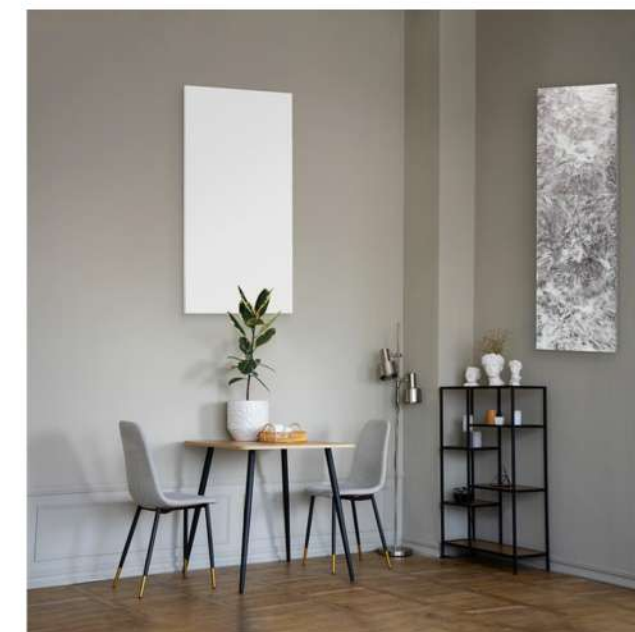




UDEN-S PRODUCTS from A to Z

training manual



Dear colleagues!

The purpose of this manual is to introduce **UDEN-S** products, their values, features and benefits.

Why is it important? It has been proven that in the vast majority of cases, a person makes a purchase when they have an idea of how this product will solve their problems and what benefits they will derive from it. Only if you know the range of heaters, their characteristics, application and competitive advantages, you can easily convey this to your customers, answer any questions they may have, help them in their particular case, inspire trust, and, as a result, sell. You must admit that the main goal of any business is profit. And we will help you get it.

All you need to do is read the material in this manual carefully and start earning!
We wish you success!



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1. UDEN-S® HEATERS HEATERS AND THEIR APPLICATION



UDEN-S® energy-saving heaters are long-wave, low-temperature, liquid-free electric heating panels with a power output of 100 to 1800 W. Thanks to the wide range of products (wall and ceiling panels, warm skirting), it is easy to choose heaters for any type of room. They cover the needs of all segments of the heating market: from budget options to real exclusives.

Where is UDEN-S® heating used?

Low-power UDEN-S® heating systems are used for heating buildings and premises for various purposes: apartments, private houses, offices, industrial, commercial and warehouse premises, social facilities, etc.

The surface temperature of all UDEN-S® heaters is 80 ± 5 °C, which makes it impossible for a person to get burned. The only exception is ceiling heaters (surface temperature 90 ± 5 °C), but due to the peculiarities of their placement, the probability of contact with the human body is minimal.

The products are certified in Ukraine and the EU and have a 5-year exchange guarantee.

2. How UDEN-S® heaters work?

Principle of operation of UDEN-S® heaters

The principle of operation of heaters is similar to heating with a rustic stove - the radiation coming from it is converted into thermal energy directly on the surface of objects it hits or on the human body, warming it. The mutual exchange of heat between heated objects warms the air.

This is the principle of direct room heating. Conventional boilers, pipes, pumps and heat transfer fluids are simply not required for UDEN-S® heating. Since there are no intermediaries, heat loss is minimal, and the soft natural heat creates comfortable conditions in the room.

Infrared radiation is absolutely safe: UDEN-S® heating is low-temperature and, accordingly, long-wave. A person perceives such heat as comfortably as possible, because the wavelength of the radiation of heaters is as close as possible to the wavelength of the human body.

Effect of infrared heat on the human body

Radiant infrared heat comes in different forms: short-, medium- and long-wave. According to Wien's law, the wavelength depends on the surface temperature of the heater - the higher it is, the shorter the wave, and therefore the more harmful it is.

Short-wave heaters are used in places where people stay for a short time (hangars, warehouses, corridors). Medium-wave radiation is more favourable and is intended for short-term exposure of people (for example, heating workplaces, summer cafes, etc.).

But long-wave heat has the best effect on the human body. UDEN-S® heaters belong to the low-temperature long-wave equipment and are ideal for heating rooms where people stay for a long time. They have proven themselves in facilities with special safety requirements, such as kindergartens, schools, sports and medical facilities.

Infrared radiation normalises blood pressure by stimulating blood circulation, has analgesic and anti-inflammatory effects, accelerates metabolic processes and relieves nervous tension due to its gentle warmth.

The main feature of infrared heating is the absence of dust circulation in the room, which is beneficial for people prone to allergies.

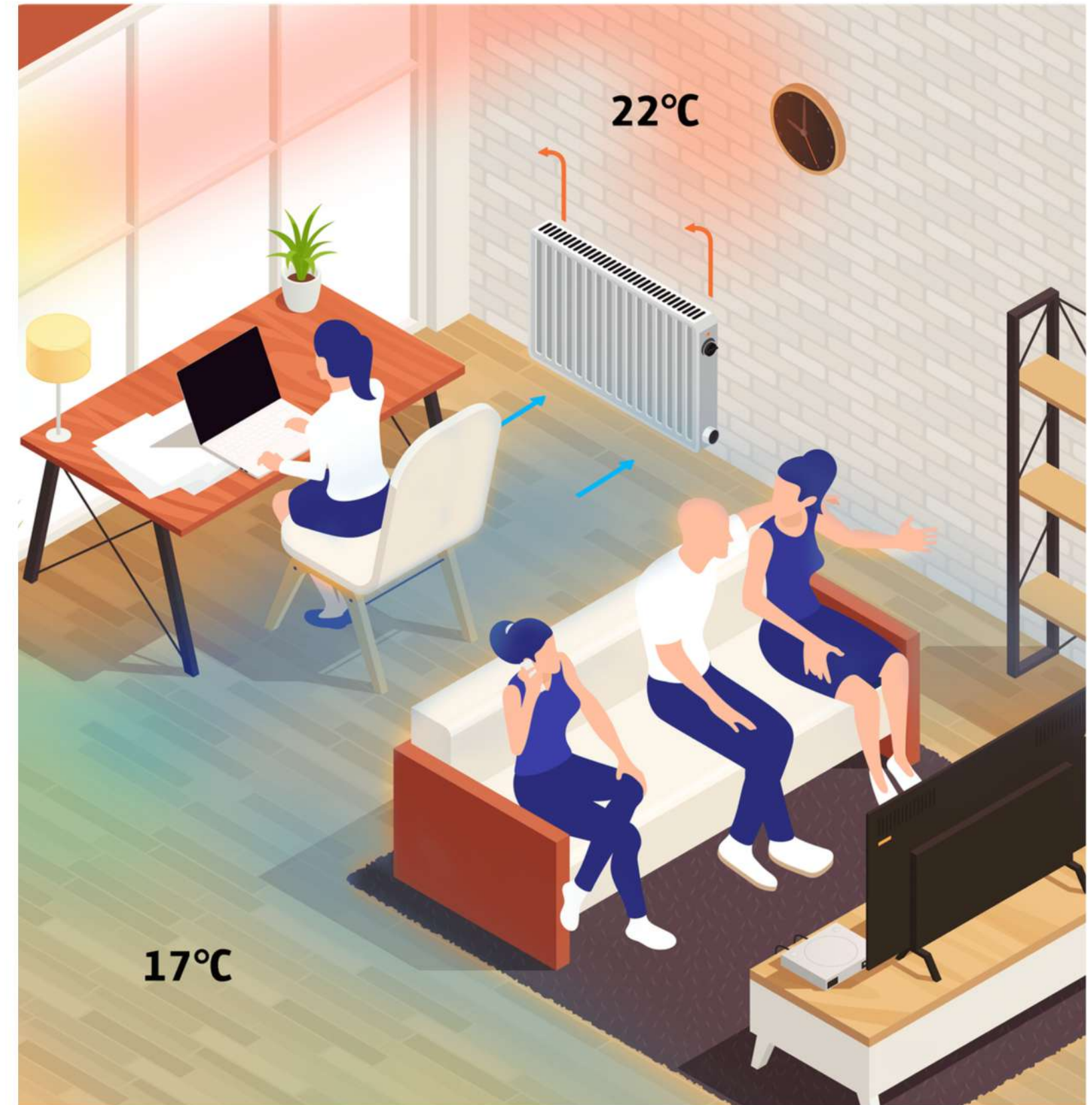


3. Infrared and convection heating systems. What is the difference?

- How it works?

