Service manual

Small Inverter Chiller R32

EWYT016~040CZP(-)(A)(B)A1
EWYT016~040CZH(-)(A)(B)A1
EWYT016~040CZN(-)(A)(B)A1

EWYT040~090CZP(-)(A)(B)A2
EWYT040~090CZH(-)(A)(B)A2
EWYT040~090CZN(-)(A)(B)A2

EWAT016~040CZP(-)(A)(B)A1
EWAT016~040CZH(-)(A)(B)A1
EWAT016~040CZN(-)(A)(B)A1

EWAT040~090CZP(-)(A)(B)A2
EWAT040~090CZH(-)(A)(B)A2
EWAT040~090CZN(-)(A)(B)A2

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Version log

Version code	Description	Date
ESIE20-14	Document release	December 2021
ESIE20-14A	See below	January 2022

The following updates have been applied to the Service Manual:

- Troubleshooting – Error based troubleshooting: Error code ErrC – Communication error updated.

Table of Contents

1 General operation

The new Daikin BLUEVOLUTION chiller & heat pump series (EWAT/EWYT-CZ) is the result of careful design aimed to optimize the energy efficiency and thus the total life cycle cost of the unit, with reduced operating cost thanks to outstanding performances and reliability.

The units feature high efficiency scroll compressor arranged in single configuration on each module, optimized condensing section with advanced technology condensing fans and plates evaporator with low refrigerant content and reduced pressure drops.

The units offer a capacity from 16 to 90 kW and can have up to 4 fans divided into two modules. The whole range of the unit will provide a single water inlet/outlet and there are multiple choices for the pump.

Unit	Sizes	Modules	Fans
EW*T-CZ**A1	16~25	1	1
	32~40	1	2
EW*T-CZ**A2	40~90	2	3 or 4

- 1 module – 1 fan:

- 1 module – 2 fans:

- 2 module – 4 fans:

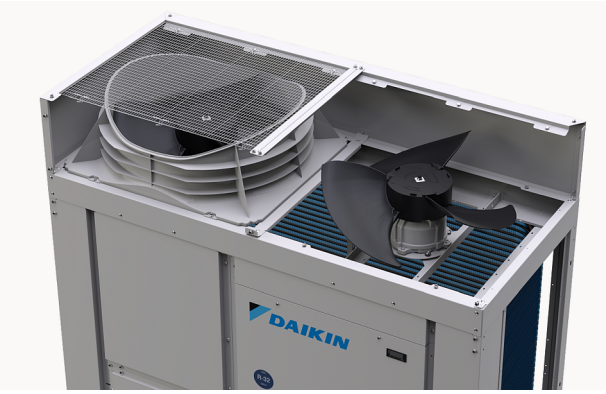
The new Daikin BLUEVOLUTION series uses R32 refrigerant to drastically reduce the carbon footprint of the unit. The selection of R32 (chemical name difluoromethane) minimizes the global warming impact of scroll compressor units thanks to the lower Global Warming Potential in combination with high-energy efficiency.

The Global Warming Potential of R32 is 675, which is ONLY one third of the commonly used refrigerant R410A (Global Warming Potential=2087.5).

The units have one or two truly independent refrigerant circuits with one or two compressors to assure maximum safety for any maintenance, whether planned or not.

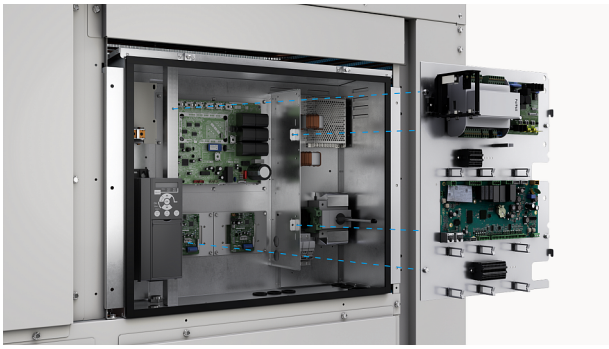
Units are equipped with fan speed modulation.

Main components	Specifications
Refrigerant	R32
Water	Brine version is standard for all models
Load	16~90 kW
Compressor	ONLY inverter compressor (1 per circuit)
Fan	Inverter
Brazed plate heat exchanger	1 per unit. Plate heat exchanger can have 2 refrigerant circuits but NOT mixed inside. Inlets/outlets: - Single circuit: 1 refrigerant and 1 water. - Double circuit: 2 refrigerant and 1 water.



The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide history of unit operation. Easy interface with, Bacnet, Ethernet TCP/IP or Modbus communications. Master/Slave operation is provided as standard allowing to connect up to 4 units working as single system.

Controls	Specifications
Switch box	1 per module
Controller	Integrated HMI
BMS	Bacnet and Modbus from main PCB (some require license, check databook for compatibilities)
IoT	Daikin on site
Master/Slave	Up to 3 slaves sequenced with standard main PCB
Main PCB	Siemens POL 468



1.1 To switch between user interface and service monitoring tool

Standard user interface is installed on the unit. To install the service monitoring tool, see procedure described below.

The passwords to be used for user interface (HMI) and service monitoring tool are:

- User: 2526
- Technician: 2201

To install the service monitoring tool

1. Stop the unit operation via the user interface.
2. Change the settings on the user interface as follows:
   - Enter Tchnician password.
   - Navigate to menu HMI [14.05].
     Set to OFF.

[14.05]	HMI Type	OFF = Siemens
		ON = EvCO

   - After changing, navigate to menu Apply changes [23.01].
     Set to ON and wait until it returns to OFF.
3. Wait until automatic reboot is finished (ErrC is shown on the user interface display).
4. Turn OFF the main switch Q10.
5. Remove the main switch box cover, see "3.16 Plate work" [▸ 173].
6. Connect the LAN cable that was disconnected from the user interface to the service monitoring tool.
7. Turn ON the power of the unit with main switch Q10.

To re-install the user interface

1. Change the settings on the service monitoring tool as follows:
   - Enter technician password.
   - In the Main Menu, select Commission Unit > Configuration > HMI Selection.
     Set to EvCO.
   - In the Main Menu, select Application Save.
     Set to ON.
2. Turn OFF the main switch Q10.
3. Disconnect the LAN cable from the service monitoring tool and remove the service monitoring tool from the unit.
4. Install the main switch box cover (including the user interface), see "3.16 Plate work" [▸ 173].
5. Turn ON the power of the unit with main switch Q10.

1.2 To update the software of the main PCB using the service monitoring tool

To save the parameters

First all parameters of the OLD software need to be saved to be able to copy them to the new software when installed.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

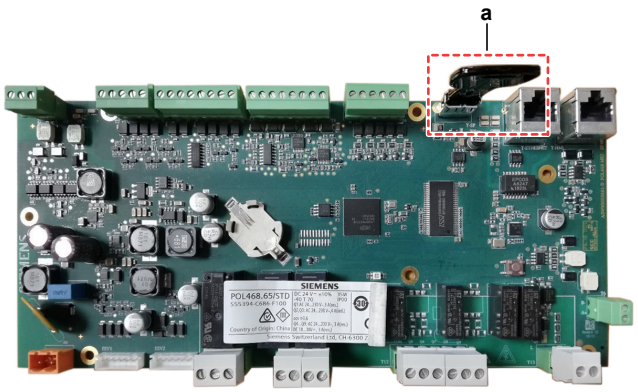
Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Insert a USB-drive in the USB-port.

