

SMART HEATING WITH INFRARED THROUGHOUT YOUR HOME

COZY WARMTH  
*Experience*



**v4heat**  
by VitruLan





# THE SUN'S WARMTH IN YOUR OWN HOME

## Feel



We all love that pleasant warm feeling when the sun shines. It only takes a little sunshine to create an instant feeling of warmth and comfort – even if the surrounding air is freezing cold! With the V4heat heating system, you can now actually enjoy this very **special sensation of warmth** within your own four walls. No matter whether you want to heat an entire house, an apartment or just a single room, we have the **perfect heating solution** for your needs.

Just like the sun, the V4heat heating system generates **heat** or **infrared radiation**, which the human body immediately converts into its own heat – the feeling of well-being is immediate. Say goodbye to cold noses and feet! With conventional heating systems, the ambient air has to be heated first, then this warm air gradually heats furniture, walls and floors. Whereas infrared radiation has a direct and immediate warming impact on these objects and, of course, also the human body. The desired room temperature is reached much more quickly, which is also more energy efficient.

### THE NEW COMFORT LEVEL:

**Consistent room temperature:** Since the V4heat heating system heats the enveloping surfaces, i.e. walls, ceilings or floors, and these give off the heat to the room, this ensures an even distribution of warmth and creates a uniform, special room climate without cool zones or unpleasant draughts.

**Healthy indoor climate:** Unlike convection heating, radiant heat does not create air movement, so neither dust nor pollen are circulated – a great advantage for allergy sufferers!



Compared to conventional heating systems, infrared surface heating does not move air – which is particularly beneficial for allergy sufferers.





YOUR SMART HOME

IN TOMORROW'S HOUSE

*Feel at home*



From smart home products and household appliances to security systems and e-vehicles, we live in a world in which **electricity is absolute necessity**. In the foreseeable future, tomorrow's home will be powered solely by electricity – and the great challenge of our time is to produce it as environmentally friendly as possible. The development of wind power, biomass or photovoltaic plants is therefore progressing steadily. In 2020, for example, almost half of Germany's electric power consumption was already covered by renewable energies.\*

Are you already generating your own **green electricity** using a rooftop photovoltaic system? During installation, the V4heat heating system is connected to the house grid. This means that it can be powered cost-effectively and on a CO<sub>2</sub>-neutral basis by means of the electricity you produce yourself. Turn your house into a green smart home of the future!

Not yet generating your own electricity from solar power? Benefit from government incentive programs for your own PV system. Feel free to contact us for information!

\*Source: German Environment Agency



PLEASANT AND EFFECTIVE

## ENERGY-EFFICIENT HEAT

Enjoy



Besides the pleasant, cozy feeling of warmth the V4heat heating system provides in your home, it is also particularly energy-efficient.

**Reduced energy consumption:** Just as the sun feels pleasantly warm even in winter when the air in the room is freezing cold, the same is true with infrared surface heating as there is a sensation of warmth much earlier than with conventional heating. The V4heat system enables you to keep the room air temperature about 2 °C cooler while maintaining the same feeling of warmth – which corresponds to an energy saving of about 12%!

**Short response times:** After a response time of approx. only 30 minutes, the heating fabric begins to emit heat radiation into the room. Long heating up times are a thing of the past.

**Effective heat storage:** The V4heat system heats both the enveloping surfaces and objects in the room such as furniture. These store the heat and gradually emit it back into the room – an extremely effective way of storing heat that ensures a pleasant room temperature, even on the floor!





## OVERVIEW OF OPTIONS

THE PERFECT SYSTEM FOR YOUR  
*home*

**House System** – complete heating system for spacious housing units or houses with the required heat output optimized by control software

**Flat System** – complete heating system for small housing units of approx. 3 to 8 rooms, optimized to the required output

**Room System** – complete heating system for individual rooms, designed on the basis of a standard heating load calculation

**Comfort Kit** – temperature control of surfaces as additional heating for individual rooms or for improving local comfort through heat radiation







CUSTOMIZE AND MODIFY

# HOUSE SYSTEM

**V4heat**

The House System is the **premium and technologically most sophisticated version of the V4heat heating systems**. This system provides full heating for whole houses and complex housing units ranging in size from medium to large – based on a heating load calculation according to DIN EN 12831. Modifications are tailored individually in line with the planned use.