Convection heating is heating by the movement of heated air. There are intermediaries between the heat source and the person: water (in a liquid heating battery system) and air. The result is enormous heat loss, dust circulation, and dry air.

Infrared heating is based on the principle of direct heating of a room: heat rays primarily warm solid objects and structures. The mutual exchange of heat heats the air, while remaining alive and natural.



The principle of operation of convection heating



The principle of operation of infrared heating

Low energy consumption

In conditions of good thermal insulation, infrared heaters need from 0.5 kW of power to heat a 10 m² room with a height of 2.5 m, and convection heaters need from 1 kW.

There are 3 reasons for this:

1. Minimum air exchange rate

The coefficient shows what percentage of the air goes outside during the hour and is replaced with fresh air. With infrared heating, when there is no forced air movement, it is 0.2 - 0.6, and with convection heating it can reach up to 4.6. air exchange, so more energy is spent on heating the room.

2. The presence of a radiant component

With infrared heaters, the feeling of comfort comes at a lower temperature (20-22°C) compared to a convection system (25-27°C). And a 1°C decrease in temperature means 5-7% energy savings.

3. Temperature difference between floor and ceiling

Unlike convection heating systems, the room is heated evenly, and the difference between the floor and ceiling is no more than 1-2°C. Thus, the space under the ceiling is not wasted and, accordingly, no electricity is consumed.

An interesting science experiment!

- people who were in a room with an air temperature of +50 °C, but with deliberately cooled walls, froze; but at +10 °C and hot walls, they began to sweat;
- when the air temperature in the room was +27 °C and the surface of the walls was -10 °C, people felt much worse than when the temperature of both walls and air was +18 °C. So it turns out that due to the radiant component, the effective temperature of heat sensation is much higher than the one that is currently in the room.

4. Advantages of UDEN-S heating



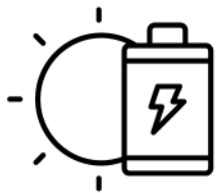
Versatility and comfort:

- easy and quick installation without compromising on repairs;
- automated and simple control. Each room has an individual temperature;
- the system is liquid-free and does not require additional space for the boiler or ventilation equipment;
- heating does not require maintenance and service personnel;
- full compatibility with the Smart Home control system.



Affordability and efficiency:

- the required design capacity of the UDEN-S® heating system is 40% less than any convection system. With proper calculation, the entire system operates on average only 5-7 hours per day during the heating period;
- UDEN-S® heating is 1.5 times more economical to operate than convectors, gas and electric boilers, and 3 times more economical than central heating;
- heat storage: heaters continue to heat the room for a long time even after a power outage;
- savings on boilers, pipes and pumps;
- the system does not require maintenance and service personnel.



Environmentally friendly:

- production using environmentally friendly materials from Ukrainian, German and Italian deposits;
- healthy indoor climate - the heaters do not dry the air, emit combustion products or create dust circulation.



Reliability and security:

- the system can be left unattended for a long time - it is completely fireproof;
- the equipment is certified (quality certificates of Ukraine and the EU), recommended by the Ministry of Health of Ukraine for children's, preschool and medical institutions;
- 5 years of full exchange warranty, 25 years of continuous operation.

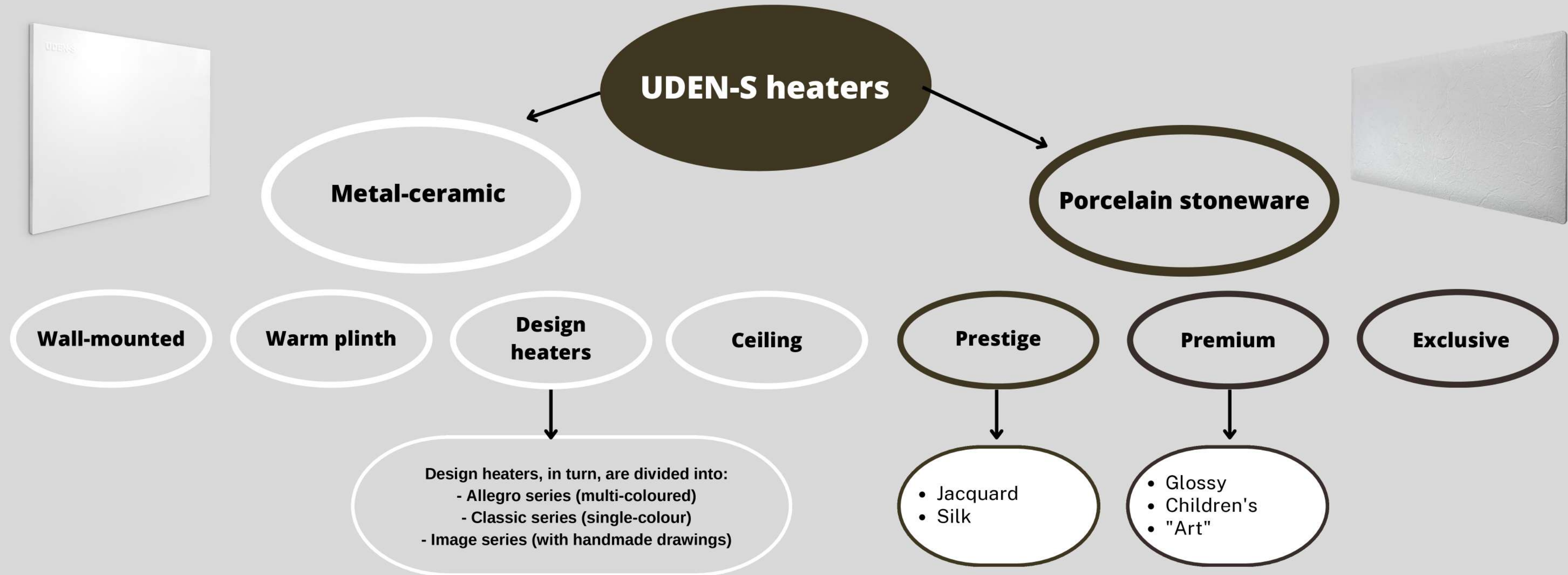


Modern and stylish heating:

- all heaters are slim and elegant, available in a variety of colours and shades - they are easy to match to any interior style;
- design heaters with handmade drawings and porcelain design heaters are a real exclusive that has no analogues in the world.

