

Operating Instructions S-Thermatik NEO



PREFACE / QUALITY PHILOSOPHY

You have decided in favour of a Spartherm fireplace accessory - thank you for your confidence in our company!

In a world of excess and mass production, our company stands for the values expressed by our founder, Gerhard Manfred Rokossa:

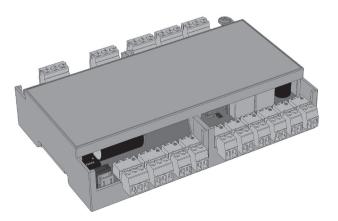
"High technical quality combined with contemporary design and service to the satisfaction of our customers, so they will recommend us to others".

Together with our specialist retail partners, we offer you first-class products that will touch your customers emotionally, and will inspire feelings such as a feeling of security, safety and comfort. To achieve this, we recommend that you read the operating instructions carefully in order to get a quick and comprehensive overview of your decorative fireplace.

In addition to the information on operation, this manual also contains important care and operating instructions for your safety as well as preserving the value of your accessory and provides valuable tips and tricks.

For further enquiries, please contact your specialist dealer. We hope you enjoy your new stove.

Your Spartherm team



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1. GENERAL INFORMATION

You have decided in favour of a Spartherm fireplace accessory - thank you for your confidence in our company!

This manual provides you with information about operation and troubleshooting for your combustion control. Details on installation and for service purposes can be found in the "S- Thermatik NEO installation and service instructions".

Important information is printed in bold. <u>Safety instructions</u> are <u>underlined and printed in bold</u> - always comply with these points.

Before using the appliance, please read the entire operating manual.

The combustion control system is pre-set to the nominal heat output of the fireplace. Information concerning the nominal heat output and the wood feed quantity can be found in the operating manual of the fireplace.

To maintain your control system, keep the door contact clean and ensure that the combustion air channel remains clean and unobstructed. From time to time, check here whether the permanent magnet is attached to the bottom of the door frame and that it is still undamaged.

1.1 INFORMATION ON INSTALL ATION

Please consult your district master chimney sweep before assembling and installing your fireplace. He will advise you on building regulations, will check the suitability of your chimney, will commission your fireplace insert and will issue the operating licence for your fire area.

When installing and operating the fireplace and connecting it to the chimney, comply with the national and European standards, the country-specific and local directives and regulations as well as the fire regulations for your state (in Germany only) and the Technical Rules of the Stove and Hot Air Heating System Trade (TROL).

All work on the electrical installation may only be performed by an authorised specialist company. All equipment must be switched off at the main switch before performing work on it.

1.2 ACCESSORIES

If needed, all conduits can be extended using normal copper cable, but this does apply to the cable on the flue gas temperature sensor. Here, a special compensating line MUST be used.

- 5m flue gas sensor extension cable (Item No. 1013221)
- 10m extension cable for flue gas sensor (type no. 1013222)

With appliances that circulate water, if the recirculating pump is to be controlled by the S- Thermatik NEO, at least three PT 1000 sensors should be ordered at the same time. This is the only way of ensuring that the "Differential temperature" function can be implemented together with the S- Thermatik NEO.

Temperature sensor PT1000 (part no. 1013765)
 Length 3 metres, incl. immersion sleeve with a G1/2" external thread

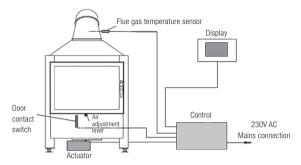
If the control system housing of the S- Thermatik NEO is to be protected in a special manner, a dust protection box measuring $210 \times 160 \times 80$ mm can be obtained in which the control system can be installed.

ATTENTION: The cable housings (see 3.3) must be removed, otherwise the control system will not fit inside.

• Dust protection box for S- Thermatik NEO (part no. 1013792)



1.3 FUNCTIONAL DESCRIPTION OF S- THERMATIK NEO



The basic configuration of the S- Thermatik NEO combustion control system consists of the control unit, the display, a flue gas temperature sensor, an actuator motor and a door contact switch. It is only suitable for fire areas that burn split logs.

