

Dimplex



QUANTUM
heating system

Introducing the Quantum heating system

The heater that adapts to its environment



dimplex.co.uk/quantum

Introducing Quantum – the latest innovation from the market leader in electric heating solutions.

Quantum is the world's most advanced electric space heater. It uses low cost, off peak energy to provide the most economical electric heating system on the market today, plus it also provides heat only when its needed – whatever the time of day or night.

Quantum is the culmination of 3 years research and development work and builds on the knowledge and expertise we have gained from over 60 years manufacturing efficient, reliable and attractively designed products. Not only has Quantum been designed and developed by our own in-house team of experts, it is also manufactured in our own factory in the UK. Quantum is also award winning, scooping the prestigious Electrical Industry Energy & Carbon Saving Award in 2013.

“ All of the residents I have spoken to have noticed a significant saving in their electricity bills and the best thing is that the heaters are so easy to use. Once the controls are set, you don't even need to touch them. ”

Resident, Birmingham





Why is Quantum so good?

- ✓ Up to **27% cheaper** to run than a standard storage heater system*
- ✓ Up to **47% cheaper** to run than an electric convector or radiator system*
- ✓ Uses low cost, off-peak energy
- ✓ Incorporates our revolutionary iQ controller† making Quantum highly controllable – yet simple to use
- ✓ Heat on demand – whatever the user's lifestyle
- ✓ 10 year warranty†



*Calculated using SAP2012 – the only Government approved energy performance assessment method.

†Ten year warranty is a standard 2 years, plus additional 8 years on registration. Terms and conditions apply. See www.dimplex.co.uk/quantumregistration

‡Patent applied for.

A unique concept in electric heating

The Quantum Heating System provides a low-cost, low-carbon, electric heating system. The system offers unrivalled running costs, and will use decreasing amounts of carbon over its lifetime.

- Uses off-peak tariffs for low running costs – on a room-by-room basis it is expected that 90% of the heating requirement will be met by off-peak energy.
- Automatically adjusts to the user's needs through its dynamic storage capacity.
- Fitted with our revolutionary iQ controller² which enables heating requirements to be pre-set.
- Precisely matches the user's chosen heating profile
- Easy-to-use, electronic user interface with LCD display complete with:
 - room temperature setting.
 - seven-day programmer.
 - installer settings.
- Designed to operate on any off-peak tariff.
- Fan-assisted output for extremely rapid heat-up time.
- Soft-start, ultra quiet fan for minimum intrusion.
- Boost element ensures heat is always available even with unexpected demand.
- Attractive, state-of-the-art design.
- Compact design (no deeper than a double wet radiator) with flexible mounting options and adjustable feet positions.
- Covers previous 'fixing marks' of most comparably sized traditional storage heaters.



Specifier Benefits

- Uses low-cost, low-carbon, future-proofed technology.
- Easy to specify within SAP.
- Available in a range of heater sizes, enabling greater flexibility in project specification.
- Virtually maintenance free.
- Compact with adjustable feet positions.
- Covers previous 'fixing marks' of most comparably sized traditional storage heaters.
- Easy to use controls to reduce user confusion.
- Low torque rotary knob designed for arthritic users and the visually impaired.

“ Our residents are very pleased and are getting used to the controls quite easily as the thermostat is easy to see on top of the heater and it can be turned up or down, giving virtually instantaneous results. ”

“ I've been renovating the house and definitely didn't want the hassle of running gas in, not to mention the cost. When my friend who is an installer said always go for Dimplex, they are the best, the whole process was easy from there on. ”

End User Benefits

- Completely automatic once set up.
- Economical to run, helping to alleviate the increasing problem of fuel poverty.
- Offers improved comfort levels, heating only when required.
- Virtually maintenance free.
- Accurate room temperature control with a thermostat accurate to +/- 0.3°C.
- Responsive to changes in external temperature.
- Low torque rotary knob designed for arthritic users and the visually impaired.
- Delivers high reliability and very low maintenance.
- Accepted as a Green Deal 'measure' – see page 6 for more details.



Installer Benefits

- Simple to install – with separate instructions for both installer and user.
- Includes an electronic controller pre-loaded with time/date and commissioning programme.
- Reversible cable entry points and adjustable feet to ensure the chassis covers previous 'fixing marks' of most comparably sized storage heaters.
- Easy to use controls to reduce user confusion.

