perfect solution for multi-site monitoring and targeting.

The data is available across networks, to be viewed on any computer, or across a range of portable devices, from anywhere in the world. The information is displayed in a language you will understand, be it kW's, Cost, Voltage or Carbon.

Eniscope has the potential to make a massive positive impact on your business - both in terms of delivering vital business intelligence relating to one of your most important assets - and also directly impacting on your bottom line profits. But... you don't need to take our word for it. By engaging in a BEST Proof of Concept based on the SMART programme you will be able to determine first hand the significant benefits that can be derived from implementing a robust energy management programme.

- 43% UP TO — ENERGY SAVINGS POSSIBLE
- DESIGNED & MADE IN THE UK
- DESIGNED FOR COMMERCE AND INDUSTRY
- ITEMISED ENERGY REPORTING
- MULTI-CHANNEL, CLASS 0.2 METERING

Did you know?

Eliminate hours of waste

Expose energy abusing equipment

Prove savings & change user behavior

The world is facing a global energy crisis. Energy efficiency is the answer"
Bank of America Merrill Lynch.

"Global energy efficiency investment in buildings is projected to increase to over USD $125 Billion by 2020"
International Energy Agency.

Who Needs Eniscope?

In a recent report engineering giant Siemens identified energy monitoring and targeting as the number one energy saving option, adding that it makes it easier to perform other energy saving actions.

They state in the report that: "The ability to measure and monitor real time key performance indicators on your site, by collecting the right data in the right way, will mean you can highlight problem areas and identify quick payback opportunities."

With this report in mind, we believe that Eniscope is the world's most complete energy monitoring hardware. Eniscope is unique as it delivers the following:

1. Three phase voltage reference.
2. Multi-channel monitoring (up to 24 single phase)
3. Pulse inputs to also monitor such things as gas, water, oil, steam or heat.
4. Multiple modes, which means it can read other meters.
5. It has ethernet connectivity, allowing it to connect over a local network or the internet.
6. Multiple (8) temperature monitoring.
7. Eniscope is CE, UL and cUL approved to work up to 600v.
8. Eniscope software delivers the data and control through apps, delivering real-time data, analytics, renewable displays, public displays, customer reporting and a mobile app.

Key Benefits:

Real-time monitoring of 8 three-phase metering points, 8 pulse inputs, 8 temperature inputs.

Meters provide accurate measurement of 30 electrical parameters and can read existing meters e.g. gas and water.

Historical and real-time data viewable on any computer, or mobile device, from anywhere in the world via Eniscope Analytics.

Option to display real-time consumption and/or generation data on-site, affecting behavior change and raising awareness.

Remote updates ensure continuous improvement via the cloud without the need to purchase additional equipment.

"30% of energy being used in buildings is done so inefficiently or unnecessarily."
United States Department of Energy.

"79% of businesses view reducing electricity costs as essential to creating and maintaining competitive advantage"
Deliotte.

SMART
The Eniscope Programme

BEST have created a unique, holistic approach to address an urgent need... it's a combination of products, software and services that facilitate the delivery of an unrivalled, end-to-end energy efficiency service. We call it the **S.M.A.R.T.** approach to energy management (Survey, Monitor, Analyse, Reduce, Target) and it enables us to deliver a total solution that matches your specific needs.

BEST is the global leader in the capture and analysis of itemised, real-time energy consumption.

Because *"You can't manage what you can't measure"* our Energy Management System makes it easy for BEST trained and certified partners to identify, implement and verify a wide range of strategies and technologies that offer significant savings, enhanced control and a rapid return on investment.

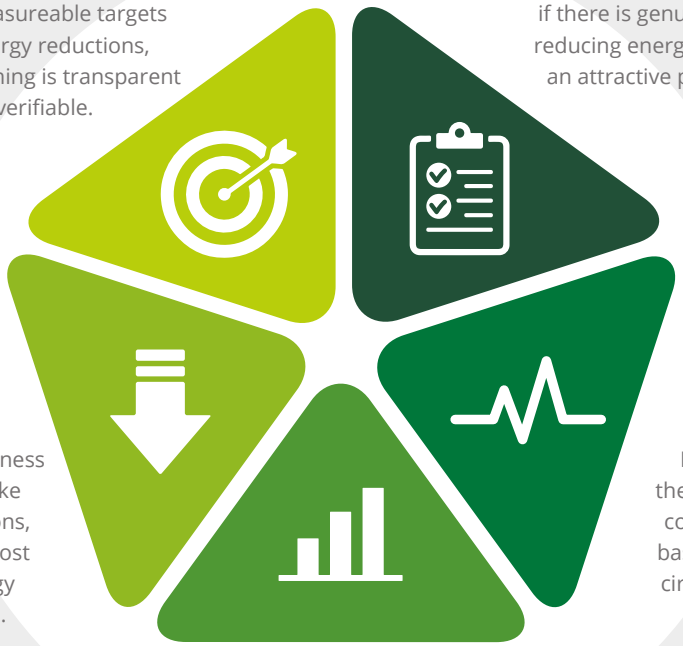
The best route to finding out what the SMART Programme can do for your organization is to identify a suitable site where we can undertake a Proof of Concept... after all "the proof of the pudding is in the eating".

