

# Energy saving controls



OPENTHERM \ WEATHER COMPENSATING SENSOR \ PROGRAMMABLE ROOM THERMOSTAT \ ROOM THERMOSTAT \ MECHANICAL CLOCKS \ DIGITAL PROGRAMMERS

For maximising energy and fuel savings

# Energy Saving Controls

## Maximise energy and fuel savings

With the introduction of condensing technology, boilers have continued to increase in efficiency with most current appliances able to reach over 90% efficiency. However, the technology within boilers is now so advanced that, even with future developments, there is little chance of boiler efficiency percentages increasing much further.

The one area that can still help maximise the efficiency and overall performance of the boiler is the correct use of a control. Even with average efficiencies now reaching over 90%, this can be increased by a further 2% - with the simple addition of a Weather Compensation Control for example.

## Choosing the right control

There are a number of different controls available so establishing the most suitable one for your heating requirements may be confusing. Vokèra provide a range of controls that can be used with combi and system boilers and include basic analogue clocks, room thermostats, programmable room thermostats and the Vokèra 'Intelligent Control' range that incorporates the most advanced technology available - such as Weather Compensation and OpenTherm.

The Vokèra Vision combi boilers come with a built in 7 day digital clock which enables different settings for each day of the week. Additional controls can be added to a Vision combi if it needs to be sited in a difficult to access location or for further energy saving purposes.

## Intelligent Controls

The installation and correct use of a Vokèra intelligent control can save up to £83 a year off a home's energy bills, whilst also providing a more comfortable and stable room temperature. Compatible with most Vokèra high efficiency ranges (see below table for compatibility), the Vokèra Weather Compensation Sensor and OpenTherm Programmable Room Thermostat aid maximum boiler efficiency.

## New Vokèra Controls Course - It's Time To Take Control



Vokèra now offer a controls course for installers to help understand the principles of combustion and the fundamentals of how control technology can work in conjunction with boiler operation. To book your free place call our training co-ordinator on 01727 744002 or email [training@vokera.co.uk](mailto:training@vokera.co.uk).

CONTROLS COMPATIBILITY											
Code	Control	Linea One	Unica i	Unica BHE	Vision Combi	Compact A	Verve 47kW	Mynute i	Mynute HE	Vision System	Mynute VHE
20050690	OpenTherm RF Programmable Room Thermostat	✓ <sup>(1)</sup>	✓	✗ <sup>(4)</sup>	✓ <sup>(3)</sup>	✓ <sup>(3)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✗
2359259	Weather Compensation Sensor <sup>(7)</sup>	✓ <sup>(5)</sup>	✓	✓	✓ <sup>(3)</sup>	✓ <sup>(3)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✗
20059643	7 Day RF Programmable Room Thermostat	✓	✓	✗ <sup>(4)</sup>	✓	✓	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>
20063874	7 Day HW Programmable Room Thermostat	✓	✓	✗ <sup>(4)</sup>	✓	✓	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>
20059642	RF Room Thermostat Control	✓	✓	✓	✓	✓	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>
20063869	Hard-wired (HW) Room Thermostat Control	✓	✓	✓	✓	✓	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>	✓ <sup>(2)</sup>
405	RC05 Programmable Room Thermostat and Boiler Control	Discontinued Vokèra boilers. Contact Vokèra technical for advice.									
20025085	Compact A 24 Hour Analogue Clock Kit <sup>(6)</sup>	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗
514	Mynute HE 7 Day Digital Programmer	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗

<sup>(1)</sup> Requires wiring kit - code 1221179 - contact Vokèra Technical for specific advice.

<sup>(2)</sup> Can be used on heating only applications - contact Vokèra Technical for specific advice.

<sup>(3)</sup> Requires control interface - code 29450143 - contact Vokèra Technical for specific advice. The addition of an energy saving control will override any settings that have been programmed into the built in digital clock on the Vision combi.

<sup>(4)</sup> Can be used on internal installations - contact Vokèra Technical for specific advice.

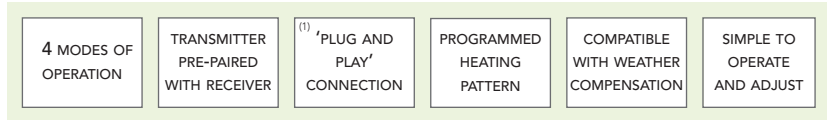
<sup>(5)</sup> Weather Compensation Sensor is supplied in the box with every Linea One.