“ I find the Quantum heater brilliant to install, very straightforward and easy. We're installing them all the time now. ”

A closer look at the benefits



Cost savings

With Quantum, **up to 90% of your heating is provided using low-cost, off-peak energy**. Quantum also uses insulation material with almost the lowest theoretically possible thermal conductivity – even lower than that of still air. This means that heat barely passes through the material, so minimising heat loss.

Due to this exceptional insulation and other clever features, Quantum is recognised using SAP 2012 (the Government recommended system for measuring a home's energy performance) as being **up to 27% cheaper to run and using up to 22% less energy** than a standard storage heater system.* This means that if a Quantum system replaces a manual static storage system, certain properties could expect annual **running cost savings of up to £418 every year**.^{*} With these savings, the extra up front cost could be repaid in just over two years.[^]

Quantum is also up to 47% cheaper to run than an electric convector or radiator system.* Depending on the property type, **annual running cost savings could be up to £975** when replacing an electric convector or radiator system on standard tariff with a quantum system on Economy 7.*

What's more, Quantum is the only product available in the UK[†] which meets the SAP 2012's specification criteria to be categorised as a 'High heat retention storage heater', and Quantum has been accepted as a 'Green Deal Measure' by the Department of Energy & Climate Change. The 'golden rule' of the Green Deal states that the expected energy savings must be greater than the costs of the improvements.

For more information on the Green Deal, visit www.gov.uk/greendeal



Heat on demand

Through its exceptional levels of insulation, Quantum is able to store energy during periods of low demand, turning it into efficient heat only when you need it. The Quantum iQ controller[‡] uses a sophisticated self-learning algorithm to take just the right amount of heat to match your lifestyle and climate conditions, intuitively and precisely. So you can relax knowing there is sufficient heat available to meet your needs.

A soft start fan ensures the heat is released into the room unobtrusively, quickly and efficiently. In fact, Quantum can heat a room faster than any other central heating system. Furthermore, because the heat outlet is positioned at the base of the heater, the room is heated from floor level, ensuring maximum comfort and efficiency.

“

I didn't want the hassle of running gas in with more pipes, cutting holes in the walls, finding space for a boiler, not to mention the cost. When my installer friend said 'always go for Dimplex, they are the best', the whole process was easy. I noticed a big difference immediately.

Homeowner, London

”

*Calculated using SAP 2012 – the only Government approved energy performance assessment method.

[†]As at time of printing. [^]Based on a one bedroom flat.

[‡]Patent applied for.

iQ Highly controllable

The Quantum iQ controller[†] monitors the weather and responds to changing climate conditions automatically. It follows target room temperature closely, adjusting settings to maintain the required temperature to within +/- 0.3°C.

The iQ controller is also constantly monitoring and learning your heating habits. It anticipates your needs, adapting and delivering just the right amount of heat for complete comfort. Whether you are at home all day or only morning and evening, Quantum can meet the heating requirements of your lifestyle.

Of course, if you want to adjust the heat levels manually, you can. The easy-to-use electronic interface with clear LCD display puts you in control. There's a seven-day programmer with three adjustable preset timer profiles, a 'Holiday' mode, landlord setting, child lock and more. So sit back and let Quantum take control.

