

UK InfraRed Heating Manual



UK Sales Agent: www.infraredreplacinggas.com



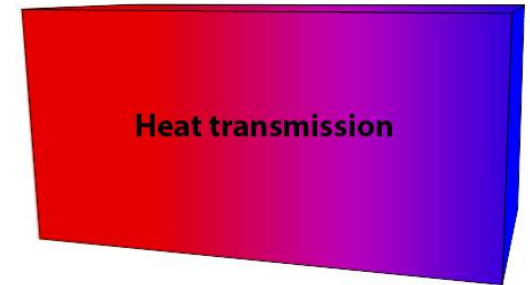
- Physical basics of heat
- General information on infrared radiation
- General information on infrared heating
- Infrared heating vs. convection heatingOur Heat4All Infrared Heaters
- Product PortfolioHeat4All control systems
- Correct positioning of Heat4All Infrared Heaters
- Energy Performance CertificateQuestions and Answers
- Selling points for Heat4All SmartLine

Be the provider with the
best price-performance ratio

↳ Launch of our Heat4All product generation

Heat4All SmartLine

- Heat is transmitted via conductivity, convection or radiation.
- **Heat transmission:** Heat transmission in physics is the transfer of heat following a difference in temperature. Heat is thereby only ever transferred towards the lower temperature.

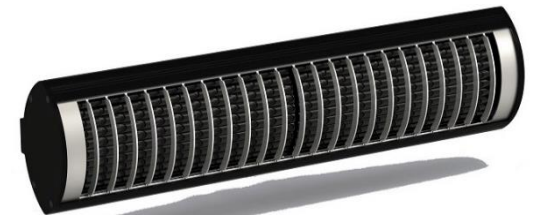


General info on infrared radiation

- Infrared radiation is primarily used for the contact heat.
- When infrared rays meet with a surface, their radiation energy is absorbed no matter the air temperature and transformed into heat.
- Natural sources of infrared radiation are the sun and fire.
- The degree of sun radiation that reaches the earth's surface is approx. 50%.
- The sun emits energy in different wave lengths.

GENERAL INFO ON INFRARED RADIATION

- Infrared A (short-wavelength infrared radiation (IR-A)) is generated by so-called bright emitters (glowing red).
 - penetration degree approx. 5mm into the skin
- Infrared B und C (mid-wavelength infrared radiation (IR-B)) with dark emitter (ceramics or metal emitter).
 - penetration degree approx. 3mm into the skin
- Infrared C (long-wavelength infrared radiation (IR-C)) is generated by area emitters (IR wall emitters or IR panels).
 - penetration degree approx. 0.1 mm into the skin



GENERAL INFO ON INFRARED RADIATION

- Ever „warm“ body, that is every body whose temperature lies above the absolute zero point of -273°C , emits infrared radiation.
- The infrared heat rays directly heat people, objects, floors and walls, without first having to warm the air. The air in a room will only be heated afterwards, via secondary heating.
- Increase of efficiency of IRH during the past few years from approx. 30-40% to 45-64% radiation efficiency.
- Each per cent means more heat within the heated area.
- The higher the radiation efficiency, the better the energy efficiency and the lower the heating cost.
- The radiation efficiency of our H4A ICONIC SmartLine is currently 71.1%
- Previous radiation efficiency: 63.4%
- In short: Our radiation efficiency increased by 12%
- IRHs generate almost no energy loss as the heat is generated directly into the room, where it is used and also absorbed by the room.

