





UK

**EFC21 / EFC25**

**exodraft**

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#### Symbol Legend:

Prohibition symbol		Failure to observe instructions marked with a prohibition symbol may result in serious injury or death.
Danger symbol		Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to unit.

#### Area of application

This instruction is for the **exodraft** EFC21 and EFC25 chimney fan control system.

The instructions must be fully observed to ensure personal safety and to protect the equipment and ensure its correct operation.

**exodraft a/s** accepts no liability for accidents caused by equipment not used in accordance with the manual's instructions and recommendations.

# 1. Product information

## 1.1 Application

EFC21 and EFC25 are used to control gas fireplaces that have **exodraft** chimney fans installed.

The control system functions as a safety monitoring system and will switch off the gas fireplace if there is insufficient chimney draught.

The system has been developed in accordance with standards BS 5440-1: 2008, BS 6644 :2005+A1:2008, Appliances Burning Gaseous Fuels Directive 2009/142/EEC and EN298 (2012).

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### Functions

The fan will start at full speed when the EFC21/25 is activated. Once the system detects there is sufficient chimney draught, the gas fireplace can be lit and the fan speed will fall to the pre-set level.

The control has a step-up function and a built-in 15 second delay to avoid inadvertent cut-outs. If the control system is switched off the chimney fan will stop.

But an optional three-minute run on can be set by the DIP switch.

The EFC25 has a remote control so the user can select a high or low flame look (if the gas fireplace has this at function).

The EFC25 can also be used for normal ventilation.

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### Fail-safe settings

The system's fail-safe settings can be changed in accordance with national laws and regulations. The following function is available:

- RESET (manual/automatic) in the case of power failure or faulty chimney draught.

## 1.2 Description

### Overview of EFC21/25 controller

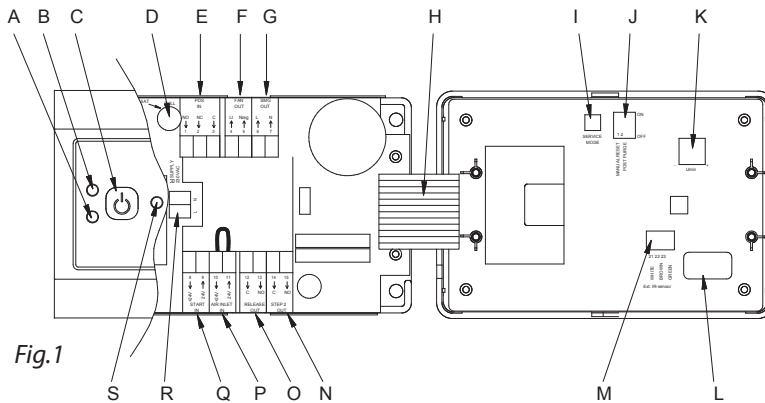


Fig.1

Pos.	Description	Pos.	Description
A	Alarm LED	K	Potentiometer for adjusting the fan speed
B	Operating LED	L	Product ID
C	ON/OFF button	M	External IR-receiver socket (EFC25 only)
D	Fuse T 3,15 A 230 V (spare fuse is also included)	N	Step 2 (EFC25 only) terminal
E	Pressure switch terminal	O	Gas fireplace start terminal
F	Fan terminal	P	Air inlet monitoring terminal
G	SMG solenoid valve (EFC21 only)	Q	External ON/OFF terminal
H	Connection cable	R	Power supply terminal
I	Service mode button	S	Internal IR-receiver (EFC25 only)
J	DIP switch		

### Remote control

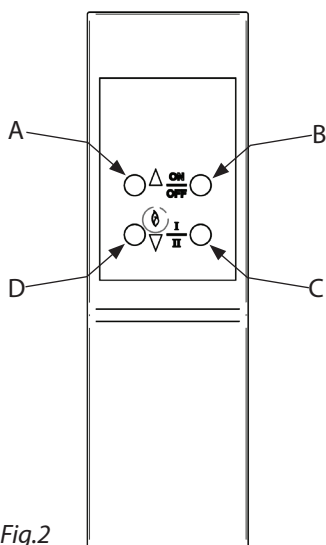


Fig.2

Pos.	Description
A	Increase fan speed
B	ON/OFF
C	High/Low flame
D	Reduce fan speed
B+D	Start burner

## 2. Installation



- All installations must be carried out by competent personnel in accordance with national legislation and regulations.



