

Power supply unit

E-NERGY CARBON system in flush-mounted or surface-mounted housing



Installation & Operating instructions

Contents

1. General information and safety instructions

- 1.1. Equipment supplied
- 1.2. Overview
- 1.3. Safety instructions

2. Installation instructions

- 2.1. Introduction / installation
- 2.2. Wall installation
- 2.3. Connection of the power supply
- 2.4. Connection of the heating circuits
- 2.5. Connection of the room thermostat
- 2.6. Connection of the floor sensor
- 2.7. Master / slave connection
- 2.8. Start-up
- 2.9. Fault messages

3. Technical data

1. General information and safety instructions

The E-NERGY CARBON power supply unit is called a "device" in these instructions.

This device can be used by children who are 8 years old or older as well as by people who are physically, sensorily or mentally challged or lack experience and know-how, provided that they are supervised or have been instructed about how to use the equipment safely and understand the danger involved. Children must not be allowed to play with the equipment. Cleaning and use maintenance must not be carried out by children without supervision. When installation is

being carried out in wet conditions, the specifications made in DIN VDE 0100 part 701 must be observed.

Any interference with and/or changes to the control unit may destroy the system and will lead to elimination of the guarantee / warranty! The guarantee expires if the fault is attributable to an accident, the use of force, incorrect connection, liquid penetration, poor maintenance or abuse. The guarantee is also forfeited in the case of damage that has been caused by thunderstorms or other power fluctuations.

1.1. Equipment supplied with the E-NERGY CARBON power supply unit

The device is a power supply and control unit that has been specially designed for operating **E-NERGY CARBON** heating systems.

The individual pieces of equipment supplied are as follows:

- 1 x E-NERGY CARBON power supply unit
- 1 x instructions for installation of the E-NERGY CARBON power supply unit
- 4 x installation screws (UP 400 W 1x installation screw)
- 2 x spare circuit breakers 15 A
- 1 x fuse puller
- 2 x spare connectors

Leave the device in its original packaging until you install it.

1.2. Overview of the E-NERGY CARBON power supply unit (see illustration 1)

A B C D E F G H I J K Input terminals / primary side / 230 V Output terminals / secondary side / 36 V Main circuit breaker up to 10 A M/S - master/slave connection Controller connection Floor sensor connection Heating circuit breakers / 15 A each Antenna connection Button for test function Button for learning function (radio controller) LED display Grün = Power = Betriebsbereit = Heat = System heizt Gelb = Failure = Störung Rot L Montageplatte



1.3. Safety instructions

- Read all these instructions through carefully before you start installation.
- Transport: in order to protect all the parts from damage, they should be kept in their original
 packaging until they reach the installation location. Internal parts may be damaged if they are
 jolted or dropped.
- Damaged devices or parts may not be put into operation.
- The safety stickers and nameplates may not be removed.
- The individual components may only be installed in closed rooms.
- All the installation work must be carried out in a voltage-free state.
- The electrical circuit for connecting the heating control equipment must have sufficient capacity
 for the system and be appropriately protected. This electrical circuit must not be overloaded
 when the heating system is in operation.
- The device is not ready for operation in the form in which it is supplied and needs to be connected first by a trained electrician.
- The device must be installed in a box that can be locked, so that no unauthorised person can
 access it.
- Protect the device against moisture, thick dust, aggressive liquids and vapours.

2. Installation instructions

2.1. Introduction / installation

The device is designed to be installed together with our wall box. (Except the 2000 W device, which is only for the switch cabinet, because of the heat generation.)

Bear in mind when planning your system that you need to install the device in a lockable, flush-mounted box or at an equivalent location.

