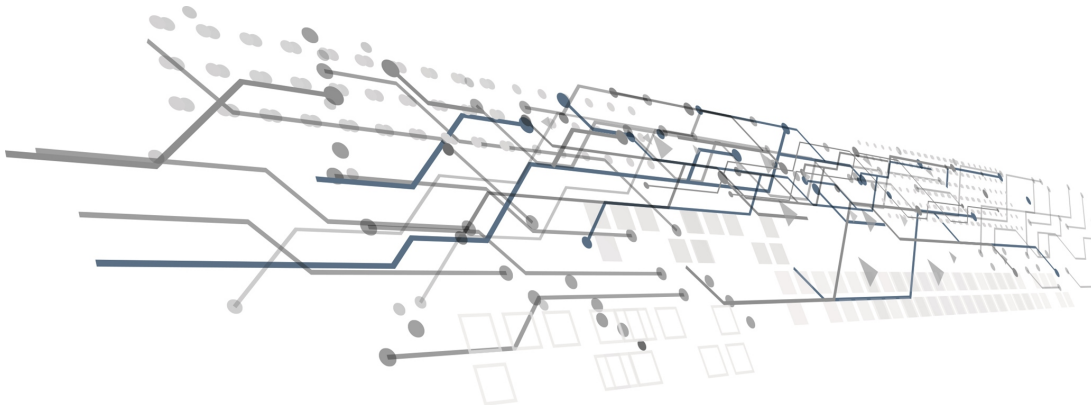


GB

# ***Electrical installation guide***

**VEX1000**

**With EXcon+ control system**



Original instructions

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# 1. Product information

## 1.1 Symbols, terms and warnings

### Prohibition symbol



Failure to observe instructions marked with a prohibition symbol may result in serious or fatal injury.

### Danger symbol



Failure to observe instructions marked with a danger symbol may result in personal injury and/or damage to the unit.

### Stop and wait symbol



After switching off the AHU, please wait 4 minutes for the system to de-energise.

#### 1.1.1 Use and designation of the manual

These instructions apply to the **electrical system** of an **EXHAUSTO VEX1000-series Air Handling Unit**. For accompanying accessories and additional equipment, please see the product guidelines for the specific item.

These instructions apply to the electrical system of an EXHAUSTO VEX1000-series Air Handling Unit. For accompanying accessories and additional equipment, please see the product guidelines for the specific item.

The instruction manual must be fully observed to ensure personal safety and the safety of others, and to protect equipment and ensure correct operation. EXHAUSTO A/S accepts no liability for accidents caused by a failure to use the product in accordance with the manual's instructions and specifications.

#### 1.1.2 Terms

These instructions use the following names for airflows as specified in DS447-2013:

- Supply air
- Extract air
- Outdoor air
- Exhaust air

#### 1.1.3 Warnings



The work must be performed by an authorised electrician, in accordance with locally applicable regulations and legislation.



The equipment shall be connected to a TT or TN-S supply.



The equipment shall be supplied through additional protection with an RCD relay type B.

1.1.4 Opening the air handling unit



Do not open the service doors before the supply voltage has been disconnected at the supply disconnecting switch (main switch).

The supply disconnecting switch (main switch) is located on the control system panel for the air handling unit.



1.2 Data plates, location and serial/production number

Data plate

- The VEX unit data plate shows:
- VEX unit, type
  - Production number
  - Supply data
  - Filter data
  - Weight
  - QR Code for documentation access
  - EXHAUSTO contact information

Engineered in Denmark

UNIT Name	Unit	
TYPE	Model	Orientation
	Prod. No./Year	123456/2025
SUPPLY AHU	3x400+N+PE-50Hz	Ikmax / Ikmin Ikmax / Ikmin kA
	SUPPLY HE	3x400+N+PE-50Hz Ikmax / Ikmin Ikmax / Ikmin kA
Filter Data	Pre-filter Extract 1.1: G4	Filter Extract 1.1: M5 Panel
	Pre-filter Outdoor 2.1: G4	Filter Outdoor 2.1: F7 Panel
	Total Weight	Totalweight



EXHAUSTO A/S  
Odensevej 76, DK-5550 Langeskov  
www.exhausto.dk



NB

Always have the production number ready when contacting EXHAUSTO A/S.


