

# Installation

## Instructions

EAS 3

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*made in germany.*

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# CONTENTS

<b>1</b>	<b>Important information.....</b>	<b>3</b>
	1.1 Specified symbols.....	4
<b>2</b>	<b>Safety precautions.....</b>	<b>5</b>
<b>3</b>	<b>Delivery contents.....</b>	<b>5</b>
<b>4</b>	<b>System description.....</b>	<b>6</b>
<b>5</b>	<b>Conections EAS 3.....</b>	<b>8</b>
<b>6</b>	<b>Assembly of the EAS.....</b>	<b>10</b>
<b>7</b>	<b>Connection of damper flap.....</b>	<b>15</b>
<b>8</b>	<b>Installation of the EAS.....</b>	<b>16</b>
<b>9</b>	<b>Commissioning of EAS 3.....</b>	<b>21</b>
<b>10</b>	<b>Calibration of flaps on EAS.....</b>	<b>27</b>
<b>11</b>	<b>Combustion logger.....</b>	<b>28</b>
<b>12</b>	<b>Error messages.....</b>	<b>30</b>
<b>13</b>	<b>EAS 3 app.....</b>	<b>31</b>

## 1 IMPORTANT INFORMATION

### Programming Instructions

#### EAS 3



<https://www.brunner.de/partner/downloads?downloadMainCategories=&downloadProduct-DocumentationCategories=&productCategories=&products=23244#>

Please read this Installation Guide carefully, before you start with the installation. We do not accept any warranty claim or liability for damage resulting from failure to observe these installation instructions!

Installation, commissioning, maintenance and repairs of the product may be carried out only by an authorized stove-fitter. Safety and efficiency of the system depend on it. All valid stove fitting rules and regulations of building law must be observed and followed. Make sure to instruct the owner or user about the functions and controls of the system and possibly installed safety devices.

Only original spare parts of the manufacturer may be used.

Before working on the electronics, switch off the emergency switch or circuit breaker, and secure them against switching on again.

Consider all other building, assembly and installation guides of all individual packing units!

All binding national or EU standards and local regulations for the installation of fireplaces must be observed.

Subject to technical changes.

Transportation damage must be reported immediately to the shipping company.

Please keep the installation guide for future reference.

## 1.1 SPECIFIED SYMBOLS

In this documentation, a distinction is made between:

Operating personnel as the **User of the system**, i.e. the end user, which has received instructions from the Contractor and does not necessarily have additional qualifications.

Operating personnel as the **Contractor**, i.e. the qualified professionals, which are entitled to perform the indicated specialist works.

In this document, the following symbols are used:

### **DANGER**

A danger of high risk persists, which leads to severe injury or death, if this endangering situation is not avoided.



### **WARNING**

A danger of medium risk persists, which can lead to severe injury or death, if this endangering situation is not avoided.

### **CAUTION**

A danger of low risk persists, which can lead to minor or moderate injury, if this endangering situation is not avoided.



### **ATTENTION**

There is a certain risk, which can lead to a malfunction or damage of the related system and all devices connected with it, if the indicated notifications are not followed.



### **NOTE**

Additional helpful information

## 2 SAFETY PRECAUTIONS



The connection to the 230 volt network (electronics and optional actuators) may only be carried out by a registered specialist company.

Before opening the electronics, switch off the power supply (switch off the emergency switch or circuit breaker, and secure them against switching on again!)

Be careful when working on valves and sliding mechanisms. Danger of squeezing!

### **CAUTION!** risk of crushing



When working on the flap, on the turntable or sliding plate for supply / exhaust air regulation, as well as on their mechanics, the control unit (EAS / EOS) must be disconnected from the supply voltage (230VAC) before starting work. Wait until the drive has been fully powered up via the battery of the control unit (maximum running time 2 minutes).

## 3 DELIVERY CONTENTS

The EAS is an electronic system, which can steer optimally the combustion air of a tiled stove or chimney. Additionally a potential free contact is available for switching a heating up flap, a ventilation system or similar.

### **Necessary components of the EAS:**

- One air intake flap actuator K1
- One temperature sensor with ceramic protection
- One door switch sensor
- One electronic unit EAS
- One door switch cable to connect the door switch sensor to the EAS<sup>(1\*)</sup>
- One thermocouple cable to connect the temperature sensor to the EAS<sup>(1\*)</sup>
- One data cable-K1 to connect the air intake flap actuator K1 with the EAS<sup>(1\*)</sup>.