INFORMATION

USB specifications:

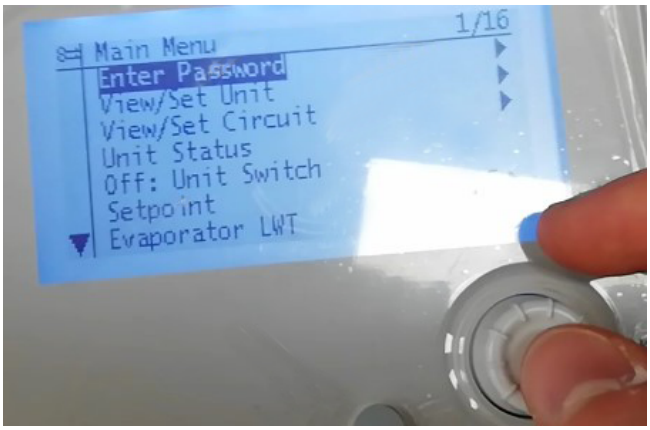
- Type: USB 2.0
- Maximum: 32 GB
- System: FAT or FAT32
- Current: 100 mA



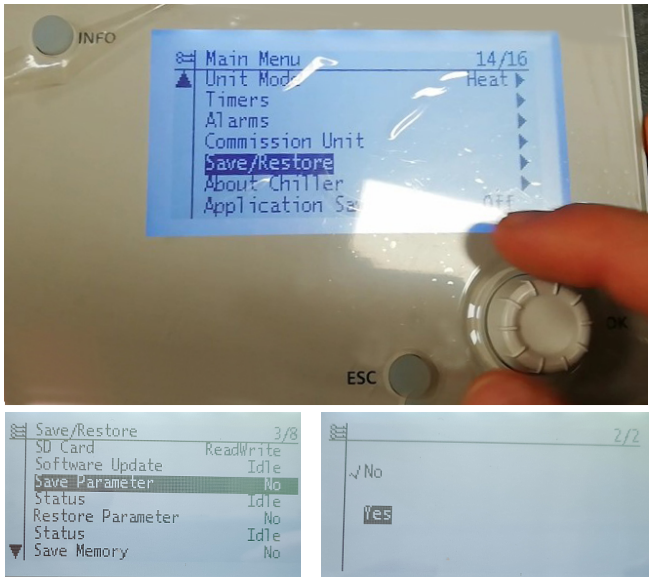
a USB-drive

2 Connect the service monitoring tool to the unit.

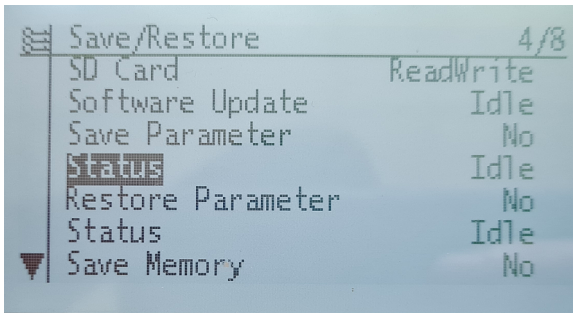
3 Enter technician password.



4 Go to the Main Menu > Save/Restore > Save Parameter > Yes.



5 Wait for the Status to be Fail > Pass > Idle (process finished correctly).

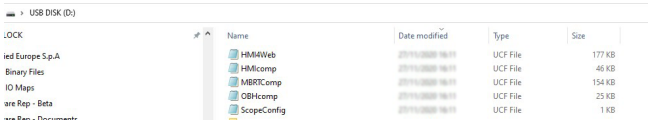


Result: The file PARAM.ucf is saved on the USB drive.

To update the software

Prerequisite: Make sure that the parameters of the OLD software have been saved (see previous procedure).

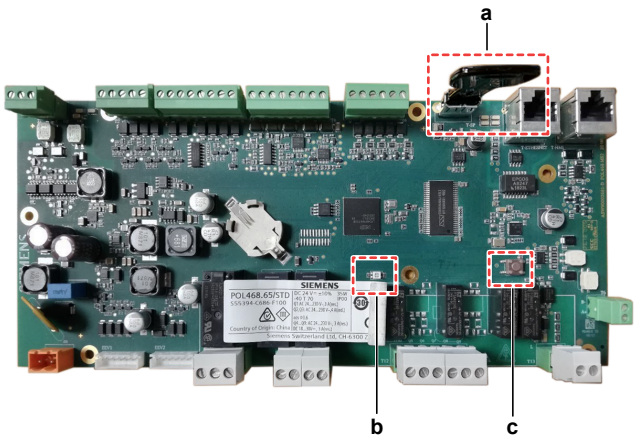
1 Load the files shown in the picture onto an empty USB-drive.



INFORMATION

Latest software version is available on Daikin Business Portal.

2 Insert the USB-drive in the USB-port.



a USB-drive
b LED
c Button

3 Press the button, and keep pressed.

4 With the button still pressed, turn ON the main switch Q10 and power the unit.

Result: The LED blinks green.

5 Keep the button pressed.

Result: The LED blinks green / red.

6 Immediately release the button.

Result: The LED lights up continuously orange.

7 Immediately turn OFF and ON the main switch Q10.

8 On the user interface, check the menu > About chiller.

Result: Software version MUST be the latest version.

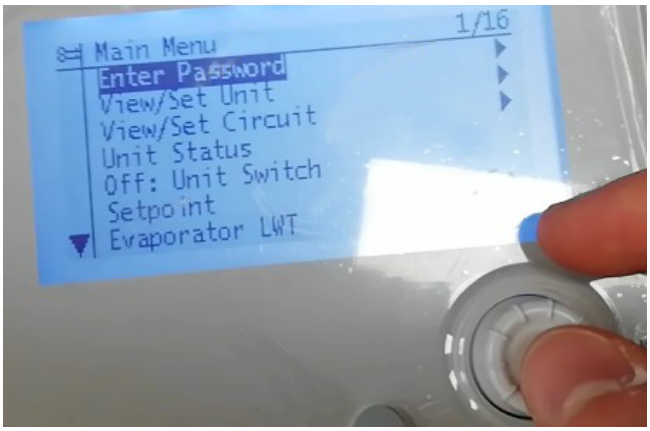
To upload the parameters

Prerequisite: Turn OFF the main switch Q10 (LED is off).

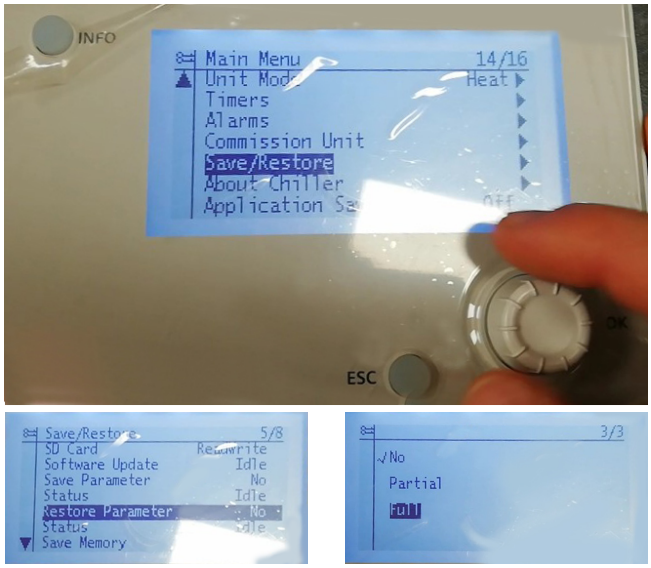
1 Insert the USB-drive containing the PARAM.ucf in the USB-port.

2 Connect the service monitoring tool to the unit.

3 Enter technician password.



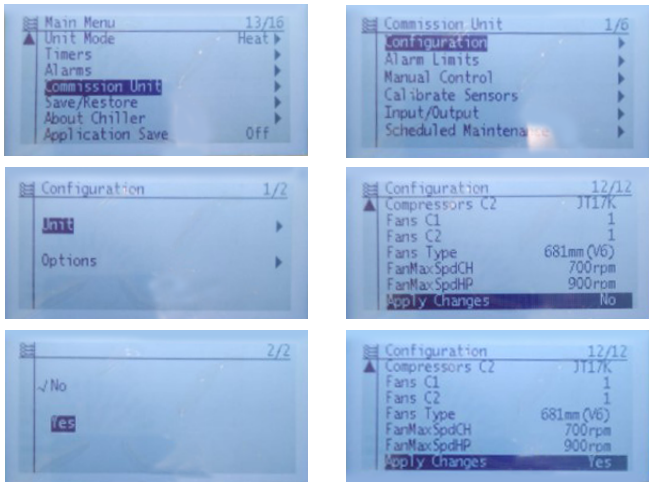
4 Go to the Main Menu > Save/Restore > Restore Parameter > Full.