Latest version of the guidelines

**Important:** Always check whether the latest version of the manual is available.  
Scan the QR codes on the side of air handling unit to access any attached documentation.

EXcon+ data plate

Instructions for access to Excon+

Step 1: Connect to Hotspot

 EXcon+ WIFI

\_\_\_\_\_

Select network with SSID


EXcon+ - VEX10xx\_yyyyyy

\_\_\_\_\_


Use Password

123456789

\_\_\_\_\_



Step 2: Login to Web Client

 EXcon+ webservice

\_\_\_\_\_

URL

10.1.19.32

\_\_\_\_\_

Username


User

\_\_\_\_\_

Password

111111

\_\_\_\_\_



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The EXcon+ data plate shows how to connect to a Wi-Fi hotspot using QR codes, and how to gain access to the EXcon+ web client. Follow the steps and log in with the usernames and passwords provided on the data plate.

HMI panel or web interface

Refer to the EXcon+ Instructions for the VEX1000 series for instructions on accessing "Menu 2 - Operating readings" via the technician menu in order to check the unit's operating status.

Level	Username	Password
Facility manager pro	user	111111
Commissioning technician	service	333333

## 2. Electrical installation

### 2.1 Dimensioning and installation

- The supply cable must be dimensioned and installed in accordance with applicable regulations and legislation.
- The earth terminal (PE) must always be connected.

#### 2.1.1 Installation prerequisites

The installer must, in accordance with local applicable laws and regulations, install one line fuse and a supply cable.

---

#### 2.1.2 Line fuse

The line fuse is used for:

- Short-circuit protection of the VEX1000 unit.
  - Short-circuit protection of supply cable.
  - Overload protection of supply cable.
- 

#### 2.1.3 Supply cable

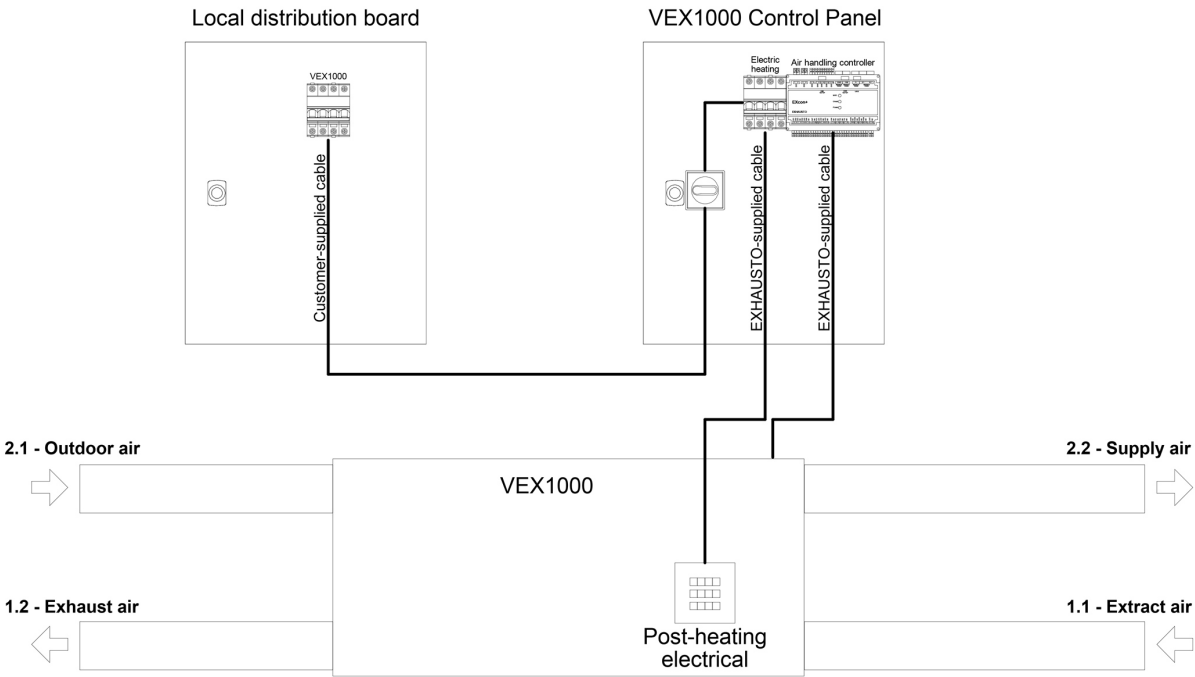
When dimensioning the supply cable, the conditions at the installation site, including temperature, cable layout and voltage drop must be taken into consideration.

