SPARTA MAGYARORSZÁG KFT

Manufacturer of SPARTA Electric Heating Units

SPARTA ELECTRIC HEATING UNIT USER MANUAL

Contents

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Dear Customer,

Thank you for purchasing the Sparta electric heating unit!
(Hereinafter referred to as the *Sparta heating unit*.)
The Sparta heating unit is designed for space heating as well as for the production of domestic and technological hot water.

General Information:

The SPARTA heating unit incorporates the most advanced heating elements and features a practical structure with modern design. It is manufactured using high-quality materials certified by recognized standards. It meets all the requirements for integration into heating and/or hot water systems. The instructions provided in this manual must be followed precisely, as this is the only way to ensure long-term, reliable operation of the unit.

Sparta Magyarország Kft. assumes no responsibility for potential typographical errors or inaccuracies found in this manual. The company reserves the right to make changes or modifications to its products whenever deemed necessary.

Please read this manual carefully before using the equipment, and keep it in an accessible place for future reference. The warnings and guidance included are essential for safe installation, operation, and maintenance.

We strongly recommend that the installation and servicing of the purchased heating unit be carried out by authorized service technicians contracted by Sparta Magyarország Kft., in compliance with legal and manufacturer requirements, as well as industry standards. If this is not possible, the work must be performed by a properly qualified technician. When designing systems for domestic hot water production, it is MANDATORY to use materials that comply with legal regulations throughout the entire system.

A qualified technician is defined as a person with adequate knowledge and experience in heating systems and hot water appliances.

The technician must possess the professional qualifications and licenses as required by law.

The manufacturer assumes no responsibility and cannot be held liable for any injuries to persons or animals, or for property damage resulting from improper installation or unprofessional maintenance of the boiler.

In case of device malfunction or operational failure, switch off the unit immediately and do not attempt to repair it or carry out any interventions. Contact only the official service provider recommended by Sparta Magyarország Kft.

Any warranty-related repairs may only be performed by a technician authorized by Sparta Magyarország Kft., using a replacement unit or original spare parts. Failure to follow the above instructions may compromise the safe operation of the device and will void the warranty.

For efficient and proper operation of the unit, it is essential that supplementary and auxiliary equipment be inspected annually by an official Sparta technician or a qualified professional. The Sparta heating unit itself does not require maintenance; however, to avoid potential issues in the connected systems, yearly cleaning and inspection maintenance is necessary.

Before performing any maintenance or cleaning tasks, it is MANDATORY to disconnect the unit from the power supply using the system's main switch or other appropriate circuit breaker.

If you decide to discontinue use of the unit, all components that may pose a safety hazard must be decommissioned appropriately.

If you sell, donate, or move out and leave the unit in the building, ensure that the User Manual remains with the equipment and that the new owner or installer has access to it.

The Sparta Heating Unit is a heat-generating device. It is suitable for heating a wide variety of premises and for producing domestic and technological hot water.

The Sparta electric heating unit, manufactured by Sparta Magyarország Kft., functions as an independent heat source and is designed for heating smaller houses and apartments, as well as for the production of domestic hot water. It is available in heating capacities ranging from 4 to 12 kW.

Thanks to its professional and practical design and compact dimensions, the unit can be selected to match the specific heating demand of apartments and houses with high accuracy.

Due to its small size, the unit offers exceptional flexibility in terms of installation and operation. Taking all possibilities into account, installation and connection to the heating circuit must always be

carried out in accordance with the customer's requirements and the relevant regulations.

It is suitable for installation in any location where heating with fossil fuels is undesirable, and where radiator, floor, or wall heating systems, as well as domestic hot water systems, are used.

The Sparta Heating Unit must only be used for its intended purpose!
Any other use is considered improper and, as such, dangerous. Individual modules can be connected in series or in parallel.

Applications:

Production of domestic hot water and heating of premises, such as:

- Residential buildings
    - Apartment buildings
    - Single-family homes
    - Weekend houses
- Hotels, guesthouses, restaurants, hospitality venues
- Childcare and social institutions: nurseries, kindergartens, schools, retirement homes
- Fitness and wellness centers, swimming pools, changing rooms
- Community centers, gymnasiums, sports halls, office buildings, administrative offices
- Factories, workshops, greenhouses, polytunnels
- Animal farms, stables

…and in any location where heat and hot water are required, powered by either electricity or solar panels.
It can also be used for the continuous production of large volumes of technological hot water, as well as for correcting heating circuits in cases of building operation issues.