5 Go to Application Save (bottom of the menu) > Yes.

6 Go to Commission Unit > Configuration > Unit > Apply Changes > Yes.

Result: The parameters are updated.



1.3 To update the software of the main PCB using the user interface

To save the parameters

First all parameters of the OLD software need to be saved to be able to copy them to the new software when installed.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

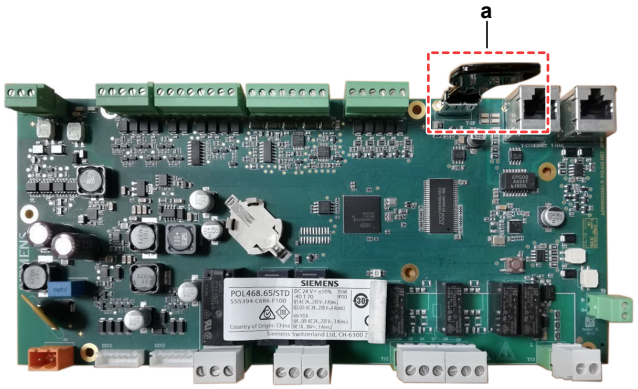
Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Insert a USB-drive in the USB-port.

INFORMATION

USB specifications:

- Type: USB 2.0
- Maximum: 32 GB
- System: FAT or FAT32
- Current: 100 mA



a USB-drive

2 Connect the user interface (HMI) to the unit.

3 Enter technician password.

4 Go to the page [14.06] Parameter Save > On.

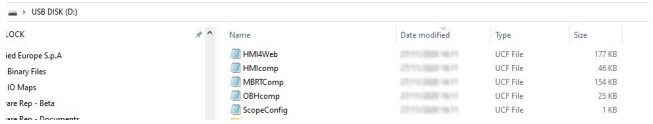
5 Wait for 20 seconds.

Result: The file PARAM.ucf is saved on the USB drive.

To update the software

Prerequisite: Make sure that the parameters of the OLD software have been saved (see previous procedure).

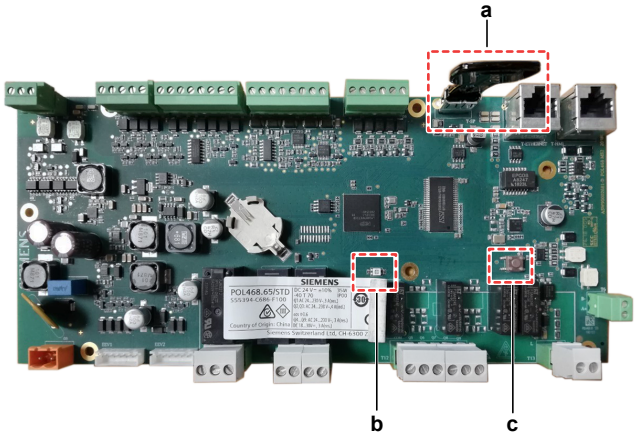
1 Load the files shown in the picture onto an empty USB-drive.



INFORMATION

Latest software version is available on Daikin Business Portal.

2 Insert the USB-drive in the USB-port of the spare main PCB.



a USB-drive
b LED
c Button

3 Press the button, and keep pressed.

4 With the button still pressed, turn ON the main switch Q10 and power the unit.

Result: The LED blinks green.

5 Keep the button pressed.

Result: The LED blinks green / red.

6 Immediately release the button.

Result: The LED lights up continuously orange.

7 Immediately turn OFF and ON the main switch Q10.

8 On the user interface, check the menu > About chiller.

Result: Software version MUST be the latest version.

To upload the parameters

Prerequisite: Turn OFF the main switch Q10 (LED is off).

1 Insert the USB-drive containing the PARAM.ucf in the USB-port.

2 Connect the user interface (HMI) to the unit.

3 Enter technician password.

4 Go to the page [14.07] Parameter Restore > Full.

5 Go to page [23.00] Application Save > On.

6 Go to page [23.01] Apply Changes > On.

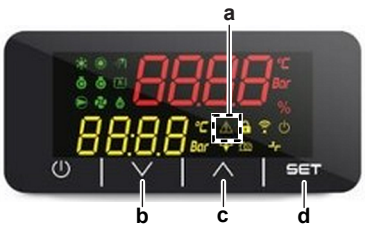
Result: The parameters are updated.

2 Troubleshooting

2.1 To retrieve error codes and check error history

2.1.1 Via the outdoor unit user interface

To retrieve the error codes



a ⚠ icon
b Down
c Up
d SET

In case of an error, the icon ⚠ on the user interface display is blinking.

To display the error code perform as follows:

1. Press Up until page "-7- ALMS" is displayed.

2. Press SET to enter this menu.
3. Press Up/Down to select "07.00" Alarm List.
4. Press SET to enter the "07.00" Alarm List menu.
5. Press Up/Down to navigate through the different error codes (If any).

   Result: The error codes are shown on the user interface display.

a Error code

INFORMATION

If any of the following error codes is shown, check the corresponding sub code:

- C116: for compressor on Circuit 1
- C216: for compressor on Circuit 2
- C117: for Fan (1 or 2) on Circuit 1
- C217: for Fan (1 or 2) on Circuit 2
- U014: for water pump
- U016: for domestic hot water

To retrieve the sub code

1 Press Up until page "XX" is displayed (depending on the main error code, see below).

2 Press SET to enter this menu.

3 Press Up/Down to select "XX.YY" (depending on the main error code, see below).

Main error code	XX	YY
C116	21	00 for compressor on Circuit 1
C216	21	01 for compressor on Circuit 2
C117	21	02 for Fan 1 on Circuit 1
C117	21	03 for Fan 2 on Circuit 1
C217	21	04 for Fan 1 on Circuit 2
C217	21	05 for Fan 2 on Circuit 2
U014	21	06 through 13
U016	19	05

4 Press SET to enter the selected menu.

Result: For C116, C117, C216, and C217: The sub code is shown on the user interface display.

Result: For U014: A 4 number digit code (indicating a corresponding sub error) is shown on the user interface display. See error code U014 for more detailed information about these sub errors.

Result: For U016: A 5 number digit code (indicating a corresponding sub error) is shown on the user interface display. See error code U016 for more detailed information about these sub errors.

2.1.2 Via service monitoring tool

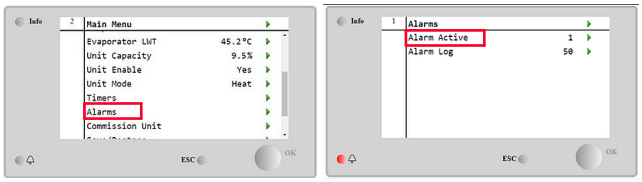
To retrieve the error codes

In case of an error, the LED on the service monitoring tool is lit.

To display the string of the error code perform as follows:

1 In the Main Menu, select Alarms > Alarm Active.

Result: The string(s) of the active error code(s) are shown on the display.



2 Select the desired error code string (arrow) to display the Alarm Detail screen.

Result: Date and time of the selected error are shown.