### Components of the optional damper flap:

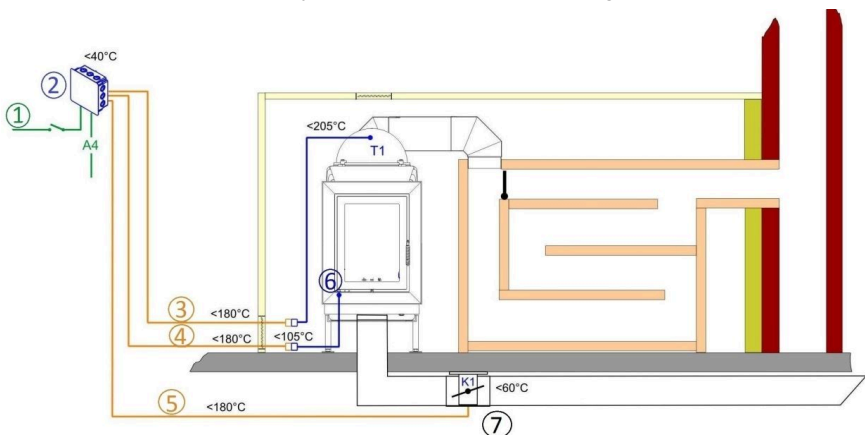
- One damper flap actuator K2
- One flexible shaft
- One damper flap
- One connection cable for K1- K2 damper flap (1\*)

Different models of heating inserts have the components air intake flap actuator and/or temperature sensor factory mounted. The door switch sensor is always factory mounted.


1\*: Please order the length in accordance with the building situation!

## 4 SYSTEM DESCRIPTION

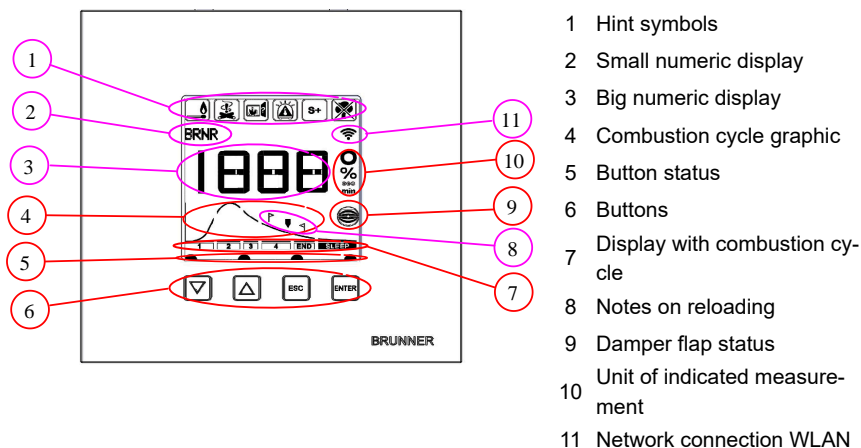
The electronic combustion control system EAS (ger. **Elektronische AbbrandS-**steuerung) contains the complete software and necessary connections to enable automatic combustion control and comfortable operation of suitable stoves and fireplaces being offered by Ulrich Brunner GmbH. The electronics of the EAS controller include the A4 relay as a potential-free switching output.



- |                       |                   |
|-----------------------|-------------------|
| 1 Mains               | 5 Bus wiring      |
| 2 EAS                 | 6 Door switch     |
| 3 Thermocouple wiring | 7 Air supply flap |
| 4 Door switch wiring  |                   |

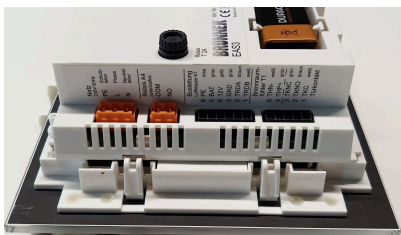
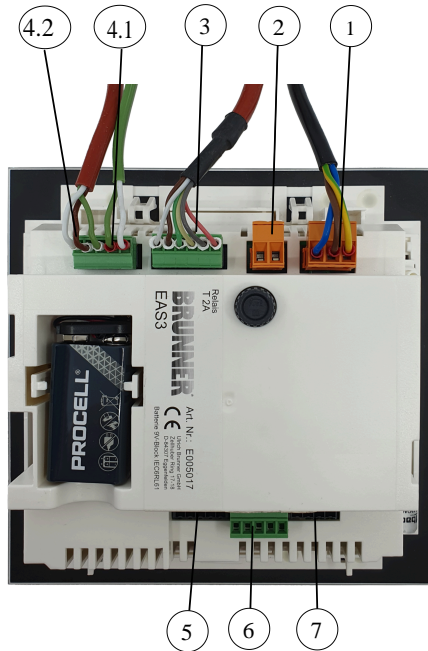
 Always visible (except Standby mode)

 Displayed if necessary



A detailed explanation can be found in the Operating Instructions.

## 5 CONNECTIONS EAS 3



*Illustration 1: Side view on the left*



*Illustration 2: Side view on the right*



Con- nector	Clamp	Wire colour	Function
1	PE	green/yellow	Connection of the supply voltage 230 V / 50 Hz
	L		
	N		
2	COM		Relais A4
	NO		
3	6	pink	Bus line K1 (damper motor control) K1
	5	grey	
	4	yellow	
	3	green	
	2	brown	
	1	white	
4.1	5	white	Thermocouple/temperature sensor T1
	4	green	
4.2	3	green	Door contact TK
	2	brown	
	1	white	
5	Not used		BRUNNER service access.
6	5		GND
	4		DI 2 (input 2)
	3		12 V (output 2)
	2		DI 1 (input 1)
	1		12 V (output 1)
7	Not used		

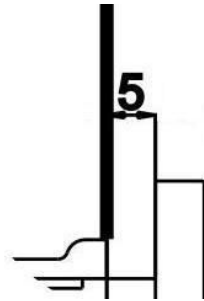
## 6 ASSEMBLY OF THE EAS

The EAS electronics are mounted in a standard wall mount box (UPK). In the simplest case, four cables are led to the EAS through empty electrical conduit pipes. These are the power supply cable, the thermocouple cable, the door switch cable and the data cable for the air flap control motor K1. If the “A4” output, as well as the digital inputs DI1 and DI2 are used, an additional cable is added in each case.

