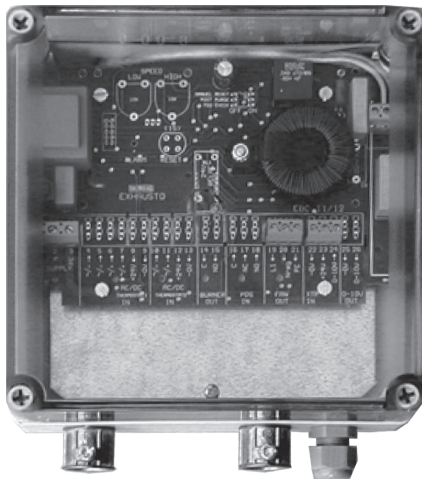






# EBC12X

## Motor power relay



READ AND SAVE THESE INSTRUCTIONS!

	<b>Product information</b>	<b>Chapters 1 + 2</b>
	<b>Mechanical installation</b>	<b>Chapter 3</b>
	<b>Electrical installation</b>	<b>Chapter 4</b>
	<b>Start up and configuration</b>	<b>Chapter 5</b>
	<b>Maintenance and troubleshooting</b>	<b>Chapter 6</b>

**Job name:** \_\_\_\_\_

**Installer:** \_\_\_\_\_

**Installation date:** \_\_\_\_\_

**Manufacturer contact information:**  
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## Symbol legend

The following terms are used throughout this manual to bring attention to the presence of potential hazards or to important information concerning the product.



### DANGER

Indicates an imminent hazardous situation which, if not avoided, will result in death, serious injury or substantial property damage.



### CAUTION

Indicates an imminent hazardous situation which, if not avoided, may result in personal injury or property damage.



## TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

1. Use this unit in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed on the front of the manual.
2. Before servicing or cleaning the unit, switch off at service panel and lock service panel to prevent power from being switched on accidentally.
3. Installation work and electrical wiring must be done by a qualified person(s) in accordance with applicable codes and standards.
4. Follow the appliance manufacturer's guidelines and safety

standards and the national authorities safety standards in the country in which the installation is taking place.

5. This unit must be grounded.

### How to use this manual

This installation manual does not contain any system design documentation. System design documentation is available from **exodraft**.

Accessories and variable frequency drives are not covered by this manual. Please refer to these component's individual manuals.

# 1. Product information

## 1.1 Function

**Use** The **exodraft** EBC12X motor power relay is used in conjunction with an **exodraft** control panel to operate multiple single-phase intake or exhaust fans. The **exodraft** main control will regulate the fan functions while the EBC12X acts as an external motor speed control. The main control powers each EBC12X through a 0-10 VDC signal.

Controls compatible with the EBC12X are: BDC8, EBC12, EBC14, MEC18 and EBC30.

The EBC12X allows the main control to handle multiple single-phase RSV fans by increasing the system' motor load capacity. One RSV fan is connected to the main control while additional fans are connected to one or more EBC12X's.

The features of the main control panel apply to each EBC12X connected. The main control will regulate the speed of all fans in use.

The EBC12X housing is NEMA 1 rated polycarbonate.

All terminals have a LED for fail-safe supervision and easy troubleshooting.

**Listings** Listed to UL 508 and CSA C22.2 No. 14-10 Standard for Industrial Control Equipment .

## 1.2 Shipping

### Standard packing list

The EBC12X contains the following:

- The EBC12X control box

If other components are shipped, these will appear on the shipment packing list.

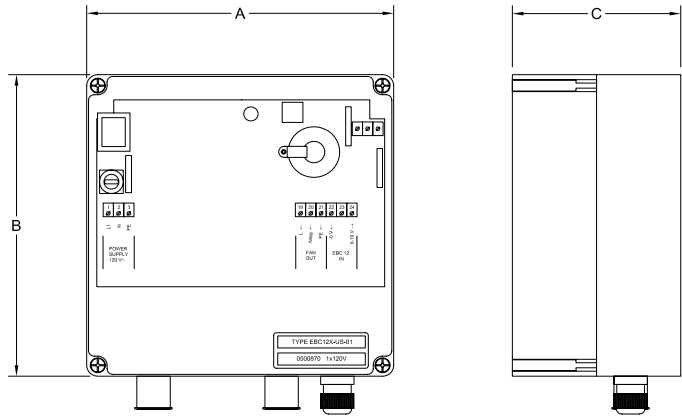
## 1.3 Warranty

**Complete warranty conditions are available from exodraft.**

## 2. Specifications

### 2.1 Dimensions and capacities

EBC12X control		
Power supply	V	1 x 120 V AC
Amperage	A	6.3
Operating temperature	°F/°C	-4 to 122/-20 to 50
Dimensions	A in/mm	6.9/175
	B in/mm	6.9/175
	C in/mm	3.8/96
Weight	lbs/kg	2.8/1.3



One or more **exodraft** fan(s) can be connected to each EBC12X in use depending on the current draw of the fan motor. The table below displays the number of each fan that can be connected to a single EBC12X as well as the current draw of the fan(s).