- An isolation switch must be installed between the controller and the chimney fan.
- Refer to the chimney fan instruction when installing the isolation switch.
- The isolation switch must be ordered separately as it is not part of the standard exodraft delivery.



- Do not connect SMG terminals 6 and 7 to any valve other than an SMG valve supplied by exodraft.

### 2.1 Fitting the controller

The control panel must be fitted onto a level surface with a minimum distance of 100 mm to any corner.

The front cover is removed from the frame by twisting a screwdriver in the two holes on the sides of the cover. The front cover can then be tipped carefully and the frame can be fitted onto the wall.

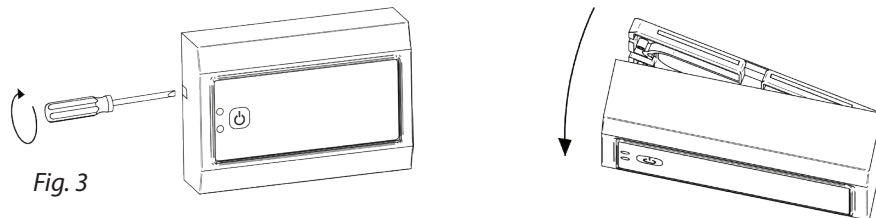


Fig. 3

NB:

The front cover is fitted with connection cable on the right side which limits how much this side can be opened.

The controller covers a standard dry lining box (80 x 80 mm).

When fitting an external IR receiver avoid bending the black part of the cable (EFC25 accessory)(Fig. 4).

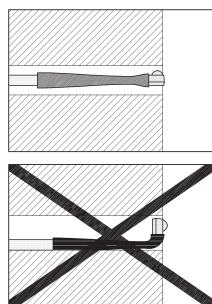


Fig. 4

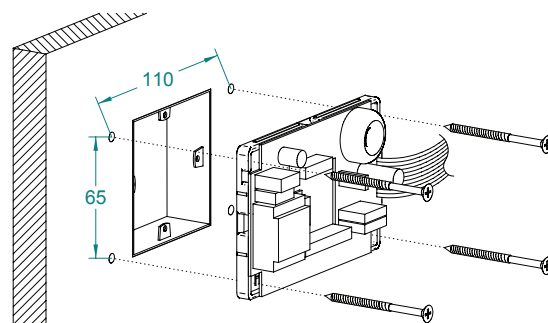


Fig. 5

### 2.2 Electrical wiring



- Electrical wiring of the controller must be carried out in accordance with national legislation and regulations.
- Earth must always be connected.

### 2.3 EFC21 standard installation

#### Description

The diagram shows how a separate solenoid valve (SMG) must be connected to the EFC21. The solenoid valve is part of the separate fail-safe system and will cut off the gas supply in the case of insufficient system chimney draught (controlled by the fan pressure switch).

- Connect the earths of the mains supply, chimney fan and solenoid valve together (SMG).
- Connect the chimney fan and pressure switch to terminals 1–5.
- Connect the SMG to terminals 6–7.
- Connect the optional Air inlet monitoring to terminals 10–11. If this monitoring is not mandatory, then a jumper must be fitted across terminals 10–11.
- Connect mains supply to terminals marked "Supply".