All electrical conduit pipes are to be led into the wall mount box from above.

The wall mount box must be set concisely into the wall. This is the only way to make sure that between the wall and the rear edge of the glass front a 5mm gap remains. This gap is needed to be able to insert the tool to remove the EAS display unit from the wall mount box.

If the gap between wall and glass front is too small, the EAS control unit cannot be removed from the UPK.



*Illustration 3: Gap between wall and glass front*



Attention: If another wall mount box than the one from BRUNNER is used, the cover will be larger than the glass front. This might result in visible edges which are not covered by the glass front.

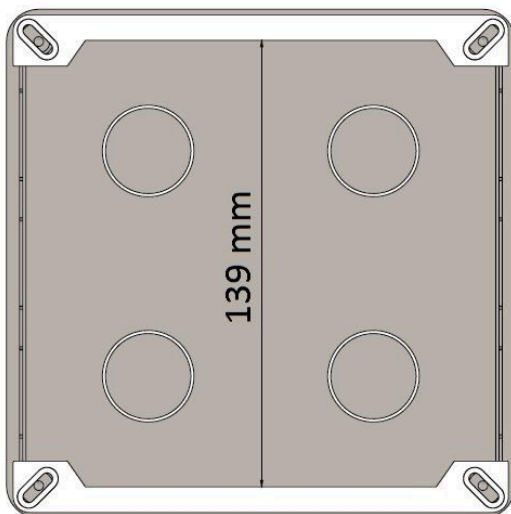
The wall mount boxes supplied by Ulrich Brunner GmbH have been adapted so that no edges can be visible.

Installing the wall mount box with screwed on cover.

Inserting the assembly rails provided with the EAS display unit.



Attention **distance**



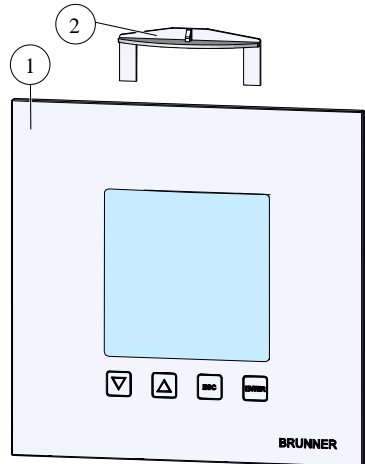
Now present the EAS display unit in the wall mount box. Therefore place the lower edge on the lower assembly rail and press the control unit carefully into the wall mount box (UPK).

**ATTENTION:** Do not use force. The plastic snatching links may not break off. A replacement can only be supplied inclusive the glass front.

When a standard wall mount box with drillings transferred to the rear is used (for ex. wall mount box for EOS<sub>R</sub>5 washers must be put between the drillings and the assembly rails so that the assembly rails do not bend.



To remove the EAS (1) display unit insert the provided tool (2) in between the wall and the glass front and solve the bolting device with light pressure.





The enclosed frame can be used for secure, dimensionally stable mounting of the EAS display in the wall mount box.



**Grounding is required** when installing with the EAS. Please mount the frame as shown.

## Installation of the air control flap motor

For regulation of the combustion air, an air control flap motor is needed. The air control flap is connected to the heating insert by means of an aluminum flexible hose

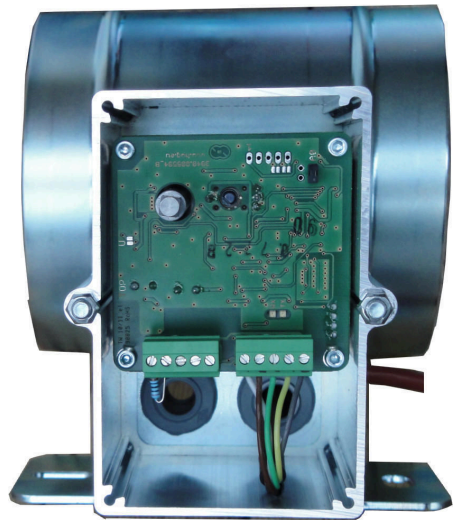


Observe the maximum permitted ambient temperature of 60°C.

In case of a power failure or a defect the air control flap can be controlled manually. Therefore the air control flap motor must be accessible.

The motor is connected to the EAS control unit with a data cable. Lead the data cable starting from the motor through one of the two screw connections and then in an empty electrical conduit pipe to the EAS control unit. Here the data cable is provided with a plug and plugged in.