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Types of Sparta Heating Units:

- **SP 04/1** – 230 V (Single-phase)
- **SP 04/3** – 3x230/400 V (Three-phase)
- **SP 06/3** – 3x230/400 V (Three-phase)
- **SP 09/3** – 3x230/400 V (Three-phase)
- **SP 12/3** – 3x400 V (Three-phase)
- **SP Kombi** – 3x230/400 V (Three-phase)
- **SP DC 04** – DC 400V (Direct current from solar panels)
- **SP DC 06** – DC 400V (Direct current from solar panels)
- **SP DC 09** – DC 400V (Direct current from solar panels)
- **SP AC / DC 04/3** – 3x230/400 V and DC 650V (AC 3-phase + solar DC input)
- **SP AC / DC 06/3** – 3x230/400 V and DC 650V (AC 3-phase + solar DC input)
- **SP AC / DC 09/3** – 3x230/400 V and DC 650V (AC 3-phase + solar DC input)
- **SP AC / DC 12/3** – 3x400 V and DC 650V (AC 3-phase + solar DC input)

Components Required for Operating the Sparta Heating Unit:

Heating Unit

Manufactured using high-quality materials and the latest technology, the unit is pressure-tested at 0.6 MPa (6 bar) during inspection.

Main Circuit Breaker

The main circuit breakers are used to switch the boiler's electrical power supply on and off.

Casing (Enclosure)

Removing the casing is strictly prohibited and results in the immediate voiding of the warranty. Opening the casing does **not** disconnect the Sparta Heating Unit from the electrical power supply.

Supply (Flow) Pipe

The supply pipe (1") is marked with a red adhesive label and is located at the top of the Sparta Heating Unit.

Return Pipe

The return pipe (1") is marked with a blue adhesive label and is located at the bottom of the Sparta Heating Unit. This pipe connects to the bottom of the unit and returns the cooled water to the electric heating elements. The circulation pump and sludge separator are typically installed within this pipe.

Temperature Sensor Probe

Located next to the Sparta Heating Unit, this sensor is part of the boiler control system.

Thermal Temperature Protection

This safety feature cuts off electrical power to the Sparta Heating Unit if the unit overheats beyond the preset limit.

Electric Heating Element

The electric heating element is located inside the Heating Unit. Its power rating depends on the type of Heating Unit.

Thermal Insulation Layer

The Sparta Heating Unit is equipped with a thermal insulation layer of at least 2 mm in thickness, which effectively reduces heat loss from the boiler.

Filling – Draining, Safety Valve

For safe operation—just like in any heating circuit—a safety valve must be installed with the Sparta Heating Unit. The safety valve, which must have proper certification, should be set to 2.5 bar of pressure.

Circulation Pump

The Sparta Heating Unit does not include a built-in circulation pump, assuming that the existing heating system already contains one. If needed, it can be ordered from Sparta Magyarország Kft.

Expansion Tank

The Sparta Heating Unit does not include an expansion tank. If required, it can also be ordered from Sparta Magyarország Kft.

The lower section of the Sparta Heating Unit must be equipped with a circulation pump and an expansion tank installed in the return pipe.

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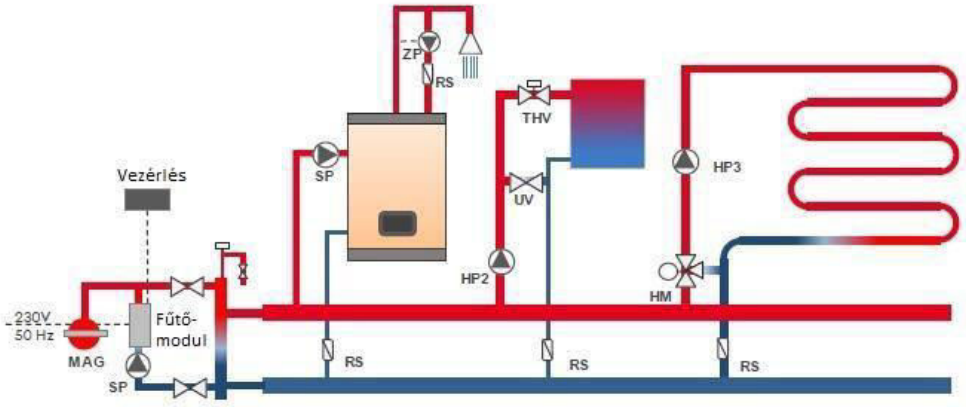
Installation of the Heating Unit:

The piping must be carried out in accordance with the generally accepted rules of heating installation and building services engineering. The hot water outlet connection is located at the top of the unit. The return hot water connection can be connected at the bottom of the unit. The recommended configuration is shown in the system diagram.