The intelligent control and regulating software is able to distribute the desired heating output efficiently and individually. This leads to a reduction of the connected load, which in turn improves the economic efficiency of the entire system.

The DC box is the heart of the heating system. This is where all the heating fabric tracks for the power supply and control are brought together, and where the control software is integrated. The unit can be mounted in the mechanical room, for example, without taking up much space.

## Examples

Modern, eco-friendly houses, apartments that have been renovated and modernized to a high standard, and houses in which the living space also extends over the basement or an attic conversion and which have a generous floor area are ideal candidates for the House System.



## SYSTEM FOR SMALL HOMES

## FLAT SYSTEM



The Flat System is the version of the House System which has been optimized in terms of technology and cost-effectiveness. You can fully heat small to medium-sized apartments and housing units with the Flat System. It has been **specially developed and designed for housing units with a smaller number of rooms** (approx. 3 to 8 rooms) or housing units that have a lower heating load, e.g. due to good thermal insulation. Naturally, this is also based on a heating load calculation according to DIN EN 12831.

All rooms are supplied fully and independently of one another with the necessary heating energy. Similar to the House System, the control system is consolidated centrally in one unit (DC box).

## Examples

**Holiday apartments and homes, tiny houses or modern housing units with a good energy standard and without the complexity of an entire residential building along with a small number of rooms (approx. 3 to 8 rooms) are perfect candidates for our Flat System.**

**A holiday apartment:** It usually has only a few rooms and is not occupied all day every day. A holiday guest is usually out and about during the day and wants to discover the area, but wants to feel comfortable in all rooms in the evening and not find it freezing cold. The Flat System makes this possible.

**A single household:** If you live in a two- to three-room apartment, you want to be warm and comfortable when you are at home.





STANDALONE, CONVENIENT AND COMPLETE

## ROOM SYSTEM



The Room System is the best option for **newly created or renovated individual living spaces** that require a complete and stand-alone heating solution. For this purpose, we prepare a heating load calculation for you according to DIN EN 12831 and design the Room System specifically to suit your project.

Based on the calculated heating load, the number and length of the heating fabric tracks are adapted to the conditions of the respective rooms and are then produced and assembled accordingly. The outcome is a heating system tailored to your new living space.



### Examples

You want to **convert a room in the basement into living space**, for example as a **guest room, study or a room for a child or teenager**, and this change in use requires a higher temperature level and full heating just like in the other living spaces throughout the house.

**Or you are having the attic converted** to create new living space, but extending the water feed pipes of the existing heating system would be too complex. The Room System provides you with a standalone, convenient and complete solution to heat this newly created living space.



ENHANCED WELL-BEING

## COMFORT KIT



The Comfort Kit is an auxiliary heating unit which can be used to heat individual areas of a room, making it feel cozier and warmer – or to heat the whole or just part of a room.

The Comfort Kit comes in four models which differ in terms of output, number of heating fabric tracks and track lengths. We will happily help you choose the right model for your “Comfort” zone.



## Examples

Renovation, modernization:

**You want to have your bathroom renovated**, but an existing radiator would detract from the new bathroom look and the space it takes up could be used more wisely? During the remodeling, the heating fabric can be embedded directly in the ceiling and wall surfaces. This individual area becomes an invisible “radiator”.

**Set up your individual comfort zones.** In the living room where the corner sofa stands, around the large dining table where pleasant evenings are spent together with guests, or the play corner in the children’s room – they are all made especially cozy by additional heat radiation and quickly become your new favorite places to be.