<sup>(6)</sup> Compact A 24 Hour Analogue Clock Kit includes a pipe cover that the analogue clock is incorporated into.

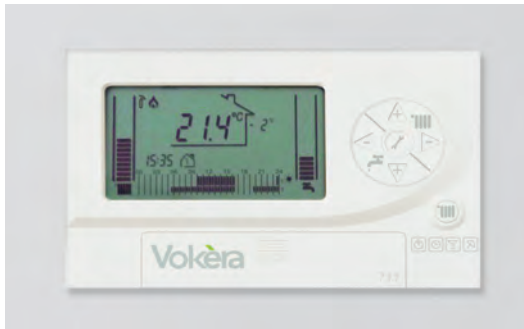
<sup>(7)</sup> Can be also connected to Compact HE, Linea 7 and Compact SE using the RC05 Programmer.

# Intelligent Control Range

## NEW OPENTHERM RF PROGRAMMABLE ROOM THERMOSTAT



Code: 20050690  
(Black version also available. Code: 20050691)



Vokèra's new OpenTherm Programmable Room Thermostat has been developed to work with our current range of appliances<sup>(2)</sup> and is also compatible with several discontinued products such as the Linea HE range.

'OpenTherm' is the most advanced technology available at the moment; the basic principle of OpenTherm is that it takes over the management of the heating flow temperature and raises or lowers the flow temperature from the boiler in order to maintain the desired room temperature.

### OpenTherm Features

The Vokèra OpenTherm control has been designed with both the installer and end user in mind:

Transmitter is supplied paired with the receiver.



Configured for use with the Unica i combi boiler, the receiver can quickly and easily be connected to the boiler using the 'plug and play' Tyco socket (pictured left), meaning a Part P qualified electrician is not required to fit it.

The Tyco connection can be re-configured or removed to facilitate use with other compatible Vokèra high efficiency combi boilers.

Magnetic strips (supplied) enable the installer to attach the receiver directly to the boiler casing, it can also be attached to the wall alongside the boiler. The wireless (RF) room unit (pictured above) can be wall mounted in a suitable location.

4 modes of operation including:

- **Auto:** Timed Comfort/Economy/Off as per the below pre-programmed pattern or user defined heating pattern.
- **Economy / Holiday:** Economy temperature can be set for holiday periods of up to 99 days.
- **Party:** Comfort temperature for one day programme override.
- **OFF:** Hot water only, but with frost protection active.

Domestic Hot Water temperature control.

Frost protection function.

A default pre-programmed typical heating pattern means that the installer only has to set the time and day of the week before the control becomes fully operational.

### PRE-PROGRAMMED HEATING PATTERN

Days	Morning	Evening
Monday - Friday	ON 06:00 - OFF 08:00	ON 16:00 - OFF 22:00
Saturday and Sunday	ON 08:00 - OFF 11:00	ON 16:00 - OFF 23:00

For the end user, the inclusion of the pre-programmed heating pattern along with an easily selectable 4 modes of operation ensures a control ready to use with minimal user input.



Gas Safe Registered Installers: Visit our YouTube channel for a step by step installation video (search Vokera Ltd). Users will also find an instructional setup video.

<sup>(1)</sup> Unica i combi boiler only.  
<sup>(2)</sup> See 'Controls Compatibility' table on p.2. For discontinued product compatibility please contact Vokèra technical.

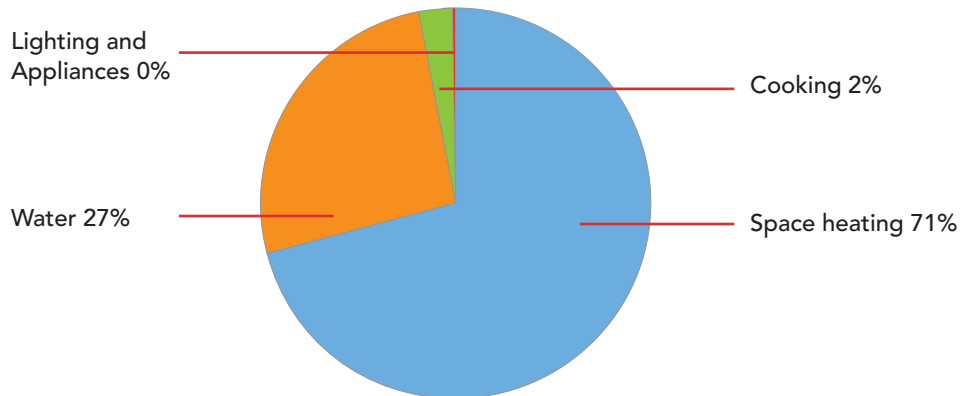
## How much energy does the OpenTherm Programmable Room Thermostat save?

