GB

HE315

Heating coil – electric with EXact2 control system

Original instructions

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1. Product information

2. Mechanical assembly

3. Electrical installation

4. Commissioning and operation

5. Maintenance

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1. Product information

1.1 Symbols, terms and information plate

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 material.

Supply air/extract air

This instruction manual uses the terms described in DS447-2013:

- Supply air (inlet aur)
- Extract air
- Outdoor air
- Exhaust air

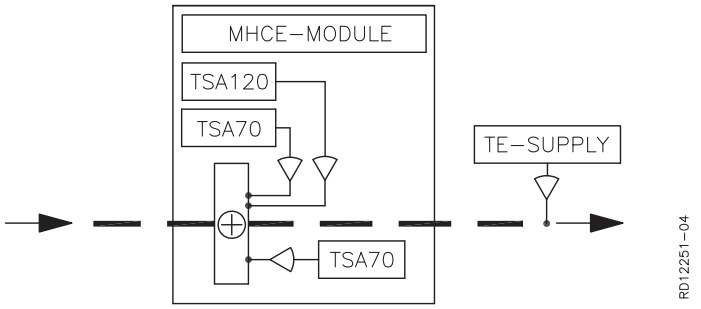
Left/Right

The VEX information plate shows R for Right, meaning that the supply air is to the right of the unit, as seen from the operating side. L for Left indicates that the supply air is to the left.

1.2 Application

The EXHAUSTO HE 315 is a heating coil and is used to increase the temperature of the supply air.

Designations used in these instructions



Component designation	Function
MHCE2 module	Control box, located in electric heating coil
TSA120	Overheating protection, electric heating coil (automatic reset)
TSA70	Overheating protection, electric heating control (manual reset via HMI)
TE-SUPPLY	Temperature sensor, supply air

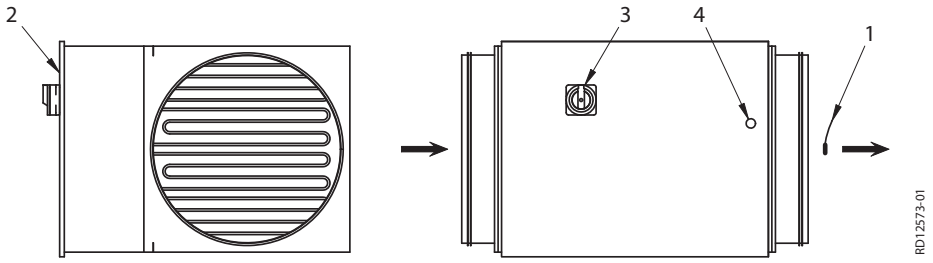
For more information about resetting thermal cut-outs, see section "Safety features".

1.3 Description

1.3.1 Construction of electric heating coil

General drawing

The drawing below shows the construction of the heating coil:

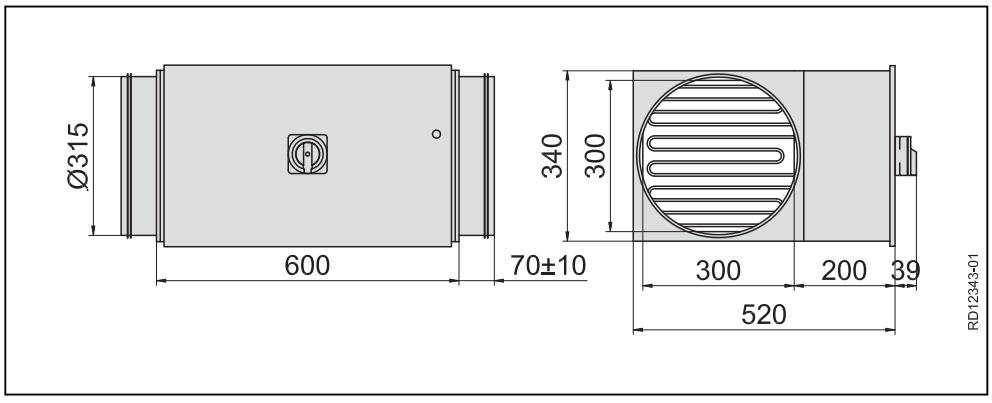


Pos. no.	Part	Function
1	Temperature sensor	Measures the temperature in the supply air duct
2	Connection box	Box for connecting the electric heating coil to the VEX unit control system and power supply
3	Isolation switch	Isolation switch used for servicing
4	Reset	Manual reset

1.4 Principal dimensions

HCE315 electric heating coil

The following drawing gives the principal dimensions:



2. Mechanical assembly

2.1 Unpacking

Delivery

The following components are supplied:

- Electric heating coil with integral connection box.