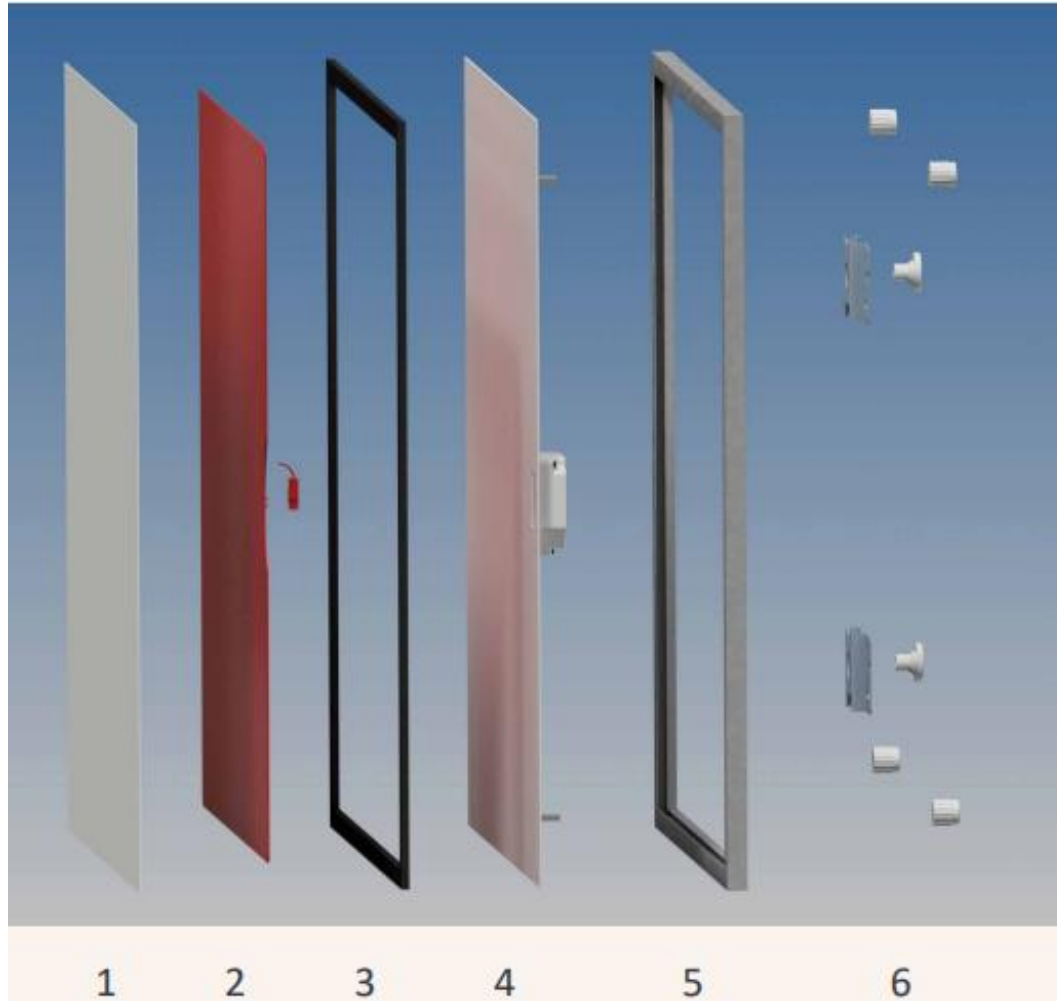
GENERAL INFO ON IRH

- As there is no energy loss, the IRH is much more economic than convection heaters.
- The IRH has the advantage of allowing the room temperature to be kept at lower levels as the heating of the room walls and objects significantly increases the perceived temperature.
 - When using radiation heaters, it is therefore sufficient to heat rooms up to a temperature that is up to 3° C lower than it would have to be when using convection heaters.
 - Lowering the heating temperature by 1° C saves about 6-7% in energy cost, which means that radiation heaters allow for a reduction of energy requirements up to more than 20% in comparison to common central heating systems.