Target

As your Virtual Energy Manager Eniscope will enable you to stay in control and set measureable targets for continued energy reductions, ensuring that everything is transparent and readily verifiable.

Survey

A thorough site survey by BEST-Certified Engineers will identify if there is genuine business case for reducing energy costs and delivering an attractive payback proposition.



Reduce

Armed with this vital business intelligence we can make specific recommendations, including; no cost, low cost and longer-term energy savings opportunities.

Monitor

Eniscope will enable us to then disaggregate your energy consumption and establish a base line usage across various circuits during different times of the day/week.

Analyse

By accessing the Eniscope powerful Analytics Platform it will become immediately obvious where the energy leaks are, including the financial and environmental impact this is having on your business.

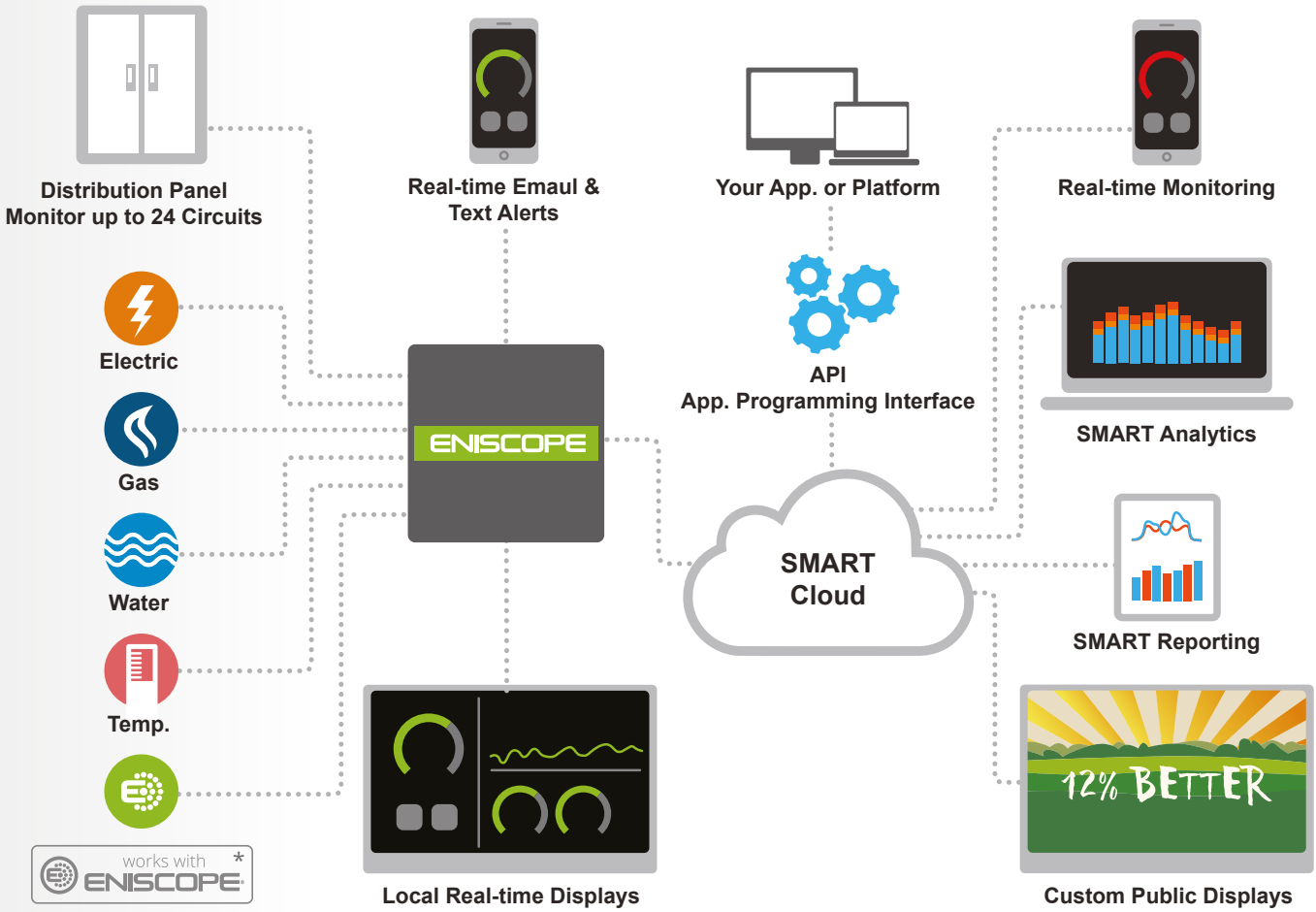
Eniscope Total Solution

Eniscope can be configured to collect data from a number of sources in addition to its own on-board metering capability. This information can be seen second by second in real time via custom designed apps. Information is simultaneously exported to our cloud based servers where it can be analysed at any time - from anywhere.

Automatic alerts can also be set to notify occupants when anomalies occur, before they become costly problems. Our fully customable reporting tool will allow you to pre-select in what format and how often you need to see your results.

Where desirable, Eniscope can also enable you to showcase your investments in green technology, along with the benefits they are delivering through the utilisation of Public Displays.

With the Eniscope API you can integrate the data from Eniscope devices into existing platforms or design new products that are underpinned by accurate, itemised, high-resolution energy information.