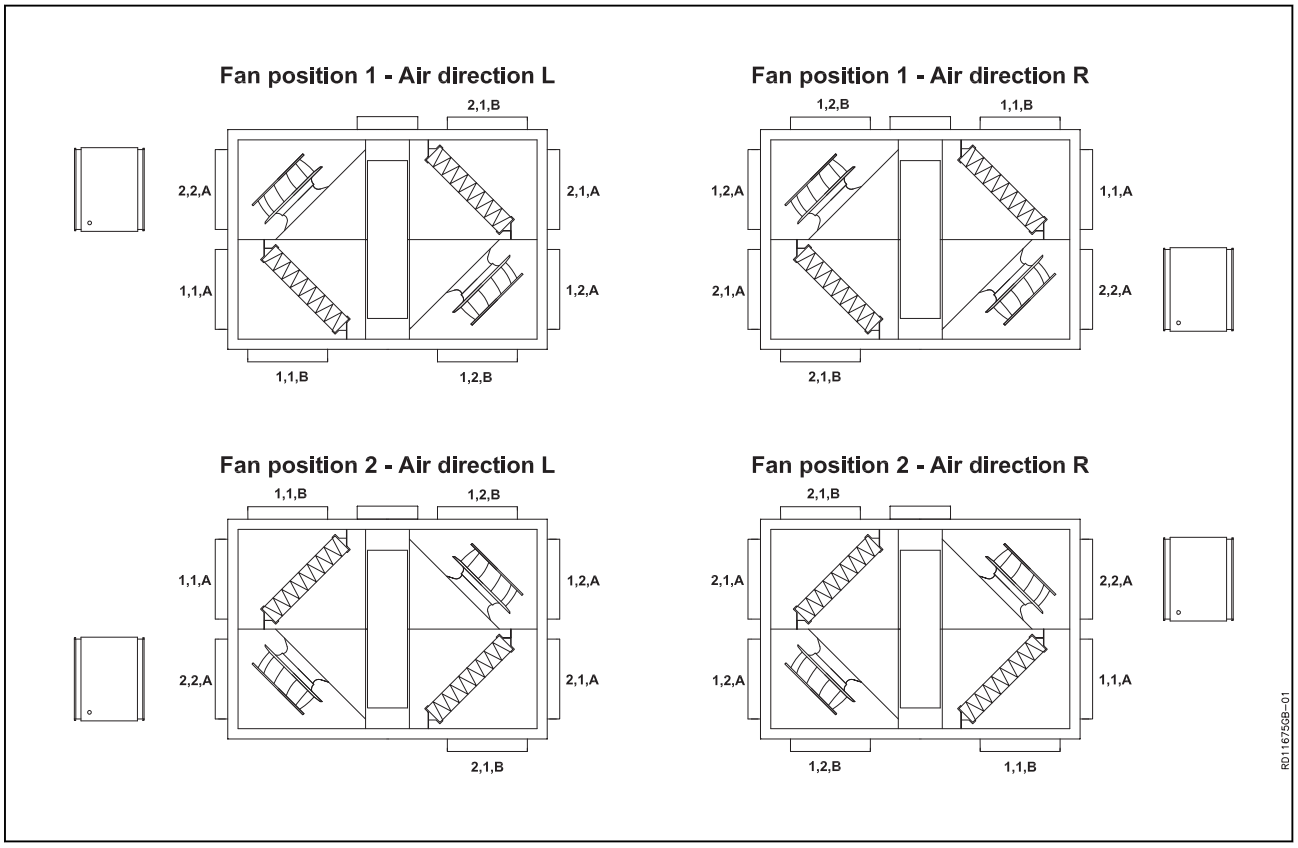
2.2 Position in relation to VEX

Warning

The electric heating coil must be insulated with non-inflammable insulation material. The insulation must not cover the automatic control box.