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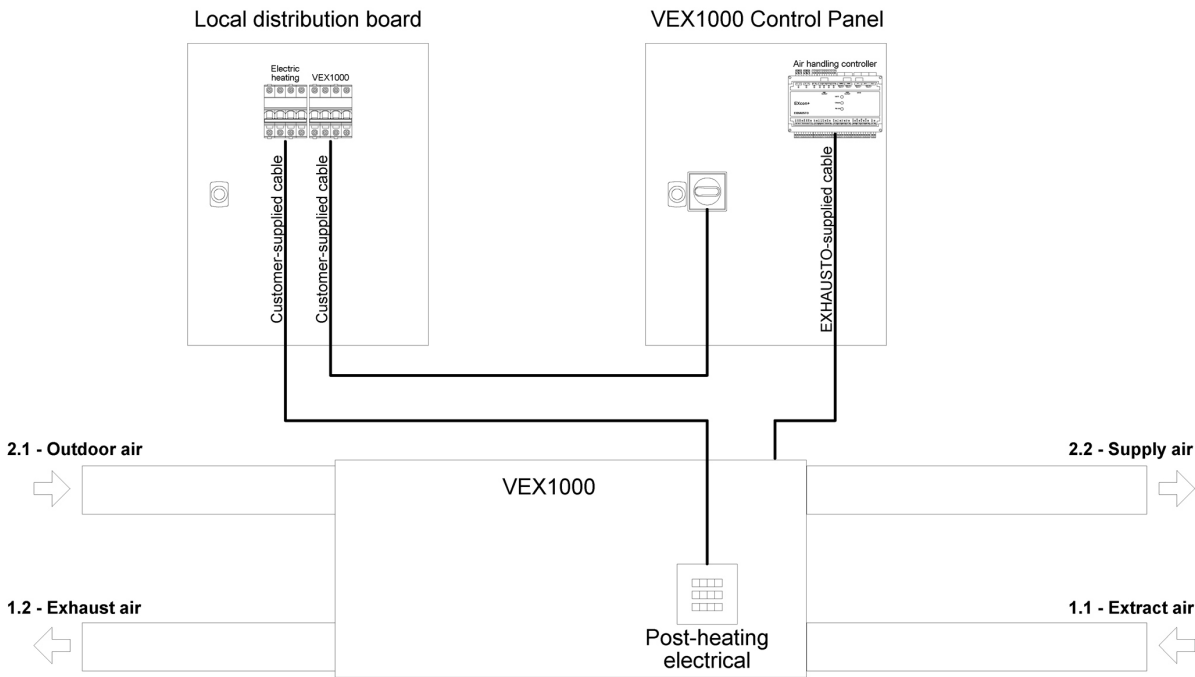
#### 2.1.4 Electrical connection/data

The unit's described power consumption can be found in the supplied configuration from the calculation program ExSelectPro. See unit data.