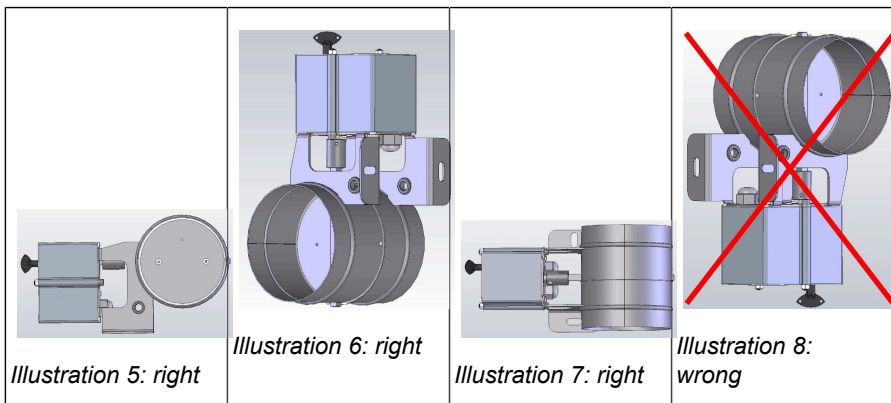
The motor has two contact plugs. For the EAS only one is needed. On the second contact plug a terminal resistance is placed.



*Illustration 4: Supply air flap*

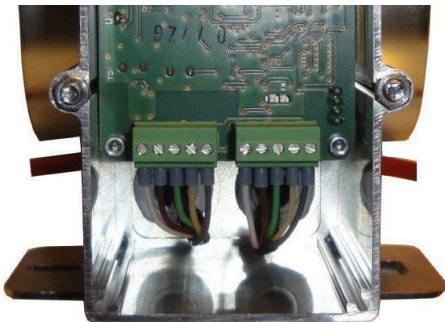
### **Mounting position of the air flap**

At systems with external air supply, Please take care of the mounting position of motor and combustion air flap. The motor must not lay below the air valve. Condensate could otherwise flow into the motor and destroy it.

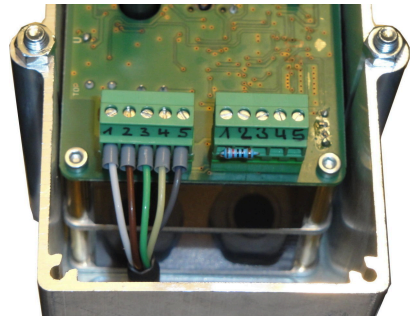


## 7 CONNECTION OF DAMPER FLAP

The optional connection of a damper flap is possible. It is actuated by a servomotor, the damper flap actuator K2. In this case, the damper flap is connected to the motor by means of a flexible shaft. The servomotor is connected to the air intake actuator K1 and included in the EAS/EOS control system.



*Illustration 9: Air intake flap actuator K1*



*Illustration 10: Damper flap actuator K2*

To connect the actuator K2, please remove the terminal resistor from the air intake actuator K1 and attach it to the damper flap actuator K2.

Pull the 'damper flap connecting line from K1 to K2' through the respective strain relief and connect it.

Terminals from left to right:

1 = white - 2 = brown - 3 = green - 4 = yellow - 5 = gray

**Observe the maximum permitted ambient temperature for servomotors, i.e. 60°C!**

**For the 'damper flap connecting line from K1 to K2' applies an ambient temperature of max. 180°C and a permissible cable length of max. 30m!**

## 8 INSTALLATION OF THE EAS



Electrical connections must be made by qualified electricians only.

Absolutely build in a switch or a separate circuit breaker in the power supply of the EAS in order to be able to switch off both electronics for maintenance.

It is important to instruct the owner or user about the function of the switches and the circuit breaker.

### **Please note**

In order to exclude later damage, the installation of the electronics must be prepared and carried out carefully.

Please consider the following points:

- Avoid contact with electronic components, as possibly existing electrostatic charges can disturb the electronics.
- Humidity damages electronic components. Therefore pay attention to a clean and dry installation of the electronics.
- If possible, do not install electronic components in an external wall, since in unfavorable circumstances, when temperatures fall below dew point, this can lead to corrosion.
- Do not install the EAS into the heated outer lining of the stove.
- Installation must be done so that +40°C is not exceeded and the equipment should not be exposed to direct radiant heat.
- In order to avoid damage all electrical conduit pipes for connecting the EAS are to be led over the bottom of the stove to the heated insert. Do not let the conduit pipes end in the upper part of the heating chamber.
- Consider the maximally permissible ambient temperature of all components when choosing their location!



## Wiring

The plugs on the EAS electronics can be taken off for easier attaching. As far as it is not done yet, wires have to be stripped at the ends and provided with copper terminals.

If possible keep the cables short and flexible (little space within the standard wall mount box).



Do not use rigid wires!

Wiring should be done according to the connection diagram. After that, the plugs are to be put back on the sockets of the EAS.