The combustion control system is activated when the firebox door is opened and is awakened from Standby mode. Depending on the prevailing flue gas temperature, the control system adjusts the motor using the air slider until the correct quantity of combustion air is directed into the appliance. The time for adding fuel is displayed with a visual as well as an audible signal.

The control system remains active until the flue gas temperature has dropped to about 50°C and then it returns to Standby mode.

In the event of a power failure, the air slider automatically moves into a position in which the fire area can continue to be operated. Until power is restored, or until the fire is extinguished, no further interventions or measures are required.

2. SAFFTY NOTES

- The S- Thermatik NEO combustion control may only be used in combination with a wood-fired fireplace.
- Only fire areas which are ordered with this combustion control system and that are appropriately prepared from the factory can be combined with the S- Thermatik NEO.
- The combustion control system cannot be retrofitted!
- The maximum ambient temperature for the electrical components is 50°C. Measures must be taken by the customer to ensure that this temperature is not exceeded.
- The total electrical installation of the individual components may only be conducted by an authorised specialist company.
- All equipment must be switched off at the main switch before performing work on it.
- The installation must be done so as to allow maintenance work to be performed and the individual components of the "S- Thermatik NEO" to be replaced without any problems.
- Building moisture and condensation are to be avoided as these can result in corrosion and failure of the electrical components.
- The connecting cable of the flue gas temperature sensor can only be extended with a special compensation cable!
- The function of the combustion control system may be checked at any time with the air control lever.
- If the message "Air slider error" appears after opening the door, contact your stove fitter. It is NOT permissible to start up the fireplace in this state!

- When the firebox door is opened, the air control lever must always move to the right to the "combustion air fully open" position. If that is not done, the fireplace must not be operated until the fault has been found and remedied!
- The specified factory settings which are required for the safe operation of the combustion control may not be changed.
- Avoid pulling the wires installed on the fireplace. Outside the fireplace, these must be installed so that no tensile forces and no compression, chafing or shearing points are created.

3. MENU STRUCTURE AND DISPLAY

3.1 MENU STRUCTURE

To keep things simple, the menu is divided into just three sections:

- Statistics of the last 700 burnups
- User menu
- Service menu (password-protected)

Regardless of where you happen to be in the menu, using the Menu button at the bottom right, you can always return straight to the menu selection.

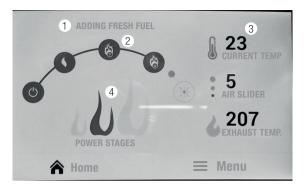
In the same way, pressing the Home key at the bottom left returns you immediately to the main menu.

Layout of the menu:

Home (main menu)				
User menu	Service menu			
SESAM *	Select fireplace			
System set-up	Parameters			
S-USI II **	Relay Menu			
Display	Doorswitch Menu			
Sound	Motor Menu			
Auto / Manual	Overview			
Language	Test			
Deactivating the door	Factory setting			
System information	Saving user data			
•	Loading user data			
	System settings			
	SESAM * System set-up S-USI II ** Display Sound Auto / Manual Language Deactivating the door			

^{**} only appears if the corresponding function was selected in the Relay menu

3.2 MAIN MENU



- 1 Current status and error messages
- 2 Progress bar
- 3 Room temperature, air slider setting and flue gas temperature
- 4 Heating capacity levels (small / normal / big burnup)

The main menu provides information at a glance of the prevailing operating mode of the control system. At this level, you can only click the heating capacity levels via the flame icon and the Menu button.

The progress bar indicates the prevailing point in the combustion process. Here is a key to the 6 points:

Standby / ignition / rising temperature / falling temperature / time to add fuel (point) / glow phase

The flame symbol can be used to select a small / normal / big burnup. The fire area then receives less or more combustion air respectively.

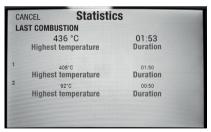
^{**} Pairing option for an S-USI II differential pressure monitor

3.3 GENERAL OPERATION OF THE DISPLAY



There is a BACK button at the top left of each menu window to enable you to go back one step in the operating process. If something is changed in a window, the Save button appears at the top right.