10 YEAR Peace of mind

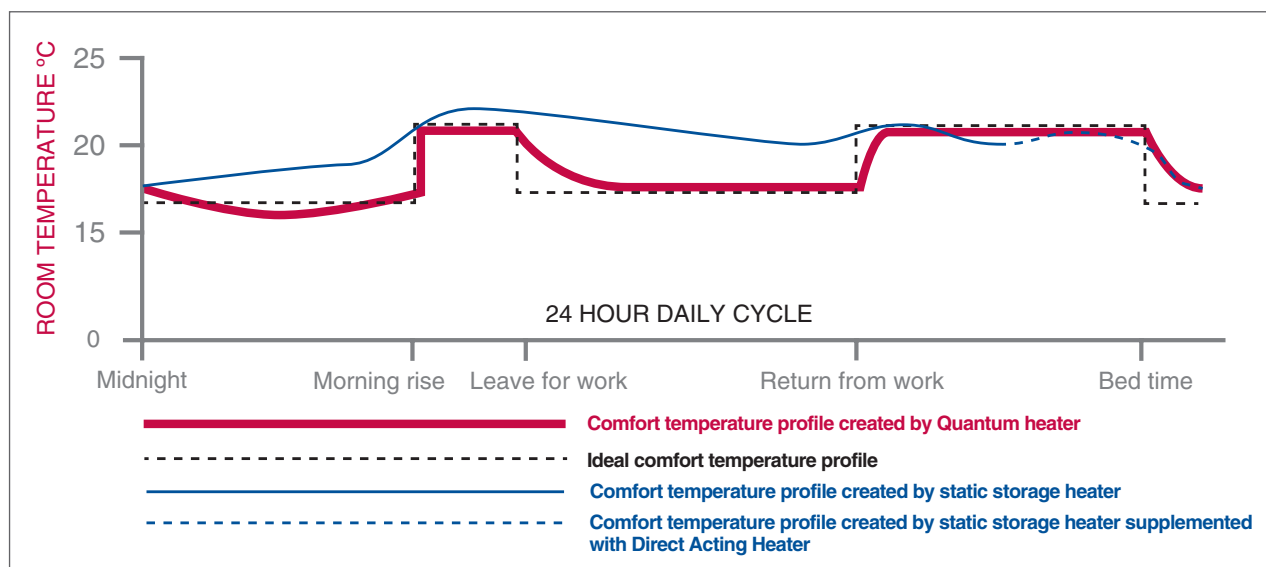
Quantum delivers high reliability, plus it's virtually maintenance free. And for added confidence, **every Quantum comes with our 10-year warranty.[†]**

Furthermore, **Quantum is BEAB Approved.** Recognised across the UK and Europe, the BEAB Approved Mark demonstrates the safety pedigree of a product: our commitment to best practice, to producing quality goods and to our customers' safety. It is the highest safety standard achievable in the UK.



Intertek

Quantum matches the user's heating needs.



See page 13 for test details of comparative test.

“ I think the Dimplex Quantum is marvellous, you can alter them really easily. My sitting room gets lots of sun in the day so it gets really warm and I don't need any heating. As a result I just put the heater on its 'out all day' setting and then when I need heat in the evening, it's there and that's lovely. You just press a button and the job is done, very simple to use. ”

Resident, Kent

[†]Ten year warranty is a standard 2 years, plus additional 8 years on registration.
[†]Terms and conditions apply. See www.dimplex.co.uk/quantumregistration for full details.
[†]Patent applied for.

A closer look at running costs

Quantum offers significant running cost savings compared to other electric heating systems. These tables show the detail but in summary:

✓ **Quantum can reduce running costs by up to 47% when compared to an electric convector or radiator system.***

✓ **Quantum can reduce running costs by up to 27% when compared with a standard storage heater system.***

The running costs of electric heating systems in the case study documented are calculated using energy consumptions derived from SAP2012 energy use estimation methods. This energy use is combined with a standard electric heating tariff for electric radiators and an Economy 7 tariff for storage heaters and Quantum. The kWh unit rates are as stated in SAP2012 Table 12 (BRE – published on behalf of DECC) 'SAP2012 – the Government's Standard Assessment Procedure for Energy Rating of Dwellings', 2012 edition, February 2014.

With these assumptions SAP2012 has been used to calculate the space heating running costs for 3 property types with two different levels of insulation. The first level of insulation is based on 1960s building regulations and air tightness, whilst the second level of insulation is based on 1990s standards. The annual space heating energy requirements are based on average regional weather conditions for Northern Ireland.

The results show that certain properties with a Quantum heating system using an E7 tariff can reduce, on average, running costs by between 44-47% when compared with direct acting systems such as electric radiators using a standard tariff. Quantum can also achieve savings of up to 27% if used in a property to displace conventional manual storage heaters on an E7 tariff.

40m² 1-Bed Flat

Built with typical 1960s Building Regulations.

Annual space heating energy requirement – **6,840kWh**

Heating System	Running Cost
Direct acting electric radiators	£902 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£664 (E7 Tariff)
Quantum and panel convector heaters	£494 (E7 Tariff)

Refurbished with typical 1990s Building Regulations.

Heating System	Running Cost
Direct acting electric radiators	£523 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£371 (E7 Tariff)
Quantum and panel convector heaters	£291 (E7 Tariff)

65m² 2-Bed Flat

Built with typical 1960s Building Regulations.

Annual space heating energy requirement – **10,610kWh**

Heating System	Running Cost
Direct acting electric radiators	£1,399 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£985 (E7 Tariff)
Quantum and panel convector heaters	£745 (E7 Tariff)

Refurbished with typical 1990s Building Regulations.