INFORMATION

If any of the following error code strings is shown, check the corresponding sub code:

- C1Cmp1 OffVfdFault: for compressor on Circuit 1
- C2Cmp1 OffVfdFault: for compressor on Circuit 2
- C1 FanAlm: for Fan (1 or 2) on Circuit 1
- C2 FanAlm: for Fan (1 or 2) on Circuit 2
- EvapPump1Fault: for water pump

To retrieve the sub code

1 Depending on the error code string that was found, enter Technician password and via the Main Menu of the service monitoring tool navigate to the following menu:

Error code string	Navigate to	Sub code / value shown at
C1Cmp1 OffVfdFault	View/Set Circuit > Circuit #1 > Inverter Cmp	AlarmCode1 for compressor on Circuit 1[(a)]
C2Cmp1 OffVfdFault	View/Set Circuit > Circuit #2 > Inverter Cmp	AlarmCode1 for compressor on Circuit 2[(a)]
C1 FanAlm	View/Set Circuit > Circuit #1 > Inverter Fan	AlarmCode1 for Fan 1 on Circuit 1[(a)]
	View/Set Circuit > Circuit #1 > Inverter Fan	AlarmCode2 for Fan 2 on Circuit 1[(a)]
C2 FanAlm	View/Set Circuit > Circuit #2 > Inverter Fan	AlarmCode1 for Fan 1 on Circuit 2[(a)]
	View/Set Circuit > Circuit #2 > Inverter Fan	AlarmCode2 for Fan 2 on Circuit 2[(a)]
EvapPump1Fault	View / Set Unit > Pumps	Fault Code 0_15 OR Fault Code 16_31[(b)]

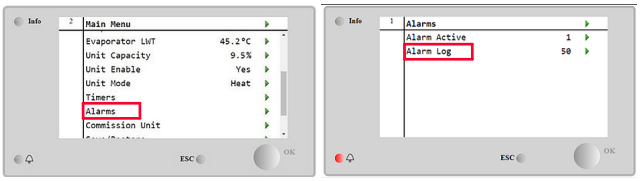
[(a)] The sub code is shown at this location on the service monitoring tool.

[(b)] A value (indicating a corresponding sub error) is shown at this location on the service monitoring tool. See error code U014 for more detailed information about these sub errors.

To check the error history

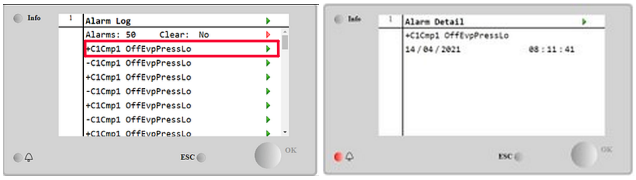
2 In the Main Menu, select Alarms > Alarm Log.

Result: The string(s) of the error code(s) are shown on the display.



3 Select the desired error code string (arrow) to display the Alarm Detail screen.

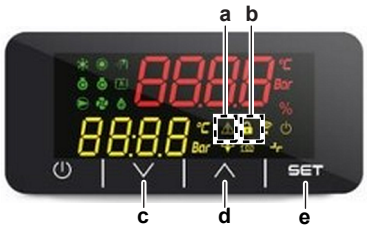
Result: Date and time of the selected error are shown.



2.2 To reset error codes and clear the error history

2.2.1 Via the outdoor unit user interface

To reset the error codes



a ⚠ icon
b 🔒 icon
c Down
d Up
e SET

> **INFORMATION**
>
> 🔒 icon MUST be lit (at least User level password is needed for this) to be able to perform this action.

1. Press Up until page "-7- ALMS" is displayed.

2. Press SET to enter this menu.
3. Press Up/Down to select "007.1" Alarm Clear.
4. Press SET to enter the "007.1" Alarm Clear menu.
5. Press Up/Down to select On.

6. Press SET to confirm.

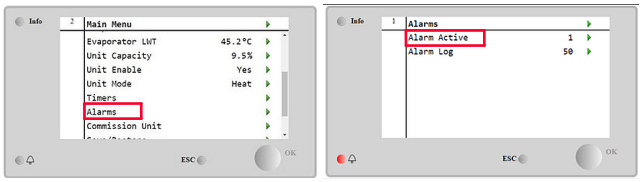
   Result: The error codes have been reset.

2.2.2 Via service monitoring tool

To reset the error codes

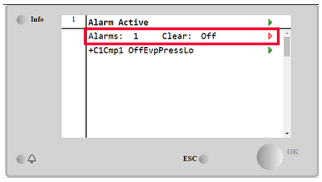
1. In the Main Menu, select Alarms > Alarm Active.

   Result: The string(s) of the active error code(s) are shown on the display.



2 Select Clear (arrow) and set to On.

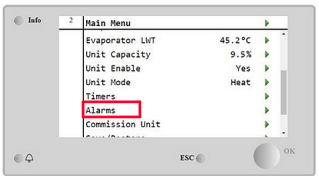
Result: The error code(s) have been reset.

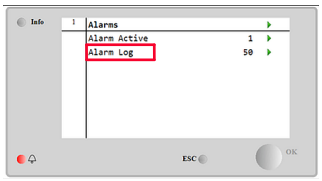


To clear the error history

3 In the Main Menu, select Alarms > Alarm Log.

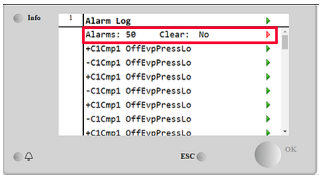
Result: The string(s) of the error code(s) are shown on the display.





4 Select Clear (arrow) and set to Yes.

Result: The error code history has been deleted (cleared).



2.3 Error based troubleshooting

2.3.1 Overview of error codes

Unit alarms

Error type	Error code	Description	Error string
Unit Rapid Stop Alarm	U003	Water Flow Alarm	UnitOffEvapWaterFlow
	U004	Evaporator freezing alarm	UnitOffEvapWaterTmpLo
	U005	External alarm	UnitOffExternalAlarm
	U006	Evaporator leaving water temperature sensor fault	UnitOffEvpLvgWTempSen
	U011	Optional controller communication alarm	OptionCtrlrCommFail
	U012	ACS gateway communication alarm	UnitOffACSCommFail
	U016[a]	Domestic hot water alarms	UnitOffDHWAlarm
Unit Pumpdown Stop Alarm	U002	Time not valid	UnitOffTimeNotValid
	U007	Evaporator entering water temperature sensor fault	UnitOffEvpEntWTempSen
	U008	Outside ambient temperature sensor fault	UnitOffAmbTempSen
	U013	Outside ambient temperature sensor fault	StartInhbtAmbTempLo
	U015	Pump communication error	PumpInvMbCommFail
Unit Alert	U001	External Event	UnitExternalEvent
	U009	Demand limit signal out of range	BadDemandLimitInput
	U010	Setpoint reset signal out of range	BadSetPtOverrideInput
	U014[b]	Pump error	EvapPump1Fault

[a] The error code U016 includes many sub errors. See error code U016 for more information about these sub errors.
[b] The error code U014 includes many sub errors. See error code U014 for more information about these sub errors.

- Unit Rapid Stop Alarm: These errors cause an immediate stop of the unit.
- Unit Pumpdown Stop Alarm: These errors a cause stop of the unit following normal pumpdown procedure.
- Unit Alert: These errors ONLY create a visual information and an item in the alarm log. Unit continues operating.
- Error codes can be retrieved via the outdoor unit user interface.
- Error strings can be retrieved via the service monitoring tool.

Circuit 1 alarms

Error type	Error code	Sub code	Description	Error string
Circuit Rapid Stop Alarm	C101	-	Low Pressure Ratio	C1Cmp1 OffPrRatioLo
	C102	-	No Pressure Change at start	C1 OffNoPressChgStart
	C103	-	Fan's Inverter Communication Alarm	C1Fan OffVfdCommFail
	C104	-	Compressor's Inverter Communication Alarm	C1Cmp1 OffVfdCommFail
	C105	-	Low Evaporator Pressure Alarm	C1Cmp1 OffEvpPressLo
	C106	-	High Condensing Pressure Alarm	C1Cmp1 OffCndPressHi
	C107	-	High Discharge Temperature Alarm	C1Cmp1 OffDischTmpHi
	C108	-	High Compressor Current Protection	C1Cmp1 OffMtrAmpsHi
	C109	-	No Pressure At Start Alarm	C1 OffStartFailEvpPrLo
	C110	-	Evaporating Pressure Sensor Fault	C1Cmp1 EvapPressSen
	C111	-	Condensing Pressure Sensor Fault	C1Cmp1 CondPressSen
	C112	-	High Motor Temperature Alarm	C1Cmp1 OffMotorTempHi
	C115	-	Pump Down Failed	C1 Failed Pumpdown
	C116	33	Instantaneous Overcurrent (OCP)	C1Cmp1 OffVfdFault
		35	Electrical Thermal 1	
		36	Electrical Thermal 2	
		37	Step Out (Overload Stop)	
		38	Lightning Strike Detected	
		40	Start Failure (Stall Prevention)	
		43[a]	Power Open Phase Circuit / Clamp Diode Short Circuit Error	
		44	Fin Thermal Abnormality	
		45	Fin Temperature Sensor Error	
		46	Instantaneous Overcurrent (During Boot)	
		47[a]	Current Sensor / Overcurrent Protection Circuit Error	
		49	Power Unbalance	
		50[b]	Over-Voltage Or Under-Voltage During Operation / Voltage Sensor Failure / Safety device operated	
		51[b]	Voltage Error / Power Open Phase Detected	
		54	Current Offset Error	
		56	IGBT Error	
		57	JP Setting Error	
		58	Unit Type Setting Error	
		59	Data Flash Error	
		60[b]	PN Jumper Error	