THE HEATING FABRIC WITH PATENTED CARBON COATING

EVEN WARMTH

Experience

The main component of all V4heat heating systems is the **heating fabric**. It is a reinforcing fabric made of glass fibers developed and produced by our company. Fine, parallel copper threads are integrated on the outer sides of the fabric during production. They are used to supply the heating fabric with 48 volts DC.

Thanks to the special, patented carbon coating, the heat is distributed over the entire surface of the heating fabric and the entire surface is heated evenly.

**Good to know: DC voltage does not produce any electric smog – this means you can use the V4heat system to heat your home without any worries.**

*Das V4heat Heizgewebe ist ein stabiles, aber flexibles Armierungsgewebe auf Glasfaserbasis. Es wird direkt in die Hüllflächen (Decke, Wand oder Boden) eingebaut und ist damit später völlig unsichtbar. Für das Einbringen von Dübeln, beispielsweise um ein Bild an der Wand aufzuhängen, oder für den Ausschnitt einer Steckdose sind Lösungen vorhanden.*

The heating fabric is an integral component of **all V4heat heating systems** and it is this that transports heat energy into the rooms. The fabric is available in two output strengths and can be used flexibly depending on the heating load to be accommodated.

For the user, e.g. painter or drywaller, a major advantage of the **heating fabric's mesh structure** is that it is easy to embed the V4heat system in plaster like any other reinforcing fabric they are familiar with. The only difference is the two cables used to establish contact with the fine copper threads in the fabric. The electrician uses these two cables to wire the fabric tracks to the DC box, where they are connected to the power supply.

*The system is operated by means of digital or smart room thermostats in each room. The power supply and the corresponding control system are housed in a switch cabinet, from where the heating fabric tracks are supplied with 48 V DC.*

48 V

230 V



INNOVATIVE TECHNOLOGY

# CONVENIENT AND SAFE heating

**The DC boxes are the heart of the V4heat heating systems:** These central control units contain the most modern and highest quality components from leading German manufacturers.

## DC Box Flat and DC Box House

The DC boxes are designed and pre-configured in terms of their output for the necessary heating load of the building project and marked for the electrician in accordance with the circuit diagram. The wires for the heating fabric tracks and room thermostats are bundled and connected in the DC box. The fans integrated in the DC box housing ensure controlled dissipation of the waste heat produced by the power supply units. When choosing where to place the DC box, care should be taken that ventilation is ensured and that the low noise emissions of the box are not an unwelcome disturbance. Measuring just 60 x 120 x 30 cm or 100 x 120 x 30 cm, the DC Box requires little space and a suitable spot is easily found, e.g. in the mechanical room.

## DC Box 750 / 1000 / 1500 / 2500 for Comfort Kit and Room System

The DC boxes for the Room System or the Comfort Kit are significantly smaller than those for the House or Flat System. All models are placed in the same housing with the dimensions 30 x 40 x 16 cm. Here, too, everything is prepared and marked according to the circuit diagram. These boxes do not necessarily have to be located centrally in the mechanical room. Nevertheless, ventilation of the waste heat should also be ensured here and the low noise emissions need to be taken into account when choosing a location.

### An overview of the systems

	House System	Flat System	Room System	Comfort Kit
Heating system	X	X	X	X
Full heating for the entire housing unit (house or apartment)	X	X		
Full heating within individual rooms			X	
Auxiliary heating for individual rooms			X	X
Suitable for creating comfort zones, making individual areas cozier	X	X	X	X
Smart thermostats can be used	X	X	X	X
TBE and installation plan	X	X	X	

## CHOOSE A THERMOSTAT FOR YOUR V4HEAT HEATING SYSTEM – THERE ARE TWO MODELS TO CHOOSE FROM:

### Digital room thermostat from Elektrobock

You can enter the appropriate settings and control the heating in the respective room individually by operating the thermostat directly.