Heating System	Running Cost
Direct acting electric radiators	£849 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£575 (E7 Tariff)
Quantum and panel convector heaters	£455 (E7 Tariff)

90m² 3-Bed Semi-detached House

Built with typical 1960s Building Regulations.

Annual space heating energy requirement – **15,910kWh**

Heating System	Running Cost
Direct acting electric radiators	£2,099 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£1,542 (E7 Tariff)
Quantum and panel convector heaters	£1,124 (E7 Tariff)

Refurbished with typical 1990s Building Regulations.

Heating System	Running Cost
Direct acting electric radiators	£1,248 (Standard Tariff)
Manual charge storage heating and panel convector heaters	£857 (E7 Tariff)
Quantum and panel convector heaters	£663 (E7 Tariff)

A closer look at controllability

Great advances in insulation technology and controllability ensure the Quantum heater is up to 27% cheaper to run and uses up to 22% less energy than other comparable electric heaters.

The Quantum heater uses insulation material which comes close to the lowest theoretically possible thermal conductivity – an insulation with a thermal conductivity even lower than that of still air.

Better still, Quantum uses off-peak tariffs to minimise costs, so users can enjoy all the benefits of electric heating, with running costs unattainable by other direct acting electric systems. And to top it all, the Quantum heater is easy to install and virtually maintenance free.

The Quantum Room Heater will:

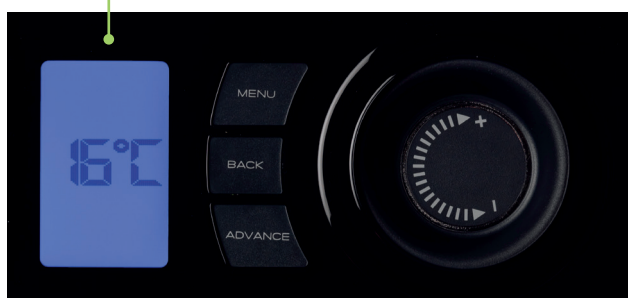
- Intelligently monitor weather and usage patterns, learning from and adapting to them, delivering heat accordingly.
- Work seamlessly with the grid, using off-peak tariffs to minimise user costs and maximise efficiency.
- Closely follow target room temperature, intuitively adjusting settings using a thermostat that is accurate to within a fraction of a degree (C).
- Respond quickly to changing climate and room temperature conditions, and alter configurations automatically.

All of this adds up to highly controllable heating, with exceptionally low running costs.



Low torque rotary knob and escutcheon, specifically designed for arthritic users, adjusts target temperature and enables menu scrolling and selection.

Target temperature display is colour coded to assist visually impaired.



The heater intuitively and precisely responds to user lifestyle and climate conditions, delivering just the right amount of heat. Of course, heat levels can also be adjusted manually.

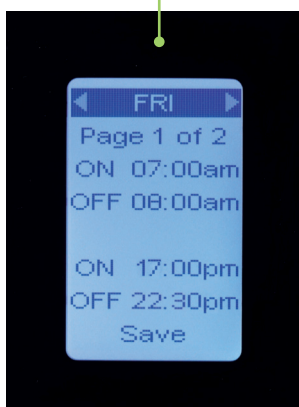
End users can:

- Manually adjust heat levels via the easy-to-use, built-in electronic interface with LCD display, advance/menu/back buttons and rotary 'click' selector
- Choose and adjust preset programmes, such as 'Home all day', then sit back and relax as the Quantum Heating System takes control

Quantum intuitively follows target room temperature, adjusting settings using a thermostat that is accurate to within a fraction of a °C.



7 day programmer with 3 pre-set (adjustable) timer profiles, display adjustment. Holiday mode giving frost protection, landlord setting, child lock setting and many more features.



Buying Quantum.

Our guide

Dimplex provides a number of options, to meet different property and timescale requirements. If you need to obtain an indication of the heating requirements for estimating or if you need heating for one or two rooms, please use this Selection Guide. Alternatively use our online calculator at www.dimplex.co.uk/heatdesign. For single properties, please complete the form on our website (also at www.dimplex.co.uk/heatdesign) and send it with a sketch plan to our heating design department. We aim to provide an accurate assessment within 7 working days.

For multiple properties, please send us comprehensive scale drawings (scale 1:50 or 1:100) together with construction details and any other relevant information. We offer a 14 day service for this type of assessment.