#### Wiring diagram

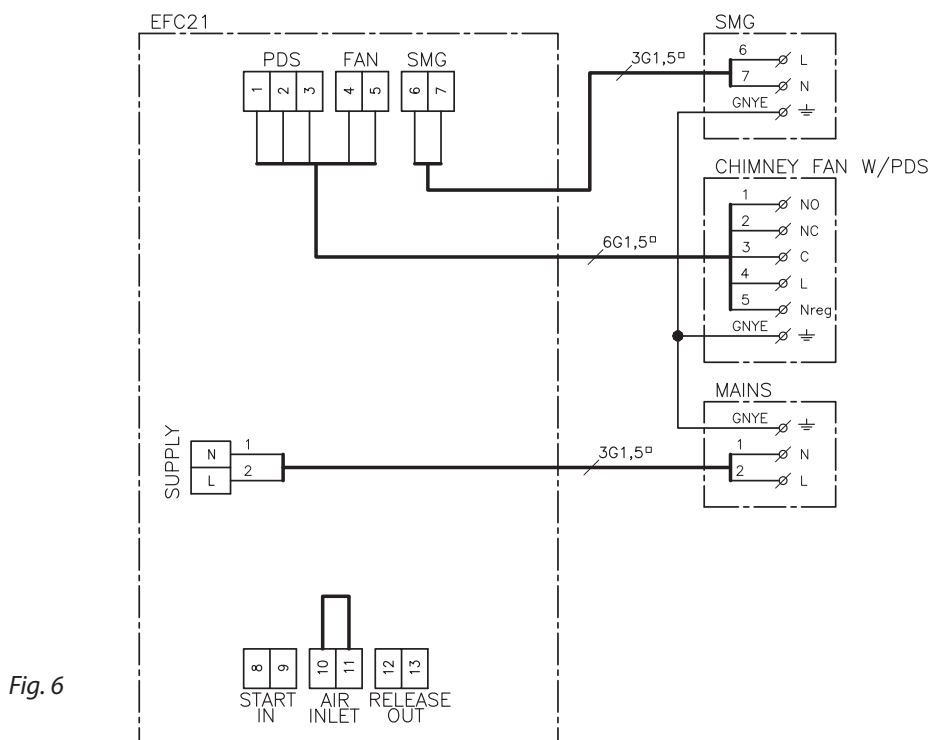


Fig. 6

#### Unit

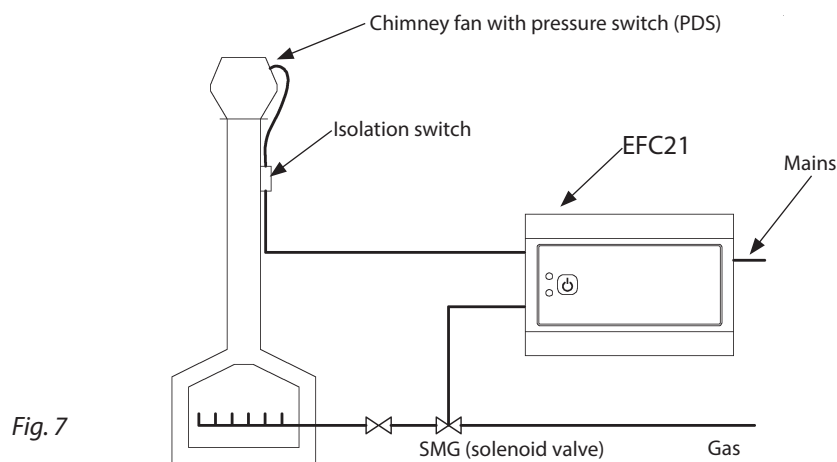


Fig. 7

## 2.4 EFC21 installation with external ON/OFF

### Description

Example showing how an external ON/OFF switch can be connected to a standard installation. Allows the system to be switched ON/OFF by the external switch or by the controller.

- Connect the mains earth to the earth terminal of the chimney fan and to the solenoid valve together(SMG).
- Connect the chimney fan and pressure switch to terminals 1–5.
- Connect the SMG to terminals 6–7.
- Connect the external ON/OFF switch (potential free) to terminals 8–9.
- Connect the optional Air inlet monitoring to terminals 10–11. If this monitoring is not mandatory then a jumper must be fitted across terminals 10–11.
- Connect mains supply to terminals marked "Supply".

