GB

Electrical installation guide

CX3010-20, CX3030-40 & CX3050-60 with EXcon control system

Original instructions

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1. Product information

1.1 Symbols, terms and warnings

1.1.1 Symbols

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.

1.1.2 Use and designations of the manual

These instructions apply to the **electrical system** of an EXHAUSTO **CX air handling unit**, hereinafter referred to as **the 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.

1.1.3 Terms

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

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

1.1.4 Warnings

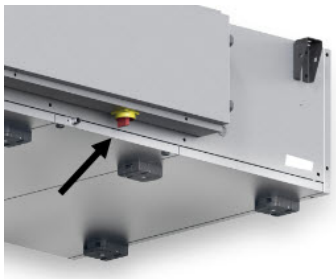
Electrical installation

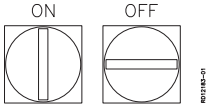
The work must be performed by an authorised electrician, in accordance with locally applicable regulations and legislation.

Opening the air handling unit

Do not open the service doors before the supply voltage has been disconnected at the isolation switch.

The isolation switch is located in the connection box on the side of the air handling unit.





Lock the VEX unit during operation

⚠

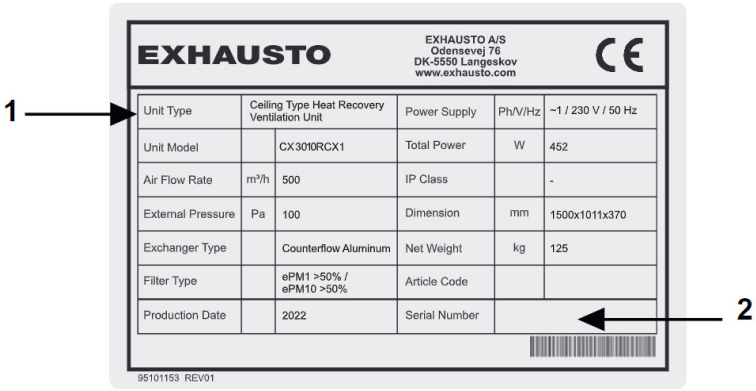
The unit must be locked during operation.

1.2 Model plate, location and serial/production number

Information plate

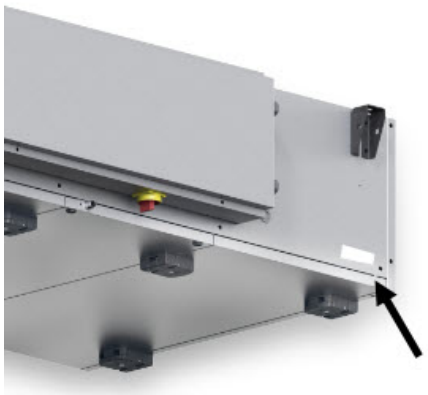
The CX3000 unit's data plate displays:

- Type and version (1)
- Serial number/production order number (2)



Location of identification plate

The type plate is located on the side of the air handling unit.



Serial/production order number

Always have the serial number ready when contacting EXHAUSTO A/S about the product.

Latest version of the guidelines

Important!

Always check whether the latest version of the manual is available.
Search EXHAUSTO's website under Downloads via the instruction number on the top left-hand side of the instructions.