[a] Only for EWAT/EWYT032CZ, EWAT/EWYT040CZ-A1, EWAT/EWYT064CZ and EWAT/EWYT090CZ units.
[b] Only for EWAT/EWYT016~025CZ, EWAT/EWYT040CZ-A2 and EWAT/EWYT050CZ units.

Error type	Error code	Sub code	Description	Error string
Circuit Rapid Stop Alarm	C116	61	Compressor Lock	
		63[a]	Pressure Protection	
		114[a]	Power Open Phase Detected	
		115	Output Open Phase	
		116[a]	Voltage Sensor Failure	
		117[a]	Over-Voltage During Operation	
		118[a]	Under-Voltage During Operation	
		145[a]	Power Frequency Error	
	C117	65	Hardware Overcurrent Protection (Instantaneous Overcurrent)	C1 FanAlm
		68	Fin Temperature Overheat Error	
		69	Fin Thermistor Failure Error	
		72	Fan Motor Current Overload / Overcurrent / Abnormality	
		75	IPM Error – Circuit Error Detected During Waveform Output	
		86	Current Detecting Circuit Offset Value	
		88	Gate Driving Circuit Failure	
		90	Model Setting Error	
		91	EEPROM Failure Error	
	C119	-	Low Discharge SuperHeat Alarm	C1Cmp1 OffLowDiscSH
	C120	-	Mechanical High Pressure Alarm	C1Cmp1 OffMechPressHi
Circuit Pumpdown Stop Alarm	C113	-	Suction Temperature Sensor Alarm	C1Cmp1 OffSuctTempSen
	C114	-	Discharge Temperature Sensor Alarm	C1Cmp1 OffDischTmpSen

[a] Only for EWAT/EWYT032CZ, EWAT/EWYT040CZ-A1, EWAT/EWYT064CZ and EWAT/EWYT090CZ units.

- Circuit Rapid Stop Alarm: These errors cause an immediate stop of the circuit.
- Circuit Pumpdown Stop Alarm: These errors cause a stop of the unit performed normal pumpdown procedure.
- Error codes and sub codes can be retrieved via the outdoor unit user interface.
- Error strings can be retrieved via the service monitoring tool.

Circuit 2 alarms

Error type	Error code	Sub code	Description	Error string
Circuit Rapid Stop Alarm	C201	-	Low Pressure Ratio	C2Cmp1 OffPrRatioLo
	C202	-	No Pressure Change at start	C2 OffNoPressChgStart
	C203	-	Fan's Inverter Communication Alarm	C2Fan OffVfdCommFail
	C204	-	Compressor's Inverter Communication Alarm	C2Cmp1 OffVfdCommFail
	C205	-	Low Evaporator Pressure Alarm	C2Cmp1 OffEvpPressLo
	C206	-	High Condensing Pressure Alarm	C2Cmp1 OffCndPressHi
	C207	-	High Discharge Temperature Alarm	C2Cmp1 OffDischTmpHi
	C208	-	High Compressor Current Protection	C2Cmp1 OffMtrAmpsHi
	C209	-	No Pressure At Start Alarm	C2 OffStartFailEvpPrLo
	C210	-	Evaporating Pressure Sensor Fault	C2Cmp1 EvapPressSen
	C211	-	Condensing Pressure Sensor Fault	C2Cmp1 CondPressSen
	C212	-	High Motor Temperature Alarm	C2Cmp1 OffMotorTempHi
	C215	-	Pump Down Failed	C2 Failed Pumpdown
	C216	33	Instantaneous Overcurrent (OCP)	C2Cmp1 OffVfdFault
		35	Electrical Thermal 1	
		36	Electrical Thermal 2	
		37	Step Out (Overload Stop)	
		38	Lightning Strike Detected	
		40	Start Failure (Stall Prevention)	
		43[a]	Power Open Phase Circuit / Clamp Diode Short Circuit Error	
		44	Fin Thermal Abnormality	
		45	Fin Temperature Sensor Error	
		46	Instantaneous Overcurrent (During Boot)	
		47[a]	Current Sensor / Overcurrent Protection Circuit Error	
		49	Power Unbalance	
		50[b]	Over-Voltage Or Under-Voltage During Operation / Voltage Sensor Failure / Safety device operated	
		51[b]	Voltage Error / Power Open Phase Detected	
		54	Current Offset Error	
		56	IGBT Error	
		57	JP Setting Error	
		58	Unit Type Setting Error	
		59	Data Flash Error	
		60[b]	PN Jumper Error	

[a] Only for EWAT/EWYT090CZ units.
[b] Only for EWAT/EWYT040CZ-A2, EWAT/EWYT050CZ and EWAT/EWYT064CZ units.

Error type	Error code	Sub code	Description	Error string
Circuit Rapid Stop Alarm	C216	61	Compressor Lock	
		63[a]	Pressure Protection	
		114[a]	Power Open Phase Detected	
		115	Output Open Phase	
		116[a]	Voltage Sensor Failure	
		117[a]	Over-Voltage During Operation	
		118[a]	Under-Voltage During Operation	
		145[a]	Power Frequency Error	
	C217	65	Hardware Overcurrent Protection (Instantaneous Overcurrent)	C2 FanAlm
		68	Fin Temperature Overheat Error	
		69	Fin Thermistor Failure Error	
		72	Fan Motor Current Overload / Overcurrent / Abnormality	
		75	IPM Error – Circuit Error Detected During Waveform Output	
		86	Current Detecting Circuit Offset Value	
		88	Gate Driving Circuit Failure	
		90	Model Setting Error	
		91	EEPROM Failure Error	
	C219	-	Low Discharge SuperHeat Alarm	C2Cmp1 OffLowDiscSH
	C220	-	Mechanical High Pressure Alarm	C2Cmp1 OffMechPressHi
Circuit Pumpdown Stop Alarm	C213	-	Suction Temperature Sensor Alarm	C2Cmp1 OffSuctTempSen
	C214	-	Discharge Temperature Sensor Alarm	C2Cmp1 OffDischTmpSen

[a] Only for EWAT/EWYT090CZ units.

- Circuit Rapid Stop Alarm: These errors cause an immediate stop of the circuit.
- Circuit Pumpdown Stop Alarm: These errors cause a stop of the unit performed normal pumpdown procedure.
- Error codes and sub codes can be retrieved via the outdoor unit user interface.
- Error strings can be retrieved via the service monitoring tool.

Other errors

Error type	Error code	Sub code	Description	Error string
Other	ErrC	-	Communication error	-

2.3.2 Unit Rapid Stop Alarms

U003 – Water flow alarm

Trigger	Effect	Reset
Detection of water flow loss to the chiller.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check if the water circuit is clogged. See "4.3 Water circuit" [▶ 246].
   Possible cause: Clogged water circuit.
2. Clean the water filter. See "4.4 Manufacturer components" [▶ 256].
   Possible cause: Clogged water filter.
3. Perform a check of the water pump. See "3.23 Water pump" [▶ 223].
   Possible cause: Faulty water pump.
4. ONLY for EWAT/EWYT016~090CZ(H)(P)-A and EWAT/EWYT016~090CZ(H)(P)BA units: Perform a check of the pump inverter. See documentation of the pump inverter.
   Possible cause: Faulty pump inverter.
5. Perform a check of the flow switch. See "3.10 Flow switch" [▶ 134].
   Possible cause: Faulty flow switch.
6. Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].
   Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U004 – Evaporator freezing alarm

Trigger	Effect	Reset
Water temperature (entering or leaving) has dropped below a safety limit (set on monitoring tool).	Unit will stop operating.	Reset via user interface.
		Auto reset.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1. Check the water flow. See "4.3 Water circuit" [▶ 246].
   Possible cause: Water flow is too low.
2. Check the inlet water temperature. Increase inlet water temperature as needed.