2.1.5 Principles for 1 Point of Contact

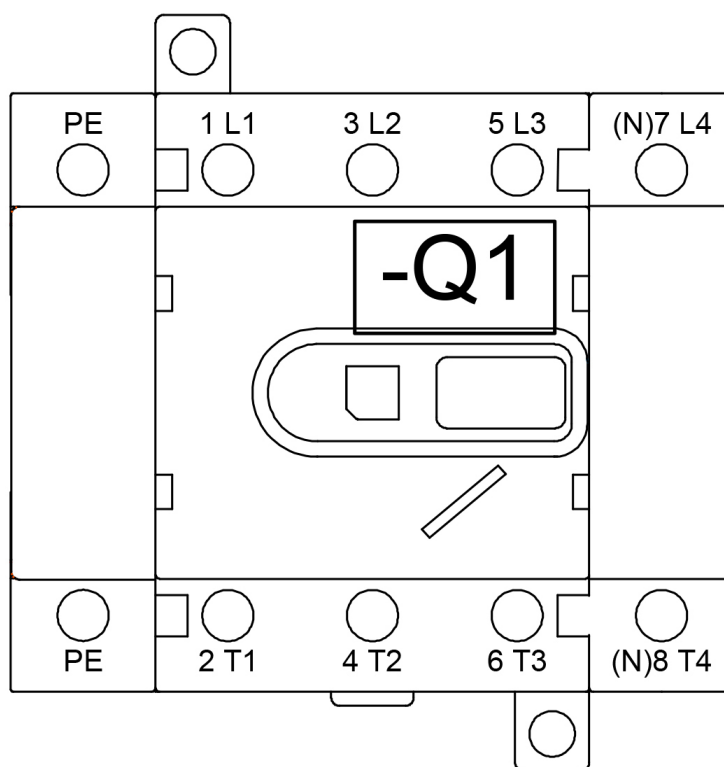


2.1.6 Principles for 2 Points of Contact



### 2.1.7 Main power

The main power supply cable should be connected directly to the main switch, tagged -Q1, as seen in the illustration below.

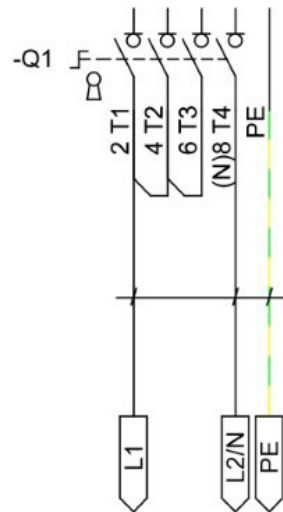




### 2.1.8 Supply connections

VEX1000 - Control panel 230 VAC, 50 Hz/50 Hz with one (1) heater.  
These connections apply to 230 VAC, TT and TN-S power grid.

**Wiring diagrams: 0440681/0440682**



230VAC

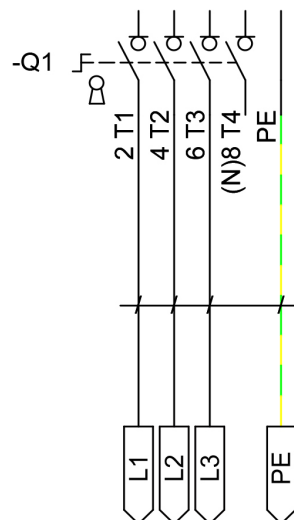


In Denmark and Germany, a three-phase installation is legally required due to local legislation that stipulates a maximum current consumption of 16 A for single-phase installations.

VEX1000 - Control panel 3x230 VAC, 50 Hz.

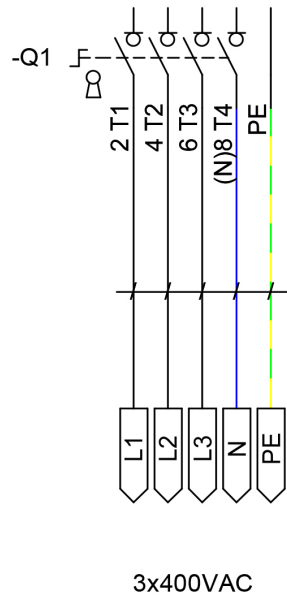
These connections apply to 3x230 VAC, TT and TN-S power grid.

**Wiring diagrams: 0440683**



3x230VAC

VEX1000 - Control panel 3x400 VAC + N, 50 Hz.  
These connections apply to 3x400 VAC, TT and TN-S power grid.  
**Wiring diagrams: 0440684**



2.1.9 Installation requirements and recommendations

Main switch and mini circuit breaker protection

The main switch (-Q1) and automatic fuses are built into the unit to provide internal overload and short-circuit protection.

Additional main switch for VEX1000 unit with electric heating coil



A separate main switch is built into the electric heating coil, if applicable



As such, when a heating coil is supplied separately, both switches must be disconnected in order to de-energise the system

2.1.10 Transport/Storage

The Control System Panel must always be protected against mechanical and environmental hazards.