Our contact details are:

email: heat.design@dimplex.co.uk
Heating Design Team, Dimplex, Millbrook House,
Grange Drive, Hedge End, Southampton, SO30 2DF.

Need a quick guide?

For a quick assessment of your heater requirements in the interim, please use our heater sizing chart below:

1. Identify your floor area in m².
2. Follow that row to the appropriate wall construction column: solid, cavity or insulated.
3. Select the appropriate number of outside walls: 1, 2 or 3.
4. The figure shown is the kilowatt (kW) loading required.
5. Match this figure to the input rating of our Quantum heaters (opposite), ensuring that the input rating of the heater selected is never less than the kW loading given in the table below.

For example, if your floor area is 12m², has cavity walls and 2 outside walls, then the kilowatt loading required is 1.92kW. The nearest sized suitable heater would be the QM100 which has an input loading of 2.2kW.

Required Quantum Heater loading in kW. Comfort temperature 21°C.

Floor area		Solid walls no. of outside walls			Cavity walls no. of outside walls			Insulated cavity walls no. of outside walls		
		1	2	3	1	2	3	1	2	3
m ²										
12	Required kW heat loading	1.84	2.16	2.88	1.60	1.92	2.48	1.12	1.28	1.68
16		2.08	2.48	3.20	1.84	2.32	2.88	1.36	1.60	1.92
20		2.64	3.12	3.92	2.32	2.72	3.44	1.68	1.92	2.32
24		2.96	3.44	4.32	2.64	3.12	3.76	2.08	2.32	2.64
28		3.28	3.92	4.80	2.96	3.44	4.24	2.16	2.48	2.96
32		3.52	4.32	5.28	3.28	3.76	4.72	2.40	2.72	3.20



Need an installer?

Find your local Dimplex Quantum Installer at www.dimplex.co.uk/quantum or call us on 0844 879 3588.

See Quantum on display

The revolutionary Quantum heater is on display across our network of wholesale stockists.

For details of your nearest Quantum display, visit: www.dimplex.co.uk/quantum or call us on 0844 879 3588.

Quantum Technical Specifications

Model No.	Height	Depth	Width	Installed Weight
QM070	730mm (28.75")	185mm (7.3")	703mm (27.7")	83kg
QM100	730mm (28.75")	185mm (7.3")	865mm (34.1")	107kg
QM125	730mm (28.75")	185mm (7.3")	1069mm (42.1")	135kg
QM150	730mm (28.75")	185mm (7.3")	1069mm (42.1")	155kg

Model No.	Output Rating	Input Rating	Max. Storage Capacity	Boost Element Rating
QM070	0.7kW	1.56kW	10.9kWh	0.63kW
QM100	1.0kW	2.2kW	15.4kWh	0.88kW
QM125	1.25kW	2.76kW	19.3kWh	1.13kW
QM150	1.5kW	3.3kW	23.1kWh	1.3kW

ENERGY CELL PACKS – Packaged separately, required in the following quantities:

Model No.	QM070	QM100	QM125	QM150
Energy Cell Packs Required	6	8	10	12

Controls	Electronic user interface with LCD display offering room temperature setting, seven day programmer, installer settings, three pre-set timer profiles, holiday setting and more.
Charge Controller	Fully automatic charge controller incorporates self learning algorithms to optimise daily energy storage, using multiple sensors to automatically adjust the charge taken based on recent energy use patterns and future programmed requirements.
Thermostat	Electronic – accurate to +/- 0.3°C.
Safety Devices	Electromechanical – limit thermostat (self resetting); cut-out (manual reset); over temperature thermostat for fan; over temperature limit thermostat for fan.
Fan	Low rev/low noise heat circulation fan with variable speed and soft start.
Storage Core	High density bonded magnetite energy cells.
Thermal Insulation	Front, rear top and ends – microporous silica. Base – calcium silicate slab.
Colour/Finish	White.
Battery Backup	3.3V coin cell battery to backup real time clock. Battery life > 5 years.
Supply	230-240V / 50Hz. Off-peak + 24 hour supply required.
Approvals	BEAB / EN60335 / EMC / CE.
Warranty	2 years standard, plus additional 8 years on registration. Terms and conditions apply. See www.dimplex.co.uk/quantumregistration for full details.

