

# Load Compensation & Reactive Programmers



## Load Compensation

**The Simple Retro-fit Solution to Energy Saving**

**Immediate savings on fuel bill**

**Typical reductions of 20%**

**Reduces CO<sub>2</sub> emissions**

**Simple installation, no plumbing required**

**Retro fit to most gas, oil or LPG heating boilers**

**No maintenance, fit and forget**

**Thousands installed Worldwide**



Load Compensation is a proven method of achieving economies by relating boiler response to system load.

Savastat applies additional intelligence to prevent wasteful, higher than necessary, boiler temperatures when full load conditions do not exist. Savastat assesses load by measuring the rate of temperature decay of return water to the boiler and compensates for reduced system loads by allowing small temperature reductions to the boiler operating temperature.

Reductions in mean water temperatures of only 2° to 5°C will achieve significant reductions in fuel consumption. 15% to 20% is typical of most applications although there are many documented results in excess of 20%.

### Complements Other Controls

All system controls will continue to control space and hot water temperatures independently of any action by Savastat. Because Savastat is measuring the result of all system controls at the boiler it complements their actions. Savastat cannot change space temperatures.



Model 500 control settings to match system operating conditions are located behind a panel to prevent unauthorised tampering.

### Simple installation

Savastat may be fitted to new or old boilers but has been designed primarily to reduce energy consumption in existing systems. Installation can be completed without disruption to the building or its occupants. Draining the system is unnecessary and each boiler is out of service for no more than 30 minutes.

After installation and commissioning all models are self regulating to give automatic year round performance and require no action by the user.

### A Direct and Cost Effective Saving

As a general rule payback is achieved within one year on commercial applications and within two years on domestic boilers.



**Environmental Controls & Methods, Inc.**

15594 N. Hollywood Blvd.

Whitefish Bay, WI 53217

Tel: (866) 964-0072 Fax: (414) 964-0071

e-mail: [info@ecmi.us](mailto:info@ecmi.us)

Web site: [www.ecmi.us](http://www.ecmi.us)

**SAVASTAT**

# Commercial Properties

## WS Atkins Evaluation

WS Atkins consulting engineers evaluated Savastat for a client and recorded **23% savings** on a BMS controlled site.



Air Products plc chose Savastat after initial installations at their European HQ at Walton on Thames showed **savings of 20% and 23%**.

## Nat West Bank

National Westminster Bank spent over twelve months carrying out their evaluations. **Installations in 700 branches resulted** following satisfactory savings in the first phase of 97 sites.



Fina plc at Epsom, advised by Haden Building Management, fitted Savastat and achieved a **payback in under 12 months**.

## Dorset Police



All Dorset Police stations were fitted with Savastat following a comparative trial conducted during one of the harshest winter periods. With temperatures below freezing and high load conditions **savings of 15.69%** were achieved.

Gallagher Ltd. head office have Stibel boilers working with the air conditioning system. Adding Savastat gave a **payback in 9 months**.



### Case study

Payback 7 months

## ORANGE/ELYO

Comparative Field Trial

orange

Keypoint was selected by Mr. Mark Keene from Orange as an ideal site to evaluate Savastat. Their on-site maintenance company - IGS Services would oversee the installation and conduct the trial. Keypoint is a large modern office complex serviced by a modular gas boiler set, under the control of a TREND BMS.

Savastat controls with integrated hours run meters were fitted to all four Hamworthy Wessex 200 boilers. The Savastat controls were turned on and off on alternate days to provide comparative data.

The trial was conducted over an 18 day period. All readings and Savastat mode switchings were carried out by the IGS supervisor Mr. Chris Hatcliffe.