2.2. Wall installation

Choose the installation location carefully, taking the following points into consideration:

- The maximum cable length between the web of heating material and the device is 25 m (6 mm²) or 10 m (2.5 mm²). Locate the device in such a way that all the webs of heating material can be reached with the lengths of cable available.
- The installation plate must be attached to the wall box by at least four screws.
- The electricity circuit may not be overloaded by the nominal current that is required when the heating system is in operation.
- The device should be screwed into the wall box with the board facing downwards. Care must be taken here to make sure that the weight of the transformer is not being applied to the controller board; if it is, the device may be damaged.
- The wall and/or the wall box must be in such a condition that they can hold the device safely.
- It must be possible to see the LED signal displays when the device is in operation.
- It must be possible to lock the installation location, so that no unauthorised person can access it.

2.3 Connection of the power supply

First of all, make sure that all the power supply circuits for the area in question have been switched off. Now connect the power supply line to the terminals on the primary side (see illustration 1, letter A). Care must be taken to make sure that the wires are connected correctly. The primary side has up to 10 A circuit protection.

The following specifications must be observed when establishing the power supply connection: Power supply 230-240 VAC, 50/60 Hz

- Each power supply unit needs to be given individual protection
- Minimum requirement: 16 A C / circuit breaker / 16A slow-blow fuse



Example of an installation option

2.4. Connection of the heating circuits

Please note the following: After the webs of heating material have been installed, their cables can be connected to the secondary side of the device. To do this, the cables of the webs of heating material must be connected to the output terminals (illustration 1, letter B).

The maximum heating capacity that may be connected per heating circuit is 400 W.

2.5. Connection of the room thermostat

2.5.1. Connection E-NERGY CARBON Room thermostat UP (Art.-No. 2 03 260)

If you would like to operate the device with a radio thermostat, you can skip this point.

Connect the cables of the room thermostat with the Control socket (illustration 1, letter E), as is shown in the diagram. Now plug the room thermostat connection back into the socket provided on the device for this purpose. Illustration 3



2.5.2. Connection with E-NERGY room thermostat Touch | WiFi

Illustration 4



2.5.3. Teach-in E-NERGY CARBON room thermostat radio AP (Art. no. 2 03 441)

If you want to connect the wireless controller with the power supply unit, you must first screw on the separately available antenna (Figure 1, letter H). Then carry out the commissioning of the power supply unit. Then consult the operating manual of the radio control unit. Use the instructions to go to the "TEST" function point.

Now briefly press the Learn button on the power supply unit (Figure 1, letter J) and the yellow and red LEDs will flash alternately. Immediately start the "Test" function in the controller.

After the temperature controller has successfully connected to the power supply, the red and yellow LEDs flash twice simultaneously.

If you want to delete the connection from the power supply again, press and hold the Learn button for more than 3 seconds.

2.6. Connection of the floor sensor

When a floor sensor is being used, plug it into the Sensor socket provided for this purpose on the power supply unit (see illustration 1, letter F). If no floor sensor is being used, leave the resistor that is supplied with the device in the socket.

Illustration 5



Sensor socket with resistor

2.7. Master / slave connection

If you would like to control several devices with one controller, you need to connect them via the M/S connections.

Connect the M/S connection (see illustration 1, letter D) of the device, which is connected to a controller (master), to the terminals of the control connection of the device, which is supposed to receive the commands issued by the master (slave) (illustration 5). If you would like to connect further devices, the device that is connected last acts as the master in each case.

Abbildung 6



MS-Anschluss (Master)

Controll-Anschluss (Slave)

2.8. Start-up as supplied

The electrical installation work on the device has now been completed. Make another careful examination of the quality of the installation work. To start the device up, turn the power supply circuit back on. After the power supply has been switched on and if the installation work has been carried out properly, the green LED goes on. (Wired controller already connected.)

When the room thermostat issues a heating signal, the yellow LED goes on as well. When the heating cycle ends, the yellow LED goes off again.

Test function: To start a test run of the heating system, briefly press the Test button (Figure 1, letter I). Now the onnected heating tracks are switched on for 60 minutes, during the test procedure the yellow LED flashes. If you want to end the test before, press and hold the Test button for longer than 3 seconds.

2.9. Fault messages

Faults are indicated by the red LED flashing - long once, followed by several short flashing sequences.

The number of short flashing sequences indicates the type of fault.

