



University Benefits From Modbus Integration

"The improved boiler integration with the CHP has delivered clear savings for the University by delivering longer running times and improved load factors for the CHP. This has been especially apparent at times of low load. Despite the much reduced demand for heat, on much warmer weather this January, CHP output has increased by 16%, worth thousands of pounds to us. Integration with our BMS has enabled us to monitor the new burners acting responsively to very low loads."

Dr John Brenton, Sustainability Manager

Autoflame were invited by the University of Bristol to carry out a complimentary energy efficiency survey for several of the boiler rooms across their estate. It was quickly identified that one of the biggest problems within the boiler rooms was a lack of control integration between the boilers and CHP. The boilers were often coming online to help the CHP with the heating load demand but when demand lowered the CHP would go offline before the boilers affecting the overall plant efficiency.

To overcome this issue the Autoflame Mini Mk7 MM controller was specified by the University as it has built into it Modbus communication protocols which would allow the controller to communicate to the Universities Trend system that the CHP's were already connected to. The Modbus integration also allows the Trend system to disable and enable the boilers as well as monitor each boiler's status.

During the survey it was noted that whilst upgrading the burner controls to the Autoflame Mini Mk7 MM controller would deliver fuel savings by fully modulating the burner, further savings could be achieved by fitting high efficiency Limpsfield burners. Limpsfield burners are guaranteed to run at 3% O₂ with zero CO throughout the entire firing range with a high turndown ratio. High levels of O₂ significantly reduce the efficiency of boilers by reducing flame temperatures and increasing the speed at which hot gases pass through the boiler.

Existing Equipment:

Boilers in 5 facilities ranging from 220kW to 1.7mW, (Streble, ICI and Broag)

Solution:

Limpsfield Package Burners with integrated Autoflame Mini Mk7 Controller

Benefits:

- Increased CHP output
- Modbus communication protocols
- Guaranteed 3% O₂ emissions (often less) with zero CO
- 10-12% fuel usage reduction
- Lower turndown ratio resulting in reduced cycling

After:

- ◆ Servomotor-based system
- ◆ Built-in controller simplifies installation/maintenance and reduces labour
- ◆ System will operate to commissioned settings for years without adjustment

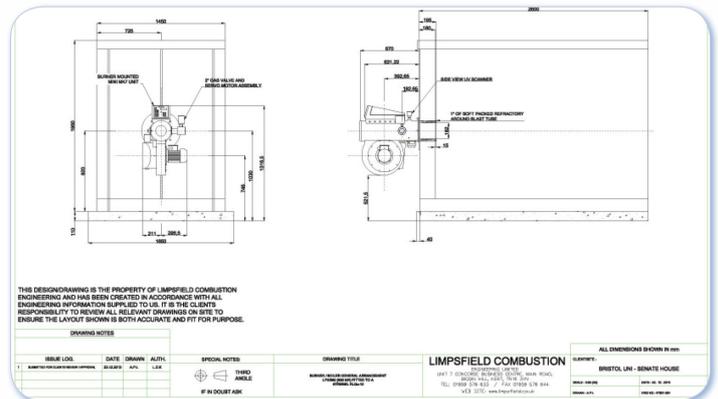


Autoflame surveyed a number of boiler rooms across the University's Estate and found that the existing burners in many of the plant rooms had high O₂ levels and limited turndown ratios, and some of the burners were oversized for the boilers -which again limited the burner's efficiency.

A successful Limsfield burner upgrade at the University's Langford Veterinary School in 2013 delivered impressive savings and also improved the boilers' integration with the CHP; improving the overall effectiveness of the entire heating plant. Following that year, successful burner upgrade projects have been delivered at Wills Hall, Senate House and Wills Memorial Building.



Autoflame operates worldwide with 60+ technology centres performing installation and support. Founded in 1972, Autoflame is a British manufacturer based near London. It ensures industry-leading quality control and innovation by performing in-house R&D, engineering, software development, manufacturing production, and technical support.



Senate House Drawings

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