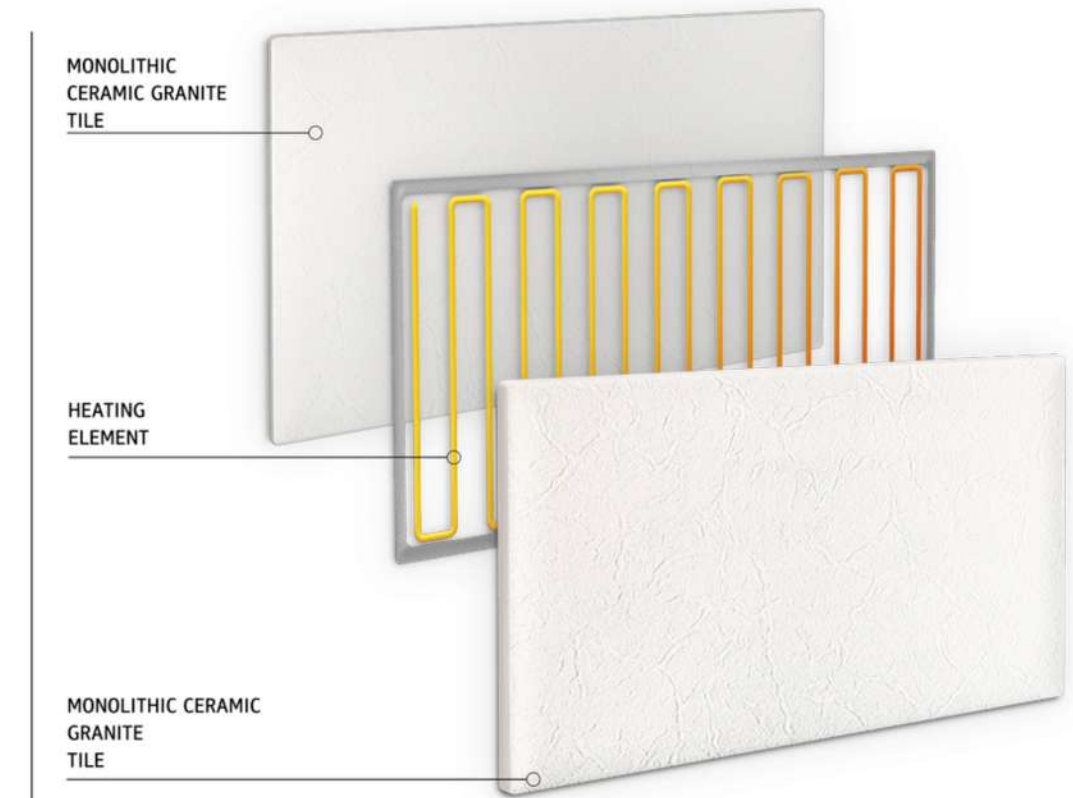
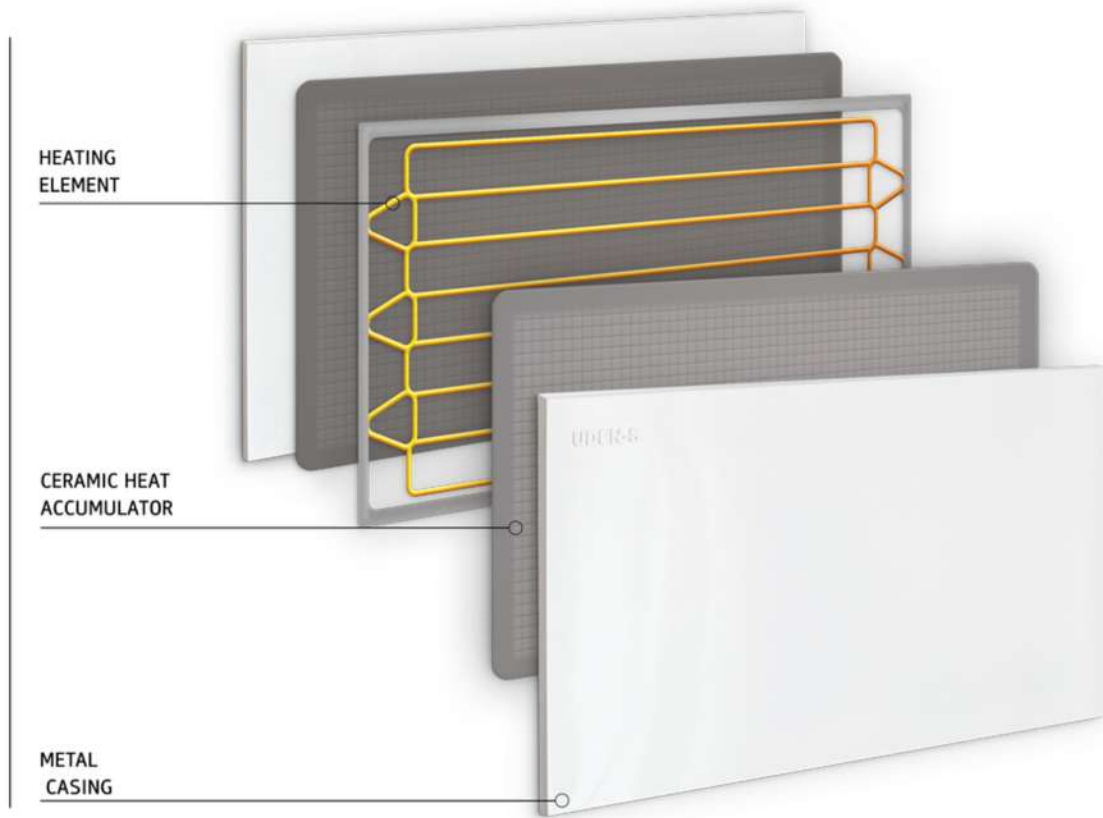
5. UDEN-S product range

There are two main technologies of heaters in production: metal-ceramic and porcelain stoneware. All models differ in design, size, installation technology, but have common advantages compared to other heating systems: modern, stylish, absolutely safe, convenient and economical to use.



6. Unique heat storage component

Metal-ceramic and porcelain stoneware heaters differ in design and production technology, but they have one thing in common - a unique natural heat storage medium.



Composition of a metal-ceramic heater

In **metal-ceramic heaters**, it is a ceramic plate produced by semi-dry pressing under high pressure with a heating element inside. This results in a more even heat distribution on the surface and excellent physical properties: high strength, electrical insulation, fire safety, very low moisture absorption, clear shape and aesthetic appearance (the heater is only 14 mm thick). The top of the panel is protected by a metal casing. The heaters start radiating heat within 15 minutes after switching on, and thanks to the heat storage device, they cool down within 45 minutes, heating the room without consuming electricity.

Composition of a porcelain stoneware heater

Porcelain stoneware heaters are monolithic heating panels with the density of stone and excellent heat storage properties (they radiate heat 30 minutes after switching on and cool down within 1.5-2 hours without electricity consumption). They are ultra-strong, wear-resistant, durable and completely environmentally friendly: only pure materials are used in the production, which do not emit harmful substances when heated. The heating element is protected inside by four-layer water and electrical insulation, which ensures their safe use.



7. The range of products.

Metal-ceramic wall heaters

Metal-ceramic wall heaters are energy-saving electric heating panels with a thickness of only 14 mm (35 mm with fixings). They are installed mainly under a window or near a balcony door to not only heat the room but also prevent cold air from entering the rest of it.

There are 8 models of wall heaters in the range, which differ in size, power and volume of the heated room. The all-in-one heaters, which are most often used for additional heating, can be equipped with a built-in thermostat with remote control.

Parameter names	Model							
	UDEN 250	UDEN 300	UDEN 500	UDEN 500D	UDEN 500K	UDEN 700	UDEN 900	UDEN 1000
Nominal power consumption, W	207-241	288-336	405-472	405-472	405-472	585-682	720-840	810-945
Dimensions with fasteners, mm: L/H/T	975 163 35	975 240 35	800 475 35	975 350 35	594 594 35	978 475 35	1200 475 35	1200 594 35
Recommended room area (m ²) with a height of 2.5 m, no more than	4-5	5-6	8-10	8-10	8-10	12-14	16-18	18-20
Weight, kg, not more than (without packing box)	4,5	6,0	10,0	8,0	9,0	11,5	15	20

Warm skirting board is a metal-ceramic energy-saving heating device used for an autonomous or supplementary heating system. They look like a conventional skirting board with a height of 13 cm and are installed mainly on an external (cold) wall above or instead of an existing skirting board. They differ from wall and ceiling models in size, power and installation method.