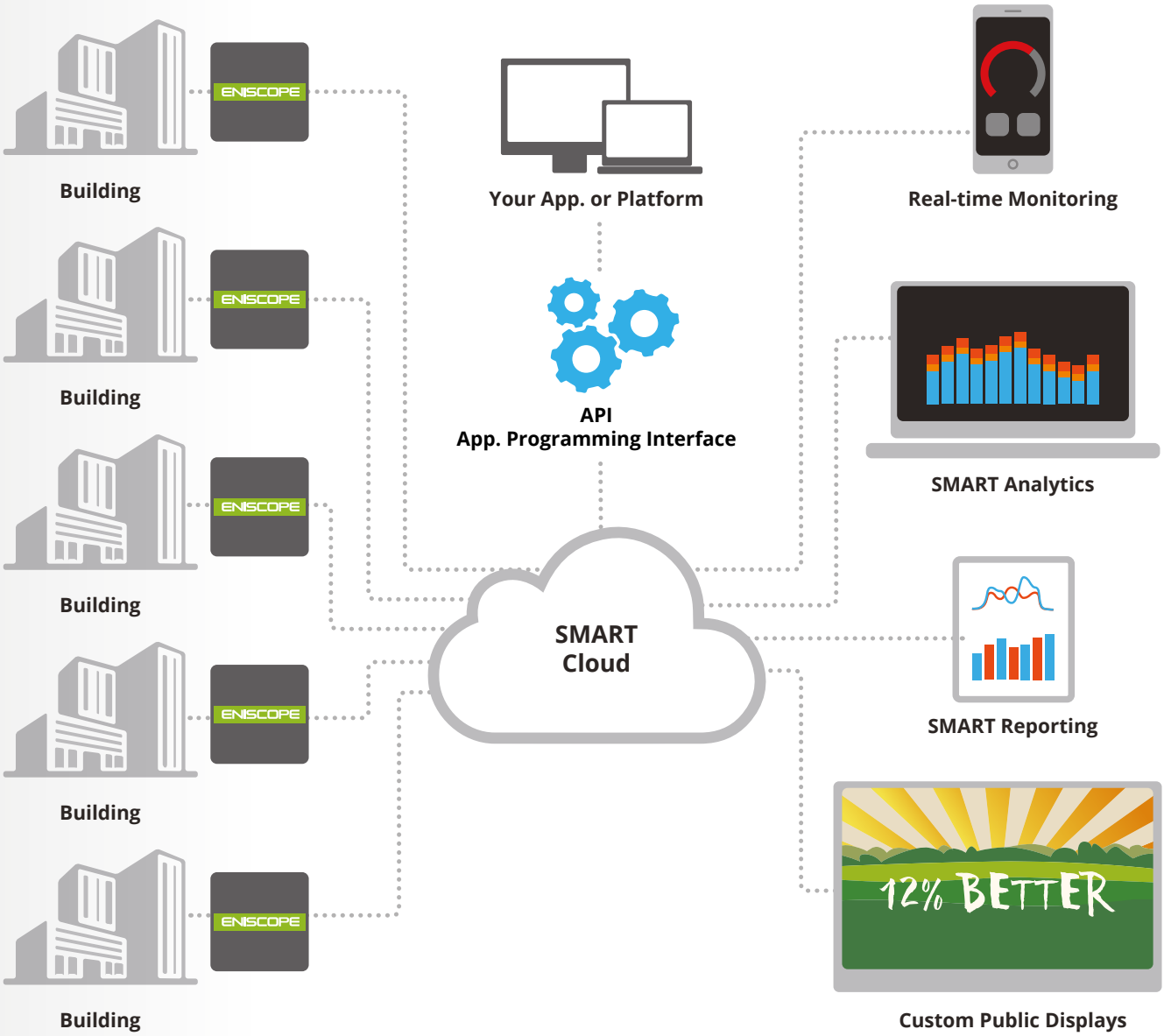
Multi Site Applications

When it comes to remote multi-site monitoring and targeting, Eniscope comes into a different league. Suddenly all of your energy information is available in one location, disaggregated and reinterpreted into a language you can understand, be it kW's, carbon or cost. Information is power and Eniscope puts the power back in your control.

Managing disparate assets across a whole region or Country is particularly challenging. However, Eniscope can provide a unique set of benefits in this type of application.

Monitoring and targeting of comparative facilities and competitive league table of results can be a powerful motivator for behavioral change.

Having identified the most effective energy management strategies within top performing branches it becomes easier to replicate these successes across an entire estate be that 100's or 1000's of comparative facilities.



Behavior Change

A petrol station forecourt is awash with lights and appliances, all burning up energy and running up the electric bill. When the forecourt closes at night often many lights and appliances are left running. With this in mind Shell in Denmark used the power of Eniscope's realtime energy monitoring to manage out of hours energy use.

Eniscope, unlike other 'real-time' energy monitors, can display second by second energy data through a live display. This meant that Shell's forecourt staff could see via a TV screen what energy was being used.