2. Connections in the control system panel

2.1 The 3 sizes of wiring diagrams

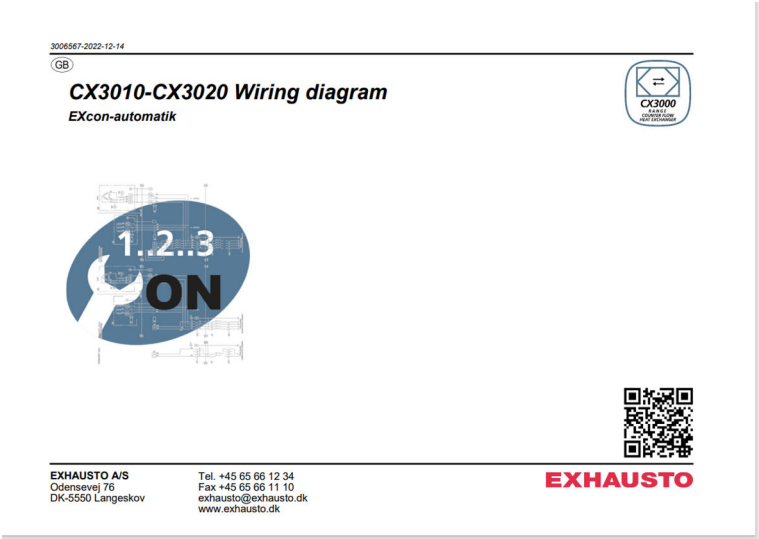
Explanation of wiring diagrams

The CX3000 series consists of six models 3010-3020-3030-3040-3050-3060, which in the framework of a wiring diagram are split into three sizes:

- CX3010-20, See attached wiring diagram 0400101.
- CX3030-40, See attached wiring diagram 0400102.
- CX3050-60, See attached wiring diagram 0400103.

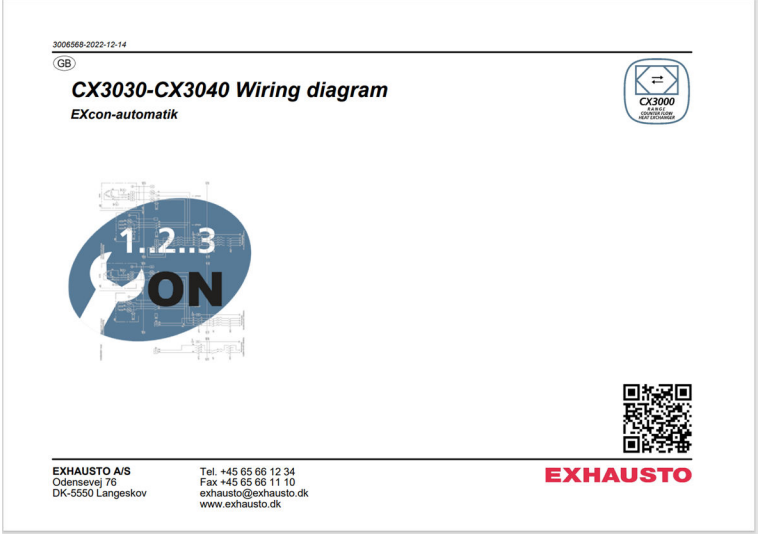
The three electrical diagrams show the connection of the supply voltage and various accessory configurations that can be connected to the control system panel.

2.1.1 CX3010-CX3020, Wiring diagram 0400101



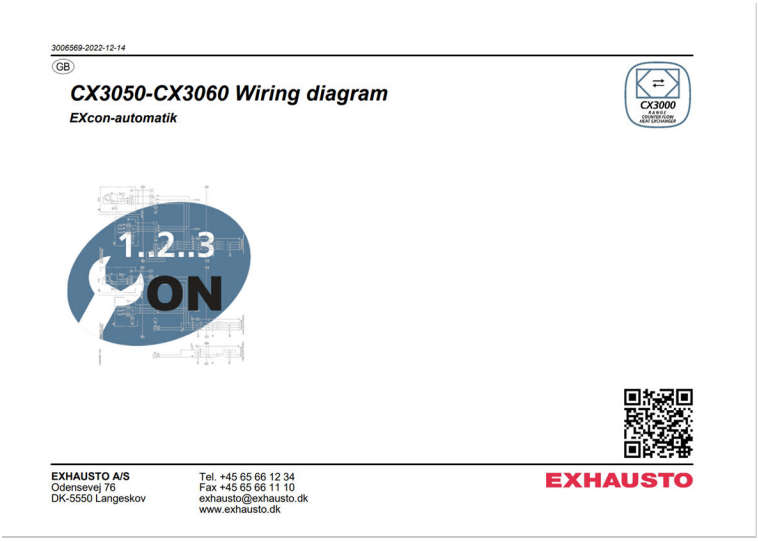
Type	Voltage	De-icing principle	Airflow	Wiring diagram
CX3010	1x230V+N+PE ~50/60Hz	Temperature de-icing	500 m³/h	0400101
CX3020	1x230V+N+PE ~50/60Hz	Temperature de-icing	900 m³/h	0400101