Its main feature is in the way it heats rooms. Installed along a cold wall, it directly warms it up (tempers). The warm air "sticks" to the walls and slowly rises along them, creating a thermal curtain that prevents the cold from entering the room. The heated walls get rid of excess moisture, conduct less heat from the outside and begin to radiate it themselves. This eliminates the problem of cold, damp walls, corners, condensation and mould.

The range includes 3 models of different sizes and power - 100, 150 and 200 W.

Model:	UDEN-100	UDEN-150	UDEN-200
Consumption power:	90-105 W	135-157 W	180-210 W
Nominal voltage:	220-230 B	220-230 B	220-230 B
Dimensions with fasteners, mm: L/H/T	498 130 14 (35)	750 130 14 (35)	998 130 14 (35)
S heating at h=2.5m:	1,4-2 m2	2-3 m2	3-4 m2
Surface temperature:	80±5 °C	80±5 °C	80±5 °C
Weight:	2,0 kg	3,0 kg	3,5 kg

8. The range of products. Warm skirting board

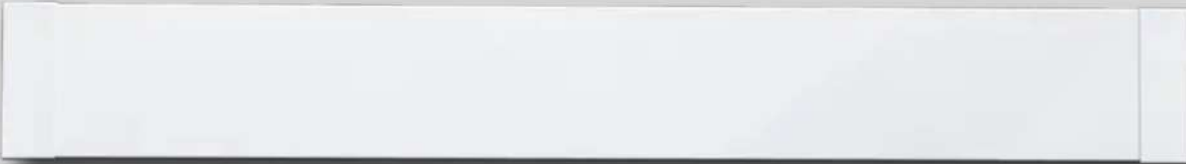
UDEN-100



UDEN-150



UDEN-200





Two side caps and a decorative coupling are included as standard.

The underfloor heating is very quick to install: all the elements are easily assembled, connected to each other and connected to the mains via a thermostat. The freestanding skirting board is closed on both sides with side caps. For installation along the entire length of the room, decorative sleeves are used to close the joints between the skirting boards.

The use of a warm skirting board

Thanks to its working principle, the warm skirting board shows excellent results in corner and end rooms, private houses, new buildings, rooms with damp walls, long curtains or panoramic windows. It is also suitable for loggias, balconies, basements, greenhouses, and winter gardens where traditional heating is simply inefficient. And by combining the warm skirting board with other UDEN-S heaters, you can achieve a rational selection of the heating system's power and make stylish accents with design heaters.





9. The range of products. Metal-ceramic ceiling heaters

Metal-ceramic energy-saving ceiling heaters UDEN-500P are mounted directly to the ceiling or in the Armstrong profile. The invisible heating based on these heaters is especially relevant for facilities with a large area (shops, shopping centres and pavilions, warehouses, railway stations, petrol stations, service stations, etc.) or in rooms with glass walls or furniture.

The heaters differ from wall-mounted models in the way they are mounted and in the surface temperature ($90\pm 5^{\circ}\text{C}$) due to their location.

Model: UDEN-500P

Power consumption:

Rated voltage:

Dimensions (with mounts):

V heating:

S heating at $h=2.5\text{m}$:

Surface temperature:

Weight:

Installation method:

450-525 W

220-230 B

594x594x14 (35) mm

20-25 m³

8-10 m²

$90\pm 5^{\circ}\text{C}$

9.0 kg

ceiling



10. Product range.

Metal-ceramic design heaters

Metal-ceramic heaters are an effective combination of economical heating and artistic work. They have the same technical characteristics as standard models, and their price already includes painting or drawing.

UDEN-S® design panels are manufactured using environmentally friendly powder coating technology, which ensures good performance of the coating: the painted surface can easily withstand temperature changes and is completely fireproof.

The design heaters are available in three product lines:



Classic series (single-colour)

Around 250 models of UDEN-S® heaters are available in more than 100 colours and shades. Each customer can become the author of their own heater by simply suggesting their favourite pattern, design, company logo or other colour scheme. And our designers will help you bring your original idea to life!



Allegro series (multi-colour)



Image series (with handmade drawings)

The unique Image series: each drawing on the heaters is an author's handmade work, an exclusive that has no analogues in the world. Such heating panels will become a highlight of even the most sophisticated interior, emphasising the unique style of its owner.

11. Product range.

Metal-ceramic heated towel rails

It does not require a water connection and can significantly save energy when connected to a thermostat. The multi-coloured rails allow you to choose the best option for any interior. The rails are available in 4 colours: black, bronze, gold and satin.



It is important to bear in mind that the larger the bath area, the more powerful the towel rail should be. Based on this, UDEN-S heated towel rails are available in five sizes with different capacities, from which you can choose the most suitable option: UDEN-440, UDEN-360, UDEN-290, UDEN-260, UDEN-180.

You can also choose a towel rail colour that perfectly matches the interior according to the Ral colour scheme, or offer your own design, and our designers will apply it by hand.

This way, you can create the atmosphere in your bathroom yourself. In addition to its stylish appearance, it will also help to avoid unpleasant situations (such as dampness, mould) caused by wet towels and create comfort in your bathroom.



12. The range of products.

Ceramic granite heaters

Porcelain stoneware design heaters are energy-saving heating panels and a real find for fans of non-standard design solutions: they have original shapes, textures and handmade decor.

The surface of the heater can imitate any natural stone, wood, clay, fabric, leather texture, be matte, glossy, polished, structured and have different shapes and sizes.

All heaters are available in around 30 colours and shades from the UDEN-S® product catalogue.

At the customer's request, any model can be made in a different design (colour, shape, pattern) or a heater can be created according to the customer's own sketch.

Classification of ceramic granite heaters



PRESTIGE



PREMIUM



EXCLUSIVE



N°	Parameter names	Model								
		KEN 500D	KEN 500K	KEN 500	KEN 600	KEN 700	KEN 900	KEN 1000	KEN 1100	KEN 1400
1	Nominal power consumption, W	387-450	387-450	387-450	495-577	630-735	855-998	900-1050	900-1050	1260-1470
2	Nominal supply voltage, V	220-230	220-230	220-230	220-230	220-230	220-230	220-230	220-230	220-230
3	Frequency, Hz	50	50	50	50	50	50	50	50	50
4	Overall dimensions (LxWxT), ±5 mm	975	600	785	970	1200	1400	1200	1600	1800
		350	600	460	460	470	520	600	520	600
		30	30	30	30	40	40	40	40	40
5	Volume of the heated room, m3, not more than	20-25	20-25	20-25	25-30	30-35	40-45	45-50	45-50	60-70
6	Recommended room area (m2) with a height of 2.5 m, no more than	8-10	8-10	8-10	11-13	14-16	18-21	18-21	19-22	26-30
7	Operating surface temperature, °C, +- more	80±5	80±5	80±5	80±5	80±5	80±5	80±5	80±5	80±5
8	Degree of protection (IP)	54	54	54	54	54	54	54	54	54
9	Weight, kg, not more than	21,9	23,4	23,5	28,6	38,3	58,4	69,1	69,1	92,3

The KEN range
Choose the right model for your room depending on the parameters of the room.