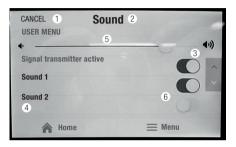
4. STATISTICS



This is where you will find the statistics for the last 700 combustion processes. These are always counted from one opening of the door to the next, i.e. every single burnup is counted. In each case, the maximum temperature and the duration of the burnup are recorded. If there are more than 700 burnups, the older data are overtyped. The statistics can only be deleted in the service menu (back to factory settings).

5. USER MENU

The menu layout is broadly self-explanatory. Here is a sample image for general operation:



- 1 BACK button
- 2 Name of the menu
- 3 Scroll keys
- 4 Function
- 5 Setting controller
- 6 Operating knobs

Sliders can be adjusted by fingertip control, or by holding and sliding the round knob. The control knobs can be moved by touch, or by sliding them gently to the left or right. If the knob is backlit in red, the selected function is enabled.

Note: The active surface of the scroll keys is larger than shown on the display. Scrolling is then also activated by touching beside the grey surface.

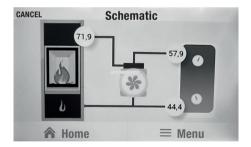
If settings have been changed, SAVE appears in red letters at the top right. This pushbutton must be pressed otherwise the changes will not be made.

SESAM: Whenever this function is assigned to a relay in the Service menu, this field appears at the top of the User menu. By touching this box, the relay is activated for 3 seconds. This enables the Spartherm SESAM control system to be activated, for more details see Chapter 5.4.

Diagram: This diagram shows the hydraulic system and the switch status of the accumulator charge pump on water-circulating fireplaces. Whenever the pump relay on the S- Thermatik NEO has engaged, the pump vane wheel rotates on the display panel

If the PT1000 sensors are not connected, e.g. on air-circulating fireplaces, no temperature values appear. Instead, dashes appear on the screen.

By touching the temperature boxes, you can select which sensor should be displayed here.



S-USI II: When using a Spartherm S-USI II differential pressure monitor, it can be connected to the S- Thermatik NEO using a special cable. The displays on the housing of the S-USI II can be shown on the display unit of the S- Thermatik NEO.

Display: The brightness settings right at the top. The displays have a sensor on the left to enable automatic adjustment to the ambient brightness (Automatic brightness). In the next submenu you can choose what you want to see on the screen saver in what brightness. If you choose several temperatures, these will be displayed at 7-second intervals. If you pull the brightness controller all the way to the left, the display will go dark. The screen saver switches on automatically about 2 minutes after the most recent keystroke. The screen image reappears whenever you touch the display unit.

Note: With water applications, it is advisable to display the temperature at the top in the buffer. This means that you can see immediately the level of progress of the loading of the buffer.

In addition, there is a "Cleaning the display" sub-menu. This switches off the display for 2 minutes. During this time, it accepts no commands. This means you can clean without altering any of the settings. For checking purposes, a timer runs backwards and shows the remaining time.

Sound: Here the button acknowledgement sounds and the alarm sounds can be selected. Also, the volume level can be adjusted. All sound events can also be switched off here.

Operation auto/manual: Here you can switch form Automatic to Manual mode. To do this, move the "auto/man" control knob to the right. Now a position can be selected for the air slider and it can be sent off using the SAVE button at the top right.

To return to Automatic mode, slide the control knob to the left again and save it

CAUTION: Operation of the fire area in Manual mode is at the user's own risk! During a burnup, the air control lever must never be closed to the point where an explosion might occur.

We urgently advise that you ONLY operate the control system IN AUTOMATIC MODE.

Language: Here, you can select the menu language of your choice.

Available at the present time: GB - DE - NL - FR - IT - ES - PL - CZ - SE - SI

Deactivating the door: Exactly as in the display (see above), the door switch can be deactivated for 2 minutes. This can scale down the glow without the control system initiating a new burnup when the door is next opened.

Information: Here you will find details about the details of the respective versions of software used.

6. SELF-TEST

To check the control system and its function, it can help to run a selftest. This provides an indication as to whether all components in the control system are OK.

We advise running the self-test once a year at the start of the heating season.

The self-test is carried out every time that the control system becomes disconnected from mains power, once mains power has been restored. To conduct this self-test, the fire area must be cold (flue gas temperature below 50°C) and all fire doors must be closed.