Storage conditions

Supply system	Conditions
Temperature	-50...70 °C
Relative humidity	5....95%
Environment	Clean area

**Storage conditions with power analyser installed**

Supply system	Conditions
Temperature	-10...50 °C
Relative humidity	5...95%
Environment	Clean area

**2.1.11 Control system panel installation**

The Control Panel should be installed on a surface with sufficient mechanical strength and protection against mechanical and environmental hazards.

**Installation conditions**

Supply system	Conditions
Temperature	-35...50 °C
Relative humidity	5...95%
Environment	Particle size > 0,5 mm

**Installation conditions with power analyser installed**

Supply system	Conditions
Temperature	-10...50 °C
Relative humidity	5...95%
Environment	Particle size > 0,5 mm

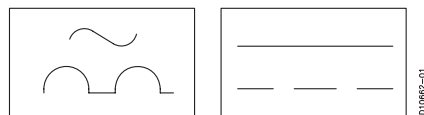
**Residual Current Device**

- The unit must have protection against indirect contact.

If RCD protection is fitted in the installation, they must be of a type that meets the following requirements:

**VEX1000**

**PFI type B switch that breaks the circuit on registering a fault current with DC content (pulsating DC) or smooth vagrant current in accordance with EN 61008. The fault current switches must be marked with the following symbol:**



- Disconnection time must be max. 0.3 s.

**Current leakage**

RCD protection of 300 mA is recommended, as leakage currents of more than 30 mA can occur.

**2.1.12 Short-circuit current**

The minimum and maximum short-circuit current  $I_{Kmin}$  and  $I_{Kmax}$  is stated in the supplied electrical documentation from EXselect Pro, on the data plate, as well as the electrical heating coil if included.

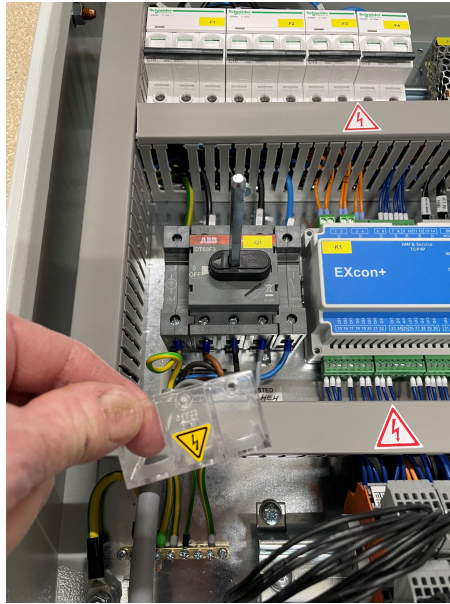
## 2.2 Control system panel

For location of electrical components in the control system panel, see the panel overview in the supplied VEX1000 electrical diagrams.

## 2.3 Connections in the control system panel

### 2.3.1 Connections in the control system panel

1) Connect other accessories and options in accordance with the supplied electrical diagrams.



2) Finally, connect the supply voltage to the main switch.



**Terminal covers on the main switch MUST be fitted.**



### 3. Electrical components

#### 3.1 Terminal overview

##### 3.1.1 Terminal overview

##### Aggregate power & signal terminals

Terminal	Connected to	Connection name	Connection type
-X1:01	-M1.2	Exhaust air fan	L1
-X1:02	-M1.2	Exhaust air fan	L2
-X1:03	-M1.2	Exhaust air fan	L3
-X1:04	-M2.2	Supply air fan	L1
-X1:05	-M2.2	Supply air fan	L2
-X1:06	-M2.2	Supply air fan	L3
-X1:07	-M3	Rotor	L
-X1:08	-M3	Rotor	N
-X1:09	-MB	Modbus	0V
-X1:10	-MB	Modbus	24V
-X1:11	-MB	Modbus	B-
-X1:12	-MB	Modbus	A+
-X1:13	-E4	Electric post-heating	0-10V
-X1:14	-E4	Electric post-heating	GND
-X1:15	-E4	Electric post-heating	Fire
-X1:16	-E4	Electric post-heating	Fail
-X1:17	-E4	Electric post-heating	Run OK
-X1:18	-E4	Electric post-heating	Run OK
-X1:19	-B3	Temperature sensor	Signal
-X1:20	-B3	Temperature sensor	Signal
-X1:PE	-PE	Protective Earth	PE