Fan model (single phase motor)	BESF 146 RSIF 146	RSV 200	RSV 250 BESF 160 RSIF 160	BESB 250 RSIB 300	RSV 315 BESF 180 RSIF 180
# per EBC12X	5	4	2	1	1
Amperage draw per fan	1.2	1.4	2.9	5.8	5.8
Total amperage draw	6.0	5.6	5.8	5.8	5.8

## 3. Mechanical installation

### 3.1 Location

The **exodraft** motor power relay EBC12X must be installed inside, preferably in the boiler room. The control does not need to be installed in an enclosure. For ease of installation, it should be installed close to the main EBC control.

### 3.2 Mounting of motor power relay

The EBC12X motor power relay can be mounted directly on a wall or similar. Remove the clear cover. The mounting holes are located under the plastic screws that hold the cover in place.

See figure below for mounting hole-pattern.

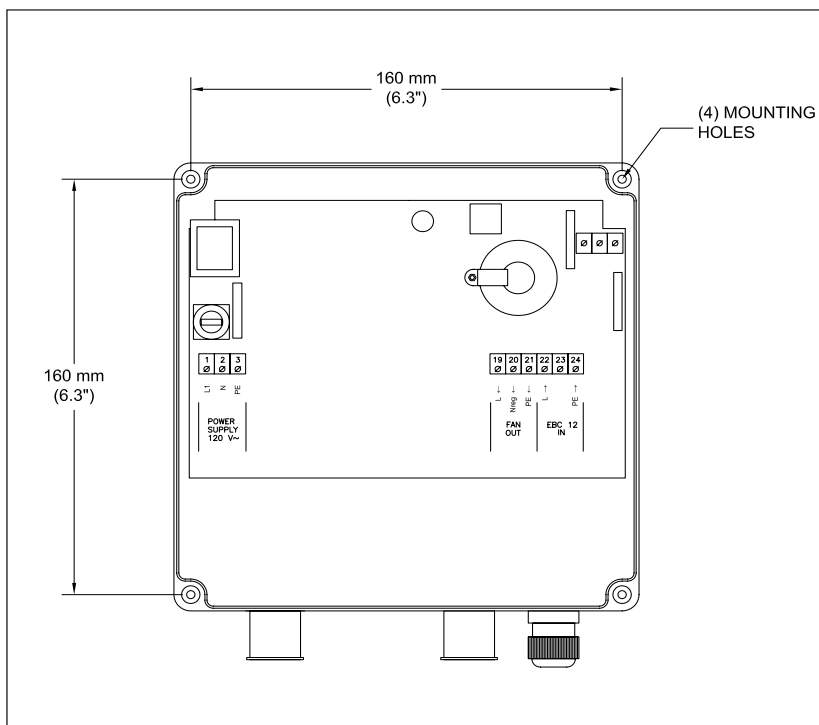


Fig. 1