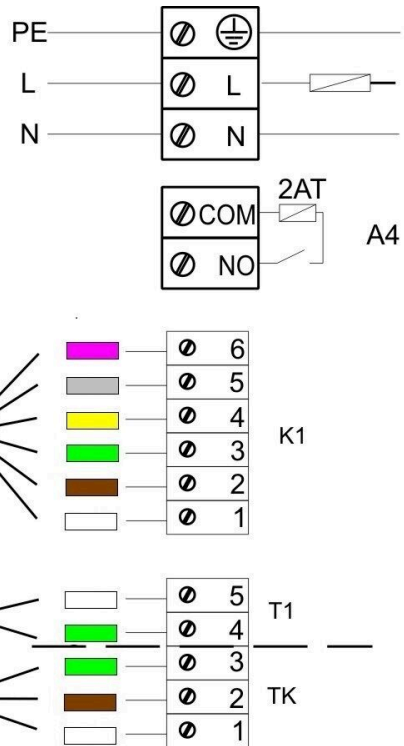


Illustration 11: Connection diagram

## Temperature sensor

The temperature sensor T1 is coupled with a break and a polarity monitoring.

**Attention:** The polarity monitoring does not respond at temperatures between -10 and +25°C. Before the first heating up one has to check if the temperature sensor is connected correctly. This can be done by warming up the temperature sensor with a lighter to approximately 50°C.

**Attention:** If the temperature sensor T1 is connected directly to the EAS without thermocouple cable, the metal shielding of the cable in the wall mount box must be completely isolated because of the risk of short circuit. Non-isolated parts of the metal shielding are to be removed from the wall mount box. The temperature sensor T1 with ceramic protection which detects the combustion chamber temperature normally has to be fixed into the screw connection at the exhaust gas stub and screwed on with the union nut to the clamping screw connection. In the case of devices with top-mount steel smoke hood, top-mount ceramic heat accumulator or boiler technology, consider the references in the building manual of the device, as the position of the temperature sensor can be different.

The temperature sensor must be attainable by an opening in the in the outer stove lining, in order to be able to accomplish a possible replacement easily. The temperature stability of the thermocouple cable of the temperature sensor is 205°C. Make sure that the head of the temperature sensor does not rest upon the insert. The temperature sensor can be bent slightly **one time**. In order to be able to remove the temperature sensor for exchange, make sure the thermocouple cable is long enough.

### **Thermocouple cables**

The maximum permissible cable length is 10 m. Temperature sensors may be connected only with special thermocouple cables. The use of other cables falsifies the measurement signal. Do not lead thermocouple cables together with power supply cables in a common electrical conduit pipe. The measurement signal can be falsified. The temperature stability of the thermocouple cable (green) is 180°C. The temperature stability of the plug is 105°C. Make sure that the thermocouple cable does not rest against the hot flew outlet.

### **Door switch sensor**

The door switch sensor consists always of two micro switches, installed and wired on a common carrier. The model of the carrier depends on the type of heating insert.

Only by use of two independent switches the self-monitoring of this important component is possible.

The door switch sensors are factory mounted for all types of heating inserts.

For inserts in tunnel version (DHT) absolutely consider the enclosed replacement guide!

The maximum permissible ambient temperature is 250°C.

## **Door switch cable**

The door contact switch cable communicates the position of the firing door to the EAS electronics. With the plug provided on one side, the cable is connected to the door switch sensor. The door switch cable must be led through an electrical conduit pipe to the wall mount box of the EAS where it must be connected. The maximum permissible ambient temperature is 180°C, the maximum cable length is 10m.

## **Relay A4**

With the help of the relay A4 external components can be activated/deactivated. The switch function is coupled with the combustion air control. During the start-up, the desired switch-logic is selected. External devices with a power input over 1,5 A must always be connected over an auxiliary switch. When using A4 the safety-relevant aspects are to be considered and planned in coordination with the chimney sweep, the builder and the owner.