### Smart thermostat from tado°

The smart thermostat from tado° enables convenient control of the heating system via an app featuring these functions:

- | Set switch-on and switch-off times in line with your daily schedule.
- | Heat according to the weather: tado° uses the local weather forecast and energy consumption is adjusted accordingly.
- | Only heat when someone is at home.
- | Access the heating system while you're out and about.



Find out more on  
the tado° website



## MORE ASSISTANCE

for you

Our planning services include designing the heating fabric tracks as regards length, number of units and output and **prefabricating them for the project**. Provided with a corresponding installation and wiring diagram, the contractor has everything necessary to install the system safely and professionally. This means that no expert knowledge of heating systems is required.

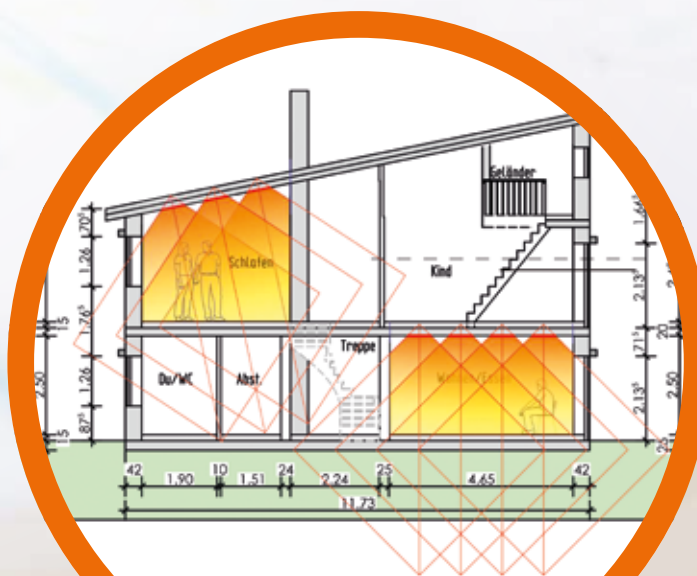
- | Heating systems presentation and guidance
- | Cost estimate
- | Heating load calculation
- | Dimensioning and design
- | Installation plan
- | Offer
- | Manufacture, assembly and delivery of your individual heating system

- | Room-specific planning
- | Installation plans with all necessary dimensions
- | Planning of the power supply and control system

Our experts will also be pleased to advise you on the design planning and on the installation. Just contact us and we will be happy to help you!



Diagram of  
radiation cones





## BENEFITS AT A GLANCE

# THERE IS MORE IN IT for you

- I **You have free rein when creating your individual interior design:** The heating fabric is embedded in the surfaces and disappears completely from view. You save the space that would otherwise be taken up by radiators, boiler, fuel store or chimney, which means you can arrange your furniture and home accessories exactly as you wish!
- I **Enjoy the radiating warmth of the sun in your own home** – pleasant surface temperatures and coziness guaranteed.
- I **Heat only when you need to:** The heating systems respond quickly, and combined with the heat radiation this results in a more immediate and direct feeling of warmth. The warmed surfaces cause the room to cool down very slowly.
- I **Enjoy the pleasant and healthy indoor climate** due to the reduced ambient temperatures and the agreeable humidity.
- I **No maintenance required:** Once the heating system has been installed, it is maintenance free.
- I **Less energy is lost through ventilation:** It is not the room air exchanged by ventilating that is warmed by heat radiation, but the surfaces. The warm surfaces store the heat and gradually emit it into the room.
- I **Make an active contribution to protecting the environment and reduce your carbon footprint:**
  - Heat with solar power from your own roof or with green electricity.
  - This system requires significantly less material than other heating systems.
  - High energy efficiency – heat is generated where it is needed.



## UNTERSTÜTZUNG BEI FÖRDERMITTELN

**We help you to keep a clear overview:**

Subsidies are available under many different funding programmes – for example, from the federal government, federal states, districts, cities, municipalities or energy suppliers. Given this diversity, the different measures eligible for funding in new construction and modernization, as well as the interaction and complementary nature of various measures, it is generally sensible or necessary to take a holistic approach.