COMPARATIVE TEST DETAILS (FOR GRAPH ON PAGE 7)

Climate Room Test Chamber

A climate room was built to accurately replicate a room from typical UK housing stock. It has two external walls and two internal walls, and the temperatures outside all walls, ceiling and floor are accurately controlled.

The U values of walls, windows and door are as follows:

Room dimensions **4m x 3m x 2.4m**

U values:

- Double layer solid brick outer walls **2.0**
- Insulated internal walls and ceiling **0.34**
- Insulated floor **0.25**
- UPVC double glazed window **3.3**
- UPVC double glazed door **3.0**
- Air change rate **1 A/C per hour**

The Test

A daily temperature profile was set up outside the two external walls to simulate an average heating day in a property based in Sheffield, England.

Minimum outside temperature **+4°C**
Maximum outside temperature **+11°C**

The heating periods were set at 07:00 to 09:00 and 16:00 to 23:00. The target room thermal comfort temperature was 21°C. The following heater was tested under these conditions:

- 3.4kW (input) static storage heater with manual charge control – supplemented with a direct acting heater
- 2.8kW (input) Quantum heater (QM125)

The Quantum Energy System

Quantum heaters can work as standalone units, as part of a Quantum off peak only solution, or ideally with a mix of Quantum in living areas and Dimplex Q-Rad electric radiators in bedrooms. For a property's hot water requirements, we also manufacture the Quantum hot water cylinder.

The Q-Rad Electric Radiator

Q-Rad combines the latest, most advanced technologies to give you maximum control over your heating. Choose when you want heat and at what temperature using the intuitive heater control. Then sit back and let Q-Rad take care of the rest.

- ✓ Our most intelligent electric radiator.
- ✓ Highly accurate electronic thermostat ($\pm 0.2^{\circ}\text{C}$).
- ✓ Advanced heater control with CapSense® technology offering temperature selection and preset programmes for maximum control with complete flexibility.



- ✓ Low thermal heat mass, providing:
 - Faster room heat up time and lower energy consumption than a conventional radiator with comparable output.
 - Responsive reaction to changes in prevailing conditions to prevent overheating and energy wastage.
- ✓ Instant warmth through Dual-Element Technology, providing the perfect balance of convection and radiant heat.
- ✓ Open Window Technology automatically stops Q-Rad from working at full power if a window is left open to prevent heat loss, therefore saving money.
- ✓ Eco Start Delayed Start Control means that Q-Rad knows precisely when to turn on to heat your room to a comfortable temperature when you want it.
- ✓ Stylish design to complement the Quantum heating system.
- ✓ Slim (105mm) profile, available in varying widths and outputs for an extensive range of applications.
- ✓ Suitable for use as a stand-alone electric radiator or as part of a Quantum heating system.
- ✓ BEAB approved.

The Quantum Cylinder

Class-leading and intuitive, smart energy storage water vessel.

- Purpose designed to give unrivalled heat retention.
- Provides mains pressure hot water for fast-filling baths and powerful showers.
- Manufactured from stainless steel with a 25-year warranty.
- Choice of five sizes, ranging from 125 to 300 litres – in unvented form.
- Advanced controls with feedback on hot water availability – so no surprise cold showers!
- Hard-wearing, black insulation outer shell made from recycled materials.
- Delivers a long-life, low-maintenance, economical hot water supply.