**Savastat demonstrated a 17.10% saving, while the TREND BMS maintained temperatures over the period. Based on the current fuel billing of £21,000 pa payback would be achieved within 7 months.**

**One year later Utility Partnership Ltd. conducted a year on year audit of gas consumption and confirmed a 15.5% reduction following the fitting of Savastat Controls. Since then Savastat Controls have been fitted in a further 7 Orange buildings.**



### Case study

Contract Placed

## Johnson Controls Comparative Field Trial

JOHNSON  
CONTROLS

### Johnson Controls

Trial site

Barclays Bank

Fleetway House

Farringdon Street

London

This office block in the City of London was selected by Johnson Controls as a suitable site to measure the energy saving performance of SAVASTAT Load Compensation boiler controls.

Savastat controls fitted to 2 Allen Ygnis 3,500,000 BTU/hr forced draught gas boilers. *(the 3<sup>rd</sup> smaller boiler is permanently off)*

Burner activity was recorded daily with the Savastat ON and OFF line on alternate days for periods 26<sup>th</sup> Jan to 6<sup>th</sup> Feb and from 15<sup>th</sup> to 31<sup>st</sup> March. Building security staff collected this data at 7am each day.

**A fuel saving of 14.8% was recorded during the first period.**



However, the data showed that part way into the trial one boiler had gone down and it was decided that the boilers should be checked and a further trial conducted.

**During this second period a fuel saving of 15.15% was confirmed as the data below.**

Before finalising this report an engineer visited the site on 6<sup>th</sup> May to check and confirm the operation of these boilers. Both boilers were live but only one was needed to maintain temperature. Over a 4 hour period the flow temperature and burner On and Off cycles were monitored. With Savastat in control the overall burn time (fuel consumption) was reduced by 21% as illustrated by the following cycle comparison:

Savastat Off:	Burn 12 in 22	54.5%
Savastat On:	Burn 15 in 35	42.9%
<b>Difference equals saving of</b>		<b>21%</b>



# Hospitals, Care Homes & Housing Assoc.



## Case study

Payback 9-12 months

## Elmbridge Housing Trust

Walton on Thames, Surrey  
Sheltered & Community Housing

**Elmbridge Housing Trust** was formed in March 2000 to take over all the housing stock of Elmbridge Borough Council. The Trust quickly began a five year programme of improvements.

**Energy Conservation** was high on the agenda especially for their various large buildings where the long hours of use result in high gas consumption.

**Savastat Boiler Controls** were shown to give **savings of over 22%** in an initial installation, and as a result Savastat was fitted in all twenty seven Sheltered and Community Housing buildings.

**Elmbridge Borough Council** also use Savastat in all their suitable buildings so that Savastat is in use throughout the borough.



**Elmbridge Housing Trust**



## Increasing use by Local Authorities & Housing Associations

**The Royal Borough of Kingston** use Savastat in all their Community Housing buildings following a recommendation from SERCO Property & Design.

**Reigate & Banstead Borough Council** use Savastat in 28 buildings with over 90 boilers.

**London Borough of Croydon** recorded **savings of over 18%** with Savastat.

**The Borough of Spelthorne** use Savastat in all their suitable buildings.

**Woking Borough Council**, who already have modern boilers and control systems, recorded **savings of 21%** when Savastat was added.

**Ashford Borough Council** saw reductions of **18.5% and 16.5%** under trial conditions in two properties - **payback achieved in only 8 months**

**Elmbridge Borough Council** in the Civic Centre at Esher, with Potterton boilers and a Staefa BMS, recorded **savings of 22%**.

**Apex Housing Association** in Staines use Savastat in all their Sheltered Housing and similar buildings.

**Whiteley Village at Walton on Thames**, a community caring for the elderly, use Savastat on all their suitable boilers throughout their extensive premises.



**Bethlem Royal NHS Hospital Beckenham** recorded **savings of 19%** with Savastat in use.

**BUPA Care Homes and Hospitals** fitted Savastat following two trial installations - **savings of 22% and 24%**.



BUPA Chalybeate Hospital

### Priory Healthcare

**Roehampton Priory Hospital** is the most famous in the Priory Group but all fifteen hospitals have Savastat fitted after initial installations showed **savings of over 20%**.