Possible cause: Inlet water temperature is too low.

3 Perform a check of the flow switch. See "3.10 Flow switch" [▸ 134].

Possible cause: Faulty flow switch.

4 Perform a check of the water pump. See "3.23 Water pump" [▸ 223].

Possible cause: Faulty water pump.

5 Check the freeze limit setpoint. See service monitoring tool.

Possible cause: The freeze limit has not been set correctly (as a function of glycol percentage).

6 Perform a check of the inlet water thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty inlet water thermistor.

7 Perform a check of the outlet water thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty outlet water thermistor.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U005 – External alarm

Trigger	Effect	Reset
Faulty external device (pump, inverter, ...) detected.	Unit will stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the correct operation of the external device. See "4.4 Manufacturer components" [▸ 256].

Possible cause: Faulty external device.

2 Check the wiring between the external device and the unit. See "6.2 Wiring diagram" [▸ 263].

Possible cause: Faulty wiring between the external device and the unit.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U006 – Evaporator leaving water temperature sensor fault

Trigger	Effect	Reset
Outlet water thermistor input is out of range.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outlet water thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty outlet water thermistor.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U011 – Optional controller communication alarm

Trigger	Effect	Reset
Communication problems with the optinal PCB detected.	Unit will NOT stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the option PCB. See documentation of the option PCB.

Possible cause: Faulty option PCB.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U012 – ACS gateway communication alarm

Trigger	Effect	Reset
The ACS gateway that bridges the Daikin protocol of the compressor and/or fan with the main PCB using Modbus protocol has encountered an error	Unit will stop operating.	Automatic reset. Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the communication wiring (insertion and continuity) on connector TN1 on the ACS digital I/O PCB and connector T6 on the main PCB. See "6.2 Wiring diagram" [▸ 263].

Possible cause: Faulty or damaged communication wiring between main PCB and ACS digital I/O PCB.

2 Perform a check of the ACS digital I/O PCB. See "3.4 ACS digital I/O PCB" [▸ 90].

Possible cause: Faulty ACS digital I/O PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U016 – Domestic hot water alarms

When this error code occurs, check the corresponding sub code (ONLY possible via the user interface), see "2.1 To retrieve error codes and check error history" [▸ 16].

A 5 number digit is shown on the user interface display. Each digit can be "0" or "1" and each digit (if displayed as "1") corresponds to a specific trigger for the error code as shown in the table below.

User interface (HMI)		Trigger
Page	Digit displayed as "1"	
19-05	XXXX**1**	Double position error
	XXX**1**X	Lost start position reference
	XX**1**XX	Lost end position reference
	X**1**XXX	3-way valve switch fail
	1XXXX	Temperature sensor fault

It is ALSO possible that more than one digit is displayed as "1". This means there are multiple triggers for this error code. See examples below:

- If "00011" is displayed, trigger is: Double position error + Lost start position reference.
- If "10101" is displayed, trigger is: Double position error + Lost end position reference + Temperature sensor fault.

Trigger	Effect	Reset
See info above for correct trigger.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 ONLY if one or multiple digits of the last 4 digits (X**XXXX**) is/are displayed as "1":

- Perform a check of the 3-way valve. See "4.4 Manufacturer components" [▶ 256].
  Possible cause: Faulty 3-way valve.
- Check the wiring of the 3-way valve to the option PCB. See "6.2 Wiring diagram" [▶ 263].
  Possible cause: Faulty or broken 3-way valve wiring.

2 ONLY if the first digit (**X**XXXX) is displayed as "1":

- Perform a check of the domestic hot water thermistor. See "4.4 Manufacturer components" [▶ 256].
  Possible cause: Faulty domestic hot water thermistor.
- Check the wiring of the domestic hot water thermistor to the option PCB. See "6.2 Wiring diagram" [▶ 263].
  Possible cause: Faulty or broken domestic hot water thermistor wiring.

3 Perform a check of the option PCB. See documentation of the option PCB.

Possible cause: Faulty option PCB.

4 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

2.3.3 Unit Pumpdown Stop Alarms

U002 – Time not valid

Trigger	Effect	Reset
The time is NOT set (default date and time 01/01/2003 00:00:00).	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if settings [10] (date) and [11] (time) are correctly set. Correct as needed. See "6.7 Field settings" [▶ 286].

Possible cause: Incorrect setting [10] (date) and/or [11] (time).

2 Check the battery on the main PCB and replace as needed with field supplied battery BR2032.

Possible cause: Faulty battery on main PCB.

3 Check if correct software is installed on the main PCB and update as needed. See "3.13 Main PCB" [▶ 155].

Possible cause: Incorrect software installed on main PCB.

4 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U007 – Evaporator entering water temperature sensor fault

Trigger	Effect	Reset
Inlet water thermistor input is out of range.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the inlet water thermistor. See "3.21 Thermistors" [▶ 206].

Possible cause: Faulty inlet water thermistor.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U008 – Outside ambient temperature sensor fault

Trigger	Effect	Reset
Outdoor air thermistor input is out of range.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Automatic reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor air thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty ambient air thermistor.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U013 – Ambient temperature detected under limit

Trigger	Effect	Reset
Outdoor air temperature is too low.	Unit will stop operating following normal pumpdown procedure.	Automatic reset with a hysteresis of 2.5°C.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check (and adjust as needed) the setting for the minimum outdoor air temperature value. See "3.22 User interface" [▸ 219].

Possible cause: Outdoor air temperature is lower than minimum outdoor air temperature setting.

2 Perform a check of the outdoor air thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty ambient air thermistor.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U015 – Pump communication error

Trigger	Effect	Reset
Malfunction detected at the pump inverter module.	Unit will stop operating.	Reset via user interface.
		Reset on network.
		Auto reset

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the pump inverter. See documentation of the pump inverter.

Possible cause: Faulty pump inverter.

2 Perform a check of the water pump. See "3.23 Water pump" [▸ 223].

Possible cause: Faulty water pump.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

2.3.4 Unit Alerts

U001 – External event

INFORMATION

This error is listed as a Unit alert type error, but depending on the setting [15.05], this error can ALSO be 1 of the following error types:

- Unit rapid stop alarm
- Unit pumpdown stop alarm

Trigger	Effect	Reset
Faulty external device (pump, inverter, ...) detected.	Unit will NOT stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the correct operation of the external device. See "4.4 Manufacturer components" [▸ 256].

Possible cause: Faulty external device.

2 Check the wiring between the external device and the unit. See "6.2 Wiring diagram" [▸ 263].

Possible cause: Faulty wiring between the external device and the unit.

3 Check if setting [15.05] is correctly set. Correct as needed. See "6.7 Field settings" [▸ 286].

Possible cause: Incorrect setting [15.05]

4 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U009 – Demand limit signal out of range

Trigger	Effect	Reset
Demand Limit option has been enabled and input to the controller is out of range.	Unit will NOT stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if setting [18.00] is correctly set. Correct as needed. See "6.7 Field settings" [▶ 286].

Possible cause: Incorrect setting [18.00].

2 Check the demand limit input signal on the option PCB. See "4.1 Electrical circuit" [▶ 234].

Possible cause: Incorrect demand limit input signal.

3 Perform a check of the option PCB. See documentation of the option PCB.

Possible cause: Faulty option PCB.