2.2.1 Left/right position (shown here on VEX240)

The electric heating coil is positioned on the supply air duct as shown below:



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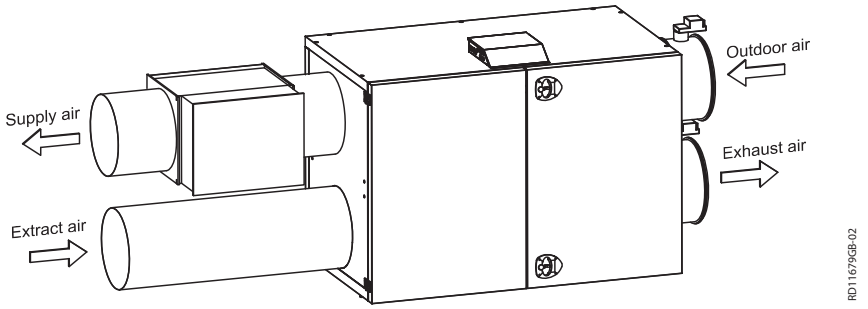
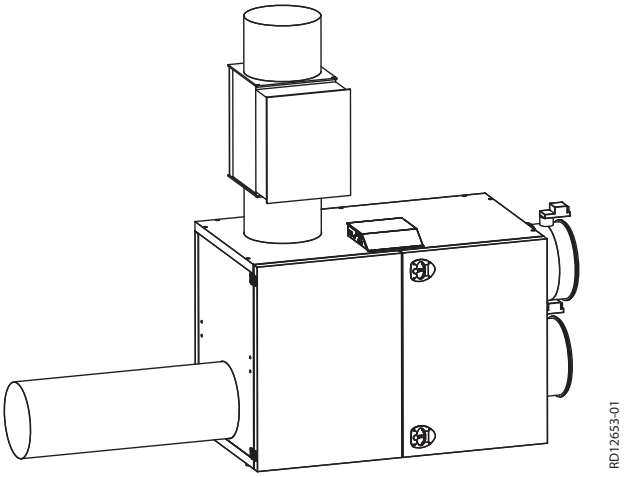
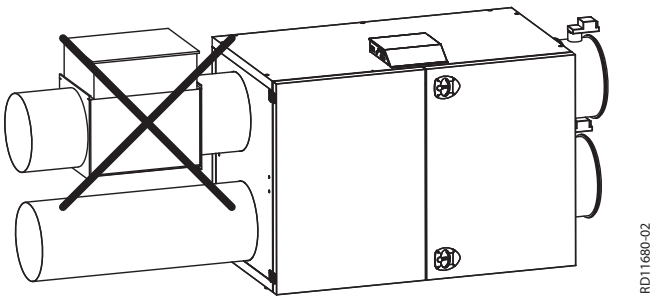
2.2.2 Correct installation on the duct system

Position the heating coil on the supply air duct or directly on the VEX unit's supply air spigot.







The electric heating coil must always be supported - even during fitting (the fixture for this is not part of the EXHAUSTO delivery).

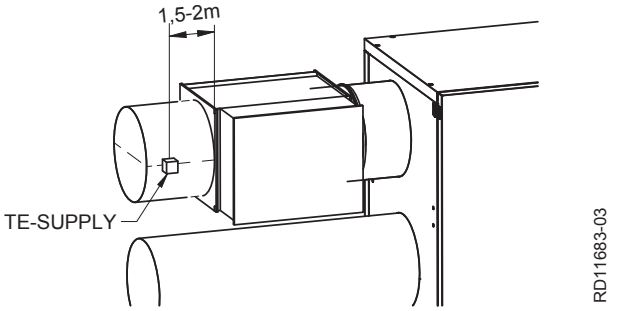
The heating coil must always be positioned so that:

- **- the air flows horizontally through it**
- **- or the air flows vertically upwards through it**

Take note of the air direction (see the air-direction arrow on the electric heating coil door).