### Wiring diagram

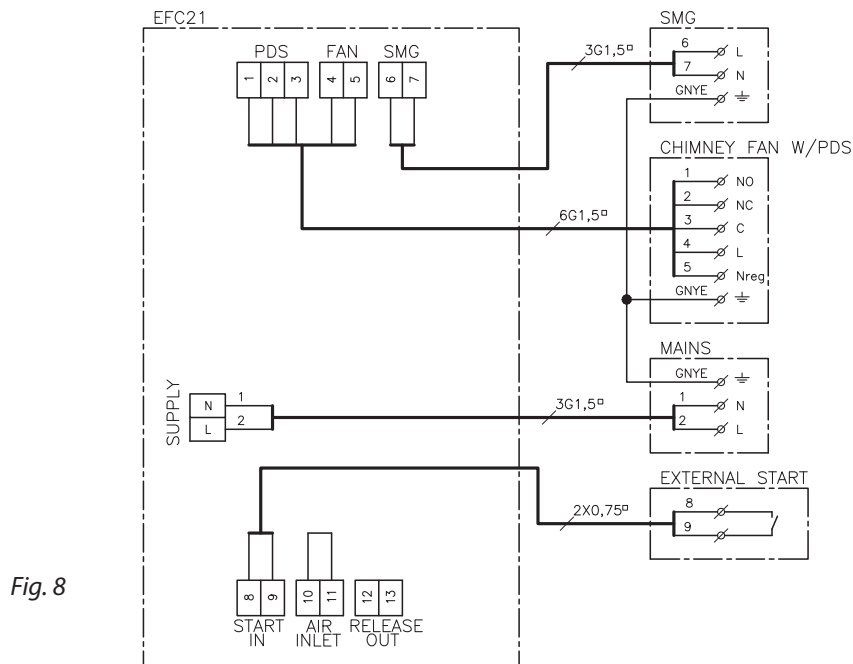


Fig. 8

### Unit

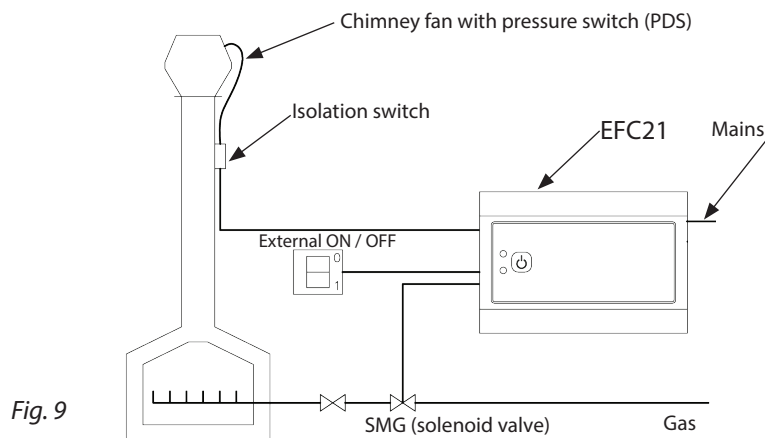


Fig. 9

## 2.5 EFC21/25 coupled directly to a gas fireplace control

### Description

Example showing how a EFC21/25 controller can be connected directly to a gas fire without having to use an extra SMG. This type of installation requires a fire with a controller that has flame-detection and automatic ignition – or a permanent pilot light. If there is insufficient chimney draught (detected by the fan pressure switch) the controller will switch off the gas fireplace (potential-free switch).

- Connect the mains earth to the earth terminal of the chimney fan.
- Connect the chimney fan and pressure switch to terminals 1–5.
- Optional external ON/OFF switch is connected to terminals 8–9.
- Connect the optional Air inlet monitoring to terminals 10–11. **If this monitoring is not mandatory then a jumper must be fitted across terminals 10–11.**
- Connect start/activate burn control to terminals 12–13 (potential-free switch).
- Connect the optional HIGH flame setting (step 2 – EFC25 only) to terminals 14–15 (potential-free switch).
- Connect mains supply to terminals marked "Supply".