A saving of around 15% can be achieved when using the OpenTherm Programmable Room Thermostat when compared to a typical ON/OFF room thermostat, this equates to an £83 saving on an annual fuel bill.

GAS PRICES					
Year	April 2009	April 2010	April 2011	April 2012	April 2013
Customer Bill	£665	£620	£665	£780	£830

Source: OFGEM

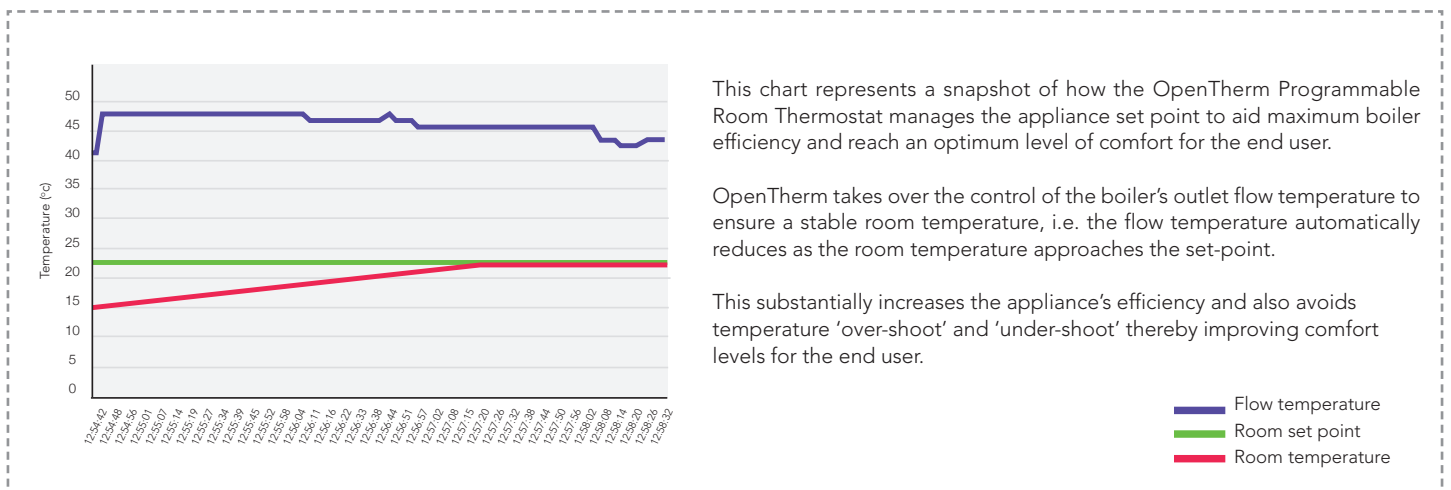
For example, the average 2012 UK gas bill was £780 (Source: OFGEM); approximately 71% is used for space heating (Source: DECC), this equates to a cost of £554.



## How does the Vokèra OpenTherm Programmable Room Thermostat work?

Not only is the OpenTherm designed to reduce fuel costs it is also designed to improve end user comfort. It achieves this by significantly reducing or eliminating temperature 'undershoot' or 'overshoot', meaning that a stable room temperature is achieved and maintained.

When you connect the OpenTherm to a boiler, the boiler's own internal management of the heating flow temperature is bypassed and the OpenTherm control takes over. By allowing the OpenTherm to manage the flow temperature, the efficiency of the appliance is increased as the control constantly endeavours to maintain a low flow temperature. Condensing boilers are at their peak efficiency when operating at lower flow and return temperatures.



You can install the OpenTherm control with the Weather Compensation sensor. Weather compensation technology 'fine tunes' the heating system by incorporating the outside temperature, where the flow temperature increases/decreases in response to external weather conditions. Effectively it takes into consideration the external temperature and works with the OpenTherm control to tell the boiler what it needs to do to compensate for the outside weather conditions, so if it is a warm day, it tells the boiler it will not need to work as hard to achieve the room set point.