The stand leg is suitable for
for heaters:
UDEN-1000, UDEN-700,
UDEN-500, UDEN-500K



The stand leg is suitable for
for heaters:
UDEN-700, UDEN-500,
UDEN-500D, UDEN-500K,
UDEN-300, UDEN-250



Standing leg for UDEN-S
heater on wheels

13. Legs for UDEN-S heaters

Advantages of the legs:

- 1. Convenience** - very lightweight, take up minimal space, and installation takes less than 1 minute.
- 2. Reliability** - reliable fixation of the heater, which prevents its accidental overturning. The legs practically do not heat up from the heater and are absolutely safe. The warranty is 1 year.
- 3. Pleasant design** - modern and stylish look that goes well with both standard white heaters and coloured models.
- 4. Versatility** - the legs are suitable for most models of UDEN-S heaters.

The base feet are not included in the standard package of the wall heaters and must be ordered separately.



The stand feet are suitable for
heaters: KEN-500 and KEN-600



14. Heating system control: comfort + economy



Thermostats are used in a stationary heating system or with individual UDEN-S® heaters. Their use makes it possible to set and maintain the required (individual) temperature in each room of the room (1 thermostat per room).

Why use a thermostat?

- Significant energy savings. If the capacity of the heating system is calculated correctly, the heaters will operate on average no more than 5-7 hours per day during the heating season.
- Automation of the heating system. The client saves time and money on maintenance staff.
- Redistribution of load on the network. UDEN-S® heaters are not switched on simultaneously, but in a cascade, which reduces the load on the network. This is especially important for apartments, old houses, etc.
- Maintaining the minimum temperature (anti-freeze function). Reducing electricity consumption when people are away from the room (holidays, business trips, country and country houses). A 1°C drop in temperature reduces electricity consumption by 5-7%.

Which thermostat to choose?

The UDEN-S® heating system can be used with any mechanical, electromechanical and electronic thermostats, time relays, etc. Our technicians most often use mechanical thermostats of the following brands: Seitron (Italy), Terneo (Ukraine) and HEAT PLUS (South Korea). They have long been tested at our facilities.

Type of heating	Type of thermostat	Features of the application
Main (UDEN-S® heaters in the "standard" configuration)	Mechanical: Seitron TM 001M	Set the temperature by turning the knob on the thermostat body.
	Electromechanical: terneo vt	Has a display showing the set temperature with buttons on the body.
	Programmable: 1) terneo pro 2) HEAT PLUS M6.716 3) HEAT PLUS iTeo4	1) setting the temperature depending on the time of day and day of the week, maintaining electricity consumption statistics; 2) precise temperature planning depending on the time of day and day of the week; 3) digital touch screen, weekly programming
Optional (UDEN-S® heaters in the "station wagon" configuration)	1) Socket socket: terneo rz 2) Wireless socket with remote control: UDEN-TW	1) the thermostat is plugged into the socket and the heater is connected directly to it; 2) the heater plug is inserted into the wall socket and the required room temperature is set using the remote control.

Our model of thermostat for additional heating is the UDEN-TW wireless socket thermostat with remote control!

Its main feature is a temperature sensor built directly into the remote control, which displays the set and current temperature. This is what makes it easy and convenient to regulate a comfortable temperature regime where it is really needed.

WHY UDEN-TW?

1. Highly accurate control of the connected heaters. Thanks to the temperature sensor built into the remote control, the customer receives the desired temperature in the desired location.
2. Ease of use. Easy control of the thermostat using the remote control, which transmits a signal up to 40 m away. The remote control can be placed in a convenient place for the customer using the wall mounting hole or the stand leg for tabletop use.
3. Non-volatile memory. The thermostat has a non-volatile memory and when the power is turned off, all settings (set temperature, units of measurement) are saved in the device's memory.
4. Easy connection. To connect, simply plug the heater into a power outlet and set the temperature using the remote control.
5. Versatility. One remote control can control several heaters in the same room at once.

In combination with the UDEN-S® universal heater (with cord and plug), the thermostat ensures correct operation of the heater, correct room temperature and energy savings!



15. Calculation of the UDEN-S heating system

The power output of any heating system depends on the heat loss of the room.

To heat a room with good thermal insulation and a ceiling height of 2.5 m, UDEN-S® equipment requires approximately 0.5 kW of electrical power per 10 m².

Based on the characteristics of the room (area, ceiling height, wall material, insulation, etc.), the required power of the system for the entire facility and individual rooms is calculated. Based on this data, we select heaters with the required technical characteristics.

It should be borne in mind that, for example, the heat losses of an apartment and a private house are slightly different. For example, for an average apartment with an area of 50 m² and a height of 2.5 m, 0.6-0.7 kW/m² of UDEN-S® heaters will be sufficient, while for a private house with all external walls, 0.9 kW/m² may be enough.

To get more accurate data, use the free heating system calculation service. To do this, simply send us a completed questionnaire and a floor plan of the client's premises. Our licensed design and installation department will calculate the heating system and prepare an estimate for absolutely any object.

In some cases, we may recommend that the client has a technician come out to measure the premises. This will increase the accuracy of the calculation, and the client will be able to get expert advice on the installation of the system in their case.

What does the calculation of the heating system give?

- determination of the total capacity of the heating system (the required number of heaters for the room) and the cost of its installation;
- forecast of approximate electricity consumption and, accordingly, operating costs;
- obtaining competent expert advice on the choice of UDEN-S® heater models.



16. Installation of the heating system

Installation of a fixed heating system

When installing a stationary heating system, the existing electrical wiring is not used: all heaters are connected directly to the meter via an autonomous cable. This ensures the reliability and safety of the system. For installation, standard accessory panels (without cord and plug) are used. The required amount of cable and wire products is calculated in the estimate for each specific room.

The rear side of the metal-ceramic heaters has a terminal block with three leads: The 1st is used as a power lead, the 2nd is used for parallel connection of subsequent panels (if there are none, only one lead is used, the second is covered with a special rubber plug), and the 3rd is used for grounding.

For each room, regardless of the number of heaters in it, 1 thermostat is installed, which maintains the set temperature in the room and automatically switches the heating panels on/off.

UDEN-S® heaters are very easy and quick to install without damaging the interior: all cables and fasteners are invisible to the eye. Depending on the stage of repair readiness, the cables are strobed or laid through a cable channel.

The installation of a stationary heating system can be done in stages, which is especially convenient in large facilities and buildings where not all rooms are used equally.

For more information on the installation rules for different models of heaters, please refer to the technical data sheet included in the standard delivery package.

Installation of heaters for additional heating

Heaters with a cord and plug are used as additional heating. To do this, install them on the wall or put them on legs and simply plug them into a socket.

For economical and autonomous operation of the heater, we recommend using a socket thermostat. It is inserted into the socket and the heater plug is inserted into it.

Please note! Any UDEN-S® heater can be installed in both horizontal and vertical positions.