## ⚡ 4. Electrical installation

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### 4.1 General



**Danger: Turn off electrical power before servicing. Contact with live electric components can cause shock or death.**

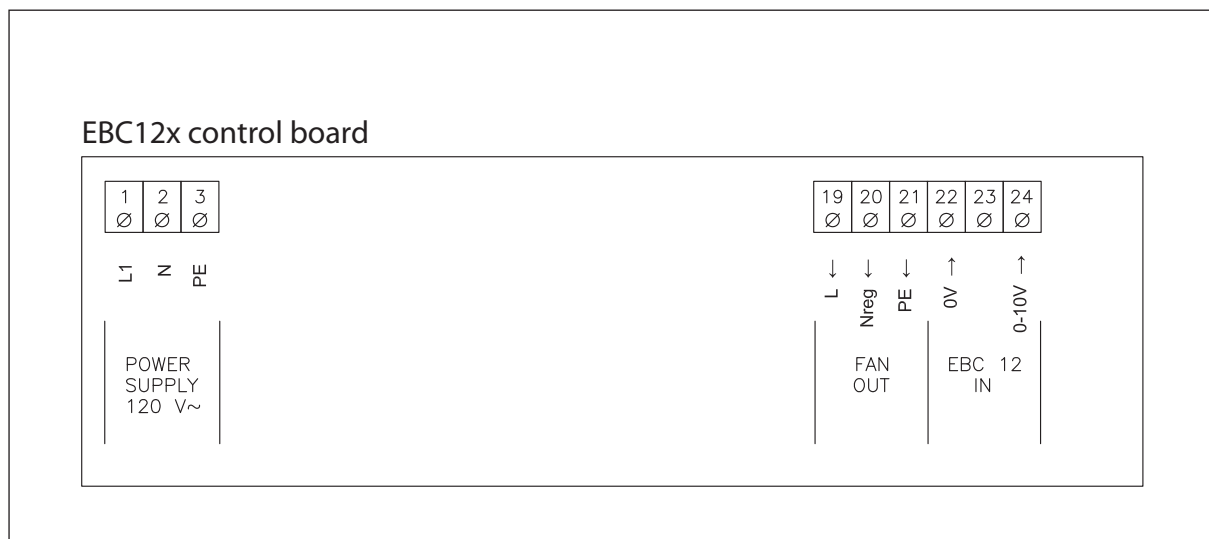


**EBC12X is designed for 1 x 120 V AC power supply only.**

The figure below shows a general connection diagram.

The EBC12 shown in the diagram is representative of any compatible **exodraft** control.

The designations for each terminal on the control board are shown below.



**Fig. 3**

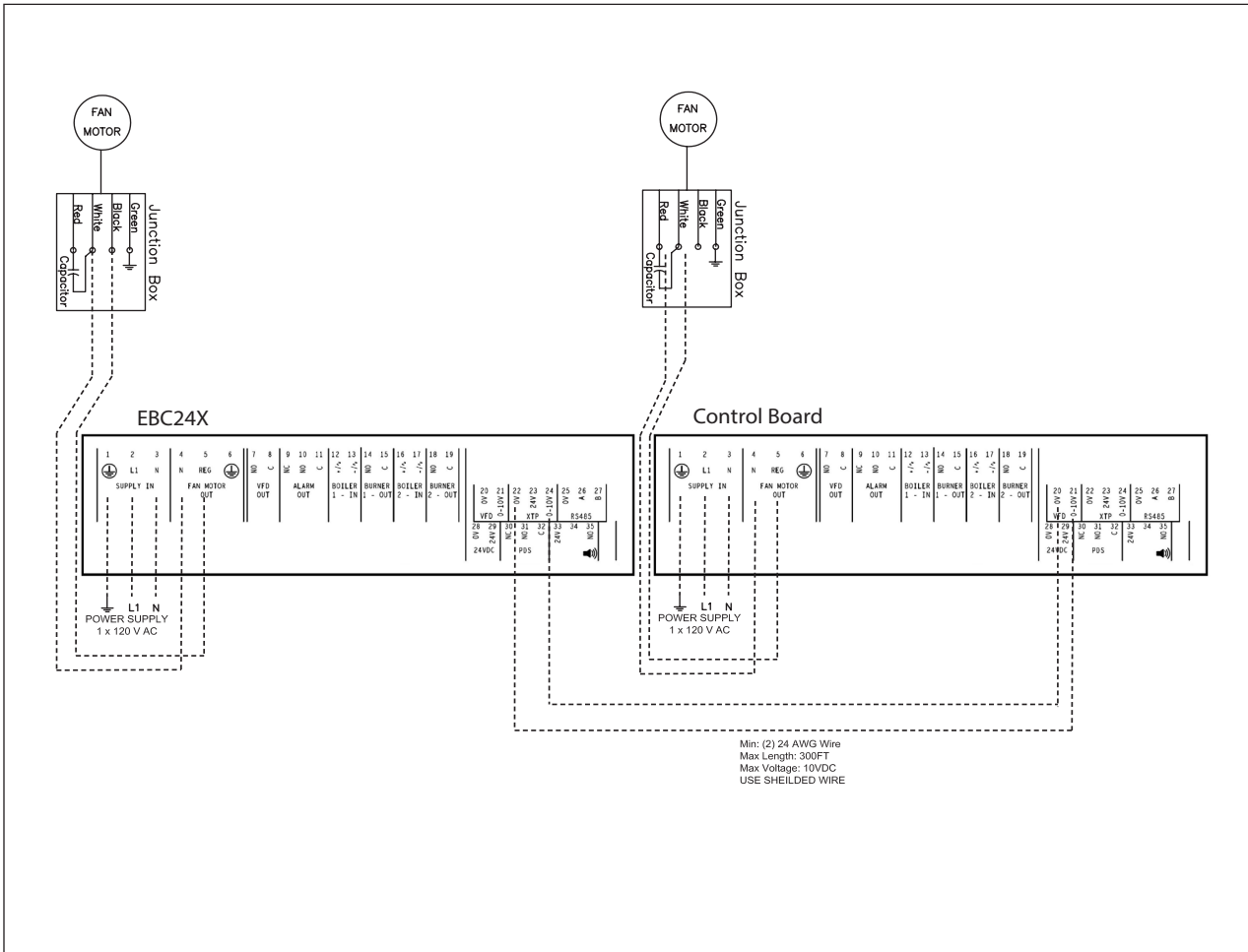
Terminal	Use
1	Power supply – L1
2	Power supply – N
3	Power supply – ground
19	Chimney fan – L
20	Chimney fan – N
21	Chimney fan – ground
22	Control signal for <b>exodraft</b> main control (0 V DC)
24	Control signal for <b>exodraft</b> main control (10 V DC)