If several faults occur at once, the faults are indicated in succession – and are repeated in the same succession too.

Fault code – short flashing sequence	Description		
1x	No code is saved for a wireless thermostat controller (is displayed until a wired thermostat controller is connected for the first time)		
2x	Code for a wireless thermostat controller is saved, but it has not received a signal for longer than 6 hours		
Зх	Either the floor sensor or the resistor is not connected or is faulty (the relay is not switching [closing])		
4x	The temperature sensor of the transformer is either not connected or is faulty (the relay is not switching [closing])		
5x	The transformer is overheating (the relay is not switching [closing		
бх	The temperature of the floor sensor is higher than allowed (the relay is not switching [closing])		

3. Technical Data

	400 W UP 400 W compact	800 W	
Input voltage	230 V +/- 10 % AC, 50/60 Hz		
Output capacity	400 VA // 1x 400 VA	800 VA // 2 x 400 VA	
Minimum requirement	16 A C circuit breaker / 16 A slow-blow fuse		
Nominal current	1.74 A	3.48 A	
Efficiency level	93.5 %	96.2 %	
Type of protection	IP 00	IP 00	
Mains connection	Terminal strip		
Output voltage per heating circuit	36 V AC	36 V AC	
Number of heating circuits	1	2	
Maximum output per heating circuit	400 W	400 W	
Further connections	Room thermostat, floor sensor, antenna, master/slave		
Attachment	See combination matrix		
Maximum ambient temperature	60 °C	60 °C	
Control displays	Coloured LEDs		
Circuit breaker data	Primary 4.00 AT Secondary 1 15.00 AT	Primary 4.00 AT Secondary 1 to 2 15.00 AT	
Dimensions (L x W x H)	182 x 212 x 52 mm	246 x 265 x 76 mm	
Weight	4 kg	8 kg	

Combination matrix transformer – cabinet

	Installation box UP compact	Installation box UP	Housing AP 1-fold with plastic lid	Housing AP 3-fold with plastic lid
Power supply UP 400 W	_	•	•	•
Power supply UP 800 W	_	•	•	•
Power supply UP 1200 W	_	•	_	•
Power supply UP 1600 W	_	•	_	•
Power supply UP 400 W compact	•	_		_
Power supply SC 2,000 W	_	_	_	•

	1,200 W	1,600 W	2,000 W		
Input voltage	230 V +/- 10 % AC, 50/60 Hz				
Output capacity	1200 VA // 3x 400 VA	1600 VA // 4 x 400 VA	2000 VA // 5 x 400 VA		
Minimum requirement	16 A C circuit breaker / 16 A slow-blow fuse				
Nominal current	5.2 A	6.96 A	6.96 A		
Efficiency level	95.8 %	96.3 %	95.66 %		
Type of protection	IP 00	IP 00	IP 00		
Mains connection	Terminal strip				
Output voltage per heating circuit	36 V AC	36 V AC	36 V AC		
Number of heating circuits	3	4	5		
Maximum output per heating circuit	400 W	400 W	400 W		
Further connections	Room thermostat, floor sensor, antenna, master/slave				
Attachment		See combination matrix			
Maximum ambient temperature	60 °C	60 °C	60 °C		
Control displays	Coloured LEDs				
Circuit breaker data	Primary 6,00 AT Secondary 1 to 3 15.00 AT	Primary 8,00 AT Secondary 1 to 4 15.00 AT	Primary 10,00 AT Secondary 1 to 5 15.00 AT		
Dimensions (L x W x H)	246 x 265 x 86 mm	246 x 265 x 87 mm	246 x 265 x 87 mm		
Weight	11.5 kg	12.5 kg	12.5 kg		
🚵 🛃 🤇 E 💿					

- mfh systems GmbH Hager Feld 8
 49191 Belm-Vehrte Germany
- Fon +49 (0) 54 06 | 699 95-10
 Fax +49 (0) 54 06 | 699 95-90
- mail@mfh-systems.com www.mfh-systems.com