### Wiring diagram EFC25

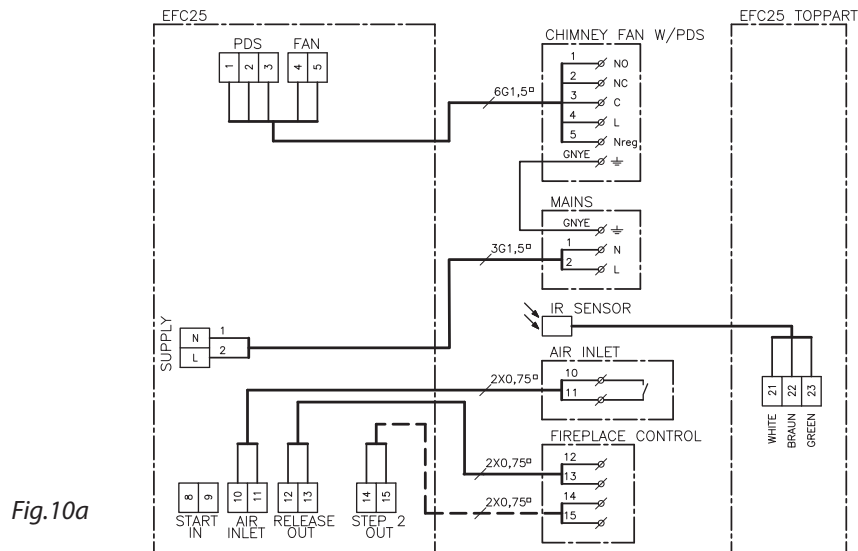


Fig.10a

### Wiring diagram EFC21

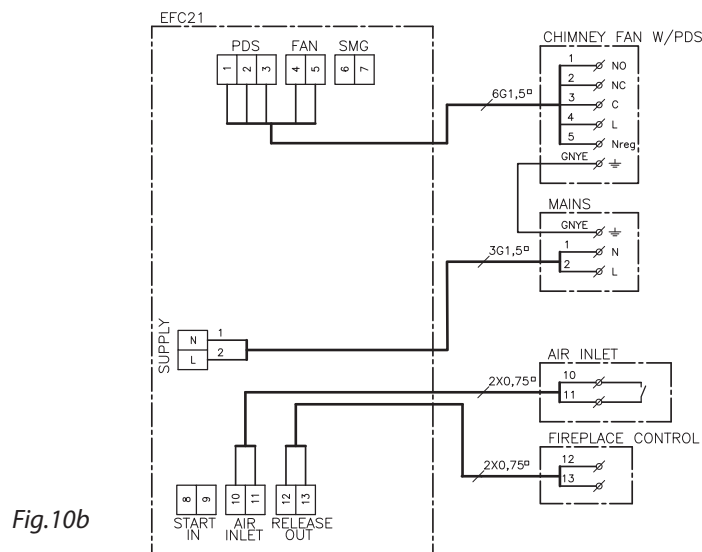
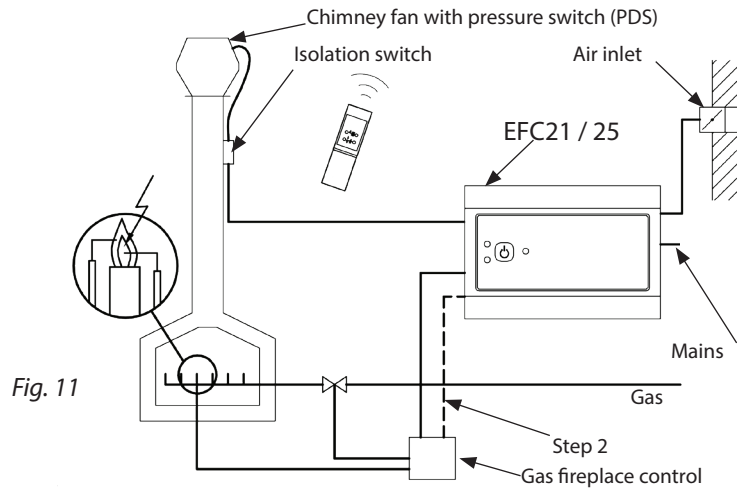


Fig.10b



Unit



### 3. Commissioning



Commissioning is carried out with the control box open. Only touch components with electrically insulated tools.

**NB:**

All windows and doors must be closed prior to commissioning. If there is another form of ventilation in the room, it should be run at full speed during the commissioning.

**DIP switch**

Check the factory-set DIP switch setting before commissioning (Fig. 1-J).

	DIP switch	Function	Factory setting	OFF	ON
	1	MANUAL RESET	ON	Automatic RESET following power failure or faulty chimney draught	Manual RESET following power failure or faulty chimney draught
	2	RUN-ON AFTER VENTILATION	OFF	No fan run-on	Fan runs on for three minutes

### 3.1 Service mode



In service mode the PDS and Air inlet safety function are disabled.