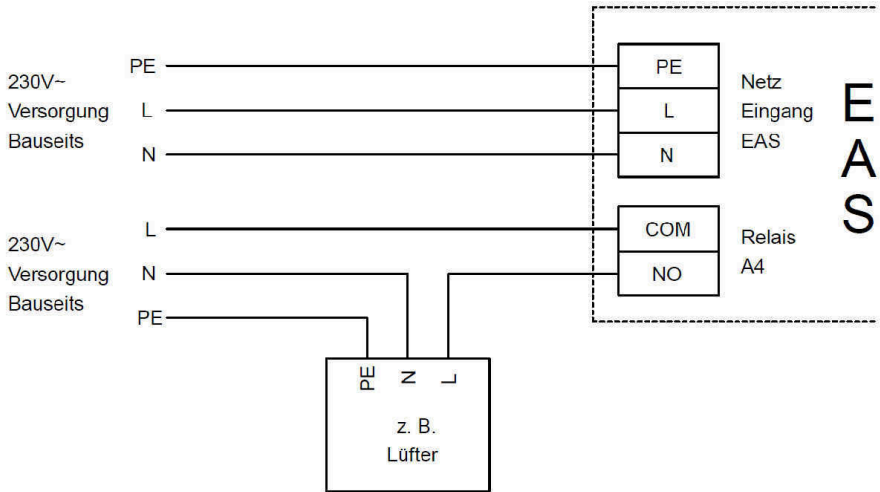


Illustration 12: Variant 1

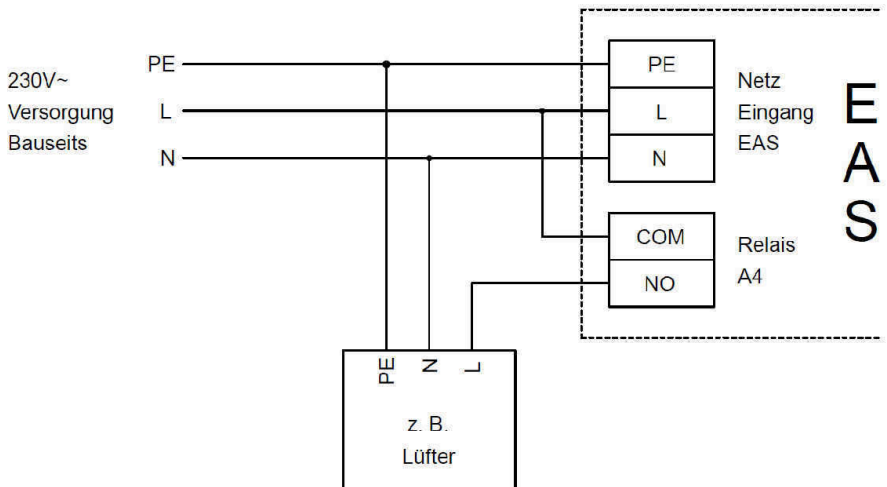


Illustration 13: Variant 2

## Data cable K1

The data cable K1 serves for data exchange between the EAS electronics, the air control valve motor K1 and the power supply to K1. The data cable K1 is on one side equipped with a 5-pin plug, which is connected to K1. The data cable must be led through the strain relief at the motor box and be secured by tightening the strain relief lock nut. It is then to be led through an electrical conduit pipe to the wall mount box of the EAS and connected there. The maximum permissible ambient temperature is 180°C, the maximum conduit length is 30m.

## Data cable damper flap K2

The connection cable K2 serves for data exchange between the EAS electronics, the damper flap motor K2 and the power supply to K2. The connection cable K2 is on both sides equipped with a 5-pin plug, which is connected to K1 and K2. The connection cable must be led through the strain relief at the motor box and be secured by tightening the strain relief lock nut.

The maximum permissible ambient temperature is 180°C, the maximum conduit length is 30m.

## 9 COMMISSIONING OF EAS 3

For other parameters, take the *Programming Instructions* for reference!

### Setting up the stove or fireplace type

When the thermocouple, the door switch and the bus wiring are properly connected, you can turn the power on.

In normal conditions, the combustion chamber temperature and the graphic for 'Stage 1' will show up. If a malfunction is detected, an error code will appear in the small numeric display. In this case, check the detailed explanations in the Operating Instructions.

In all cases, the present stove or fireplace type should be set at this point.

For this, press the ENTER button for approx. five seconds. The small numeric display will show 'P100'.

Press the ENTER button again shortly. The number in the big numeric display will start to blink. This number is not the current temperature, but a symbol for the selected stove or fireplace type.

By pressing the arrow buttons you can select the present type.

1	HKD 2, HKD 2.2	2	HKD 4, HKD 4.1	3	HKD 5, HKD 5.1
4	HKD 6, HKD 6.1	5	B4	6	B5, B6
7	HWM	8	HKD 4sk, HKD 4w	9	Kamin-Kessel (fireplace boiler +corner)
10	RF 55, RF 55.1	11	RF 66, RF 66.1	12	Kompakt-Kamin
13	Stil-Kamin	14	Eck-Kamin (corner)	15	180° Kamin
16	Grundofen* (masonry heater)	17	HF 5	18	HF 7
19	HF10 / HF10w / HFG10 / HWM-HF10	20	HF15, HF 15w, HFG15	21	HF10sk
22	SF7	23	SF10	24	SF10sk, SF20sk
25	B7, B8	26	Herdkessel (boiler kitchen stove)	27	KKE 33
28	HKD 2.2 XL	29	HKD 2.2 XL SK	30	KSO25/ KSO 33
31	WF 33	32	WF 50	33	Panorama
34	GOT / GOT+GOF flat	35	GOT / GOT+GOF Eck (corner)	36	GOT / GOT+GOF Tunnel/double face
37	WF 25	38	Architektur	39	KFR
40	HKD 7/8/9/10/11/12	41	DF 33	42	HKD3
43	Architektur Kessel (boiler)	44	Scandinavian	45	BKH



The parameter set 16 concerns exclusively handcrafted masonry heaters. The parameter values must be adapted to the circumstances!

Confirm your selection by pressing the ENTER button.

If the EAS is used to control the combustion air supply in a custom-built masonry heater, you should select the parameter set no. 16. It is recommended to adjust the values of this parameter set to the actual stove system specifications. The default factory values will not ensure the optimal heating performance.

If the A4 relay function is not used, the EAS is now ready for operation. You can leave the settings by pressing the ESC button.