The staff were not allowed to leave at the end of the day until the minimum amount of energy was being used overnight. How would they know when they could leave?

The Eniscope display was customised for them to display on a screen - using simple, clear graphics the manager could see when the colour changed from red to green, indicating that all unnecessary appliances had been turned off - then the staff could go home. This would only be possible with true real-time energy monitoring as provided by Eniscope.

For Shell in Denmark there was no longer wasted energy through the night, delivering a saving of 13%, only possible with Eniscope's real-time data.

Shell were so impressed a roll out to many more forecourts in Germany and Denmark, up to a potential 2100 sites is now taking place.

Monitoring

TClarke

Eniscope Hybrid can also monitor other pulse meters, such as gas, water, oil, hot water etc...TClark, a construction company in the UK, benefited from this facility of Eniscope.

In June 2015 there was a large spike in the hot water use, which was monitored by Eniscope - see the left screen below.

What had happened? A hot water tap was left running, Eniscope monitored the high consumption. The water was heated by gas, so apart from the cost of the water there was also a waste of gas and the ensuing costs.

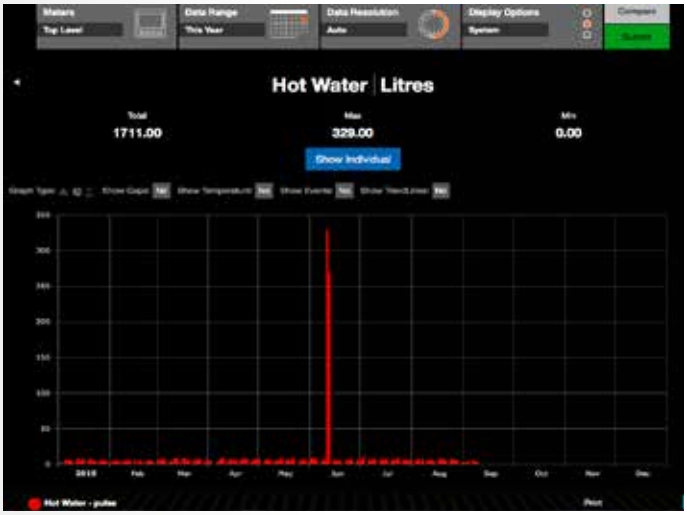
Due to the monitoring by Eniscope the problem was quickly rectified, but it could have been very costly if the incident occurred over a weekend, a holiday period or a seasonal shut down.