The measures that can have an impact on the heating system are, for example:

- I Building services such as ventilation and air conditioning
- I The use of renewable energies, such as from your own photovoltaic system
- I Production of hot water for instance by a tankless water heater
- I The building itself – due to, for example, new construction, modernization or a house extension
- I The building envelope through thermal insulation, thermally insulated windows, facade or roof renovation

We highly recommend that you speak with one of our energy consultant partners regarding all these questions! They consider the planned measures in their entirety and are the true experts when it comes to utilizing subsidies.





## STOP MOLD IN ITS TRACKS

## ANTI-MOLD KIT



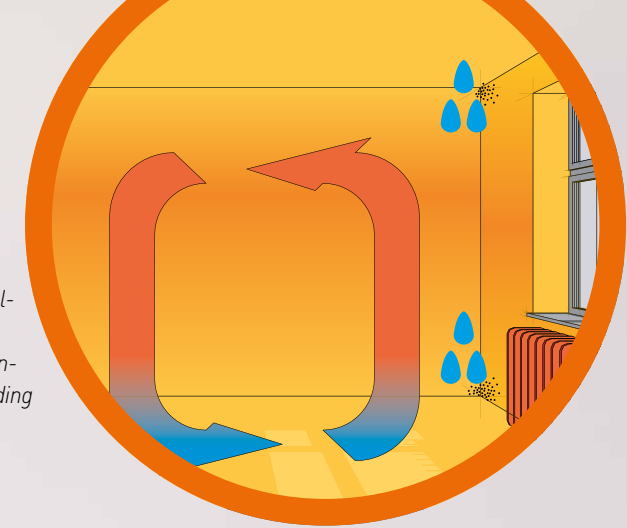
Mold cannot grow at all on walls fitted with heating fabric, but it is a common problem on many walls that do not have it!

The corners of rooms, especially those on exterior walls, are areas often prone to mold: Here, warm air meets a cold wall, condensation forms and the breeding ground for mold is already established. Mold around the home is not just a “cosmetic” problem, it can also very quickly cause health problems.

We have therefore developed a solution based on the heating fabric used in the V4heat heating systems that prevents mold permanently and is completely free of harmful substances: The V4heat Anti-Mold Kit directly tackles the cause of mold – moisture – and its surface temperature control feature serves to **prevent mold permanently**. If the cause of mold is condensation on cold surfaces (thermal bridges), then the formation of **condensation can be avoided** by permanently setting the wall temperature to approx. 18 to 19 degrees. This deprives the mold of the water it needs to survive and effectively prevents mold growth.



Exterior wall corners are especially prone to mold: When warm air meets a cold spot on the wall, condensation forms – the ideal breeding ground for mold.



**V4heat**  
by vitruvian

The core element of our Anti-Mold Kit is the V4heat heating fabric. It is embedded into the plaster of the wall and then connected to the control unit, known as a wallbox, using the pre-mounted terminals. Then simply plug it into the outlet and the wallbox takes control. The power supply is a simple “plug-and-play” solution and therefore **particularly easy and safe to connect**.

## Wallbox for Anti-Mold Kit

All connections in the wallbox are designed for “plug & play”. Measuring 22 x 22 x 5 cm, it is comparable in size to a router housing.





The Vitrulan Group includes the four in Germany based companies Vitrulan Textile Glass, Vitrulan Glasfaser Brattendorf, V4heat and Vitrulan Technical Textiles as well as Vitrulan Composites in Mikkeli / Finland.

Wall coverings manufactured from glass fabrics, modern infrared surface heating based on glass fabrics and technical textiles and composites made of glass, synthetic and carbon fibers are the core products of the Vitrulan Group.

The V4heat GmbH stands for the development and sale of intelligent infrared heating systems. Engineered for a virtually infinite number of heating possibilities, they can be used to heat walls, ceilings or floors, to renovate mold-infested areas or prevent mold growth.



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WEEE Reg. No. DE 37232844

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