- Open control panel.
- Press ON/OFF button (Fig. 1-C).
- If the fire has to be lit during the commissioning then wait until GREEN LED is on, but not flashing.
- Press the service mode button (Fig. 1-I) on the back of the cover. Alarm LED (Fig. 1-A) will flash RED, and the operating LED (Fig. 1-B) will flash according to the position of the pressure switch – see the table below:

RED	Insufficient chimney draught (C-NC)
GREEN	Sufficient chimney draught (C-NO)
YELLOW	No signal from pressure switch. Check the wiring

#### NB

The service mode will deactivate automatically after 30 minutes or the next time the ON/OFF button is pressed.

### 3.2 Setting the potentiometer

- The potentiometer (Fig. 1-K) is set to maximum by turning clockwise.
- Slowly adjust the fan speed using the potentiometer. Check there are no spillages by thoroughly checking the edge of the fireplace.
- If there is some leakage, increase the fan speed until leakage from the fireplace is no longer detectable.
- If Step 2 is connected to the EFC25, then it can be controlled by the remote (Fig. 2-C).

### 3.3 Setting the pressure switch

The pressure switch is normally fitted in the chimney fan.

- Set the pressure switch to a minimum by turning anti-clockwise.
- Slowly increase the pressure switch setting until it cuts out (you will hear a click) or until the operating LED (Fig. 1-B) changes from GREEN to RED.
- Make a note of the pressure switch setting at cut-off.
- Set the pressure switch to 10 Pa below the previously noted cut-off value.
- Press ON/OFF button (Fig. 1-C). Service mode is now deactivated.

### 3.4 Testing the commissioning set-up

- Check the start-up function after the commissioning by pressing the ON/OFF button.
- Start fireplace.
- Check there is no leakage (all doors and windows must be closed) If some other type of ventilation is installed, it must be on and running at full speed.
- If a leak is detected, repeat the commissioning.
- After running for ten minutes with no leakage, turn the isolation switch off and the fail-safe function is being checked. The fireplace should cut-out after 15 seconds after the pressure switch has cut-off. **Remember to switch the isolation switch back on.**
- Fit the cover.
- Inform the end user about the controller functions and leave the instructions with the end user.

## 4. Daily use

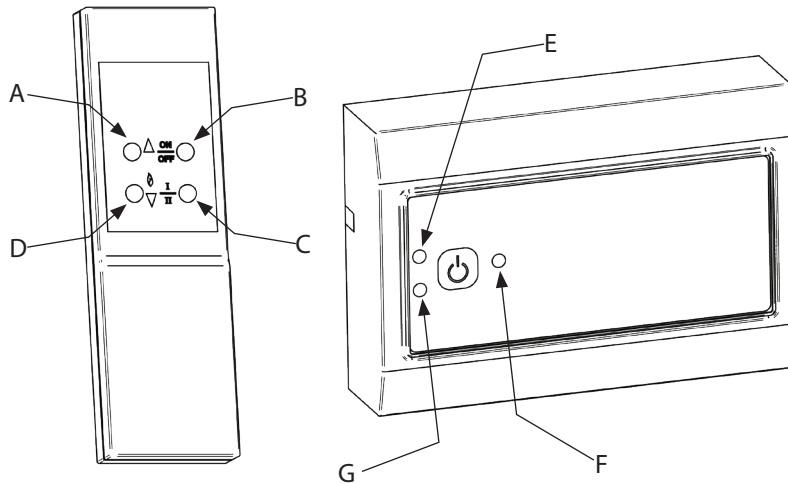


Fig.12

### Using the remote control with the EFC25

- Press ON/OFF button (Fig. 12-B) and the Burner button (Fig. 12-D) for at least a second to ignite the fire.
- Operating LED (Fig. 12-E) will flash GREEN until the correct chimney draught is achieved. If the LED flashes YELLOW, then the Air inlet must be opened and the fire will ignite.
- If it is available, then the flame HIGH/LOW function can be selected using the HIGH/LOW button (Fig. 12-C). The operating LED will blink once for LOW and twice for HIGH.
- The fan speed is adjusted using the speed buttons (Fig. 12A and D) while the operating LED flashes. Fan speed cannot be set lower than the pre-set safety minimum.
- To switch off press the ON/OFF button again (Fig. 12-B).
- The ventilation function can be activated by pressing the ON/OFF button on the remote control (Fig. 12-B) for five seconds The operating LED will be YELLOW when the function is active.