Eniscope can also deliver SMS, text and email alerts when a set level in consumption is reached, this facility would ensure such wastage could be prevented as Eniscope prompts you to act.

One vital aspect of energy monitoring is to have a context to energy use. One of the most important measurements to consider is the temperature of the environment being monitored - whether internally or externally. Eniscope Hybrid can monitor both internal and external temperatures. In the right Eniscope Dashboard display the blue line shows the temperature measurement. This analytical graph displays the change in energy consumption and how it alters with the temperature shift.

In the example here, and being in a more northerly climate, the heating energy demand reduces as the temperature rises. This adds context to what is happening to the energy being used, empowering informed decisions when deciding which energy saving actions and policies need to be enacted.

The Eniscope dashboard displays the temperature, delivering the complete picture. In colder climes as the temperature rises the heating demand drops, or if cooling is required as the temperature rises energy consumption will increase. Eniscope reports the changes in energy demand, but with temperature data also provided you can understand why, while maintaining a comfortable environment you can manage energy use correctly.



Multi Site Applications

sogood™

KFC in Malaysia have come to rely on Eniscope to deliver energy savings across their many outlets.

The Analytics Dashboard screens, shown opposite, from the Eniscope installed in KFC in Kota Damansara displays how much energy is being consumed and by what equipment. This data helps to direct where efforts can be targeted for the best energy savings and energy efficiency improvements.

In this facility four circuits are monitored, and in these displays to the right we have isolated the air conditioning circuit, with the analytics screens showing energy consumption and costs on this circuit.

With Eniscope Analytics you can choose to compare different periods of time, here we can look at consumption from before and then after action has been taken on the operation of the air-con system.

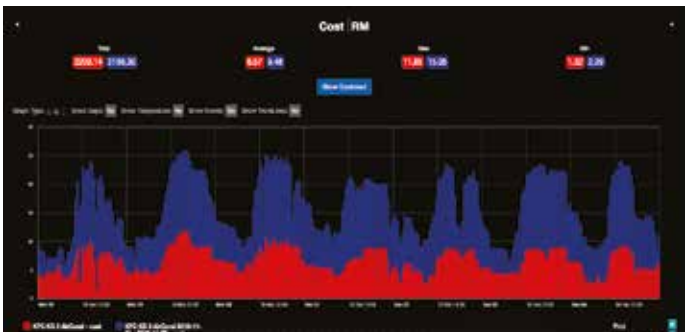
Between November 21-27 2013 the blue line in the upper Eniscope display reveal high energy demand from this circuit, using an average of over 37kW overnight, when the KFC outlet is closed. Once the Eniscope data was analysed targeted action was taken to make sure the air conditioning was off overnight. The red line shows the results after adjustments were made, this simple action produced a **30% energy saving on this single circuit.**

The Eniscope's Analytics comparison ability also shows what this energy saving delivers in monetary terms. The lower dashboard screen grab compares the exact same two periods, but reports on the cost of the electricity consumption.

The savings are shown in the Malaysian Ringgit - we see the total cost on this one circuit over the week was 3,186 Ringgit, after Eniscope lead to action on the air conditioning system we see the following week there is a saving of almost a 1,000 Ringgit, saving about $300 a week, again on a single circuit.

Eniscope makes energy transparent, you can see the energy saving, it is easily seen and identified.

The use of Eniscope was so impressive the company are installing Eniscope in over a thousand KFC and Pizza Hut locations.



Renewable Public Display

Topdanmark
Forsikring • Pension

Eniscope not only provides real-time data on energy consumption, but also data on any energy generated by on site energy generators, such as solar and wind renewable installations, amongst others.

Eniscope is used in this way at the head quarters of insurance company Topdanmark in Ballerup, Denmark. The company installed 3,042 solar panels, generating 752,000 kWh, saving approximately 600 tonnes of CO2 emissions annually.

To ensure they are generating the energy they need Eniscope allows Topdanmark to monitor their solar facility. Eniscope aggregates information on the power generated from the solar panels, providing a real-time visual display of the data to visitors and staff.

Employees are thus engaged in making sure they use energy efficiently and do not waste the valuable solar energy generated, while visitors are reminded of the importance of sustainability and Topdanmark's green credentials.

Eniscope is at the heart of the system, which is northern Europe's largest rooftop solar installation with over an acre of solar panels. The Eniscope Renewables display offers a powerful tool to engage building occupants and other stakeholders to increase efficiency and sustainability.