## WEATHER COMPENSATION SENSOR

EASY TO INSTALL	SUPPLIED AS STANDARD WITH LINEA ONE	CONTROLS HEATING FLOW TEMPERATURE	COMPATIBLE WITH MOST HE MODELS	COMPATIBLE WITH OPENTHERM	<sup>(1)</sup> SUITABLE FOR RETROFIT INSTALLATION
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Code: 239259

(This control is supplied as standard with the Linea One combination boiler)



Many Vokèra models come with the weather compensation technology built in, meaning that by simply purchasing the external sensor, the homeowner can benefit from even further energy savings. This sensor is supplied as standard with the Linea One combination boiler.

### How does the Vokèra Weather Compensation Sensor work?

The outside Weather Compensation Sensor manages the central heating temperature by regulating the boiler flow temperature depending on the external weather conditions.

<sup>(1)</sup> Check 'Controls Compatibility' table on p.2

The OpenTherm control can be used in conjunction with an external weather compensation sensor. Weather Compensation technology ties the prevailing external weather conditions to the heating system flow temperature. As the external conditions become colder, the flow temperature to the heating system increases and should the external temperature rise, the heating flow temperature will lower accordingly. The OpenTherm room control will ensure the internal target temperature is maintained throughout.

### How much energy does the Weather Compensation Sensor save?

The installation of a Weather Compensation Sensor onto a condensing boiler has been found to increase the efficiency by 2% (SAP 2005), enabling efficiencies in excess of up to 92%. The Weather Compensation Sensor can also be installed in conjunction with the Vokèra OpenTherm Programmable Room Thermostat which will further enhance energy savings.

### Installing the Weather Compensation Sensor

- The sensor can be easily connected to the boiler using a 0.5mm flex.
- If the Weather Compensation Sensor isn't included during the initial install it can be retrofitted at a later date (if the boiler model is included in the Controls Compatibility table).



#### STEP 1

Start by installing the Weather Compensation Control to an external North/North West facing wall, approx 2m above ground and connect to the boiler.

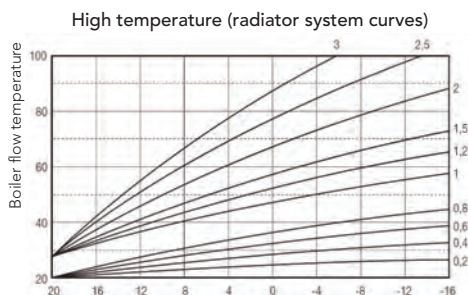


#### STEP 2

Connect the cable from the sensor to the correct terminals on the boiler wiring block.

### STEP 3 SELECTING THE HEATING CURVE

When the Weather Compensation Sensor is connected, a 'heating curve' must be chosen.



The heating curve is a setting that gives the boiler the information it needs about the heating system, geographic location and sometimes the insulation level in the house so it can set the boiler flow temperature accurately. For example, if the house requires a flow temperature to the radiators of 70°C in order to provide an internal temperature of 20°C when the outside temperature is -4°C, a suitable curve would be chosen from the graph supplied with the instructions.

Often, radiators will have been sized to deliver the required internal temperature of 20°C with an external temperature of -3°C and a flow temperature of 75 to 80°C. That design of system will require a curve setting of around 2.5 and is a good starting point.

A 'Weather Compensation ready' Vokèra boiler will automatically detect when an external sensor is connected and depending on the settings entered by the engineer, it will align the heating flow temperature to the property's heating system type and its geographic location to achieve a nominal internal temperature target of 20°C. The end user can adjust the nominal internal target temperature easily on the boiler controls.

We offer more guidance on the correct curve selection in the boiler installation manual or contact the Vokèra training co-ordinator for more information on the controls course. Email [training@vokera.co.uk](mailto:training@vokera.co.uk) or call 01727 744002.

# Room Thermostat Range

**Room thermostats** control the central heating temperature. Programmable room thermostats can have different set temperatures for different periods of the day, offering greater flexibility and a simple solution to boiler control. It is usual to set your thermostat between 18 - 21°C.

## 7 DAY RF PROGRAMMABLE ROOM THERMOSTAT

4 MODES OF OPERATION	TRANSMITTER PRE-PAIRED WITH RECEIVER	<sup>(1)</sup> 'PLUG AND PLAY' CONNECTION	PROGRAMMED HEATING PATTERN	RF AND HARD-WIRED VERSIONS	SIMPLE TEMPERATURE ADJUSTMENT
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**Code: 20059643**  
(Hard-wired version also available. Code: 20063874)



This ON/ECONOMY/OFF programmable room thermostat allows easy control over boiler heating timings and temperatures over a 7 day period. It has been developed to work with our current range of appliances<sup>(2)</sup> and is also compatible with several discontinued products.