Roehampton Priory Hospital

### James Butcher Housing Association

Two Hoval GS boilers were used at the Portsmouth site to evaluate Savastat. **Fuel consumption was reduced by 19.79%**. **Payback would be achieved within 6 months.**



Portsmouth Town Court

## Schools and Colleges

### Regional Council installs 1670 Savastat controls

Following the recommendation by their consultants MCR Energy, Strathclyde Regional Council installed Savastat widely throughout their properties. **They installed over 1670 units in 400 schools.**



### 6 week payback

#### Glanalmond College

One of Scotland's leading co-educational independent boarding and day schools, for boys and girls. Set in 300 acres of Perthshire countryside. During trials **Savings of 18-89%** were recorded by school staff with **6 weeks projected payback**. A widespread installation scheme followed.

#### Whitgift and Trinity Schools

Savastat is used with a sophisticated TREND BMS at each school. Savings were higher than forecast at **18% with payback in well under 12 months.**

#### The Church Schools Company

One of the UK's leading groups of independent schools had seen their fuel costs rise dramatically. Surveys at Guildford and Surbiton High Schools showed how much Savastat could save, and the decision was taken to install Savastat in all their schools.

### University Challenge

**Oxford University** When Magdalen College decided to run a trial of Savastat, the historic Daubeney Building (*where Penicillin was discovered*) was chosen. The encouraging results were shown to other colleges within the University and installations took place at Lady Margaret Hall and Brasenose College.

**University of Buckingham**, the only private University in the UK installed 75 units including HW and Scale controls.

**Greenwich University** installed Savastat following an evaluation in one of their properties.

The trial site already benefitted from a full BMS (building management system). The one month trial period showed a **saving of 16.69%.**

**Payback achieved within 12 months.**

# SAVASTAT<sup>LC</sup>

## Load Compensation

### Application

Savastat may be applied to any low temperature hot water heating boiler burning gas, oil or LPG. It is a load compensation control for retrofit application to reduce energy consumption through existing boilers that are operating under fixed set point control, normally at 80°C or similar.

It measures rate of temperature loss of the return water at the boiler to assess system load and when opportunities arise compensates for reduced loads by dropping the boiler operating temperature by a few degrees. Reductions of only 2°C to 5°C will achieve significant savings in fuel consumption.



Model Range

All use the same basic load compensation software. The three models have different modes of adjustment to suit all boilers of any size, burning gas, oil or LPG.

Savastat does not interfere with any other control action of the building management system or other stand alone controls. At no time will the building space or hot water service be changed.

### Features

- Real-time measurement of load, not history dependent.
- Adjustable control settings to match boiler/system operating parameters.
- Low temperature limit with added time based protection.
- High temperature protection.
- LED status indicators
- Selectable Bypass for boiler / system servicing.
- Optional - Built-in meter for performance measurement.

### Specifications

Voltage: 24vac, 110vac or 230vac selectable

Current: 6 amp

Ambient : -5° to 37°C

Sensor: Thermistor external strap-on

Sensor range: -1°C to 90°C

Power cable: 3 Core double insulated rated at 104°C  
3 mtr. factory fitted. - maybe extended.

Sensor cable: 2 Core double insulated rated at 86°C  
3.5 mtr. factory fitted. - may be extended to 10 mtr.

Enclosure: 190mm x 130mm x 80mm

Weight: 0.9 kg.

### Approvals:

USA/Canada: UL 2GY1 File No: E236239

Europe CE96: EN 60730

EN 50081-1

EN 50082-1



**ECMI**

15594 N. Hollywood Blvd.  
Whitefish Bay, WI. 53217  
Tel: (866) 964-0072 Fax: (414) 964-0071  
e-mail: [infos@ecmi.us](mailto:infos@ecmi.us)  
Web site: [www.ecmi.us](http://www.ecmi.us)

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