4 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U010 – Setpoint reset signal out of range

Trigger	Effect	Reset
Setpoint Reset option has been enabled and input to the controller is out of range.	Unit will NOT stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if settings [20.00] and [20.01] are correctly set. Correct as needed. See "6.7 Field settings" [▶ 286].

Possible cause: Incorrect setting [20.00] or [20.01].

2 Check the setpoint reset input signal on the option PCB. See "4.1 Electrical circuit" [▶ 234].

Possible cause: Incorrect demand setpoint reset signal.

3 Perform a check of the option PCB. See documentation of the option PCB.

Possible cause: Faulty option PCB.

4 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

U014 – Pump error

When this error code occurs, check the corresponding sub code, see "2.1 To retrieve error codes and check error history" [▸ 16].

See below an overview of the possible sub errors according to the 4 number digit shown on the user interface display, the value shown on the service monitoring tool or the code shown on the pump inverter (if applicable):

User interface (HMI)		Service Monitoring Tool	Pump inverter	Error description
Page	4 Number digit code	Value	Code	
21-06	0001	0	A28	The brake resistor is not connected or not working.
	0100	2	A14	Earth Fault: check for eath leakage
21-07	0001	4	A17	Catch up error: There is no communication to the frequency converter.
	0010	5	A13	Over Current error
	1000	7	A11	Motor thermistor overtemp. The thermistor might be disconnected.
21-08	0001	8	A10	Motor overload temperature: According to the electronic thermal protection (ETR), the motor is too hot.
	0010	9	A9	Inverter overload: Frequency High
	0100	10	A8	DC under volt: motor Frequency Low
	1000	11	A7	DC over volt
21-09	0001	12	A6	Short Circuit
	0100	14	A4	Mains phase loss: A phase is missing on the supply side, or the mains voltage imbalance is too high
21-10	0001	16	A2	Live zero erro: The Live Zero function is used for monitoring the signal on an analog input. If the signal disappears or falls below 50% of expected value,a Live Zero warning is reported.
	0010	17	A38	Internal fault: Troubleshoot with a power cycle, check pump, Check that the Pump is properly installed, Check for loose or missing wiring.
	1000	19	A30	U phase loss
21-11	0001	20	A31	V phase loss
	0010	21	A32	W phase loss
21-12	0100	26	A25	Brake resistor short-circuit: If a short circuit occurs, the brake function is disabled and the warning appears.
	1000	27	A27	Brake IGBT short-circuit
21-13	0010	29	A80	Drive initialised to default value Parameter settings are initialised to default settings after a manual reset. To clear the alarm, reset the unit.
	1000	31	A63	Parameter database busy LCP and RS485 connection are trying to update parameters simultaneously

Trigger	Effect	Reset
Pump is started but the flow switch is NOT able to close within the recirculate time (possible to modify the times on the service monitoring tool).	Unit will NOT stop operating.	Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1. Check if the water circuit is clogged. See "4.3 Water circuit" [▶ 246].

   Possible cause: Clogged water circuit.

2. Clean the water filter. See "4.4 Manufacturer components" [▶ 256].

   Possible cause: Clogged water filter.

3. Perform a check of the water pump. See "3.23 Water pump" [▶ 223].

   Possible cause: Faulty water pump.

4. ONLY for EWAT/EWYT016~090CZ(H)(P)-A and EWAT/EWYT016~090CZ(H)(P)BA units: Perform a check of the pump inverter. See documentation of the pump inverter.

   Possible cause: Faulty pump inverter.

5. Perform a check of the flow switch. See "3.10 Flow switch" [▶ 134].

   Possible cause: Faulty flow switch.

6. Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

   Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

2.3.5 Circuit Rapid Stop Alarms

INFORMATION

Error codes C1xx are applicable for the main circuit. Error codes C2xx are applicable for the secondary circuit.

C101 & C201 – Low pressure ratio

Trigger	Effect	Reset
The ratio between inlet and outlet pressure of the compressor is below a limit that guarantees proper lubrication to compressor.	Unit will stop operating.	Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▸ 197]

Possible cause: Faulty refrigerant low pressure sensor.

2 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

3 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

6 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

7 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant shortage.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C102 & C202 – No pressure change at start

Trigger	Effect	Reset
Compressor is NOT able to start or to create a certain minimum variation of the evaporating or condensing pressures after start.	Unit will stop operating.	Reset via user interface.
		Reset on network.
		Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▸ 197]

Possible cause: Faulty refrigerant low pressure sensor.

2 Perform a check of the expansion valve. See "3.8 Expansion valve" [▶ 121].

Possible cause: Faulty expansion valve.

3 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▶ 237].

Possible cause: Refrigerant shortage.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C103 & C203 – Fan's inverter communication alarm

Trigger	Effect	Reset
Bad communication between the main PCB and fan inverter PCB	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the fan inverter PCB(s). See "3.9 Fan inverter PCB" [▶ 128].

Possible cause: Faulty fan inverter PCB.

> **INFORMATION**
> In case of 2 fans (fan inverter PCB's) on 1 refrigerant circuit, swap the fan inverter PCB's to check which one is faulty.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C104 & C204 – Compressor's inverter communication alarm

Trigger	Effect	Reset
Bad communication between the main PCB and inverter PCB	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C105 & C205 – Low evaporator pressure alarm

Trigger	Effect	Reset
Evaporating pressure drops below the Low Pressure Unload.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Check the inlet water temperature. Increase inlet water temperature as needed.

Possible cause: Inlet water temperature is too low.

2 Check the water flow. See "4.3 Water circuit" [▸ 246].

Possible cause: Water flow is too low.

3 Clean the water filter. See "4.4 Manufacturer components" [▸ 256].

Possible cause: Clogged water filter.

4 Perform a check of the water pump. See "3.23 Water pump" [▸ 223].

Possible cause: Faulty water pump.

5 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▸ 197]

Possible cause: Faulty refrigerant low pressure sensor.

6 Check if a transitory condition (e.g. staging up of an other fan) may cause the error. Wait until normal condition is recovered, or perform reset on the unit.

7 Check for leaks in the refrigerant circuit. Look for oil traces on the unit(s). Check the brazing points on the refrigerant piping. Perform a pressure test, see "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Leak in the refrigerant circuit.

8 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant shortage.

9 ONLY for Cool and Heat/Cool with glycol mode application: Check the low pressure unload limit setting. Check the evaporator approach and the corresponding water temperature to evaluate the low pressure unload limit.

Possible cause: Low pressure unload limit NOT set correctly.

10 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

11 Check for the presence of non-condensables and/or humidity in the refrigerant circuit. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Non-condensables and/or humidity in the refrigerant circuit.

12 Check the glycol percentage. Take a sample from the drain port and use a refractometer to check the glycol level. Add glycol as needed.

Possible cause: Glycol level too low.

13 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C106 & C206 – High condensing pressure alarm

Trigger	Effect	Reset
Condensing saturated temperature rises above the maximum condensing saturated temperature.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

2 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

3 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

4 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

5 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

6 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant overcharge.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C107 & C207 – High discharge temperature alarm

Trigger	Effect	Reset
Discharge temperature too high. Error CANNOT trigger if discharge thermistor fault is active.	Unit will stop operating.	Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

DANGER: RISK OF BURNING/SCALDING

The compressor crankcase and discharge pipes may be very hot. Be careful when getting in contact with the compressor and discharge pipes.

1 Check ambient conditions of the unit. See operation limits in the Databook.

Possible cause: Operation at too high temperature might lead to high temperature errors.

2 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

3 Perform a check of the discharge pipe thermistor. See "3.21 Thermistors" [▸ 206].

Possible cause: Faulty discharge pipe thermistor or connector fault.

4 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C108 & C208 – High compressor current protection

Trigger	Effect	Reset
The unit detects current over maximum limit on the compressor inverter.	Unit will stop operating.	Reset via user interface. Auto reset (NOT posible if overcurrent reaches 110%).

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check the compressor operation conditions. See operation limits in the Databook.

Possible cause: Compressor operating outside its operation limits.