2.2.3 Position of TE-SUPPLY

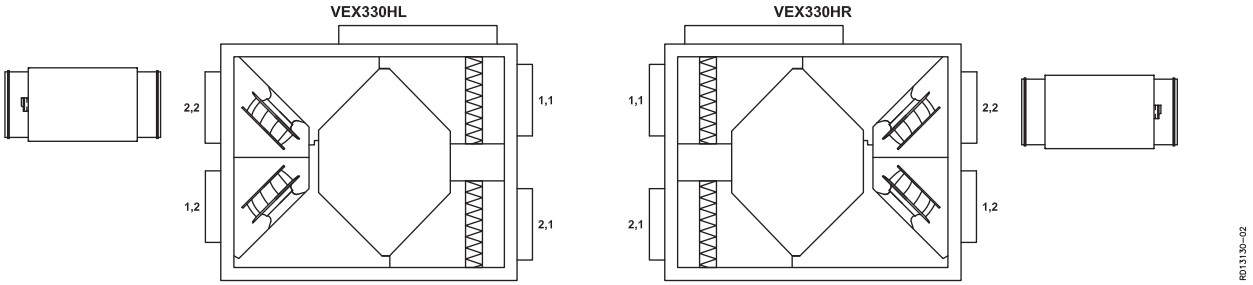
The temperature sensor is positioned here



2.2.4 Correct position of electric heating coil (shown here on VEX330H)

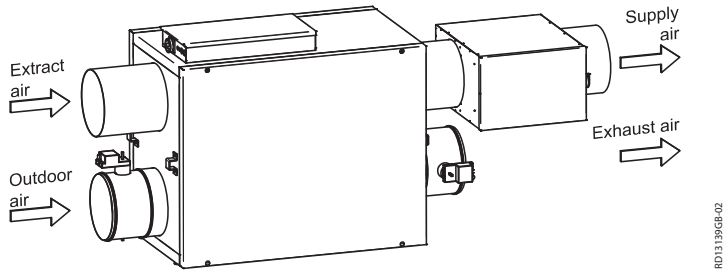
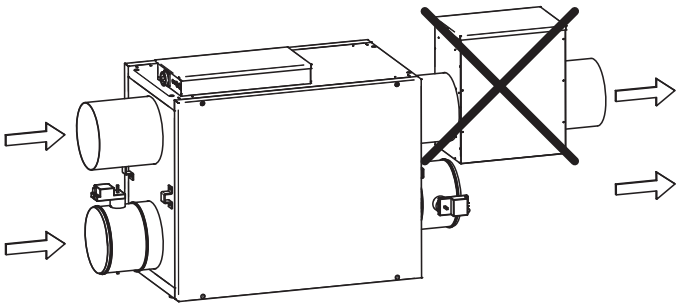
Left/Right position

Position the electric heating coil in the supply air duct or directly on the ventilation unit supply air spigot.



Correct position

Position the heating coil as shown below:

	Shown here on VEX330H
✓	
✗	

⚠ **The electric heating coil must always be supported - even during fitting (the fixture for this is not part of the EXHAUSTO delivery).**

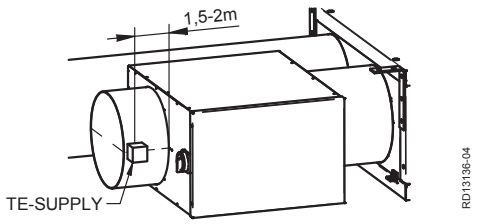
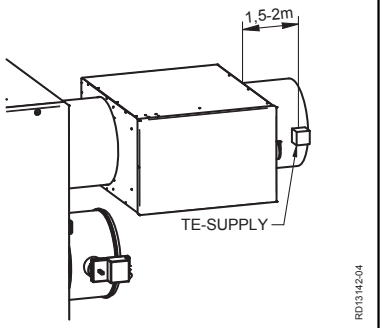
⚠ **The electric heating coil must always be positioned so that the air flows through it horizontally.**

⚠ **Take note of the air direction (see the air-direction arrow on the electric heating coil door).**

2.2.5 Position of temperature sensor TE-SUPPLY

The temperature sensor is positioned here

Example of position on a ceiling VEX and a horizontal VEX:

300C	330H
	

3. Electrical installation

3.1 Connection diagram

Diagram The diagram below illustrates the connection of the supply voltage and the heating coil connection box.