- 1. Switch the combustion control off (pull out the power plug)
- 2. Switch the combustion control on again (insert the power plug)
- The air control lever moves to the right, up to its 100% open limit stop. With stoves, the function monitoring LED remains lit all the time.
- Then the air control lever moves to the left towards 0%. The function LED on stoves goes out at this point in time. The air control lever remains fully left, against its limit stop.
- "Standby" must appear on the display and realistic values must be displayed for room and flue gas temperature.
- 6. If the firebox door is now opened, the air control lever must move automatically to the right, up to its limit stop. The function LED remains lit continuously. While the door is open, the function LED on stoves flashes rapidly, about 2x per second. The display shows that the door is open.
- If no fire is ignited 10 minutes after the door has been closed, the display shows "No ignition". The air slider is closed and the control system reverts to Standby mode.
- 8. Any errors on the flue gas sensor or motor are displayed in clear text. On stoves, the function LEDs then flash rapidly.

If the test has been successful up to this point, without failures or error messages, then the control system and its external components are OK.

Note: The self-test only functions at flue gas temperatures of less than 50°C. At higher temperatures, the lever only moves to the right. After that, the control system resumes normal operation.

7. AIR SLIDER TEST

If the door is opened while the fireplace is cold, the control system will first perform an air slider test. This ensures that the air slider can move freely along its entire travel path and that there are no points of sluggishness or blockages.

First the air slider moves in the CLOSED (!) direction until it has reached its mechanical limit stop. This is intended for referencing in order to establish a defined starting point. Then it moves in the OPEN direction up to the stop. This travel time is measured and compared with the motor runtime stored in the parameter set. If the measured travel time is too short due to a blockage, an error message is displayed visually and acoustically and will not disappear.

It is NOT permitted to start up the fireplace while an error is active. Contact your stove fitter to inspect the system.





8. POWER FAILURE

The S- Thermatik NEO is equipped with a special function. Whenever there is a power failure, the air slider automatically moves into a safe position (about 50-60%). In this position, the fire area cannot overheat, but it can continue being operated manually. You can also allow the fire to be extinguished.

Until mains power is restored, no intervention by the operator is required. Do not attempt to move the air control lever mechanically. This is not necessary.

This safety function on the S- Thermatik NEO operates entirely without



the need for maintenance, and it does not require any batteries or accumulators.

9. SERVICE MENU

The Service menu is password-protected and the password is known only to the stove fitter and/or the after-sales service.

A warning is issued about adjusting these settings if you do not have the relevant professional knowledge.

Incorrect settings can cause very serious damage to equipment as well as personal injury.

10. CHARACTERISTICS

This section explains a few of the closed-loop algorithms that govern operation of the control system.

- In the event of a power failure or failure of the flue gas sensor, the air slider moves automatically into a safe position (approx. 50 -60%). The fire area can continue to be operated manually.
- During a cold start (exhaust gas temperature under 50°C), the first and potentially additional combustion processes are performed with increased combustion air supply, i.e. the air slider does not drop below a specific value (usually 85 %).
- The acoustic signal to add more fuel only sounds once, when the time to add more fuel is reached for the first time. After that, this signal is not repeated.
- If wood is not added at the time for adding more fuel, the glowing
 phase commences a short while later. Here, by alternating the air
 slider positions, it is possible to change the declining combustion
 curve several times. The air slider is not fully closed until the flue
 gas temperature has dropped below 50°C and the control system

- has dropped back into Standby mode. Up until that point, the air slider is never fully closed.
- Regardless of the flue gas temperature, whenever the door is opened, the air slider first moves to its 100% position. After a stabilisation time, it then moves to a position that suits the prevailing flue gas temperature, as defined in the parameter settings.
- Following a cold start, if a temperature of at least 50°C is not reached within 10 minutes of the door being opened, the air slider is closed and the control system reports "No ignition".
- Whenever the fireplace is at risk of overheating, this is displayed and the air slider is restricted in order to reduce the temperature. Once the temperature has dropped far enough, the burnup is then continued with the declining closed-loop control curve. During the next burnup, add less wood.

11. APP

You can use a Bluetooth-capable mobile device to connect to any S-Thermatik NEO, irrespective of whether or not the NEO has a system display. The prerequisite is an updated operating system for Apple (IOS) and version 4.4.4 or higher for Android. Moreover, Bluetooth must be enabled on your mobile device.