17. Comparative characteristics of heating systems

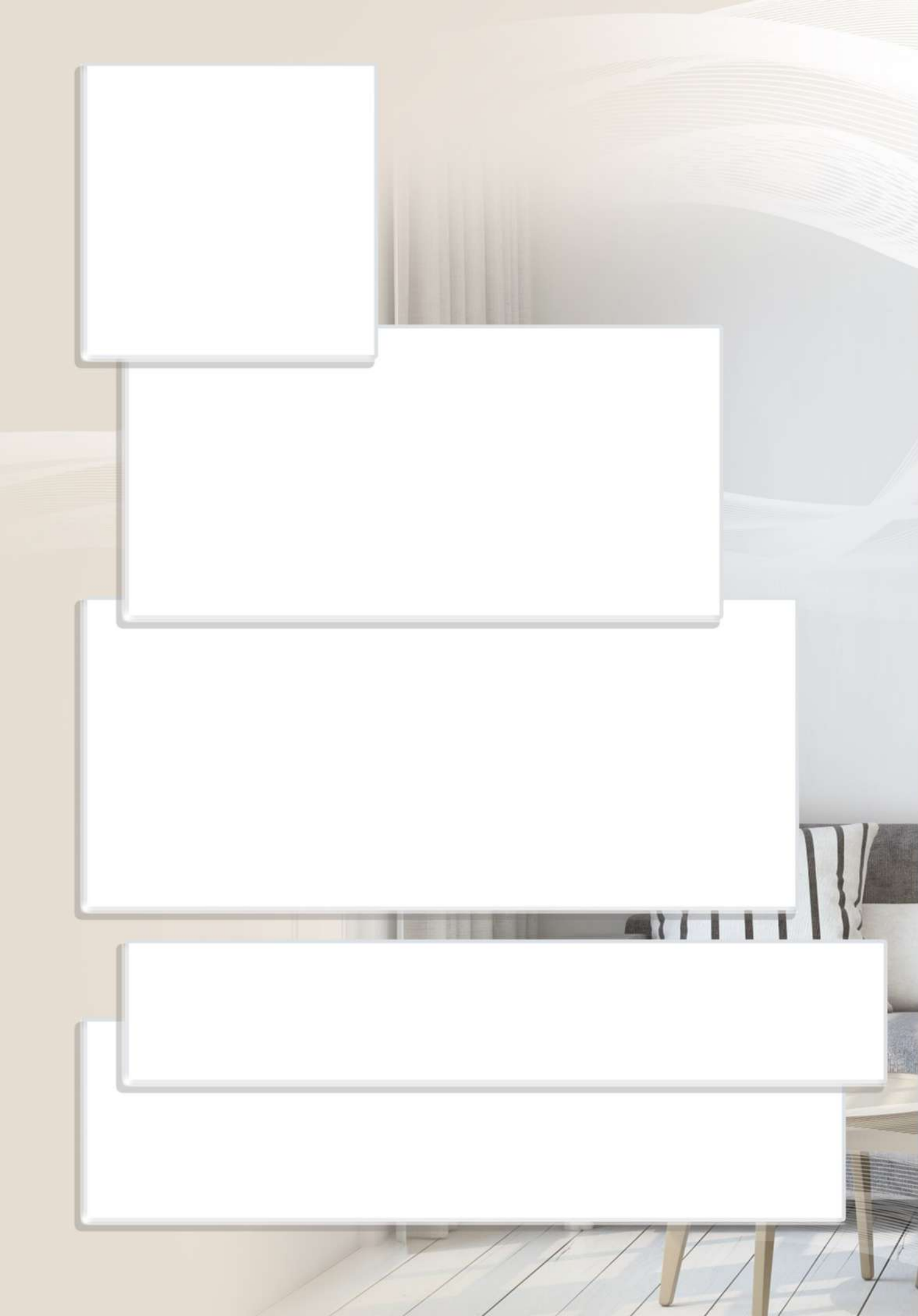
Let's compare the cost of installing and operating the UDEN-S® heating system compared to gas boilers and electric convectors using the example of a 1-room apartment (30 m2) and a 3-room apartment (70 m2). *(Calculation based on the example of Kropyvnytskyi, Ukraine)*

1-room apartment (30 m2)

Features	Gas heating	Electric convectors	UDEN-S heaters
System capacity	-	Approximately 2.5-3.5 kW	Recommended 1.5-1.8 kW
Cost with installation (depending on the region)	50-60 thousand UAH	10-12 thousand UAH	17-20 thousand UAH
Calculating consumption costs	On average, to heat 1 m3, you need 2.4-3.2 m3 of gas per month. 2.4-3.2 m3 * 30 m3 ≈ 70-100 m3	2.5-3.5 kW*10-12 hours/day*30 days ≈ 750-1 300 kW	1.5-1.8 kW*5-8 hours/day*30 days ≈ 250-450 kW
Average expenses per month	≈ 70-100 m3	≈ 750-1 300 kW	≈250-450 kW
Average payment per month	≈660-950 UAH	≈2 000-3 500 UAH	≈ 660-1 200 UAH
Average payment per season (6 months)	≈ 4 000-5 700 UAH	≈12 000 - 21 000 UAH	≈4 000-7 200 UAH
Average payback of the system	≈60-109 heating months (10-18 heating seasons)	In this case, central heating is more profitable.	≈20-67 heating months (3-11 heating seasons)

3-room apartment (70 m2)

Features	Gas heating	Electric convectors	UDEN-S heaters
System capacity	-	Approximately 5-6 kW	Recommended 3.1-3.4 kW
Cost with installation (depending on the region)	60-70 thousand UAH	25-30 thousand UAH	32-37 thousand UAH
Calculating consumption costs	On average, 2.4-3.2 m3 of gas is required per month to heat 1 m3. 2.4-3.2 m3 * 70 m3 ≈ 170-230 m3	5-6 kW*10-12 hours/day*30 days ≈ 1,500-2,200 kW	3.1-3.4 kW*5-8 hours/day*30 days = 460-820 kW
Average expenses per month	≈ 170-230 m3	≈1 500–2 200 kW	≈ 460-820 kW
Average payment per month	≈1 600-2 200 UAH	≈4 000-5 800 UAH	≈ 1 200-2 200 UAH
Average payment per season (6 months)	≈ 9 600-13 200 UAH	≈24 000 - 35 000 UAH	≈7 200-13 200 UAH
Average payback of the system	≈ 32-54 heating months (5-9 heating seasons)	In this case, central heating is more profitable	≈14-28 heating months (2-5 heating seasons)



18. Advantages of UDEN-S heaters over analogues

Show your customers all the advantages of UDEN-S® heaters compared to their counterparts on the market:

- Wide range of models
- Power from 100 to 1400 W.
- Exclusive design heaters
- Individual design heater to order
- Availability of heat storage
- 5 years exchange warranty
- 25 years of continuous operation
- European quality (CE certificate)

And your potential partners - the benefits of working with UDEN-S heating:

- quality products from a national manufacturer;
- main and additional heating of any object;
- a wide range of models and a constantly expanding assortment;
- flexible pricing policy;
- free calculation of the heating system capacity of any object;
- easy and quick installation (installation of the system in 1 day by a team of 2 employees);
- the possibility of phased installation;
- supervision of installation;
- fast delivery of products throughout Ukraine.

19. How to save extra money with UDEN-S electric heating

As you can see from the example, UDEN-S® heating is by far the most economical option. But your customers can save more money on heating. Explain to them how they can do this, as it is an important argument in their decision to purchase heaters.

1. Using programmers

The use of programmers with heating allows you to schedule the system on an hourly/weekly basis. This means additional energy savings of up to 20-30%. They switch on equipment only at the right time or at the right intervals. For example, the heating system operates in a support mode all day, and an hour before the client returns home, it adjusts the room temperature to the set point.

2. Installing a two-tariff meter

When installing a two-tariff meter, electricity costs will be calculated according to the following scheme: from 7:00 to 23:00, electricity is paid at 100% of the "day" tariff, and from 23:00 to 7:00 - at the so-called "night" tariff, i.e. 50% of the existing tariff. Thus, by using as much electricity as possible at night, you can save a lot of money.

By combining all these methods, the client can easily reduce heating costs to a minimum.



20. Mini-case study. Installation of the UDEN-S heating system in an apartment

Let's take a look at all aspects of installing a UDEN-S® heating system in an apartment.

We were approached by a city resident who needed an individual heating system for her 2-room apartment (47m²). The woman was not satisfied with the central heating system that was available at the time: it was too expensive and cold at the same time.

The customer took advantage of the opportunity to have technical specialists come to her home to take measurements, on the basis of which our design and installation department calculated the heating system.

The estimate includes the cost of heaters, thermostats, cabling and wiring products, and the installation of the system.

Important detail! The estimate is based on retail prices and includes an interesting profit for the dealer.

During the presentation of the estimate and the plan with the placement of heaters in the room by the manager, our customer chose the proposed heating option. The only thing she changed was the shape of the heater in the kitchen (from rectangular to square).