2.1.2 CX3030-CX3040, wiring diagram 0400102



Type	Voltage	De-icing principle	Airflow	Wiring diagram
CX3020	1x230V+N+PE ~50/60Hz	Temperature de-icing	1400 m³/h	0400102
CX3040	1x230V+N+PE ~50/60Hz	Temperature de-icing	2000 m³/h	0400102

2.1.3 CX3050-CX3060, wiring diagram 0400103



Type	Voltage	De-icing principle	Airflow	Wiring diagram
CX3050	3x400V+N+PE ~50/60Hz	Pressure de-icing	2500 m³/h	0400103
CX3060	3x400V+N+PE ~50/60Hz	Pressure de-icing	3300 m³/h	0400103

2.2 Terms used and explanation of wiring diagrams

2.2.1 Terms, explanation and standard & customer-selected accessories in wiring diagrams

Accessories are a direct customer choice, and the options may be generated from several factors.

Code	Explanation	Standard	Acces-sories	Options
+A1	Control system panel	X		
+A2	CX unit	X		
+A3	Coil box		X	
+A4	Customer accessory		X	
+A5	Customer's distribution board		X	
-BG1	PIR sensor			X
-BQ1	CO_2 sensor			X
-BQ2	Air quality sensor			X
-E1	Electric heating coil heating		X	
-E2	Electric heating coil pre-heater		X	
-E3	Combination surface		X	
-F1	Fuse for control system panel	X		
-F2	Fuse for EXcon Master	X		
- F3	Fuse for external connection	X		
-F4	Fuse for exhaust fan	X		
-F5	Supply air fan fuse	X		
-K1	EXcon Master	X		
-K27	Extension module (1)	X		
-K30	Extension module (2)		X	
-M1	Exhaust air fan	X		
-M2	Supply air fan	X		
-M3	Bypass motor	X		
-M4	Circulation pump water heating coil		X	
-M5	Circulation pump water cooling coil		X	
-M6	Circulation pump Combination coil		X	
-P1	PTH: Measures pressure across the heat ex-changer	X		
-P2	Dual PTH: Measures pressure, airflow and temperature	X		
-P3	Dual PTH: Measures pressure, airflow and temperature	X		
-P4	PTH 4000: Constant pressure regulation Sup-ply air			X
-P5	PTH 4000: Constant pressure regulation Ex-tract air			X
-PH1	Standard HMI		X	
-PH2	HMI with room temperature sensor			X
S1:	Isolation switch in control system panel	X		
-T1	Transformer230VAC/2x24VAC	X		

Code	Explanation	Standard	Acces-sories	Options
-TE1.1	Extract air temperature		X	
-TE1.2	Exhaust air temperature		X	
-TE2.1	Outdoor air temperature		X	
-TE2.1-PRE	Outdoor air temperature (pre-heater)		X	
-TE2.2	Supply air temperature*	X		
-TE-OT	Outside temperature			X
-TE-RPT	Water cooling coil supply temperature		X	
-TE-RPT-CC	Combination coil return temperature		X	
-TE-RT	Room temperature			X
-TE-SPT	Water heating coil return temperature		X	
-X1	Main supply terminal block	X		
-X2	Terminal block for fans	X		
-X3	Terminal block for 24V fuses	X		
-X4	Terminal block for circulation pumps 230V	X		
-X5	External connection terminal block	X		
-X_BP	Connector for bypass motor	X		
-X_FAN EX	Extract air fan connector	X		
-X_FAN SU	Connector for supply air fan	X		
-X_RJ12.1	Modbus T-split 1	X		
-X_RJ12.2	Modbus T-split 2	X		
-X_RJ12.3	Modbus T-split 3			X
-Y1	Valve, water heating coil		X	
-Y2	Water cooling coil valve		X	
-Y3	Valve Combination coil		X	

2.3 Terms and explanation of wiring colours in wiring diagrams

2.3.1 Abbreviations of wire colours

The corresponding wiring diagrams use the following abbreviations for wire colours.