Installation on an iPhone::

If you have an older version of the app, please delete this. Open "Settings/Bluetooth" and ignore all known S- Thermatik NEO devices.

Search for "Thermatik" in the app store. Download the app again. It must be version 1.2.x or more recent. Then open the app.

You will then see this screen on the left.













First click on "Menu" on the bottom left, then on "Devices" and then on "Connect". If no S- Thermatik NEO device is shown, click on "Search" on the top right.

Enter 0000 for the pairing request. The main screen will then appear





and a bit later the measured values.

Installation on an Android smartphone:

The app is installed the same way as with IOS but with some minor deviations. First, uninstall the old app if you have it. Reboot your smartphone.

Under "Settings/Security", allow installation from unknown sources.







When the centre window appears, click on "Allow". No data is collected, stored or passed on!

To change the display to German, click on "Menu / User settings / Language / Deutsch" and press "Save" on the top right to store these settings.

12. NOTES FOR STOVES

Stoves are usually supplied without a display The user obtains

information about the current status of the control system from a func-



tion monitoring LED that is usually installed in the bottom flap of the stove.

The LED works in the following manner:

OFF: control system is in standby mode, fire area is

off

ON: control system working in feedback control mode

OR is currently open, performing a self-test in

the direction of 100%

SLOW FLASHING: The time for adding fuel has been reached FAST FLASHING: The door is open, the appliance has overheated

or an external component is malfunctioning

During the slow flashing mode, the LEDs light up about 1 x per second, and about 2 x per second in the fast flashing mode.

Even on control systems without a display it is possible to connect to the appliance using the app and Bluetooth. The standard password for the Bluetooth connection is 0000.

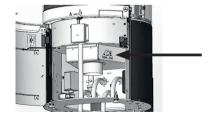
On stoves, a mechanical Auto / Manual control knob is usually installed



in the lower section of the appliance. This should always be set to Auto. Only then can the S- Thermatik NEO work properly.

When switched to Manual, the S- Thermatik NEO is switched off and the display turns dark. At the same time, a clutch in the actuator motor is activated that separates the air actuation mechanism of the gear unit on the electric motor. This means that the air slider can only be moved very slightly as though no motor and no control system is installed.

The S- Thermatik NEO burn-off control is deactivated in the "Manual" position!



13. GUIDE

The S- Thermatik NEO burnup controller detects the most significant errors automatically and displays these in the form of clear text messages.

Motor errors are detected whenever the motor fails to move in response to a movement command. Errors on the flue gas sector are detected by an algorithm in the software. In both cases, the fire area must not be put into operation until the error has been remedied.

First check if an error message appears on the display. Consult this advice guide to assist you with this. If the problem cannot be resolved in this way, please contact your dealer or stove fitter.

Problem description	Possible cause / solution	
Error message Motor circuit open or motor error	Check that the motor cable is plugged into the correct bushing. • Check the motor cable. NOTE: To reset the error, isolate the control unit from its mains power supply briefly OR, in the User menu, first select and save Manual mode then select and save Automatic mode.	
Error message TC open or short to ground	Check that the flue gas sensor is plugged into the correct socket: Check the flue gas sensor cable. NOTE: The error reset is automatic whenever an intact sensor is connected up	
Door open - message: The "Door open" message does not disappear after the fire door has been closed	Check door contact Check that the permanent magnet is still positioned above the door switch. Check the magnet for breakages Check settings in the door switch menu (NO / NC).	
Overheated message During the burnup, the message "Overheated" appears	Reduce the wood feed quantity. Check that the appliance setting has the correct set of parameters. The reset process is automatic when cooling down.	
Self-test The air control lever only moves to the right and stays there.	No power between actuator motor and actuating lever, driver pin (star) has wandered out of position. Link lever clamps on the primary air flap are dragging on the ground and getting jammed. Check door contact and its setting.	
Self-test Air control lever first moves to the left, then to the right, where it then stops moving.	On the motor connector on the control system, swap the red and white core leads (stoves) or the brown and grey core leads (fireplaces).	