### **Configuration of A4 relay**

The function of A4 relay is designed as a potential-free contact of the EAS controller.

In general, the A4 relay status can be set to 'off', 'on', 'T1', 'TK' and 'DI'. In addition, the function can be inverted.

#### **'A4 off':**

The A4 relay has no function.

#### **'A4 on':**

The A4 relay will close when the stove door is opened.

If no combustion takes place, the relay will open again when the EAS turns to Standby.

If combustion is running, the A4 relay will open after the combustion air supply is closed (final combustion stage 'Glut') and the A4 run-off time has passed.

**'A4 T1':**

The A4 relay will close when the stove door is opened.

If no combustion takes place, the relay will open again when the EAS turns to Standby.

If combustion is running, the A4 relay will open after the combustion chamber temperature 'A4 T1 off' is reached. If this temperature is not reached, the relay will open when the 'Glut' (Embers) stage is reached.

**'A4 TK':**

The relay is open, when the stove door is closed. The relay is closed, when the stove door is open.

**Setting of parameters:**

For this, press the ENTER button for approx. five seconds.

The small numeric display will show 'P100'.

Select the parameter block 'P500' by pressing the arrow buttons.

Press the ENTER button shortly. The small numeric display will show 'P501'.

Now you can select the individual parameters with the arrow buttons. If a parameter must be changed, press the ENTER button shortly. The value can be changed with the arrow buttons. Confirm the change by pressing the ENTER button.

The following parameters should be checked for the A4 function:



**'P501':**

Here you can set the status of A4 function.

0 = off

1 = on

2 = T1

3 = TK

4 = DI

**'P502':**

The value determines, if the A4 function setting will be inverted. When '0' is set, the relay will work as described above. When the value is set to '1', the function of A4 relay will be totally inverted.

**'P503':**

Here you can set the run-off time for 'A4 on' in minutes.

**'P504':**

Here you can set the temperature for 'A4 T1 off'.

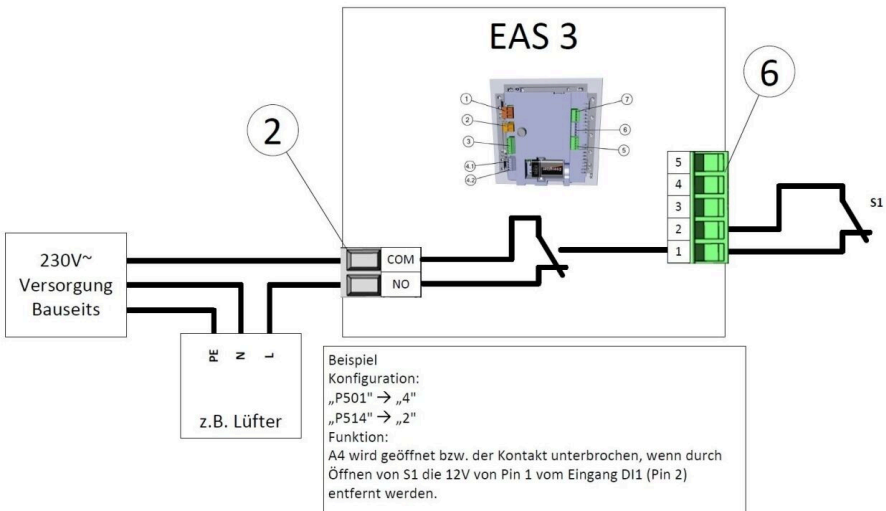
When these parameters are properly set, press the ESC button repeatedly, until the normal operation display will show up.

### 'P514', 'P515':

This menu item is used to set the digital inputs DI1 and DI2 for operation with A4. Output A4 can be switched directly using DI1 and / or DI2. The inputs can be configured individually whether you switch A4 with 12 volts or 0 volts. (Application example: window toggle switch. Diagram DI1).

### Set customer parameters:

P501	P502	P514	P515



### 'P601':

Set up only when a damper flap is available in smoke tube.

AUS/off=0: Damper flap has no function, i.e. is not present.

EIN/on=1: The damper flap is controlled based on combustion chamber temperature. The damper flap symbol will appear on the EAS display.

## 10 CALIBRATION OF FLAPS ON EAS



For both flaps, the following rule is valid:

calibration can be done with open stove door only

For stove type no. 30 (KSO) a calibration of air supply flap is not possible!

### K1, air supply flap/valve:



Calibration is not necessary with the **current BRUNNER delivery program**.

Calibration is **only necessary when converting old devices!**

- Disconnect the flap or valve from the gears mechanically and set to OPEN by hand.
- Switch on the EAS power supply.
- Press the ENTER button for 5 seconds to enter the parameter settings menu.
- **P100** will appear on display. Scroll to **P200** with the arrow UP button.
- Press the ENTER button once shortly. **P201** and **100%** will appear on display. OR: the gear mechanism will turn to 100% from another position, please wait until 100% is reached. Reconnect the gears and flap or valve mechanically.
- Press the ENTER button once shortly. The gear mechanism will turn to 0% **CLOSED (0% will blink)**, do not press any EAS buttons in this time. If necessary, you can set the flap or valve to desired **CLOSED** position by pressing the UP/ DOWN arrow buttons.
- Press the ENTER button once shortly to store the new **CLOSED** position. The value **0%** will appear for a short time on display, then the gear mechanism will automatically turn back to **100% OPEN** position.
- Press the ESC button once shortly. **P200** will appear on display.
- Press the ESC button once shortly. -> After the parameter settings menu is closed, the EAS is ready for operation.