### 4.2 Connecting to an BDC8, EBC12, EBC14 or MEC18

Below is the wiring diagram connecting an EBC12X to BDC8, EBC12, EBC14 or MEC18.

To wire the main control to an EBC12X, shielded wire should be connected to terminals 25 and 26 of the main control and run to terminals 22 and 24, respectively, on the EBC12X.

**NOTE:** Terminal 19 on the circuit boards is always hot (120 V AC).  
Terminal 20 (neutral) regulates the fan speed.



### 4.3 Connecting to an EBC30

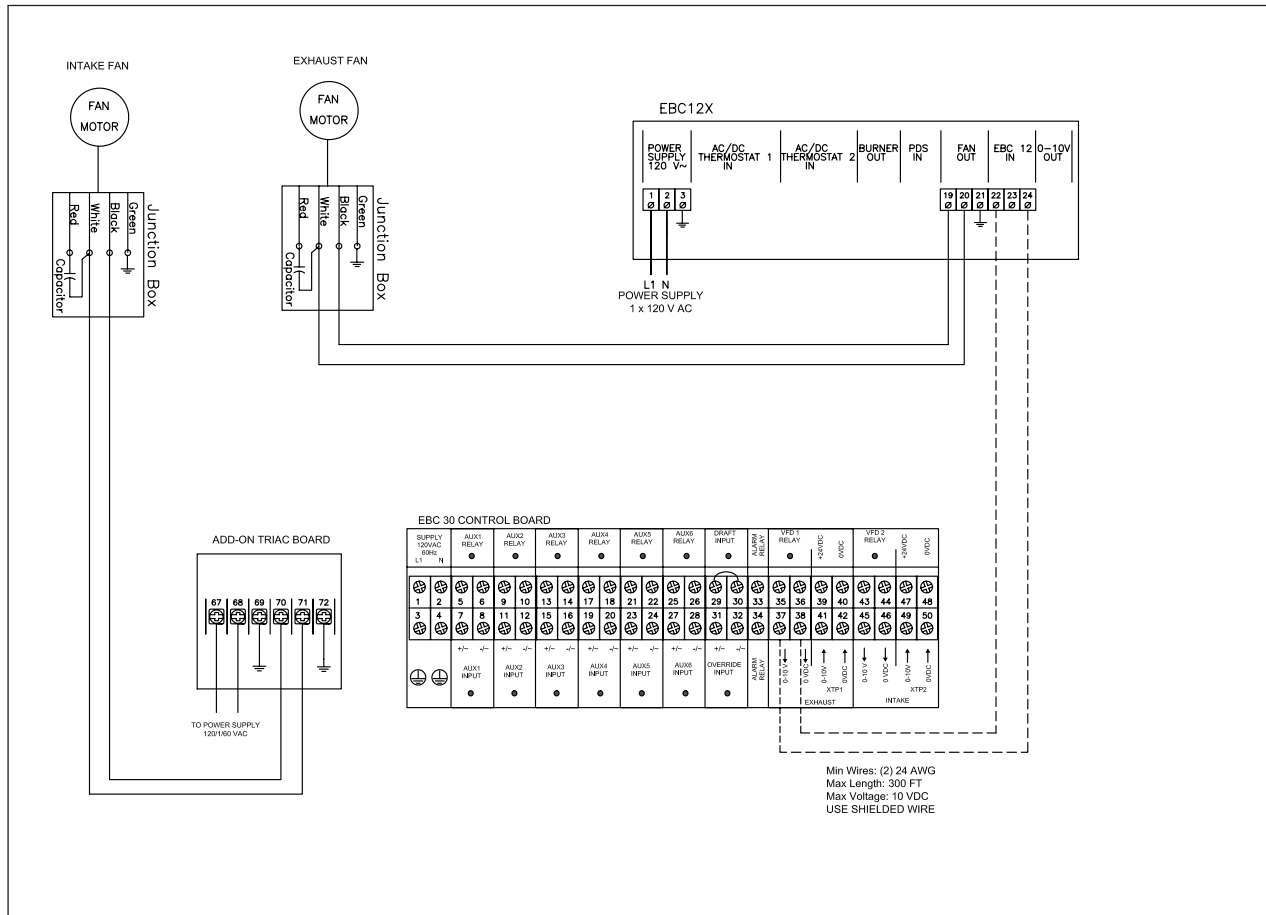
The terminal connections of the EBC30 and EBC12X depend on the function of the fans connected to the EBC12X.