Abbreviation	Wire colour
BK	Black
BN	Brown
RD	Red
AND	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Light pink
GD	Gold
TQ	Turquoise
SR	Silver
GNYE	Green/Yellow

2.3.2 Identification of wires by colour

400/230VAC Main current:	
Phase	Black
Neutral	Blue
Earth	Green/Yellow

230/24VAC control current:	
Phase	Red
Neutral	Blue
Earth	Green/Yellow

24VDC control current:	
Positive (+)	Red
Negative (-)	White

Signals	
Temperature	White
Potential-free	White
Analogue	White
Digital	White

Unknown potential	
All	Orange

3. Wiring diagrams – Surface configurations

3.1 Accessory configurations for the control system panel

3.1.1 Description of coils

Coil	Description
HW	Water heating coil
PRE-HE	Electric pre-heating coil
HE1	Electric heating coil size 1
HE2	Electric heating coil size 2
CW	Cooling coil
CO	Combi-coil
NO	No coils

3.1.2 Surface configurations

The associated wiring diagrams show the accessory configurations that can be connected to the control system panel

Page 21- Configuration 1: **NO** (NO heating/cooling coils)
Page 22 – Configuration 2: **HW** Water heating coil
Page 23 – Configuration 3: **HE1/HE2** (Electric heating coil size 1 or 2)
Page 24 – Configuration 4: **CW** (Water cooling coil)
Page 25 – Configuration 5: **PRE-HE** (Electrical preheating coil)
Page 26 – Configuration 6: **HW + CW** (Water heating coil + water cooling coil)
Page 27 – Configuration 7: **HE1/HE2 + CW** (Electric heating coil size 1 or 2 + water cooling coil)
Page 28 – Configuration 8: **PRE-HE + HW** (Electrical preheating coil + water heating coil)
Page 29 – Configuration 9: **PRE-HE + CW** (Electrical preheating coil + water cooling coil)
Page 30 – Configuration 10: **PRE-HE + HE1/HE2** (Electrical preheating coil + Electric heating coil size 1 or 2)
Page 31 – Configuration 11: **PRE-HE + HW + CW** (Electrical preheating coil + water heating coil + water cooling coil)
Page 33 – Configuration 12: **PRE-HE + HE1/HE2 + CW** (Electrical preheating coil + Electric heating coil size 1 or 2 + Water cooling coil)
Page 35 – Configuration 13: **CO** (Combi-coil)
Page 36 – Configuration 14: **PRE-HE + CO** (Electrical preheating coil + Combi coil)
Page 37 – Options accessories
Page 38 - Options accessories Modbus

3.1.3 Heating coil configurations

The associated electrical diagrams show the heating coil configurations that can be connected to the control system panel.

Page 43 – PRE-HE (Electrical preheating coil with 1 step)
Page 44 - **HE1/HE2** (Electric heating coil with 1 step)
Page 45 - **PRE-HE** (Electrical preheating coil with 2 steps)
Page 46 - **HE1/HE2** (Electric heating coil step 2 step)

4. Electrical components

4.1 Control system panel

For location of electrical components in the control system panel, see the panel overview on page 10 in the electrical diagram.

4.2 Component list

4.2.1 Component list CX3000

	CX3010 and CX3020	CX3030 and CX3040	CX3050 and CX3060
Code	**Component**		
-F1	Control fuse C10A 2P	Control fuse C10A 2P	Control fuse C10A 4P
-F2	Fuse 2.5 A	Fuse 2.5 A	Fuse 2.5 A
- F3	Fuse 2.5 A	Fuse 2.5 A	Fuse 2.5 A
-F4	Fuse (See table)*	Fuse (See table)*	Fuse (See table)*
-F5	Fuse (See table)*	Fuse (See table)*	Fuse (See table) *
-K1	EXcon Master	EXcon Master	EXcon Master
-K27	EXcon EXT	EXcon EXT	EXcon EXT
-P1	Dual PTH	PTH	PTH
-P2	N/A	Dual PTH	Dual PTH
-P3	N/A	Dual PTH	Dual PTH
S1:	Isolation switch	Isolation switch	Isolation switch
-T1	Power supply 24 VAC	Power supply 24 VAC	Power supply 24 VAC
-X1	Terminal block for supply	Terminal block for supply	Terminal block for supply
-X4	Terminal block for circulation pump	Terminal block for circulation pump	Terminal block for circulation pump
-X5	Terminal block for accessories	Terminal block for accessories	Terminal block for accessories