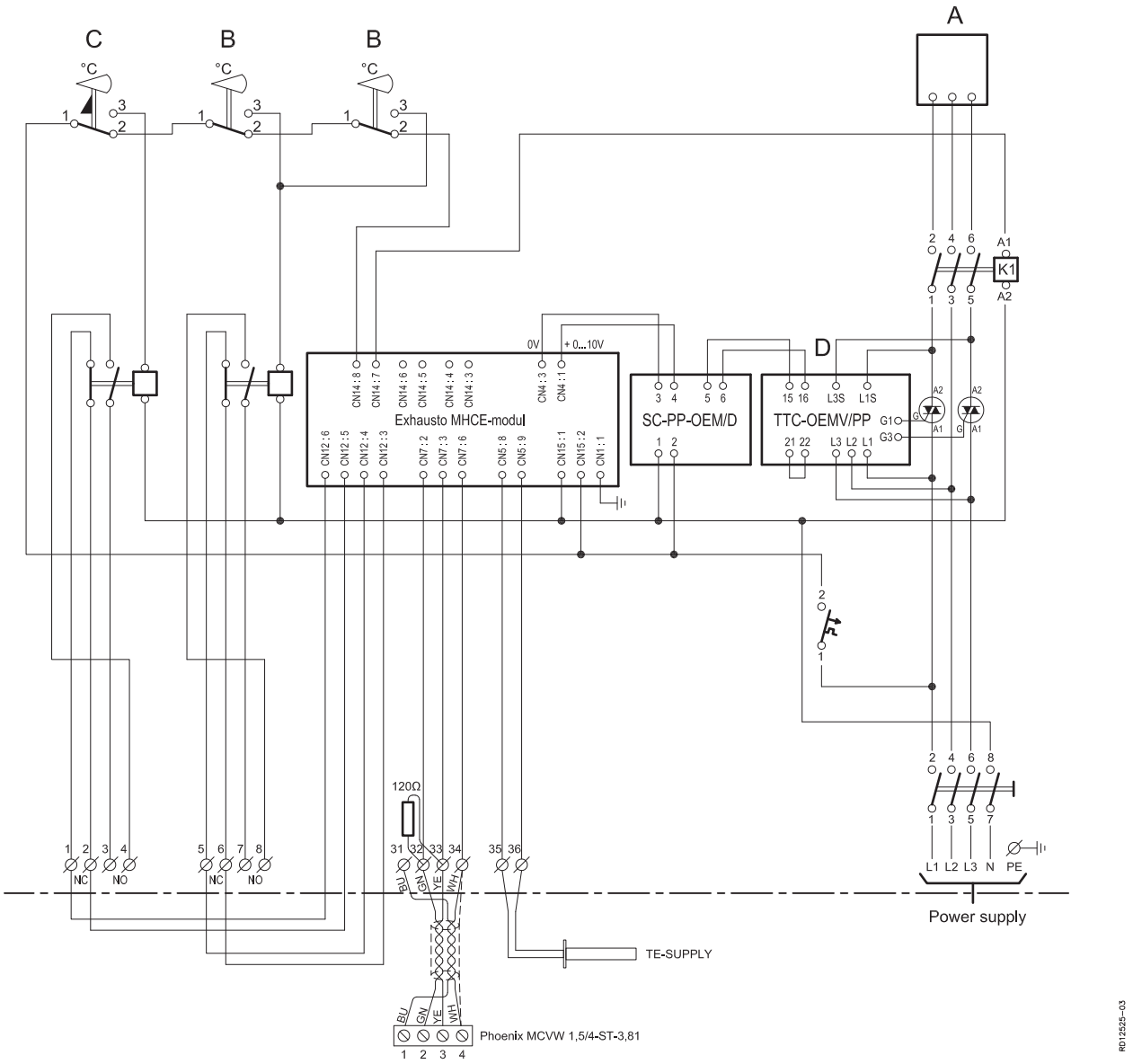


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Diagram data

The coil must be supplied with the voltage specified on the type plate.