For exhaust fans, connect terminals 38 and 37 of the EBC 30 to terminals 22 and 24, respectively, to the EBC12X.

For intake fans, use shielded wire to connect terminals 46 and 45 of the EBC30 to terminals 22 and 24, respectively, to the EBC12X.

The diagram below shows the connection of an exhaust fan to an EBC12X. A similar set-up can be used for applications requiring the intake fan to be connected to the EBC12X. When controlling both intake and exhaust fans with the EBC30, a Triac Board Add-On is used.

See the EBC30 manual for further information.

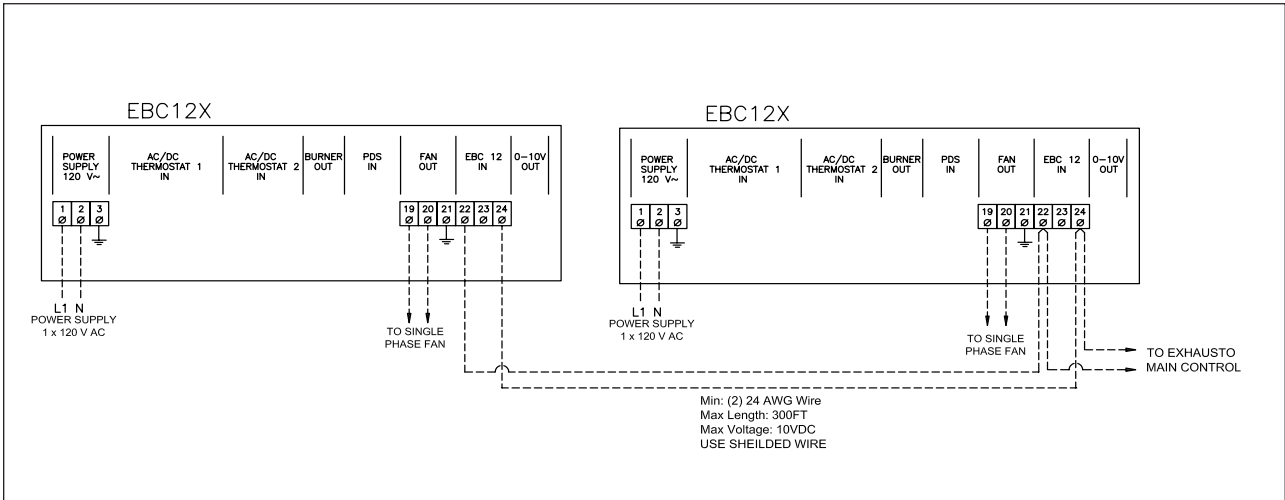




### 4.4 Connecting multiple EBC12X controls

More than one (1) EBC12X can be used in a system. To connect multiple EBC12X's, wire the main control to the first EBC12X as shown in sections 4.2 and 4.3.

Next, run shielded wire from terminal 22 of the first EBC12X to terminal 22 of the next one. The same should be done with wire running from terminal 24.





## 5. Start up and configuration

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### 5.1 General

The dip switch settings used on the main control (BDC8, EBC12, EBC14, EBC30 or MEC18) will apply to each EBC12X in operation. For additional reference on setting the dip switches, refer to manual of the main control.

Set the draft set point on the main control in accordance with the operation manual. Once this is set, all fans connected to the control system will run at the same speed.



## 6. Maintenance and troubleshooting

### 6.1 General

For additional troubleshooting, refer to the manual of the main control (BDC8, EBC12, EBC14 or EBC30).

Observation	Problem	Solution
Fan(s) connected to the EBC12X do not increase speed.	Wiring of terminals 22 & 24 on EBC12X.	Make sure wires are connected properly to correct terminals.
One or more LED's on EBC12X('s) are not lit.	1. Faulty wiring. 2. Bad power supply.	1. Check wiring between control and EBC12X. 2. Check power supply.