*Table of fan fuses

CX version	Composite fan -	Metal fan -
	fuse -F4/-F5	**fuse -F4/-F5**
CX3010	Fuse 2 A	Fuse 2 A
CX3020	Fuse 2 A	Fuse 2 A
CX3030	Fuse 2.5 A	Fuse 3.15 A
CX3040	Fuse 4 A	Fuse 4 A
CX3050	Control fuse C2A 3P	Control fuse C3A 3P
CX3060	Control fuse C2A 3P	Control fuse C3A 3P

4.2.2 Component list COIL-BOX; EXT(2)

	CX3010 & CX3020	CX3030 & CX3040	CX3050 & CX3060
Code	Component		
-K30	EXcon EXT	EXcon EXT	EXcon EXT
-X1	Terminal block	Terminal block	Terminal block

4.2.3 Component list for electric heating coil

	Preheating coil Step 1	**Heating coil Step 1**	**Preheating coil Step 1 & 2**	**Heating coil Step 1 & 2**
Code	Component			
-E1	Electric heating coil step 1	Electric heating coil step 1	Electric heating coil step 1	Electric heating coil step 1
-E2	N/A	N/A	Electric heating coil step 2	Electric heating coil step 2
-F1	Control fuse 3P	Control fuse 3P	Control fuse 3P	Control fuse 3P
-K1	Contactor heating coil step 1	Contactor heating coil step 1	Contactor heating coil step 1	Contactor heating coil step 1
-K2	N/A	N/A	Contactor heating coil step 2	Contactor heating coil step 2
S1:	Isolation switch	Isolation switch	Isolation switch	Isolation switch
-T1	Fire thermostat 110°C	Fire thermostat 110°C	Fire thermostat 110°C	Fire thermostat 110°C
-T2	Overheating thermostat 70°C	Overheating thermostat 70°C	Overheating thermostat 70°C	Overheating thermostat 70°C
-T3	Air flow switch	Air flow switch	Air flow switch	Air flow switch
-TC1	N/A	Triac control of heating coil	N/A	Triac control of heating coil
-X1	Terminal block for supply	Terminal block for supply	Terminal block for supply	Terminal block for supply
-X3	Terminal block for control signal	Terminal block for control signal	Terminal block for control signal	Terminal block for control signal
-X4	Terminal block for air flow OK	Terminal block for air flow OK	Terminal block for air flow OK	Terminal block for air flow OK

4.2.4 Terminals on EXcon Master

		CX3010 & CX3020	**CX3030, CX3040, CX3050 & CX3060**
Terminal	Name	**Connection of following components**	
1-2	24VAC	24 VAC power supply	24 VAC power supply
3	Din1	Alarm electric heating coil	Alarm electric heating coil
4	GND	BASE FRAME	BASE FRAME
5	Din2	Alarm preheater	Alarm preheater
6	Din3	Flow electric heaters OK	Fire thermostat 2
7	GND	BASE FRAME	BASE FRAME
8	Din4	Fire alarm	Fire alarm
9	Din5	External high speed	External high speed
10	GND	BASE FRAME	BASE FRAME
11	Din6	Not used	Fire thermostat 1
12	Ain1	CO2 sensor 0–10V	CO2 sensor 0–10V
13	Ain2	Not used	Not used