Power rating [kW]	Supply	Max. phase current (A)	Max. short-circuit current (Icu)
4	3 x 400 V + N+ PE	5.8	10 kA in accordance with EN60947.2
6	3 x 400 V + N+ PE	8.7	10 kA in accordance with EN60947.2
8	3 x 400 V + N+ PE	11.5	10 kA in accordance with EN60947.2

Key to diagram

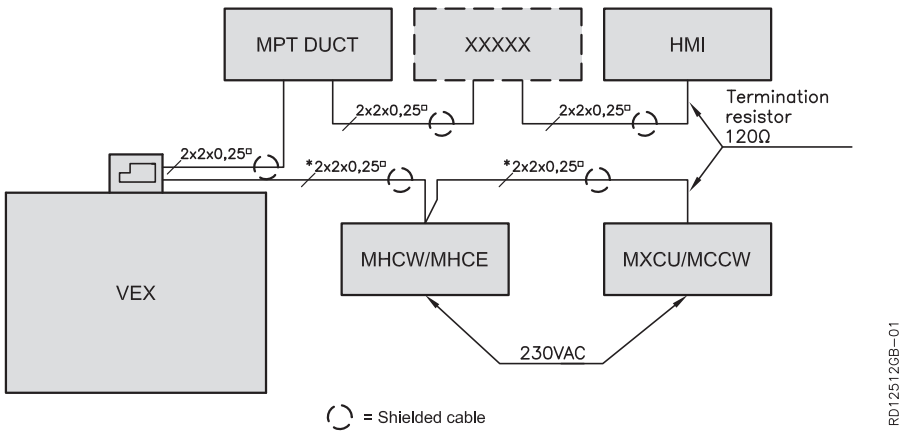
Designation	Component
A	Heating element
B	Overheating protection with automatic reset, TSA70 (qty. 2)
C	Overheating protection with manual reset, TSA120
D	Triac regulation of heating element

3.2 Connection of Modbus devices

3.2.1 Connection of Modbus devices

Diagram

Connection must be carried out according to the following diagram (see also instructions "Electrical Installation Guide for VEX with EXact control" for the VEX unit in question. This shows the method for connecting standard components on the connection box connection diagram.



** Not supplied by EXHAUSTO*

MHCW/MHCE	Heat control (water or electric)
MXCU/MCCW	Cooling control
MPTDUCT	Pressure measurement in duct
XXXXX	Can be different modules, e.g. MIO module or additional MPTDUCT
HMI	Control panel

3.2.2 Cable (type, max. length and termination)

Cable

EXHAUSTO recommends the use of 4-core, twisted pair, shielded cable. To limit voltage drop across the cable, 0.25□ conductors are recommended. For correct connection of shielded cable to Modbus units, refer to the "Electrical Installation Guide" for the relevant VEX.

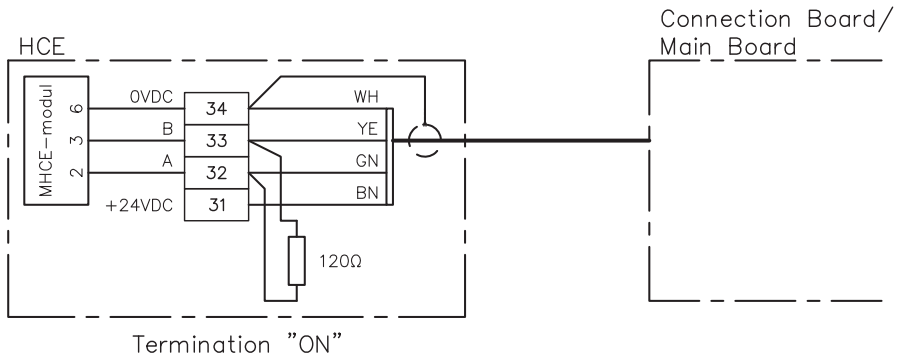
Max. cable length

The overall cable length of a complete installation may not exceed 200 m.