Energy Management

Falck A/S is a large company, employing 35,000 people across 46 countries. They focus on healthcare, assistance, safety and emergency services, working at preventing accidents and disease, providing assistance in situations of emergency and need. As the world's largest ambulance and emergency service they provide vital and life saving assistance, that we may all rely on in an emergency.

Due to the importance of their work Falck need to be able operate in a fiscally astute way, which includes managing energy consumption. They have turned to Eniscope to monitor energy use and target energy saving actions.

Eniscope is used to optimise systems across many of their buildings. As an example, in a single facility Eniscope monitors what is happening across many circuits. The Eniscope dashboard opposite displays just one circuit feeding the HVAC system at this Falck site.

The Eniscope display immediately revealed that the HVAC system was not operating correctly, it was working out of kilter with the working day.

The energy use data from Eniscope highlighted that a simple change to the HVAC settings and the timer could provide the comfort required when it was needed. Examining the data after the tweaking of the system reveals a drop in energy demand, delivering a 20% saving, also providing a six-month pay back on investment in Eniscope.

The Eniscope display below shows the difference from before Eniscope highlighted the problems and the rectifying of the system. Eniscope was installed on February 18 2014, if we compare one month's worth of data to the previous month we see the change, the red line shows the lower energy use once the adjustment was made.

Notice the blue line is at a constant higher level. With Eniscope Hybrid eight three phase circuits, or 24 single phase circuits, can be monitored so imagine the further savings from further circuits.

Falck were so impressed by these results through a simple no cost adjustment in three of their buildings they are currently installing Eniscope in another 219 buildings.

Cost Reduction

Calsonic Kansei

Calsonic Kansei is a large Japanese automotive company with 50 manufacturing bases around the world.

As a large manufacturing business energy costs can easily get out of control. This is evidenced at one of their facilities in Mexico where they make parts for Nissan.

The site's monthly energy bill from state owned utility Comisión Federal de Electricidad (CFE) averaged out at $400,000 per month. The managers, and Japanese parent company, wanted to gain control of their energy use, discover where inefficiencies were happening, and in the process reduce their energy costs.

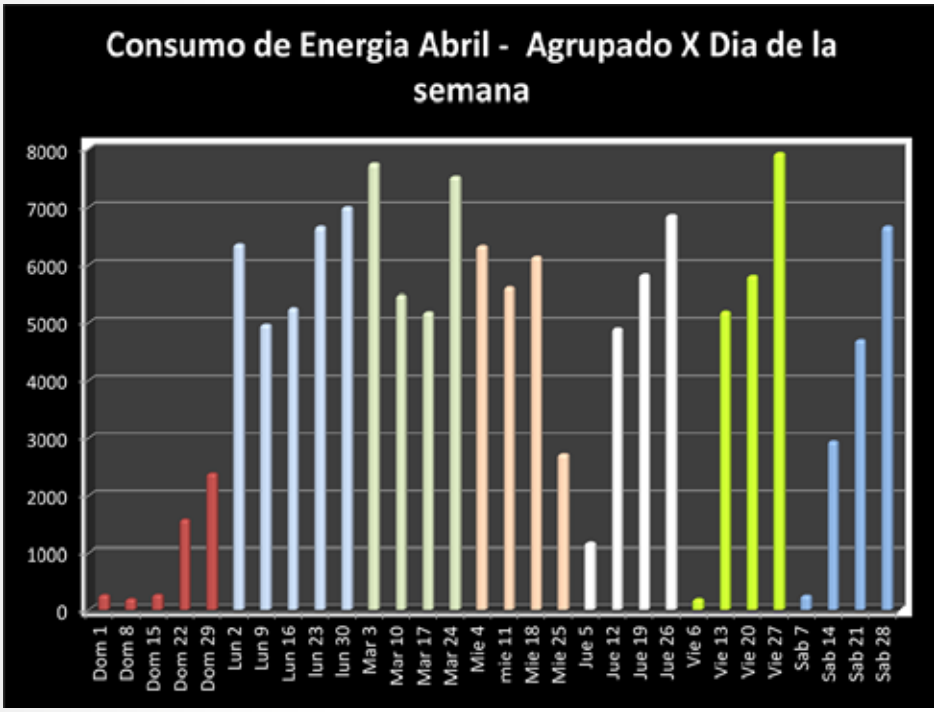
After considering several solutions they chose Eniscope, they soon realised that Eniscope's real-time, intricate energy consumption data made their invisible energy use visible. This allowed them to monitor and analyse energy use, then target accurately the required changes and savings. The real-time data gave them the power to instantly change behavior and practices to reduce waste.