		CX3010 & CX3020	CX3030, CX3040, CX3050 & CX3060
14	GND	BASE FRAME	BASE FRAME
15	Aou +24 V	Not used	Not used
16	Tin1	Temperature input 1	Temperature input 1
17	GND	BASE FRAME	BASE FRAME
18	Tin2	Temperature input 2	Temperature input 2
19	GND	BASE FRAME	BASE FRAME
20	GND	BASE FRAME	BASE FRAME
21	Aou1	Bypass damper	Bypass damper
22	Aou2	Heating 0–10V	Heating 0–10V
23	Aou3	Cooling 0–10V	Cooling 0–10V
24-25	Dou1	OPERATION SIGNAL	OPERATION SIGNAL
26-27	Dou2	A-alarm output	A-alarm output
28-29	Dou3	Heating-3	Heating-3
30-31	Dou4	Heating-4	Heating-4
32-33	Dou5	Damper	Damper
34-35	Dou6	Combi-coil Heating	Combi-coil Heating
36-37	Dou7	Combi-coil Cooling	Combi-coil Cooling
-	TCP/IP	Network connector RJ45	
-	Hand terminal		
-	MODBUS	External modbus communication connector RJ12	
-	RS485		
-	RS485 A		
-	RS485 B	Internal Modbus connection	
-	RS485 C	Modbus accessories: VOC sensor, HTH sensors and PTH transmitters	

4.2.5 Terminals on EXcon Extension module EXT (1)

		CX3010 & CX3020	CX3030, CX3040, CX3050 & CX3060
Terminal	Name	**Connection of following components**	
1	GND	Exhaust fan GND	Exhaust fan GND
2	Aou2	Extract fan 0–10V	Extract fan 0–10V
3	GND	Supply air fan GND	Supply air fan GND
4	Aou1	Supply air fan 0–10V	Supply air fan 0–10V
5	+24 V out	Not used	Not used
6	GND	Not used	Not used
7	Ain2	Exhaust fan Tacho	Not used
8	+24 V out	Not used	Not used
9	GND	Not used	Not used
10	Ain1	Supply air fan Tacho	Not used
11	GND	GND	GND
12	Tin1	Supply temperature	Supply temperature
13-14	Dou1	Cool/warm-1	Cool/warm-1
15-16	Dou2	Cool/warm-2	Cool/warm-2
17	Din1	Fire thermostat HCE	Supply air fan
18	GND	Not used	GND
19	Din2	Not used	Extraction fan
20	GND	Not used	GND
21	Tin2	Extract air temperature	Not used
22	GND	GND	Not used
-	RJ12	Internal Modbus connection	
-	RJ12	Modbus accessories: PTH	

4.2.6 Terminals on EXcon Extension module EXT(2)

		CX3010 & CX3020	CX3030, CX3040, CX3050 & CX3060
Terminal	Name	**Connection of following components**	
1	GND	Not used	Not used
2	Aou2	External Cooling 0–10V	External Cooling 0–10V
3	GND	Not used	Not used
4	Aou1	External Heating 0–10V	External Heating 0–10V
5	+24 V out	Not used	Not used
6	GND	Not used	Not used
7	Ain2	Not used	Not used
8	+24 V out	Not used	Not used
9	GND	Not used	Not used
10	Ain1	Not used	Not used
11	GND	Not used	Not used
12	Tin1	Temperature RPT Water heating coil	Temperature RPT Water heating coil
13-14	Dou1	Circulation pump Water heating coil	Circulation pump Water heating coil
15-16	Dou2	Circulation pump Water cooling coil	Circulation pump Water cooling coil
17	Din1	Not used	Not used
18	GND	GND	GND
19	Din2	Not used	Not used
20	GND	Not used	Not used
21	Tin2	Temperature SPT Water cooling coil	Temperature SPT Water cooling coil
22	GND	Not used	Not used
-	RJ12	Internal Modbus connection	
-	RJ12	Modbus accessories: PTH	

4.3 Terminal block overview

4.3.1 Terminal block for circulation pump, -X4

Terminal no.	CX3010 and CX3020	CX3030 and CX3040	CX3050 and CX3060
PE	Protective Earth	Protective Earth	Protective Earth
PE	Protective Earth	Protective Earth	Protective Earth
N	Neutral	Neutral	Neutral
N	Neutral	Neutral	Neutral
L	230V AC	230V AC	230V AC