Note:

Do not forget to fill and bleed the Heating Unit before switching on the electrical power! Filling must be performed through the lower filling valve.

When installing the SP/04 model, it is worth considering whether a single-phase or three-phase unit is required. For better load distribution—if possible—a three-phase connection is recommended. The 6, 9, and 12 kW units can only be connected to three-phase power.

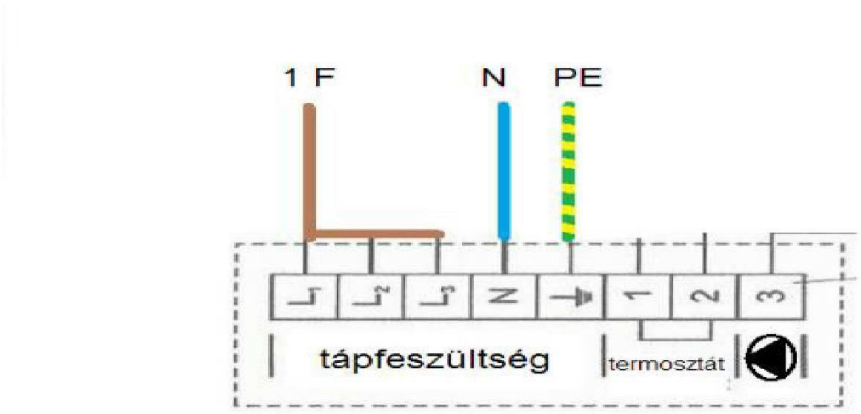
Example for calculating required current (circuit breaker rating):

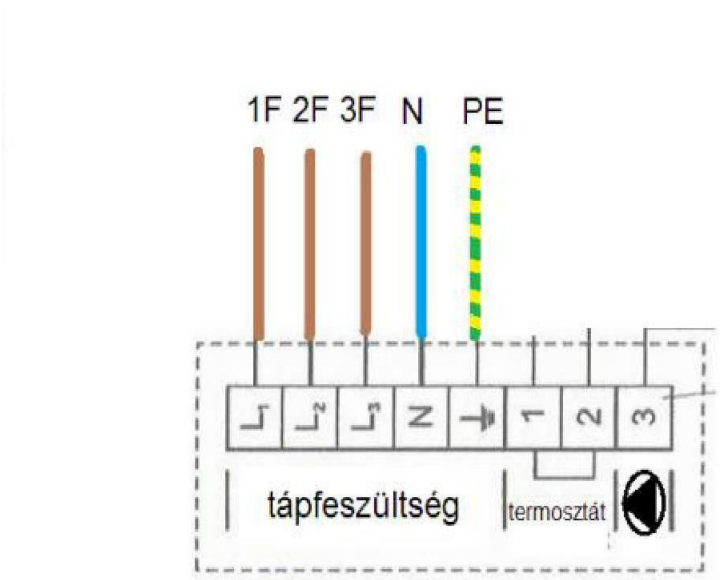
For a 4 kW unit:

$$I = P / U = 4500\ W / 230\ V = 19{,}57A$$

If the 4.5 kW unit operates on a single phase, the circuit must provide at least **20 A** on that phase.

These circuit breaker ratings, of course, apply only to the operation of the Heating Unit itself. The power demand of other electrical consumers within the building must also be taken into account.





Connection to the Heating System:

The Sparta Heating Unit can be mounted on a wall (inside a cabinet). For wall mounting, mounting brackets located on the back of the unit are required.
To ensure safe operation, an automatic air vent must be installed.

We recommend that the installation of the Sparta Heating Unit be carried out by a qualified expert to maintain the validity of the warranty.

Electrical Connection:

All electrical installation work must be carried out in accordance with current regulations by a qualified electrician authorized to perform such tasks. The electrical system of the Sparta Heating Unit is preassembled in the manufacturing plant.

The power supply to the Sparta Heating Unit must be provided using conductors with an appropriate cross-section.
A main switch that disconnects all live poles of the power supply must be integrated into the electrical system, in compliance with national electrical installation standards.

