

Trend takes to the water at the Cambridge University Boathouse

First published July 2018

Located on the River Great Ouse in Ely, the new Cambridge University Boathouse is a state-of-the-art facility that acts as a centre of excellence for rowing. It aims to use energy as efficiently as possible and maintain perfect comfort conditions for occupants and users of the facility, which is why it uses a Building Energy Management System (BEMS) from Trend.

Up until recently Cambridge University's three rowing clubs were based in different locations and had to make do with less than adequate facilities. Following the formation of the Project Ely Group, the teams now have "an ecologically intelligent and comfortable environment that not only serves as the main training base for Cambridge University Rowing, it is also open as a venue for rowing camps and corporate events".

Facilities management

Rowers at this level are all finely tuned athletes and the facilities at the Cambridge University Boathouse are designed to help them compete on a world class basis; using an energy efficient building with optimal comfort and wellbeing environments.

As a result, the project's main contractor asked East Grinstead based Gemco Intelligent Buildings



Group to design a Building Energy Management System (BEMS) that could address these requirements. Jason Graystone, Gemco's Managing Director, states

"As an approved Trend Systems Integrator we recognise the importance of energy usage optimisation and how occupant wellbeing can be enhanced through the use of a fully optimised BEMS. After conducting a site study, we configured a design that would also allow the BEMS to integrate with the gas absorption heat pump, which supplies heating to the Cambridge University Boathouse, as well as the air based ventilation system".

Achieving the level of integration required led to a solution that utilised the Modbus protocol to link the BEMS to the gas absorption heat pump and ventilation system. Modbus is an open protocol that has become a standard communications protocol for connecting industrial electronic devices.

Size matters

A Trend Open Network Node (TONN) enables Trend IQ[®]4E controllers

to interface with Modbus. Steve Browning, partner and end customer marketing communications manager at Trend, comments, "When it comes to the amount of room allocated for BEMS in modern buildings, the size of its constituent parts really does matter. Large controllers take up more room in electrical enclosures but Trend continues to lead the way in reducing the footprint of its controllers without compromising on features".

Jason Graystone adds, "By interfacing the BEMS using Modbus, the IQ[®]View8 user interface can display all relevant information in granular detail. This has numerous analytical benefits and diagnostic advantages, as the rich data provided allows internal processes to be monitored so that events such as sensor, electrode or pump failure is reported to the end user. It also speeds up repair by ensuring that the correct engineer and parts are sent to site, while, from an operational point of view, it allows plant to operate on a demand led basis".

Explaining how this works, he continues, 'Analogue values allow the controls to modulate instead of stage or switch – in other words, the system is demand led and where specific areas need different levels of heat or ventilation, this can be achieved. As well as saving energy it enhances comfort conditions and occupancy health and wellbeing – something that is particularly important for athletes.'

Need for speed

The efficient operation of plant has also been achieved by installing variable speed drives (VSDs) which match the motor speed to the required tasks. VSDs are very effective in saving energy in pump and fan applications, as they provide soft start capabilities which lower instances of electrical stresses and voltage sags.

'The energy cost savings as a result of this technology can be significant, as a centrifugal pump or fan running at 80 per cent speed consumes only half of the energy compared to one running at full speed,' comments Jason Graystone. 'Varying the energy load of pumps also lowers wear and tear and therefore the frequency of maintenance – saving up to 25 per cent in terms of cost over the course of the plant's lifetime.'

Look out

The IQ®View8 touchscreen display at the Cambridge University Boathouse allows authorised personnel to better understand plant and energy usage, monitor the BEMS in real time and make adjustments whenever necessary. It can also be configured to receive alarms sent from other Trend devices, where they appear on a special display, with an audiovisual indication of the alarm given. Other features include enhanced



efficiency via an energy saving mode. This allows the screen to be programmed to switch off and when in this mode the unit's LED goes green to indicate that it is still powered on and will illuminate again as soon as it is touched.

Soft landings

Gemco is proud of its ability to work in close partnership with clients and other relevant parties working on a project. The Cambridge University Boathouse was a notable example where Gemco used its project management tool – Cycle Management Process – to help ensure that everything ran smoothly. 'Cycle Management Process is an online software application that documents every step of a project – from procurement and design to delivery, installation and handover,' explains Jason Graystone. 'All those working on a project including main contractors, subcontractors and suppliers can access relevant information'.

In addition, Gemco has introduced a video handover guide for each site, which clients can refer to at any point in the future if a query arises and negates the need for costly engineer callouts. It has been

incredibly well received and the video for the Cambridge University Boathouse project can be viewed by visiting <https://youtu.be/ogc9MNY7xSO>.

Finish line

When it opened at the end of 2016, members of the CUBC, CUWBC and CULRC were unanimous in their praise for the Cambridge University Boathouse. Charles Rowley concludes,

"This project took many years of commitment and hard work to reach fruition but we're confident that we now have a facility that will last at least 100 years. Not only does the facility look great, we know that thanks to Trend's BEMS technology and Gemco's engineering excellence, it is highly energy efficient and can offer Cambridge University's rowers and visitors maximum levels of comfort and wellbeing"

For further information Gemco Intelligent Buildings Group can be contacted on **01342 305 410** or email enquiries@gemcoibg.com. Trend Marketing can be contacted on **01403 211888** or marketing@trendcontrols.com

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