RF (wireless) and hard-wired versions are available to ensure a simple installation to both new boilers and as a replacement for existing wired controls.

This room thermostat can be configured as a 7 day programmer, a 5+2 day programmer with up to 24 temperature changes a day or as an untimed room thermostat.

### 7 Day RF Programmable Room Thermostat Features

The 7 Day RF Programmable Room Thermostat has been designed with both the installer and end user in mind:

The room thermostat is paired with the receiver eliminating the need to carry out this act during installation.



Configured for use with the Compact A combi boiler, the receiver can quickly and easily be connected to the boiler using the 'plug and play' Tyco socket, meaning a Part P qualified electrician is not required to fit it.

The Tyco connection can be re-configured or removed to facilitate use with other compatible Vokera high efficiency combi boilers.

Magnetic strips (supplied) enable the installer to attach the receiver directly to the boiler casing or alongside the boiler.

4 modes of operation including:

- **Auto:** Timed Comfort/Economy/Off as per the below pre-programmed pattern or user defined heating pattern.
- **Economy / Holiday:** Economy temperature can be set for holiday periods of up to 99 days.
- **Party:** Comfort temperature for one day programme override.
- **OFF:** Hot water only, but with frost protection active.

The default heating program means that the installer only has to set the time and day of the week before the control becomes fully operational.

### PRE-PROGRAMMED HEATING PATTERN

Days	Morning	Evening
Monday - Friday	ON 06:00 - OFF 08:00	ON 16:00 - OFF 22:00
Saturday and Sunday	ON 08:00 - OFF 11:00	ON 16:00 - OFF 23:00

For the end user, the inclusion of a pre-programmed heating pattern along with an easily selectable 4-modes of operation ensures a ready to use control with minimal user input.

<sup>(1)</sup> Compact A combi boiler only.  
<sup>(2)</sup> See 'Controls Compatibility' table on p.2. For discontinued product compatibility please contact Vokera technical.

## RF ROOM THERMOSTAT CONTROL

ON/OFF  
ROOM  
THERMOSTAT

SIMPLE  
TEMPERATURE  
ADJUSTMENT

IDEAL FOR  
VISION COMBI  
BOILERS

RF AND  
HARD-WIRED  
VERSIONS

EASY TO READ  
LCD DISPLAY

Code: 20059642

(Hard-wired version also available. Code: 20063869)



This ON/OFF room thermostat has similar characteristics to the 7 Day RF Programmable Room Thermostat as it can be used to adjust the set room temperature. Compatible with all current Vokèra HE ranges and can also be used on older appliances that incorporate an integral clock.<sup>(1)</sup>

It is ideal for the Vision combi boilers. This optional room thermostat is installed in a convenient location so that the user can easily adjust their heating temperature, without interfering with any programmed heating timings that have been set on the Vision C boilers built in 7 day digital clock.

<sup>(1)</sup>Contact Vokèra Technical for advice.

## RC05 PROGRAMMABLE ROOM THERMOSTAT AND BOILER CONTROL



The RC05 can be fitted in an accessible location enabling direct control over the boiler and is compatible with certain discontinued Vokèra products for installation on an existing heating system. The RC05 can also be used with the Weather Compensation Sensor<sup>(1)</sup> to further increase efficiency and comfort levels. (Code: 2359259)

### RC05 Features:

- Facilitates remote reset.
- Alarm codes and services icons displayed.
- Regulates hot water and heating temperature.
- 3-modes of operation.

<sup>(1)</sup>Compact HE, Linea 7 and Compact SE only.

Code: 405

## Time Controls

Analogue clocks and digital programmers allow basic control over the heating and/or hot water requirements with the ability to set specific heating patterns for either 24 hour or 7 day periods.

### MYNUTE HE 7 DAY DIGITAL PROGRAMMER



Suits all main heating and hot water needs, when the boiler is connected to a water cylinder. It can be programmed to control the heating and hot water timings at different times each day for a 7 day period.

Code: 514

### COMPACT A 24 HOUR ANALOGUE CLOCK



Allows control over boiler heating timings with continuous, timed and off modes of operation. This clock is incorporated into the pipe cover which is included in the clock kit.

Code: 20025085



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