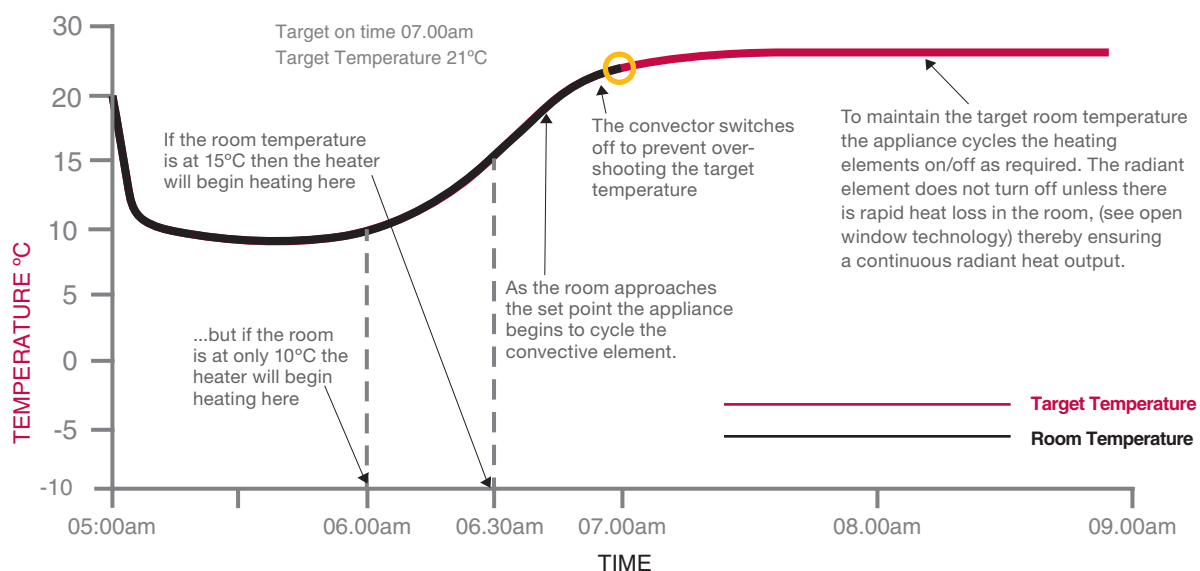
Q-Rad has a unique self-learning delayed start function, which learns the thermal characteristics of a room and determines how long the appliance needs to be on in order to reach target temperature based on factors such as room size, heat losses and the prevailing weather. Measuring the heat-up and cool-down times of the room and how they vary with external temperature, the heater will work out what time it needs to start heating in order to reach user defined target temperature at a specified time. Inevitably, this minimises wasted energy and can deliver cost savings for users.

A low thermal mass allows Q-Rad to heat up more quickly and react more responsively to changes in room temperature than a conventional radiator. This means improved control, comfort and energy saving.

Taking design cues from our category-leading Quantum off peak space heater, Q-Rad is sleek, slim and stylish. Combining good looks with flexible installation options, Q-Rad is ideal for installation in many applications, including in place of conventional radiators.



Eco Start in operation



Specifications

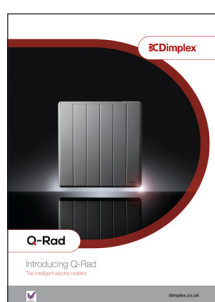
Dimplex policy is one of continuous improvement; the Company therefore reserves the right to alter specifications without notice. The information contained in this brochure is correct at the time of printing. You are advised to consult your Dealer before purchasing.

Installation Guidance

This brochure is designed to assist you with your choice of Dimplex products and it is not intended as an installation guide. For safety, products should only be installed by a competent person, in accordance with current regulations and the manufacturer's instructions.

The Dimplex Range

Dimplex offers the widest range of renewable energy, electric space and water heating products in the world – over 700. In addition to this publication, we have a wide range of brochures for both domestic and commercial applications. Please visit our website www.dimplex.co.uk for more information.



Q-Rad electric radiator brochure



Quantum hot water cylinder brochure



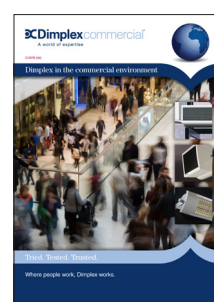
Domestic heating brochure



Designer panel heating brochure



Towel rail brochure



Commercial brochure



Electric fires brochure



Renewables at Home brochure



Solid fuel brochure

For more information on Quantum,

please visit: www.dimplex.co.uk/quantum email: customer.services@dimplex.co.uk

or call: **Trade – 0844 879 3587 Consumer – 0844 879 3588**

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For Northern Ireland, contact Glen Dimplex N.I. Limited, Unit No 24, Seagoe Industrial Estate, Portadown, Craigavon, Co. Armagh BT63 5TH

For Republic of Ireland, contact Dimpco on +353 (0)1 8424 277, email sales@dimpco.ie or visit www.dimpco.ie

[†]Patent applied for.

Products within the Quantum range are protected by one or more of the following patents and patent applications:

Great Britain GB2481048, GB 2487147, GB 2487148, GB 1101971.8, GB 1205302.1, GB 1212547.2, GB1212546.4, GB 1304025.8

Australia AU 2011263698, **Canada** CA 2,801,973, **Chile** CL 03468-2012,

European EP 11731288.4, **New Zealand** NZ 604163,

South Africa ZA 2012/09378, **United States** US 13/703,068,

China CN 201180037404.2, **Japan** JP 506280052

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REGISTERED MEMBER



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