After testing an Eniscope on one circuit for two months Calsonic willingly financed a major investment in Eniscope to cover more circuits. Initially they have installed Eniscope to cover 18 circuits and are in the process of adding another 30 to 40 circuits.

The first 18 circuits have already produced **annual savings of $120,000** through low and no cost energy efficiency improvements. Eniscope is now highlighting further areas where energy saving options and devices can be targeted in the most effective way.

Eniscope's real-time capabilities and alerts also offer substantial savings on peak demand penalties, allowing Calsonic to manage energy consumption so high spikes of energy use are eliminated.

Calsonic Kansei are very happy they chose Eniscope as their energy saving option.



Utility Charge Management

Bethune-Cookman University in Daytona Beach Florida made major savings thanks to Eniscope, and all within a few days of installation

Like many companies and organisations Bethune were on a contract with their local utility company which charged for electricity use on actual usage (kWh), plus a penalty based on the highest point of demand or peak energy use. The penalty can be a third, and in some cases two thirds, of what the electricity bill would be otherwise. The university would not know whether they suffered from the peak demand penalty until they received their electricity bill, and possibly not realise it even then if they didn't understand the bill's detail.

Understanding an electricity bill is not easy. To analyse the tariff takes time, with some tariff definitions on a bill run from 4 – 15 pages. Eniscope was initially installed at Bethune to monitor the quality of power supply, but very quickly the real-time Eniscope Dashboard highlighted a problem that had been undetected for five years.

It came to light after an Eniscope was installed in just one water chilling pump room on campus that used many motors to drive the cooling system for part of the university. The system had been installed with automated shut down of the complete system when a set minimum demand was reached, the university's engineer was unaware of this setting.

This meant that overnight, as the buildings shut down, the cooling system would demand little, and hence the system would shut off completely.

As a new day started and the temperature would rise, still early in the day and before any staff were in the pump room, the system would kick in with the many 30 and 50 horsepower pumps starting simultaneously. This produced a huge power spike every day as the cool water was pumped around the system.

Eniscope displayed this spike in real-time, instantly. Suddenly what had been happening invisibly could be clearly seen. The chiller equipment service company were called and they were able to alter the setting on the system. The late night shut down was stopped, with the system dropping to a low-flow stand by mode. This prevented the full system cold start-up; the ensuing massive spike in energy use and the subsequent Peak Demand Penalty from the utility company.

Eniscope's real-time capabilities delivered monthly savings of over **30% on just one system on campus,** it was instrumental in identifying a real problem, which had been hidden, it was also a very simple "no cost" adjustment to correct the energy wastage.

Product Verification

POOL ACADEMY
ASPIRATION · BELONGING · RESPECT

Pool Academy in the UK is a school for almost 1,000 11-16 year olds and like most educational sites it needs a lot of management to ensure energy isn't being wasted. The principal and governors at the school are well aware that they need to take effective energy saving measures.

Eniscope is used to manage their energy use, but it also helps to target energy saving efforts so the right investment is made to provide the best return on energy and monetary savings - a vital feature of any energy monitoring and management solution.

Pool have been considering investing a substantial amount of money into replacing their external lighting with energy saving LED lighting. This would appear to be a no-brainer, LED lighting is certainly energy efficient, particularly compared to traditional light bulbs and systems. They also last longer reducing maintenance costs. The downside is they cost more than the current bulbs and systems, but over the long term LEDs offer savings.

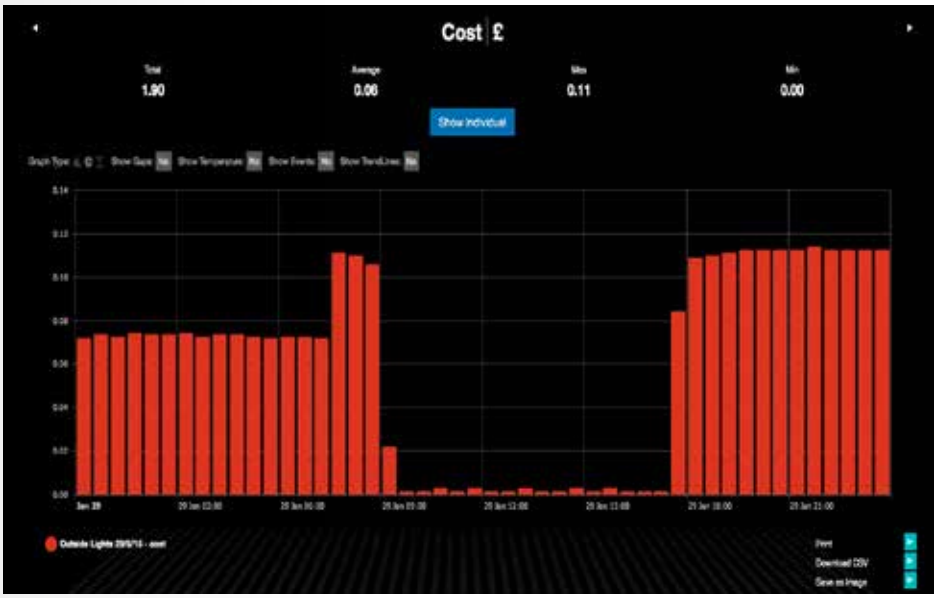
By analysing energy use data on the external lighting circuit monitored by Eniscope the engineering team at the Academy were able to see on the Eniscope Dashboard the actual daily cost of running the existing lighting.