The Sparta Heating Unit must not be operated by:

- children,
- individuals with reduced mental, sensory, or physical capabilities,
- or persons unfamiliar with the operation of the unit,

unless they are supervised or have been instructed by a responsible and qualified person regarding the safe operation of the device.

Children should only be in the vicinity of the Heating Unit under supervision, to ensure they do not play with the device.

Safety Thermostat:

The safety thermostat sensor is placed directly on the Heating Unit.
It shuts down the operation of the Heating Unit if the temperature of the supply (forward) water reaches 85°C.
To restart the Heating Unit, wait until the temperature drops below 70°C.
If the Heating Unit continues to shut down repeatedly, a qualified technician must inspect the system.

Room Thermostat Connection:

The Sparta Heating Unit includes terminal connections for attaching a room thermostat.
Factory-installed jumper wires are present in these terminals when a room thermostat is not in use.
Simpler thermostats should be connected in series within the circuit.
Higher-end models—with indicator lights or built-in temperature simulation systems—must be continuously powered.

The control of the Heating Unit requires only a **potential-free closing contact**.

Storage and Transportation:

Due to its compact size and lightweight construction, the unit can be stored in a cabinet, in a dry place at room temperature.
Storage conditions must be within a temperature range of **-5°C to +45°C**, with a maximum relative humidity of **80%**.

During transport and storage, protect the unit from rough mechanical impacts and external physical damage.

Waste Disposal and Environmental Considerations:

To avoid environmental pollution, the manufacturer or distributor will accept the unit free of charge for disposal at the end of its life cycle. Alternatively, it should be handed over to a hazardous waste collection facility.
Do not dispose of the unit in regular household waste containers.

Technical Specifications of the Sparta Heating Unit:

The housing of the electric appliance provides protection against the ingress of solid objects and water.

The Heating Unit is rated **IP24**, which means:

- It is protected against the penetration of solid objects larger than **12.5 mm** in diameter (rating 2),
- and against water splashing from any direction (rating 4).

When determining the necessary fuse rating, only the current consumption of the device itself has been considered.
The current demands of other electrical appliances within the building must be **added** when calculating the total fuse rating.

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Basic Model Specifications

SPARTA	SP 04/1	SP 04/3	SP 06/3	SP 09/3	SP 12/3
Heating Capacity (kW)	4,5	4,5	6	9	12
Water Content in Unit (liters)	0,04	0,04	0,06	0,08	0,12
Total Weight incl. Control Unit (kg)	10,5	10,5	11	11,5	12
Maximum Operating Pressure (bar)	6	6	6	6	6
Electric Heating Element Output (kW)	4,5	4,5	6	9	12
Power Cable Cross Section (mm^2)	3x2,5	5x2,5	5x2,5	5x2,5	5x2,5
Supply/Return Pipe Connection (R)	1”	1”	1”	1”	1”
Minimum Current Requirement (A)	1*25 A	3*10 A	3*10 A	3*16 A	3*20 A
Dimensions (L × W × H, mm)	531x297x110	531x297x110	531x297x110	531x297x110	531x297x110
Temperature Setting Range (°C)	10-85° C°	10-85° C°	10-85° C°	10-85° C°	10-85° C°
Protection Rating	IP 24	IP 24	IP 24	IP 24	IP 24
Voltage (V)	1x230	3x230	3x230	3x230	3x400
Minimum Fuse Requirement (A)	1x25	3x10	3x10	3x16	3x20
Noise Level (dB)	0	0	0	0	0
CO 2 Emissions	0	0	0	0	0