### Using the EFC controller

- Press the ON/OFF button (Fig. 12-F).
- The operating LED (Fig. 12-E) will flash GREEN until the correct chimney draught is confirmed. If it flashes YELLOW, then the Air inlet must be opened The operating LED will then become GREEN and the fireplace can be lit.
- To stop the fan press the ON/OFF button.

### External ON/OFF switch

- The ON/OFF switch can be used to start, stop and reset the controller.
- If the external ON/OFF switch is used, it has priority over the control panel and the remote control.

### NB

The switch must be in the OFF position before the controller can be re-started.

**Operating LED (Fig. 12-E)**

Observation	Type of fault
Flashing RED	No start-up signal from the safety circuit Typically, because the fan is restarted while it is still running
Flashing GREEN	The fan has started and the controller is waiting for the chimney-draught-ok signal
Flashing YELLOW	Chimney draught is confirmed correct but signal from the Air inlet is missing
Constant GREEN	Start up ok and the fire can be lit
Constant YELLOW	The ventilation function is active and the fire is OFF

**Alarm LED (Fig. 12-G)**

Constant RED indicates a power failure has occurred. To reset and start the controller, press the ON/OFF button once.

If the alarm LED (Fig. 12-G) activates during operation, press the ON/OFF button twice to stop the fan and restart the controller. If the alarm LED remains on after reset, please refer to the "Troubleshooting" section.

**4.1 Extra function**

Press the ON/OFF button (Fig. 12-F) for at least four seconds to increase the fan's operating speed. If the controller is switched off, the fan speed will be reset.

## 5. Troubleshooting

### 5.1 Start

Observation		Type of fault	Solution
Operating LED	Alarm LED		
	Constant RED	Power failure	1. Press the ON/OFF button twice or the external ON/OFF button to reset and start up
Flashing RED		Safety monitoring fault (pressure switch)	1. Check the wiring 2. The PDS setting may be too low 3. Adjust the pressure switch setting
Flashing GREEN		Unit fault	1. Check the isolation switch 2. Check the fan is running. If it is not running, check wiring to the fan and PDS 3. Check that the flue, chimney and/or chimney fan are not blocked 4. Check the flow sensor in the chimney fan 5. Check settings and go through the commissioning again
Flashing YELLOW		Air volume/Air inlet signal	1. Check the Air inlet is open 2. Check the switch and wiring 3. If the installation does not have an Air inlet, check that there is a jumper across terminals 10–11
Flashing RED, GREEN or YELLOW	Flashing RED	Service mode	Press the ON/OFF button
No response	No response	Check remote control battery	Change battery

### 5.2 Operating

Observation		Type of fault	Solution
Operating LED	Alarm LED		
Constant GREEN	Constant RED	Insufficient chimney draught, the correct draught is being established	1. Press the ON/OFF button, or if the external ON/OFF switch is in use, turn it OFF before resetting 2. Press the ON/OFF button or use the external ON/OFF switch to restart
Flashing GREEN	Constant RED	Faulty chimney draught	1. Check the isolation switch 2. Check the fan is running. If it is not running, check wiring to the fan 3. Check that the flue, chimney and/or chimney fan are not blocked 4. Check the flow sensor in the chimney fan 5. Check settings and redo the commissioning again

## 6. Technical data

### EFC controller:

Dimensions (h x w x d)	85 mm x 126 mm x 32 mm
Supply voltage	230 V $\pm$ 10%/50 Hz
Fuses:	T 3,15 A
Release out	Max. 3,15 A 250 VAC/3,15 A 30 VDC
EFC25 Step 2 out	Max. 3,15 A 250 VAC/3,15 A 30 VDC
EFC21 SMG out	230 VAC, max. 100 VA
Chimney fan out	Max. 1.8 A/230 V (AC3)
Air inlet (Damper)	24 VDC (closed-circuit supply)
External start	24 VDC (closed-circuit supply)
Ingress Protection	IP 30
Material	ABS plastic
Ambient temperature:	-10 °C to + 40 °C

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### External IR Sensor

Cable:	10 mtr.
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### Remote control (EFC25 only)

Battery type	AAA 1.5V (qty. 3)
Ambient temperature:	0°C to + 40°C

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### Third part approvals

The EFC21/25 are certified by GASTEC and have the certification number: PIN: 0063 BT1395.