OUR HEAT4ALL SMARTLINE INFRARED HEATER

- The radiation efficiency of our Heat4All SmartLine panels is 71.1%. Values are always calculated based on the entire heater.
- The radiation distance is ideal at up to 5m and should then hit a solid surface. This is not always possible; one advantage of wall-mounting the panels is that the radiation is also directed towards the ceiling and floor.
- There is no risk of oversizing the required heating requirement.
- Radiation angle of our Heat4All Infrared Heaters: up to 178 degrees
- Perceivable at an angle of up to 60 degrees

OUR HEAT4ALL SMARTLINE INFRARED HEATER



Structure of the new Heat4All SmartLine Infrared Panel

1. Coated steel front with high IR radiation ratio and high UV persistence
2. High-quality heating element with Constantan heating conductor
3. Air buffer insulation with IR reflector
4. Uncoated aluminum rear panel
5. Special frame for stability and visual appeal
6. Sturdy and flexibly adjustable mounting system



Product Specifications

Surface:	sheet steel, powder coated
Rear panel:	aluminium, untreated
Field of application:	direct heating
Surface temperature:	approx. 90°C to 110°C
Voltage:	230 Volt, 50/60Hz
Colour:	white
Protection:	IP 45, protection class 1
Temperature protection:	1-2 sensors, dependant on heater dimension
Power supply:	Type CEE 7/7 tilted, 8mm flat, cable length 19m

Certificates



HEAT4ALL PRODUCT PORTFOLIO

MODEL	DIMENSIONS mm	WATTAGE	WEIGHT Kg	HEATABLE AREA m ²
Heat4All SmartLine 175	495 x 350 x 16	175	2.35	2-5
Heat4All SmartLine 320	595 x 595 x 16	320	4.30	4-8
Heat4All SmartLine 520	950 x 615 x 16	520	6.75	8-12
Heat4All SmartLine 700	100 x 650 x 16	700	8.20	11-19
Heat4All SmartLine 1000	240 x 815 x 16	1000	11.20	16-24

HOMEMATIC CONTROL SYSTEMS

HomeMatic Central Hub

The HomeMatic Central Hub is the centrepiece of the automated control of your Heat4All Infrared heaters. This innovative device serves as the hub that connects all other components of your user-friendly control system. It can be easily and intuitively programmed via your PC.



HomeMatic Wall Mounts Thermostat (wireless)

In order to ensure ideal temperatures in each room we recommend using our HomeMatic Wall Thermostat. The Thermostat allows you to individually set the temperature for each room, be it you cosily warm living room or your comfortably cool bedroom. Simply install One HomeMatic Wall Mounted Thermostat per room and set it to your preferred temperature.



HomeMatic Adapter Plug Switch Actuator

The HomeMatic Adapter Plug Switch Actuator serves as an adapter between the plug and your Heat4All Infrared Panel. It is super simple to install and immediately connects your infrared heaters to your user-friendly HomeMatic control system.



HomeMatic Flush-Mounts Switch Actuator

The HomeMatic Flush-Mounts Switch Actuator allows you to wirelessly connect your Heat4All Infrared Panels to your HomeMatic control system. To use it, simply install the Flush-Mounted Switch Actuator within the wall right behind your Heat4All Infrared Panel.



HomeMatic Remote Control via Smartphone, Tablet and PC

For even more comfort, you may program and control all the components of your HomeMatic control system via the HomeMatic control app. Turn your heaters on and off, change the temperature settings and monitor your room temperature any where and any time.



PLEASE NOTE: Using HomeMatic Remote Control is only free for the first year. The fee that you will be charged after that is determined by HomeMatic and cannot be controlled by Heat4All.

Heat4all Room Thermostat (wireless)

The Heat4All Wireless Thermostat allows you to automatically control the temperature settings of all your Heat4All Infrared Heaters. The Thermostat is digital and wireless with a green LCD backlight. It is simple and flexible to install, no network connection or cable required. It can be connected to up to 9 receivers/switching elements.



Advantages of the H4A Wireless Thermostat

- 7 weekly programs, 6 temperature settings per day
- Quick change of temperature settings
- Range up to 35m
- Different programming for different days possible (Mon-Fri, Sat-Sun and Mon-Sun)
- Simple and flexible installation
- Info on operating hours / childproofing / button lock
- Frost protection (3°C), low battery alarm

Heat4All Room Thermostat with Rotary Switch (wireless)

The Heat4All Room Thermostat with Rotary Switch allows you to intuitively set your room temperatures by simply turning the rotary switch.