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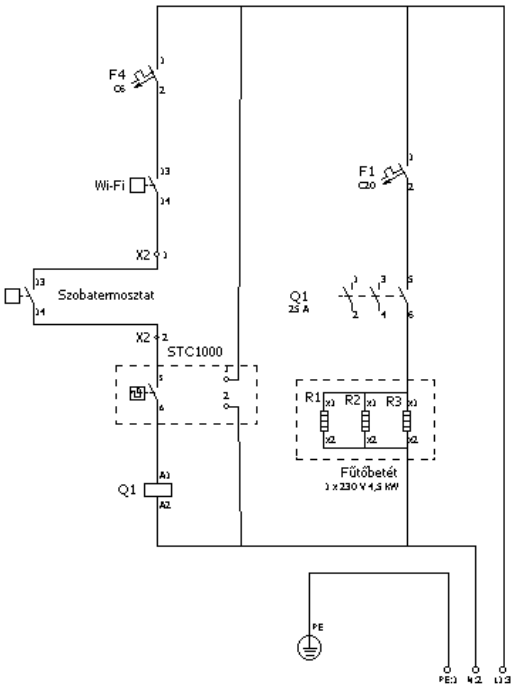
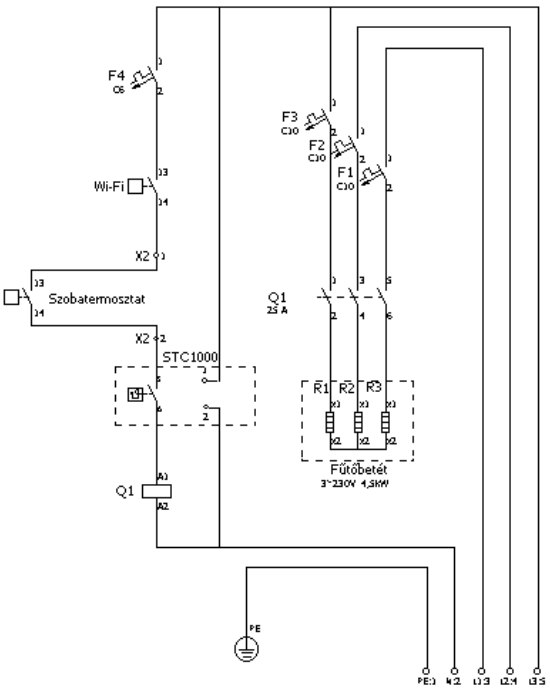
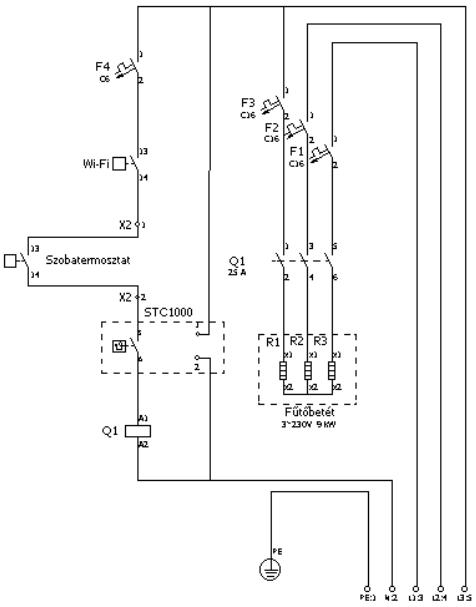
Electrical Wiring Diagrams



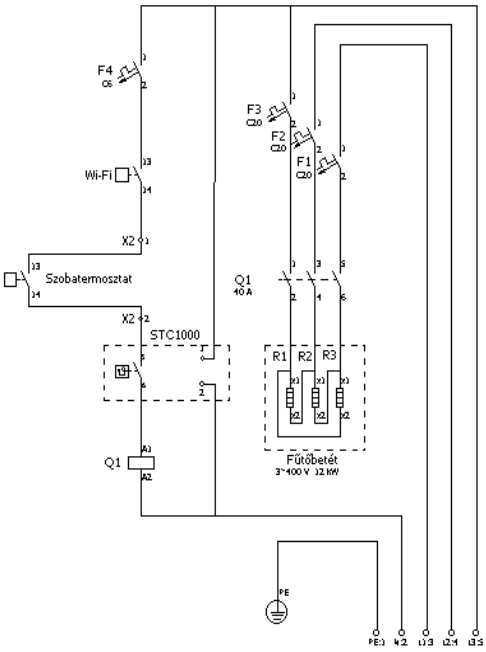
Single-phase, 4.5 kW



Three-phase, 4.5 kW



Three-phase, 6 and 9 kW



Three-phase, 12 kW

Possible Operational Errors:

Various malfunctions may occur during the operation of the Heating Unit.

- If the Heating Unit does not heat up: Check the fuses in the fuse box.
- A malfunction has occurred in the control system.
- The sensor has detected an excessively high temperature (above 90°C).
- If the issue persists, the Heating Unit must be inspected by an authorized service technician.
- **WARNING:** Removing the unit's casing is STRICTLY FORBIDDEN AND EXTREMELY DANGEROUS!
  Normal operation cannot resume until the unit is returned to its original safe state.

Note:

In all of the above fault cases, the circulation pump continues to operate; however, normal system operation cannot resume until the Heating Unit has returned to its initial state.

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