Problem description	Possible cause / solution
In operation The air lever moves too quickly back to the left in the closed position.	Does the current parameter set match the appliance? Check the flue gas temperature display: are the values displayed plausible? Check wiring of flue gas sensor for impermissible extension with copper cable or similar. Clean the water heat exchanger if fitted. Check draught conditions Check leak tightness of the appliance (viewing panes, door, ash pan etc.).
In operation Air control lever does not move to the right in the 100% closed position after the firebox door has been opened.	Check that the "Door open" message appears. Air control lever: Mechanism movement is impaired. Loosen it up. Clean and degrease the rotary slide disks Door contact switch: Check function of door contact switch. Check the wiring of the door contact switch to the terminal box Check to ensure that the permanent magnet approaches < 10 mm at the switch.
In operation The air control lever does not close all the way.	Make the mechanics tight but functional Clean and degrease the rotary vane discs Check the parameter setting: does the current parameter set match the device? Check the air control lever mechanics for looseness

14. DISASSEMBLY

14.1 SAFETY INFORMATION FOR DISASSEMBLY

ATTENTION!

Danger due to non-adherence to disassembly instructions! Errors made when dismantling the appliance can lead to serious injuries.

This chapter contains important information for the safe disassembly of the unit.

- · Read this chapter carefully before disassembly before dismantling.
- Follow the safety instructions.
- · Carry out the disassembly as described.

Dismantling only by qualified personnel.

Electrical work only by qualified electricians.

To avoid hazards, the following requirements must be must be observed: The unit and other touchable parts have cooled down for a sufficiently long period of time (e.g. several days).

- There is no heat or embers in the firebox.
- The surroundings of the stove are protected, e.g. by covers for floors and furniture.

Before dismantling, the appliance and the oven system must be cleaned cleaned

14.2 DISMANTI F UNIT

The drive unit is accessible through inspection flaps on the fireplace insert/stove.

- Remove all cables and connections between the control unit and motor
- Remove the control unit.
- · Remove the motor.

15. DISPOSAL

15.1 DISPOSING OF THE PACKAGING

ATTENTION! Risk of environmental damage caused by improper disposal of the packaging!

- Do not dispose of the packaging with the normal household waste.
- Ensure that the packaging is recycled in a proper, environmentfriendly manner.

The packaging is intended to protect the unit from transport damage. the packaging materials have been selected based on their environment-friendly characteristics and are made of recyclable materials. the packaging materials can be returned to the raw material cycle after use.



15.2 DISPOSING OF THE UNIT

$\hat{\triangle}$ ATTENTION! Risk of environmental damage caused by improper disposal of the unit!

- Do not dispose of the unit with the normal household waste.
- Ensure that the unit is recycled in a proper, environment-friendly manner
- Dispose of the unit according to the legal regulations through a specialised disposal company or your local disposal facilities.

16. CLOSING REMARKS

In addition to these warranty conditions and our commitment to them, our dealers and contractual partners are pledged to assist you in both word and deed. We expressly recommend that our fireplaces and stoves are regularly inspected by a qualified technician.

17. WARRANTY CONDITIONS

Warranty conditions can be found at www.spartherm.com.

18. EU DECLARATION OF CONFORMITY

EC Declaration of Conformity as defined by EC directives

Low Voltage Directive 2014/35/EU (LVD)
Electromagnetic Compatibility 2014/30/EU (EMC)
Wireless systems directive 2014/53/EU (RED)

We,

Spartherm Feuerungstechnik GmbH Maschweg 38 49324 Melle, Germany

hereby declare that the products listed below comply with the above EU Directives:

Product type: Combustion control Model: S- Thermatik NEO

Melle, 11.01.2017

Andreas Schönfeld

SPARTHERM

DIE WELTMARKE FÜR IHR WOHNZIMMER

The Global brand for your living room | La référence mondiale pour votre salon | Il marchio mondiale per il vostro soggiorno

Het merk van wereldformaat voor uw woonkamer | Światowa marka do Państwa salonu

DE Ihr Fachhändler | GB Your specialist dealer | FR Votre revendeur spécialisé |

IT II vostro rivenditore specializzato | NL Uw vakhandelaar |

PL Państwa sprzedawca





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