ЗАГАЛЬНА ПОТУЖНІСТЬ:			P= 2,7					
ЗАГАЛЬНА ПЛОЩА:			S= 47,8		H= 2,5		V= 119,5	
назва	найменування	Артикул	Завод виробник	од.вим	к-ть	вид.	ціна	сума
прилад побутовий	УДЕН-1000		УДЕН-Україна, м.Кропивницький	шт.	1		5999,00	5 999,00
прилад побутовий	УДЕН-900		УДЕН-Україна, м.Кропивницький	шт.	1		5599,00	5 599,00
прилад побутовий	УДЕН-500		УДЕН-Україна, м.Кропивницький	шт.	1		3732,00	3 732,00
прилад побутовий	УДЕН-300		УДЕН-Україна, м.Кропивницький	шт.	1		2627,00	2 627,00
терморегулятор	seitron TM 001		Італія (на замов. УДЕН-Україна)	шт.	4		625,00	2 500,00
кабель	ШВВП 3х1		ІнтерЕлектро, м.Київ	м	60		30,94	1 856,40
кабель	ШВВП 3х2,5		ІнтерЕлектро, м.Київ	м	10		67,84	678,40
кабель-канал	16х16	СКК10-016-016-1-К01	ІЕК, м.Вишневе, Україна	м	50		31,18	1 559,00
кабель-канал	25х16	СКК10-025-016-1-К01	ІЕК, м.Вишневе, Україна	м	10		40,5	405,00
Авт. вимик. ВА47-29М 2Р 16А 4,5кА х-ка С		MVA20-2-016-С	ІЕК, м.Вишневе, Україна	шт.	1		222,78	222,78
Бокс КМПн 2/4 навісний IP 30, 1 ряд, 4 модуля		МКР42-N-04-30-12	ІЕК, м.Вишневе, Україна	шт.	1		79,13	79,13
Саморіз по дереву	3,5х35 мм			шт.	120		0,55	66,00
Саморіз по дереву	3,5х25 мм			шт.	60		0,43	25,80
Саморіз по дереву	3,5х16 мм			шт.	30		0,37	11,10
Дюбель	6х40 мм			шт.	120		0,75	90,00
наконечник-гільза, 20шт	E1508 (1,5кв.мм)	UGN10-4-D15-03-08	ІЕК, м.Вишневе, Україна	шт.	0		0,75	0,00
наконечник-гільза, 20шт	E2508 (2,5кв.мм)	UGN10-4-D25-04-08	ІЕК, м.Вишневе, Україна	шт.	4		0,85	3,40
наконечник-гільза, 20шт	E4009 (4,0кв.мм)	UGN10-4-004-04-09	ІЕК, м.Вишневе, Україна	шт.	7		1,14	7,98
наконечник-гільза, 20шт	E6018 (6,0кв.мм)	UGN10-4-006-06-18	ІЕК, м.Вишневе, Україна	шт.	6		2,68	16,08
витратні матеріали:								637
загалом матеріалів:								26115
послуга по встановленню:								5223
заміри та складання кошторису								100
Загалом до сплати:								31438

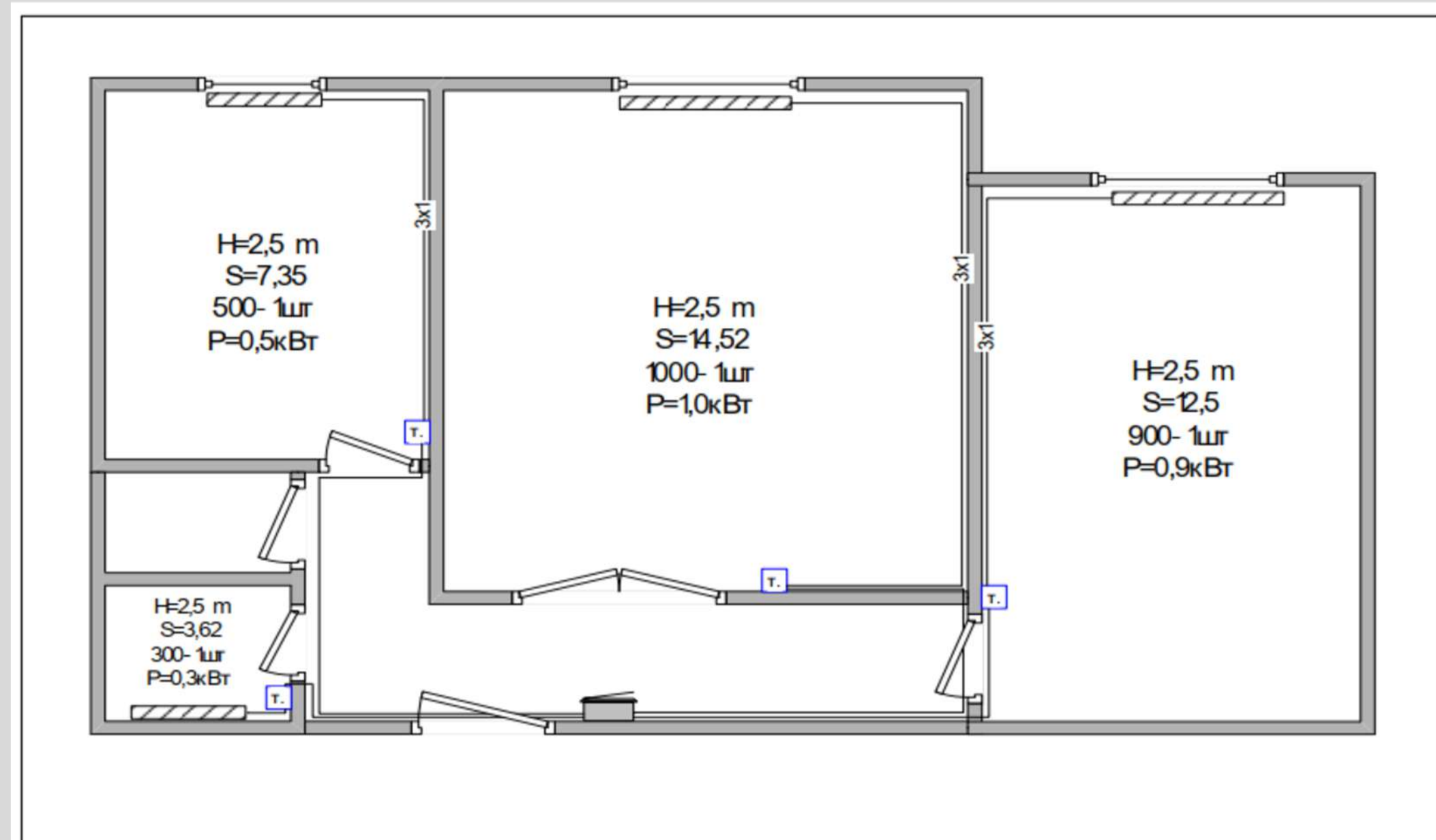
According to the calculation, the total power of the system, taking into account all the characteristics and heat losses of the room, was 2.7 kW. The design power per apartment is 3 kW. There is no need to increase the power per apartment.

If the system calculation would be more than 3 kW, then in order to save money (not to waste extra time and money of the client), the estimate includes a priority relay - a device for automatic disconnection of non-priority load. If the heating system and other household appliances (iron, electric kettle, etc.) are switched on at the same time, the heating system will be switched off automatically.