They discovered that the cost averaged out at £1.90 per night, making an investment running into potentially thousands of pounds one that had to be seriously thought through - see the display opposite.

The data from Eniscope is making the board of governors reconsider the upgrade to LED lighting as a standalone project. The conversion to LED lighting will take place, but as maintenance and natural replacement is carried out the lighting can be converted to LEDs delivering the long term savings but without a single major investment - protecting stretched budgets while allowing sustainable and responsible change.

The money invested to cut energy waste and improve energy efficiency can be targeted to where it will have the biggest impact.

Eniscope empowers decision makers to make the right targeted choices for their company or organisation - knowledge is power.



Technically Speaking

Eniscope is primarily a small networked computer designed to collate data from the metering points transmitting that data through various networks via an ethernet connection. It measures and monitors all the required electrical parameters.

Eniscope is available in three versions: Eniscope 1, a single circuit energy monitor, Eniscope 4 a multi-channel (4), three phase energy meter and sensing system, which can also monitor 12 single phase circuits. Then the top of the range Eniscope 8 Hybrid can measure up to eight three phase circuits or 24 single phase circuits or combinations thereof.

The Hybrid can also monitor eight pulse meters, allowing data to be gathered from such utilities as gas, water and oil - in fact any pulse meter. It will also monitor environmental temperature, an important aspect to any energy saving monitoring and option targeting.

All Eniscope versions gather, summarise, store and transmit energy related data for presentation and analysis to cloud based servers or across a LAN or the internet. Eniscope 4 and Hybrid versions can also send data via an internal GPRS module. The energy use data can be viewed live in real time, as the energy is used, or in the Analytic mode as historical data - all viewed externally via a web browser.

If you generate your own power, from renewable sources or otherwise, Eniscope will monitor minute-by-minute data on the energy your system is producing. The Eniscope Hybrid model also has MODBUS connections which allows it to connect to many other metering devices.

The Eniscope display can also be made available to staff or the public with simple and easy to understand graphics and readings. It can be added to websites, with an attractive range of public displays, often motivating behavioral change by employees and publicising the sustainable efforts of an organisation or business.

The compact, plug and play system can be easily installed by an electrician, instantly providing real time data on energy consumption patterns by individual pieces of equipment, circuits, a building or property portfolio.

Eniscope has been engineered to allow continuous, remote improvements and upgrades via the internet, making this the world's most durable and future proof solution to energy monitoring and efficiency.

What Eniscope do you need? Below is a overview of the main differences between the 3 Eniscope solutions.

Feature	Hybrid	4 Channel	1 Channel
8 Meters	✔	✗	✗
4 Meters	✗	✔	✗
1 Meters	✗	✗	✔
Pulse Inputs	✔	✗	✗
Temperature Monitoring	✔	✗	✗
Modbus Inputs	✔	✗	✗
Internal Storage	✔	✔	✔
Local Multi User Real-time Display	✔	✗	✗
Local Single User Real-time Display	✗	✔	✔
Multi User Renewable Display	✔	✗	✗
Admin / Real-time Password Restriction	✔	✗	✗
Real Time Cost & Carbon	✔	✗	✗
Alerts/Alarms	✔	✗	✗
GPRS Option	✔	✔	✗
Cloud based Analytics	✔	✔	✔
Cloud based Public Display	✔	✔	✔
Cloud based Daily Reports	✔	✔	✔

Contact Us

For more information on the BEST SMART programme, or to arrange a Proof of Concept at your chosen facility, please contact BEST directly or the BEST certified partner nearest to you.

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