### Safety check by Corgi

Gas appliances should be checked for safety once a year by a CORGI registered installer. Details of local installers can be obtained by ringing CORGI on 0870 401 2300 or by accessing the website at [www.trustcorgi.com](http://www.trustcorgi.com).

## 7. EU Declaration of Conformity

### Declaration of Conformity



<b>DK: EU-Overensstemmelseserklæring</b> <b>GB: Declaration of Conformity</b> <b>DE: EU-Konformitätserklärung</b> <b>FR: Déclaration de conformité de l'Union Européenne</b> <b>ES: Declaración de Conformidad</b>	<b>NO: EU-Samsvarserklæring</b> <b>NL: EU-Konformiteits verklaring</b> <b>SE: EU-Överensstämmelsedeklaration</b> <b>FI: EU-Vaatimustenmukaisuusvakuutus</b> <b>IS: ESS-Samræmisstaðfesting</b> <b>IT: Dichiarazione di Conformità Unione Europea</b>
<b>exodraft a/s</b> <b>C.F. Tietgens Boulevard 41</b> <b>DK-5220 Odense SØ</b>	
-erklærer på eget ansvar, at følgende produkter: -hereby declares that the following products: -erklärt hierdurch auf eigene Verantwortung, daß folgende Produkte: -déclare, sous sa propre responsabilité, que les produits suivants: -declare, bajo su propia responsabilidad, que los siguientes productos	-erklærer på eget ansvar at følgende produkter: -veklaard dat onderstaande produkten: -deklarerar på eget ansvar, att följande produkter: -vastaa siltä, että seuraava tuote: -Staðfesti à eigin àbyrgð, að eftirfarandi vörur: -dichiara con la presente che i seguenti prodotti:
<b>EFC 21 / EFC25</b>	
-som er omfattet af denne erklæring, er i overensstemmelse med følgende standarder: -were manufactured in conformity with the provisions of the following standards: -die von dieser Erklärung umfaßt sind, den folgenden Normen: -auxquels s'applique cette déclaration sont en conformité avec les normes ci-contre: -son fabricados según los preceptos de las normativas siguientes:	-som er omfattet av denne erklæring, er i samsvar med følgende standarder: -met de onderstaande standard koderingen: -som omfattas av denna deklaration, överensstämmer med följande standarder: -jota tämä selvitys koskee, on seuraavien standardien mukainen: -sem eru meðtalin i staðfestingu Pessari, eru i fullu samræmi við eftirtalda staðla: -sono stati fabbricati in conformità con le norme degli standard seguenti:
<b>EN298 (2012)</b>	
-h.t bestemmelser i direktiv: -in accordance with: -entsprechen gemäß den Bestimmungen der folgenden Richtlinien: -suivant les dispositions prévues aux directives: -cumpliendo con las siguientes directivas:	-i.h.t. bestemmelser i direktiv: -voldoen aan de heironder gestelde eisen: -enligt bestämmelserna i följande direktiv: -seuraavien direktiivien määräysten mukaan: -med tilvisun til àkvarðana eftirlits: -in conformità con le direttive:
-Direktiv om Gasapparater -Appliances Burning Gaseous Fuels Directive -Gasgeräte richtlinie -Directive des Appareils à gaz (FR) -Sobre aparatos que queman combustibles gaseosos (ES)	-Direktiv om gassapparater -Richtlijn gastoestellen -Direktivet om anordningar för förbränning av gasformiga bränslen -Direktiivi koskien kaasumaisia polttoaineita käytäviä laitteita -um samræmingu laga aðildarríkjanna varðandi tæki sem brenna gasi -Direttiva Gas
<b>2009/142/EEC</b>	
Odense, 01.04.2016  -Adm. direktør -Managing Director  Jørgen Andersen 	-Algemeen directeur -Geschäftsführender Direktor -Président Directeur Général -Verkställande direktör -Toimitusjohtaja -Framkvemdastjóri -Direttore Generale



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