##### Air damper terminals

Terminal	Connected to	Connection name	Connection type
-X2:01	-R1.1	Extract air damper	0V
-X2:02	-R1.1	Extract air damper	24V
-X2:03	-R1.1	Extract air damper	B-
-X2:04	-R1.1	Extract air damper	A+
-X2:05	-R2.2	Supply air damper	0V
-X2:06	-R2.2	Supply air damper	24V
-X2:07	-R2.2	Supply air damper	B-
-X2:08	-R2.2	Supply air damper	A+

**Pre-HE signal terminals**

Terminal	Connected to	Connection name	Connection type
-X3:01	-E3	Electric pre-heating	0-10V
-X3:02	-E3	Electric pre-heating	GND
-X3:03	-E3	Electric pre-heating	Fire
-X3:04	-E3	Electric pre-heating	Fail
-X3:05	-E3	Electric pre-heating	Run OK
-X3:06	-E3	Electric pre-heating	Run OK

**Post-HE power terminals**

Terminal	Connected to	Connection name	Connection type
-X4:01	-E4	PWR Electric heating	L1
-X4:02	-E4	PWR Electric heating	L2
-X4:03	-E4	PWR Electric heating	L3
-X4:04	-E4	PWR Electric heating	N
-X4:PE	-E4	PWR Electric heating	PE

**HW-power & signal terminals**

Terminal	Connected to	Connection name	Connection type
-X5:01	-R1	Valve HW	0V
-X5:02	-R1	Valve HW	24V
-X5:03	-R1	Valve HW	Signal
-X5:04	-R1	Valve HW	Not used
-X5:05	-G1	HW circulation pump	NC
-X5:06	-G1	HW circulation pump	COM
-X5:07	-G1	HW circulation pump	L
-X5:08	-G1	HW circulation pump	N
-X5:PE	-G1	HW circulation pump	PE

### CW/CO-power & signal terminals

Terminal	Connected to	Connection name	Connection type
-X6:01	-R2	Valve CW/CO	0V
-X6:02	-R2	Valve CW/CO	24V
-X6:03	-R2	Valve CW/CO	Signal
-X6:04	-R2	Valve CW/CO	Not used
-X6:05	-G2	CW/CO circulation pump	NC
-X6:06	-G2	CW/CO circulation pump	COM
-X6:07	-G2	CW/CO circulation pump	L
-X6:08	-G2	CW/CO circulation pump	N
-X6:PE	-G2	CW/CO circulation pump	PE

### Temperature & CO2 sensor terminals

Terminal	Connected to	Connection name	Connection type
-X7:01	-B5	Pre-heater temperature sensor	Signal
-X7:02	-B5	Pre-heater temperature sensor	Signal
-X7:03	-B6	CO2 sensor	GND
-X7:04	-B6	CO2 sensor	OUT
-X7:05	-B6	CO2 sensor	+VCC
-X7:06	-	Spare terminal	
-X7:07	-B7	Duct temperature sensor	Signal
-X7:08	-B7	Duct temperature sensor	Signal

**Customer connection terminals**

Terminal	Connected to	Connection name	Connection type
-X8:0V	-	Customer connections	24V power supply
-X8:24V	-	Customer connections	24V power supply
-X8:01	-	Customer connections	Fire alarm input
-X8:02	-	Customer connections	Fire alarm input
-X8:03	-	Customer connections	Option input 1
-X8:04	-	Customer connections	Option input 1
-X8:05	-	Customer connections	Option input 2
-X8:06	-	Customer connections	Option input 2
-X8:07	-	Customer connections	Option input 3
-X8:08	-	Customer connections	Option input 3
-X8:09	-	Customer connections	Option input 4
-X8:10	-	Customer connections	Option input 4
-X8:11	-	Customer connections	A alarm output
-X8:12	-	Customer connections	A alarm output
-X8:13	-	Customer connections	Option input 1
-X8:14	-	Customer connections	Option input 1
-X8:15	-	Customer connections	Option input 2
-X8:16	-	Customer connections	Option input 2
-X8:17	-	Customer connections	BMS - RS485
-X8:18	-	Customer connections	BMS - RS485











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