Heat4All Flush-Mounted Switch Actuator

The Heat4All-Flush Mounted Switch Actuator turns you Heat4All Infrared Panel on or off., based on the data transmitted by the wireless thermostat. Its biggest advantage is its simple installation into a flush mounted socket.



Heat4All Adapter Plug Switch Actuator

Heat4All Adapter Plug Switch Actuator turns you Heat4All Infrared Panel on or off., based on the data transmitted by the wireless thermostat. It is directly plugged into the socket.



Heat4All Plug-in Thermostat TS10

The Heat4All Plug-in Thermostat TS10 brings the convenient control of your Heat4All Infrared Panels to a next level. Apart from setting the temperature of your panels, you may also set different automated programs. The Heat4All Thermostat offers an excellent price-performance-ratio.



CORRECT POSITIONING OF THE H4A-IRH

What do you need to consider when choosing the location of the IRH?

- The mounting location can be chosen individually and should be selected according to the local conditions.
- The heater is the more efficient the more rays can reach the walls, floor and furniture in the room and the fewer rays meet with glass or windows.
- In older buildings or those with moist outer walls the panels should be mounted on inner walls as that will lead to the outer walls being directly reached by the infrared radiation. This leads to a higher surface temperatures; heated wall will radiate heat itself. Due to the wall being dried, the heat insulation will improve as the dew-point will move further outwards. One further positive effect that results from this is the removal and prevention of damp and mould formations.
- Avoid windows directly opposite the heating panel. Glass cannot store heat but rather reflects the infrared rays (long-wavelength) and therefore doubles the distance the rays have to cross before meeting objects. The energy consumption therefore increases.

CORRECT POSITIONING OF THE H4A-IRH

- The radiation may never be obstructed by objects such as couches, curtains and so on.
- Generally, wall-mounting is preferable to ceiling-mounting panels as the surrounding objects will then store more heat, for example due to opposite walls.
- However, consider possible heat storages: Walls are optimal storages as they perfectly store heat. Thanks to the surface temperature increasing and the walls thus drying, they also automatically optimize the room's humidity levels.
- Wooden walls absorb heat faster, they can't, however, store it as long.

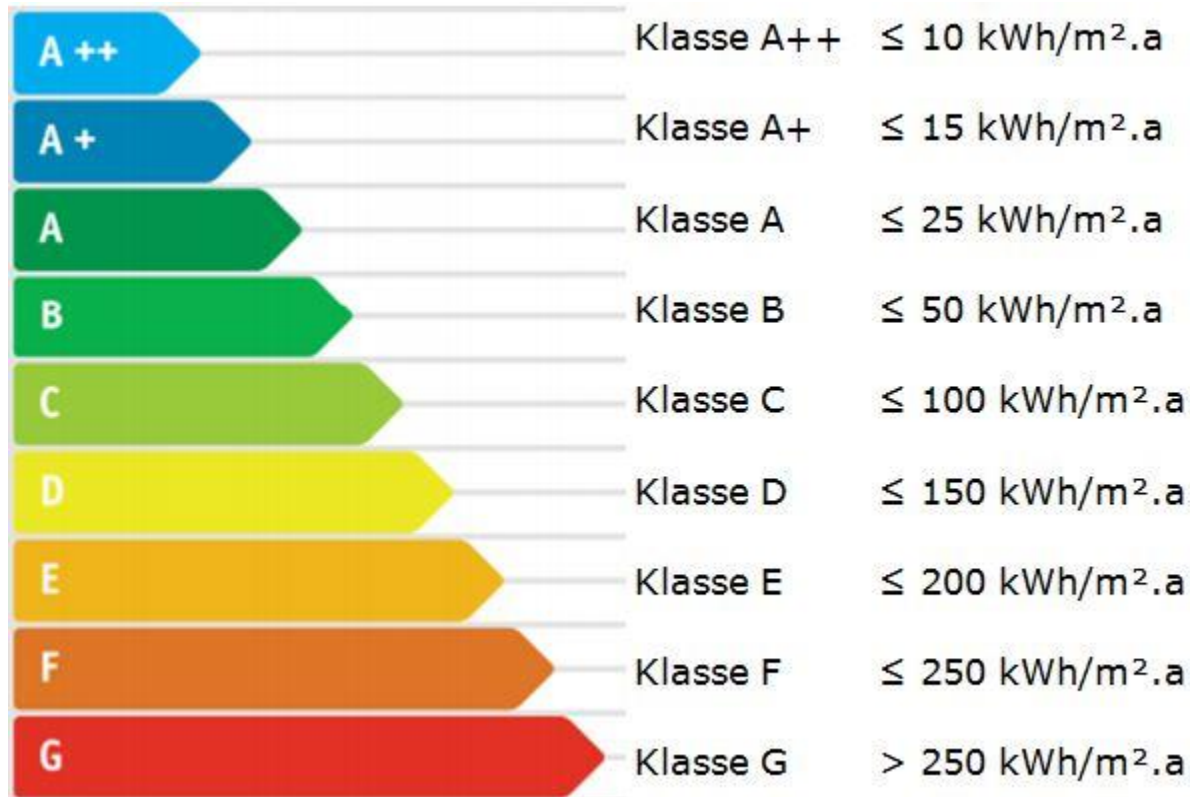
Ceiling-mounting:

- No installation directly above the seating area as some may perceive the high surface temperature as uncomfortable.
- Some rooms where an installation on the ceiling may be better are e.g. nurseries, bathrooms or toilets as the floors will be ideally heated.

Mounting the panel in a bathroom:

- The IRH will not work properly if the surfaces of the tiles are glazed as they will then reflect the infrared rays. This would lead to the room taking too long to heat up. In this case we would not recommend the customer to choose an IRH but would instead recommend a blacklight radiator.
- If we get the chance to consult the client in regards to a complete renovation of his bathroom, he should be recommended to use matt tiles or stone tiles and to not cover the entire wall in either. This will allow for the plaster surface to compensate the soaking.

ENERGY PERFORMANCE CERTIFICATE



WHAT IS THE DIFFERENCE BETWEEN A CONVENTIONAL AND AN INFRARED HEATING SYSTEM?

Convection heaters heat the air, whereas infrared heaters heat all items and surfaces (floor, walls, furniture etc.) in the room. These items store the heat and emit it evenly to the room. This process assures a much more comfortable room climate, less dust formation and less dry air. Further advantages are the significantly lower purchase costs (up to 70% lower costs), no hidden energy costs for pumps or chimney sweeps, no maintenance costs, lower running costs, longer life span, self installation etc.

DOES IT MAKE SENSE AND IS IT ECOLOGICAL TO HEAT WITH ELECTRICITY?

Yes, with infrared heaters by Heat4All it is. Other than night storage heaters H4A Infrared Heaters require up to three quarters less energy. Other heating systems such as pellet or oil heaters may only require a third the electricity an infrared heater requires but they also come with high expenses for the fossil fuels they use. An infrared heating system combined with a photovoltaic or wind generator is currently the cheapest, cleanest and most ecological heating solution there is.

WHAT ARE INFRARED RAYS?

Infrared rays are electromagnetic waves, just like the rays of the sun. Infrared heaters emit long-wave infrared rays, so-called C-rays, which are absorbed on the surface of the skin and do not penetrate it. This IR radiation has no harmful effects on the organism but are perceived by humans as comfortable warmth.

WHAT IS THE DIFFERENCE BETWEEN INFRARED A, B AND C?

Infrared rays are divided into three different groups: long-wave infrared C-rays with $8 - 15 \mu\text{m}$ = micrometer are emitted by many modern devices, e.g. infrared heaters. For the emissions of A-and B-infrared special infrared emitters are needed. A-and B-infrared rays penetrate deeper into the skin.

IS AN INFRARED HEATING SYSTEM A FULLY FLEDGED HEATING SYSTEM?