Note: **P202** value will set the calibration to factory default, see *Programming Instructions*.

## **K2, damper flap:**

- Disconnect the flap from the gears mechanically and set to **OPEN** by hand.
- Switch on the EAS power supply.
- Press the ENTER button for 5 seconds to enter the parameter settings menu. **P100** will appear on display. Scroll to **P200** with the arrow UP button.
- Tap the ENTER button once shortly.
- **P201** and **100%** will appear on display. Scroll to **P203, 100%** with the arrow UP button. OR: the gear mechanism will turn to 100% from another position, please wait until **100%** is reached. Reconnect the gears and flap mechanically, eventually turn the gearing fixture, until the gearing adapter and the flexible shaft driver will match to each other.
- Press the ENTER button once shortly. The gear mechanism will turn to **0% CLOSED** (0% will blink), do not press any EAS buttons in this time. If necessary, you can set the flap to desired **CLOSED** position by pressing the UP/DOWN arrow buttons.
- Press the ENTER button once shortly to store the new **CLOSED** position. The value **0%** will appear for a short time on display, then the gear mechanism will automatically turn back to **100% OPEN** position.
- Press the ESC button once shortly. **P200** will appear on display.
- Press the ESC button once shortly. After the parameter settings menu is closed, -> the EAS is ready for operation.

## **11 COMBUSTION LOGGER**

The combustion logger serves as an overview of combustion performance. The combustion logger is a generic term for the following indications:

Small numeric display		Explanations	Values
<b>ABR1</b>	Combustion counter	Combustion counter 1-999, how often the actual temperature allowed for proceeding to Stage 2.	1 to 999
<b>ABR2</b>		Combustion counter (thousands): 1-999, how often the actual temperature allowed for proceeding to Stage 2.	1,000 to 999,000
<b>NAL1</b>	Reloading counter	Reloading counter 1-999, how often wood was reloaded within combustion stages between 2 and 4.	1 to 999
<b>NAL2</b>		Reloading counter (thousands) 1-999, how often wood was reloaded within combustion stages between 2 and 4.	1,000 to 999,000
<b>AHF1</b>	Fire-starting error counter	Fire starting error counter 1-999, how often a fire starting error was made.	1 to 999
<b>AHF2</b>		Fire starting error counter (thousands) 1-999, how often a fire starting error was made.	1,000 to 999,000
<b>HEF1</b>	Combustion error counter	Combustion error counter 1-999, how often a combustion error happened.	1 to 999
<b>HEF2</b>		Combustion error counter (thousands) 1-999, how often a combustion error happened.	1,000 to 999,000
<b>BET1</b>	Operating hours counter	Operating hours counter 1-999, how long the combustion control was in stage between 2 and 4.	1 to 999
<b>BET2</b>		Operating hours counter (thousands) 1-999, how long the combustion control was in stage between 2 and 4.	1,000 to 999,000
<b>OHE1</b>	Stove hot counter	Stove hot counter 1-999, how often the threshold value was exceeded.	1 to 999
<b>OHE2</b>		Stove hot counter (thousands) 1-999, how often the threshold value was exceeded.	1,000 to 999,000

- Tap the ENTER button;
- press the arrow buttons, until **ABR1** or **ABR2**, or **NAL1** etc. is shown in the small numeric display;
- in the big numeric display, the appropriate value is shown;
- press the ESC button, to leave the menu.

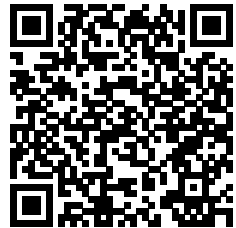
## 12 ERROR MESSAGES

Display	Error messages and possible causes
F01	Sensor damage The thermocouple in combustion chamber is damaged, has a broken wire or connector damage.
F02	Thermocouple polarity The thermocouple in combustion chamber has a faulty connection or damage.
F11	The combustion air supply actuator has no reference position.
F12	The combustion air supply actuator cannot be properly positioned.
F13	The combustion air supply actuator cannot reach its reference position.
F14	The combustion air supply actuator does not respond.
F21	The damper flap actuator has no reference position.
F22	The damper flap actuator cannot be properly positioned.
F23	The damper flap actuator cannot reach its reference position.
F24	The damper flap actuator does not respond.
F51	Door switch The door switch reports an undefined position. Possible causes: door switch damaged, faulty wire connection, wire broken or connector pulled off.
FBAT	No battery. Install battery!
LBAT	Battery weak. Change battery!

Display	Error messages and possible causes
FDEV	Internal error.

## 13 EAS 3 APP

You can find the EAS 3 App manual at:



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