4.3.2 Terminal block for circulation pump, -X5

Terminal no.	CX3010 and CX3020	CX3030 and CX3040	CX3050 and CX3060
1	Cool/Heat-1	Cool/Heat-1	Cool/Heat-1
2	Cool/Heat-1	Cool/Heat-1	Cool/Heat-1
3	Cool/Heat-2	Cool/Heat-2	Cool/Heat-2
4	Cool/Heat-2	Cool/Heat-2	Cool/Heat-2
5	24V AC	24V AC	24V AC
6	24V AC	24V AC	24V AC
7	0V AC	0V AC	0V AC
8	0V AC	0V AC	0V AC
9	Heating 0-10V	Heating 0-10V	Heating 0-10V
10	GND	GND	GND
11	Cooling 0-10V	Cooling 0-10V	Cooling 0-10V
12	GND	GND	GND
13	Operation signal	Operation signal	Operation signal
14	Operation signal	Operation signal	Operation signal
15	A-alarm	A-alarm	A-alarm
16	A-alarm	A-alarm	A-alarm
17	Heat-3	Heat-3	Heat-3
18	GND	GND	GND
19	Heat-4	Heat-4	Heat-4
20	GND	GND	GND
21	Dampers	Dampers	Dampers
22	GND	GND	GND
23	Combi coil heat	Combi coil heat	Combi coil heat
24	Combi coil heat	Combi coil heat	Combi coil heat
25	Combi coil cool	Combi coil cool	Combi coil cool
26	Combi coil cool	Combi coil cool	Combi coil cool
27	Alarm HCE	Alarm HCE	Alarm HCE
28	GND	GND	GND
29	Alarm preheater	Alarm preheater	Alarm preheater
30	GND	GND	GND
31	Flow electrical heaters OK	Spare	Spare
32	GND	GND	GND
33	Fire alarm	Fire alarm	Fire alarm
34	GND	GND	GND
35	External High Speed	External High Speed	External High Speed
36	GND	GND	GND
37	Fire thermostat 1	Fire thermostat 1	Fire thermostat 1
38	Fire thermostat 2	Fire thermostat 2	Fire thermostat 2
39	CO2 sensor 0-10V	CO2 sensor 0-10V	CO2 sensor 0-10V
40	GND	GND	GND
41	PT1000-1	PT1000-1	PT1000-1

Terminal no.	CX3010 and CX3020	CX3030 and CX3040	CX3050 and CX3060
42	GND	GND	GND
43	PT1000-2	PT1000-2	PT1000-2
44	GND	GND	GND
45	Supply air temperature	Supply air temperature	Supply air temperature
46	GND	GND	GND

4.3.3 Terminal block for COIL-BOX, -X1_EXT(2)

Terminal no.	COIL-BOX
PE	Protective Earth - Supply from E-box
N	Neutral - Supply from E-box
L	230V AC - Supply from E-box
PE	Protective Earth
PE	Protective Earth
1	Circulation pump HCW
2	Neutral
3	Circulation pump CCW
4	Neutral
5	External Heating 0-10V
6	GND
7	External Cooling 0-10V
8	GND
9	Temperature RPT HCW
10	GND
11	Temperature SPT CCW
12	GND
13	24V AC
14	GND
15	24V AC - Supply from E-box
16	0V AC - Supply from E-box

5. Installation of CX unit

5.1 Scope of installation

5.1.1 Connections in the control system panel

See following table for possible connection of accessories to the terminal block/EXcon Master in the control system panel.

Possible connections	See page in wiring diagram	Terminal block
Supply voltage	12	
Circulation pump water heating coil	22,26,28,32	-X4/-X5
Circulation pump water cooling coil	24,26,27,29,32,34	-X4/-X5
Circulation pump Combination coil	35.36	-X4/-X5
Valve, water heating coil	22,26,28,32	-X5
Water cooling coil valve	24,26,27,29,32,34	-X5
Valve Combination coil	35.36	-X5
Supply air temperature sensor	21-36	-X5
Water heating coil return temperature sensor		-X5
Water cooling coil, supply temperature sensor	22,26,28,29	-X5
Combination surface, return temperature sensor	35.36	-X5
Electric heating coil heating	23,27,30,33	-X5
Electric heating coil pre-heater	25,28,29,30,31,33,36	-X5
Combination surface	35.36	-X5

5.2 Dimensioning and installation

5.2.1 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.
- The supply voltage is connected to the supply terminals (-X1) in accordance with the diagram on page 12.