Yes, the Heat4All infrared heating system can be implemented as sole, fully fledged heating system for different types of buildings. In this regard it is important to correctly calculate the heating requirements per room.

HOW MANY AND WHICH INFRARED HEATERS PER ROOM DO I NEED?

The number and dimension of infrared heaters depend on the heating requirements of the respective room, and the heating requirements depend on size and condition of the room (insulation, walls, floor etc.), on general climate conditions and the required room temperature.

CAN I GET BURNT WHEN TOUCHING AN INFRARED HEATER?

All Heat4All infrared heaters are certified according to TÜV, therefore there is no risk to get burnt. The maximum surface temperature is 105 °C, however, only at temperatures of over 125 °C is there danger to be burnt. In case the heater should accidentally be covered, special sensors inside the heater would turn it off at a surface temperature of 120 °C. Therefore, Heat4All infrared heaters are absolutely childproof.

HOW MUCH WILL MY ANNUAL HEATING COSTS APPROXIMATELY BE?

The Heat4All infrared heating system is a very cost-efficient heating system regarding the annual heating costs. The annual heating costs depend primarily from the prevailing climate (temperatures during daytime), the condition of the building (insulation), the required room temperature and the electricity price. In the Vienna region, annual electricity costs slightly below 11,-Euro/m² can be expected for a very well insulated house (heat insulation value = 0,20 –0,23) in an average winter.

This is calculated as follows:

- Assumed heating period 1.10 till 30.4.: 210 days
- Avg. daily heating hours: 5.2 hours
- Requirement for 100m² living space: 5.4 kW
- Energy cost per kW: £0.134p
- Annual heating cost: £861 (daily rate £0.195 inc.)

WHICH OTHER EXPENSES MIGHT OCCUR?

In contrast to conventional convection heaters, no additional expenses like electricity costs for the pump, maintenance costs, costs for chimney sweeps etc. have to be calculated when using H4A infrared heaters.

IS THE MOUNTING KIT INCLUDED?

Yes, the mounting kit is included and comprises 2 mounting elements, 8 screws, 8 wall plugs and a mounting template. All you need to install your panel are a drill and a water level.

HOW CAN THE HEATERS BE CONTROLLED?

In the heaters themselves there are no thermostats or other electronic parts installed. The main reason for this lies in the fact that the heaters have a significantly longer life span than the electronic parts. So in case an installed electronic part is damaged, the whole heater would not work anymore. H4A offers a variety of different control systems, from the simple plug-in thermostat to the internet-compatible HomeMatic system (see page 14), whereby you can control your heating system via internet or mobile phone from all over the world.

DOES IT MAKE SENSE TO MOUNT THE HEATER ON THE CEILING?

For efficiency matters it would often make sense to install the heater to the ceiling. However, radiation from above is often perceived as unpleasant on the head as the scalp is very sensitive. The same effect can be observed when sitting e.g. in a parked cabriolet and having the sun beaming down on your head for two minutes. Should the heater be installed to the ceiling, it should therefore not be directly over your head, e.g. not above the bed in the sleeping room, above the sofa in the living room or above the desk in your office. In rooms in which you normally spend only little time, e.g. bathroom or toilet, an installation to the ceiling can, of course, be advantageous .

10 REASONS TO USE HEAT4ALL SMARTLINE

1. Heat4All SmartLine Heating Panels feature a much higher radiation efficiency than other infrared heaters
2. Longer product lifespan
3. Short warm-up phase
4. Environmentally friendly and sustainable
5. Unlimited design and customization options
6. Quality "Made in Austria,,
7. 8-year Warranty
8. Financially strong partners
9. Confirmed quality – TU Stuttgart
10. More than 14,200 satisfied customers

Reasons for the high radiation efficiency

1. We use a special powder-coat with an emissivity of 0.96
2. The development of a special isolation which reflects infrared rays
3. The development of a two-zone heating element
4. We use sheet-steel instead of aluminium

Should any competitor claim differently, ask them to issue an external study, as we did.