For one of the rooms with an area of 7.35 m² and a ceiling height of 2.5 m, 0.5 kW of power was required (1 UDEN-500 heater). For a living room with an area of 14.5 m², according to the calculation, 1 kW (1 UDEN-1000 heater) is required. The kitchen requires 0.9 kW (1 UDEN-900 heater). For a bathroom with an area of 3.62 m², 0.3 kW (1 UDEN-300 heater) is required according to the calculation. For autonomous operation of the system, each room is equipped with one mechanical thermostat TAM 011, which controls the operation of the heaters connected to it depending on the set temperature. In the bathroom, at the request of the client, it is possible to install a heated towel rail or heater.

The system was installed in 1 day. The customer's renovation was not affected at all: all cables are invisible to the eye and hidden through the cable duct and skirting board.

The installation of the heating system cost the client UAH 31,438, including the cost of heaters, thermostats, materials, cabling and wiring products, and the installation service. The monthly electricity consumption was 405 kW, and the average payment for a seasonal month is approximately UAH 1,069. The customer was completely satisfied.



21. Mini-case study. Installation of the UDEN-S heating system at a commercial property.

Another object in the practice of our dealers is a women's clothing store "Belleza lingerie & dresses" in Dnipro. It is located on the 1st floor of a multi-storey building and has 2 rooms with a total area of 90 m2.

Based on the questionnaire and floor plan sent to us by the dealer, our technicians calculated the heating system back **in 2011**. The installation was completed in 2012 and is still successfully operating and heating the customers.

According to the calculation, the total capacity of the system, taking into account all the characteristics and heat losses of the store, is 11 kW. The largest room, a 72 m2 sales area with a height of 3 m, required 9 kW of power. The fitting room with an area of 18 m2 required 2 kW.

The main feature of the facility is that all the walls are lined with commercial equipment and furniture. Therefore, ceiling heaters were the perfect solution in this situation.

In total, 22 Classic ceiling heaters (single-colour panels) were installed in 2 rooms of 90 m2 in the same colour scheme as the modern interior style of the store. Each room is equipped with a TAM 011M thermostat.

The installation of the UDEN-S® heating system, including all materials and installation services, cost UAH 25,937 **in 2011**.

The result is 1900 kW of electricity consumption per month, comfortable warmth and stylish heating that matches the modern interior of the building.



						ТОВ "СП РОЗУМНИЙ ДІМ"			
заява № 1883						ДАТА:		11.04.2011	
ОБ'ЄКТ: Дніпропетровськ									
ЗАМОВНИК: Меєрович									
ВИКОНАВЕЦЬ: Шуренко									
Відповідальний за монтаж: _____									
ПРІЗВИЩА МОНТАЖНИКІВ: _____									
ЗАГАЛЬНА ПОТУЖНІСТЬ:						P=	11	0,1019	
ЗАГАЛЬНА ПЛОЩА:		S= 90		H= 3		V= 270		Sn= 108	
назва	найменування	од.вим	к-ть	вид.	ціна	сума	расх.	ост.	
прилад побутовий	УДЭН -500 П	шт.	22		748,00	16 456,00			
комплектуючі до панелі П	шуруп, S-обр. кріюк	компл.	22		6,00	132,00			
термостат	ТАМО11	шт.	2		231,00	462,00			
кабель	ПВС 3х1	м	70		6,13	429,10			
кабель	ШВВП 3х1,5	м	30		6,71	201,30			
кабель	ШВВП 3х2.5	м	60		10,83	649,80			
кабель-канал	16х16	м	50		4,60	230,00			
кабель-канал	25х40	м	20		13,66	273,20			
Авт. выкл. ВА47-29М 3Р 16А 4,5кА х-ка С		шт.	2		59,92	119,84			
Авт. выкл. ВА47-29М 3Р 25А 4,5кА х-ка С		шт.	1		59,92	59,92			
Контактор КМИ-10910 9А 220В/АС3 1НО ИЭК		шт.	1		77,08	77,08			
Контактор КМИ-11811 18А 220В/АС3 1НЗ ИЭК		шт.	1		101,04	101,04			
Корпус метал. ЩМП-2-1 36 УХЛ3 ІР31 (24 места)		шт.	1		449,48	449,48			
шуруп	3х30	шт.	249		0,06	14,94			
шуруп	3х16	шт.	50		0,04	1,99			
дюбель	6х30	шт.	249		0,18	44,82			
наконечник-гільза	Е7508 (1 кв.мм)	шт.	37		0,12	4,48			
наконечник-гільза	Е1508 (1,5кв.мм)	шт.	5		0,14	0,67			
наконечник-гільза	Е4009 (4,0кв.мм)	шт.	7		0,24	1,68			
наконечник-гільза	Е6018 (6,0кв.мм)	шт.	6		0,56	3,36			
шина нулевая на дин р.	12 отверстий	шт.	2		17,52	35,04			
Дин-рейка		м	0,3		21,84	6,55			
витратні матеріали :							198		
загалом матеріалів:							19952		
послуга по встановленню:							5986		
Загалом до сплати:							25937		
З кошторисом ознайомлений _____ підпис _____ дата _____									
Передоплата _____ підпис _____ дата _____									

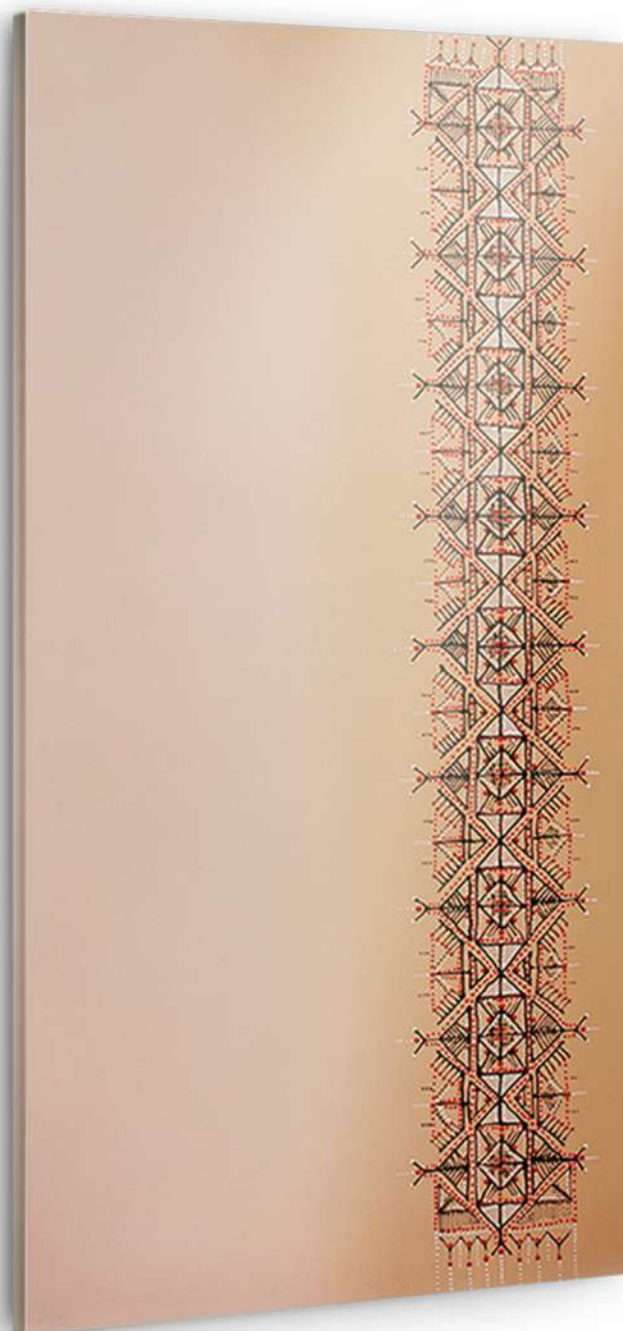


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UDEN-UKRAINE is a national
manufacturer of electric energy-saving heaters



SUCCESSFUL BUSINESS START-UP!



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