5.3 Installation requirements and recommendations

5.3.1 Isolation switch and control fuse

The installer must, in accordance with local applicable laws and regulations, install:

- One isolation switch (-Q1).
- One fuse (-F0).

5.3.2 Fuse

The fuse must be suitable for:

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

5.3.3 Power cable

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

5.3.4 Electrical connection/data

Supply voltage (nominal)

CX size	CX air handling unit	PRE-HE	HE1	HE2
3010	1x230V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	N.A.	3x400V+N+PE ~ 50/60Hz
3020	1x230V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	N.A.	3x400V+N+PE ~ 50/60Hz
3030	1x230V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz
3040	1x230V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz
3050	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz
3060	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz	3x400V+N+PE ~ 50/60Hz

Max. phase current (nominal)

CX size	CX unit Composite wheel [A]	CX unit Steel wheel [A]	PRE-HE [A]	HE1 [A]	HE2 [A]
3010	3.4	3.0	4.3	N.A.	4.3
3020	4.2	2.8	7.2	N.A.	7.2
3030	5.0	6.2	11.5	5.8	11.5
3040	7.0	7.2	15.9	7.9	15.9
3050	4.0	4.8	20.2	10.1	20.2
3060	4.0	4.8	26.0	13.0	26.0

5.3.5 Max. fuse

CX size	CX unit	PRE-HE	HE1	HE2
3010	C-20	C-20	C-20	C-20
3020	C-20	C-20	C-20	C-20
3030	C-20	C-20	C-20	C-20
3040	C-20	C-32	C-20	C-32
3050	C-20	C-32	C-20	C-32
3060	C-20	C-63	C-20	C-63

5.3.6 Outputs for CX unit and electric heating coil PRE-HE, HE1 and HE2

CX size	CX unit Composite wheel [kW]	CX unit Steel wheel [kW]	PRE-HE [kW]	HE1 [kW]	HE2 [kW]
3010	0.5	0.4	3.0	N.A.	3.0
3020	0.6	0.7	5.0	N.A.	5.0
3030	1.1	1.0	8.0	4.0	8.0
3040	1.6	1.6	11.0	5.5	11.0
3050	2.3	2.9	14.0	7.0	14.0
3060	2.3	2.9	18.0	9.0	18.0

For additional information about the electric heating coil's technical data, see the CX3000 instructions **Assembly and installation**.

5.3.7 Short-circuit current

Maximum short-circuit current $I_{K,max}$ according to EN60947.2 is 6 kA

Minimum short-circuit current $I_{K,min}$ with control fuse, see table.

CX size	CX unit	PRE-HE	HE1	HE2
3010	0.3kA	0.3kA	N.A.	0.3kA
3020	0.3kA	0.3kA	N.A.	0.3kA
3030	0.3kA	0.3kA	0.3kA	0.3kA
3040	0.3kA	0.3kA	0.3kA	0.3kA
3050	0.3kA	0.5kA	0.3kA	0.5kA
3060	0.3kA	0.5kA	0.3kA	0.5kA

5.3.8 RCCB

The unit must be installed in such a way that persons are protected against indirect contact with live parts.
If circuit breakers are fitted in the installation, they must be of a type that meets the following requirements:

- PFI circuit breaker type A according to EN 61008, which interrupts when fault currents with DC content (pulsating direct current) are detected
- The fault current switches must be marked with the following symbol:
- Disconnection time may be max. 0.3 s.
- Leakage current may be max. 300 mA.

Current leakage	Leakage current of 10mA may occur in the unit
Recommendations	EXHAUSTO recommends using an RCCB with a cut-out time of 0.3 seconds and 300mA.

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