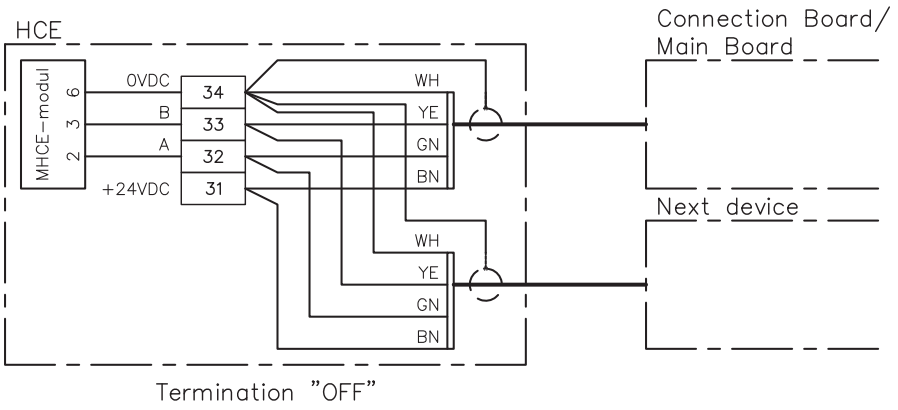
Modbus, termination or daisy chaining

It is necessary to terminate the first and last devices on the bus with a 120 Ω resistor - see below. VEX is supplied with two resistors, which are included in the drawings wallet on the door.

If	Then	See diagram no.
MHCE is the first or last device on the bus	it must be terminated with a 120 Ω resistor.	1
MHCE is **neither** the first nor last device on the bus	it must be daisy-chained to the next device	2



1.



2.

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4. Commissioning and operation

4.1 Warnings, commissioning

4.1.1 Warnings, overheating

Supply airflow must not fall below 486 m^3/h (135 l/s) when operating with the electric heating coil - this is to avoid overheating.

Warnings

During commissioning, it may be necessary to work with the control system boxes open. Use only electrically-insulated tools.

Do not touch the electric heating coil - risk of burns.

Please note!

Fans have a run-on time of 5 minutes (control signal to fans cuts out after 3 minutes) to ensure sufficient cooling of the electric heating coil after device shut-down.

- At airflows between 486 m^3/h and 162 m^3/h, operation proceeds with reduced heat output, and it may not be possible to maintain the desired supply air temperature.

4.2 Safety features

4.2.1 Safety features

Power ramp limiting

- Power ramping is limited to max. 25% per minute.
- Power is removed without ramping.
- Ramping can cause heating power levels to be read as higher than they actually are.

Heating coil thermal cut-out

The electric heating coil is protected against overheating by 3 thermal fuses:

- 2 x TSA70, located in the air current. This trips at 70°C and has an automatic reset.
- 1 x TSA120, located in the air current. This trips at 120°C (measured at the electric heating coil) and has manual reset on the HMI panel (both HMI and MHCE must be reset).

Reset

Reset	
Resetting on the electric heating coil	
Reset on the HMI panel: ● Use "Menu 4 Alarms" ● For further information, see "Resetting alarms" in "EXact2 Control System, Basic Instructions".	

Communication monitoring

If communication between the MHCE2 and the EXact2 control system fails, the power output is reset and an alarm is tripped.

Alarms

If AFC (Air Flow Control) is fitted in the VEX:
If heating is required, and airflow does not exceed 100 m³/h (28 l/s), an alarm is tripped.

For more information about alarms refer to the "EXact2 Control System Basic Instructions".

5. Maintenance

5.1 Maintenance

Maintenance See "Maintenance" section in the product instructions for the VEX unit.

6. Troubleshooting

6.1 Troubleshooting

Troubleshooting See the "Troubleshooting" section" for the relevant VEX unit.

7. Technical specifications

7.1 Electric heating coil

Electric heating coil

Electric heating coil HE315	Total power	4 kW	6 kW	8 kW
Data	Weight	23 kg		
	Power supply for connection box*	3 x 400V + N + PE, 50 Hz		
	Thermal fuse, TSA70	70 ℃		
	Thermal fuse, TSA120	120 °C		
	Temperature tolerance	±5 K		
	Temperature drop before reconnection possible	15 K		

*The surface must be supplied with the voltage specified on the type plate.

Temperature increase

The air's temperature increase is determined by a given airflow and the size of the electric heating coil. For calculation, use the calculation tool EXselectPro

EXSELECTPRO,

see www.exhausto.com

Pressure drop across electric heating coil

See capacity diagram in "Technical Data" section of the VEX product instructions.

7.2 Spare parts

7.2.1 Spare parts

Product number

When ordering spare parts, please state the item number. This will ensure that the correct spare parts are delivered. The production number is stated on the information plate on the VEX unit.

Contact your local EXHAUSTO office service department to order spare parts.
Visit www.exhausto.com or scan the QR code on the back cover of these instructions to obtain the telephone number.

Scan code and go to addresses at
www.exhausto.com

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