2 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

3 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C109 & C209 – No pressure at start alarm

Trigger	Effect	Reset
The unit CANNOT reach the minimum pressure (low pressure unload) after start for a certain amount of time.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▸ 197]

Possible cause: Faulty refrigerant low pressure sensor.

2 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

3 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

4 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant shortage.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C110 & C210 – Evaporating pressure sensor fault

Trigger	Effect	Reset
Low pressure sensor is NOT operating correctly.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▸ 197]

Possible cause: Faulty refrigerant low pressure sensor.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

FOR ERROR CODE C110:

3 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

FOR ERROR CODE C210:

4 Perform a check of the 5 V DC auxiliary power supply. See "3.1 5 V DC auxiliary power supply" [▸ 77].

Possible cause: Faulty auxiliary power supply.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C111 & C211 – Condensing pressure sensor fault

Trigger	Effect	Reset
High pressure sensor is NOT operating correctly.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

FOR ERROR CODE C111:

3 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▶ 79].

Possible cause: Faulty auxiliary power supply.

FOR ERROR CODE C211:

4 Perform a check of the 5 V DC auxiliary power supply. See "3.1 5 V DC auxiliary power supply" [▶ 77].

Possible cause: Faulty auxiliary power supply.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C112 & C212 – High motor temperature alarm

Trigger	Effect	Reset
Compressor thermal protector is detected open.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the compressor thermal protection. See "3.6.1 Checking procedures" [▶ 109].

Possible cause: Faulty compressor thermal protection.

2 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C115 & C215 – Pump down failed

Trigger	Effect	Reset
NOT all refrigerant was removed from the evaporator.	Unit will stop operating.	Auto reset.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the expansion valve. See "3.8 Expansion valve" [▶ 121].

Possible cause: Faulty expansion valve.

2 Perform a check of the refrigerant low pressure sensor. See "3.20 Refrigerant low pressure sensor" [▶ 197]

Possible cause: Faulty refrigerant low pressure sensor.

3 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-33 & C216-33 – Instantaneous overcurrent (OCP)

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

3 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

5 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

6 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-35 & C216-35 – Electrical thermal 1

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the unit has been striked by lightning.

Possible cause: Lightning striked the unit.

2 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

3 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

4 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

5 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

7 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-36 & C216-36 – Electrical thermal 2

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the unit has been striked by lightning.

Possible cause: Lightning striked the unit.

2 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

3 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

4 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

5 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

7 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-37 & C216-37 – Step out (overload stop)

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the unit has been striked by lightning.

Possible cause: Lightning striked the unit.

2 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

3 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

4 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

5 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

7 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-38 & C216-38 – Lightning strike detected

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the unit has been striked by lightning.

Possible cause: Lightning striked the unit.

2 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

3 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

4 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

5 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

7 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-40 & C216-40 – Start failure (stall prevention)

Trigger	Effect	Reset
Overcurrent or NO rotation detected at startup.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

3 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-43 & C216-43 – Power open phase circuit / clamp diode short circuit error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-44 & C216-44 – Fin thermal abnormality

Trigger	Effect	Reset
Too high temperature detected by Inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

2 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

3 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

4 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

5 Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

Possible cause: Thermal interface grease NOT applied properly on the heat sink.

6 Check if heat sink plate is correctly fixed with screws.

Possible cause: Heat sink plate not correctly installed.

7 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-45 & C216-45 – Fin temperature sensor error

Trigger	Effect	Reset
PCB fin thermistor detected open or short-circuit.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Wait until the rectifier voltage is below 10 V DC.

> **DANGER: RISK OF ELECTROCUTION**
>
> Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

Possible cause: Thermal interface grease NOT applied properly on the heat sink.

3 Check if heat sink plate is correctly fixed with screws.

Possible cause: Heat sink plate not correctly installed.

4 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

5 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

6 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

7 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

8 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-46 – Instantaneous overcurrent (during boot)

EWAT/EWYT016~025CZ + EWAT/EWYT040CZ-A2 + EWAT/EWYT050CZ units

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

EWAT/EWYT032CZ + EWAT/EWYT040CZ-A1 + EWAT/EWYT064CZ + EWAT/EWYT090CZ units

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

3 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▶ 237].

Possible cause: Clogged refrigerant circuit.

4 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

5 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

6 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C216-46 – Instantaneous overcurrent (during boot)

EWAT/EWYT040CZ-A2 + EWAT/EWYT050CZ + EWAT/EWYT064CZ units

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▶ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

EWAT/EWYT090CZ units

Trigger	Effect	Reset
Output overcurrent protection activated due to instantaneous overcurrent detected.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

3 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

5 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

6 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-47 & C216-47 – Current sensor / overcurrent protection circuit error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-49 & C216-49 – Power unbalance

Trigger	Effect	Reset
Power unbalance detected on the compressor.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▶ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-50 & C216-50 – Over-voltage or under-voltage during operation / voltage sensor failure / safety device operated

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-51 & C216-51 – Voltage error / power open phase detected

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-54 & C216-54 – Current offset error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-56 & C216-56 – IGBT error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-57 & C216-57 – JP setting error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▶ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-58 – Unit type setting error

EWAT/EWYT016~025CZ + EWAT/EWYT040CZ-A2 + EWAT/EWYT050CZ units

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▶ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▶ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

EWAT/EWYT032CZ + EWAT/EWYT040CZ-A1 + EWAT/EWYT064CZ + EWAT/EWYT090CZ units

Trigger	Effect	Reset
Main PCB does NOT recognize the Inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Incorrect spare part inverter PCB.

2 Check if correct software is installed on the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Incorrect software installed on main PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▶ 141].

Possible cause: Faulty inverter PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C216-58 – Unit type setting error

EWAT/EWYT040CZ-A2 + EWAT/EWYT050CZ + EWAT/EWYT064CZ units

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

EWAT/EWYT090CZ units

Trigger	Effect	Reset
Main PCB does NOT recognize the Inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Incorrect spare part inverter PCB.

2 Check if correct software is installed on the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Incorrect software installed on main PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-59 & C216-59 – Data flash error

Trigger	Effect	Reset
There has been an error at the PCB due to bad inputs/outputs, bad power supply or data error.	Unit will stop operating.	Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the 24 V DC auxiliary power supply. See "3.2 24 V DC auxiliary power supply" [▸ 79].

Possible cause: Faulty auxiliary power supply.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-60 & C216-60 – PN jumper error

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface. Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-61 & C216-61 – Compressor lock

Trigger	Effect	Reset
Compressor gets locked due to malfunctioning.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant overcharge.

2 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

3 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

4 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

5 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

6 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

7 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-63 & C216-63 – Pressure protection

Trigger	Effect	Reset
Too high pressure detected (lasts for 10 minutes).	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the refrigerant high pressure sensor. See "3.19 Refrigerant high pressure sensor" [▸ 188].

Possible cause: Faulty refrigerant high pressure sensor.

2 Check if the refrigerant circuit is correctly charged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Refrigerant overcharge.

3 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

4 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

5 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

6 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

7 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

8 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-114 & C216-114 – Power open phase detected

Trigger	Effect	Reset
Inverter PCB detects a reverse phase, open phase, unbalanced phase or a current leak.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if any of the phases is missing on the mains power supply terminal, see "To check the power supply of the unit" in "4.1 Electrical circuit" [▸ 234]. Correct if needed.

Possible cause: Missing phase(s) on mains power supply terminal.

3 Check the fuses on the power supply wiring. Replace any broken fuse(s).

Possible cause: Broken fuse(s) on power supply wiring.

4 Using a megger device, check the expansion valve coil, 4-way valve coil, fan motor, pressure sensors, crankcase heater, compressor, … if any earth leakage is found. Replace the component(s) that generate earth leakage.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-115 & C216-115 – Output open phase

Trigger	Effect	Reset
Overcurrent or NO rotation detected at startup.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if the refrigerant circuit is clogged. See "4.2 Refrigerant circuit" [▸ 237].

Possible cause: Clogged refrigerant circuit.

3 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

4 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-116 & C216-116 – Voltage sensor failure

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-117 & C216-117 – Over-voltage during operation

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-118 & C216-118 – Under-voltage during operation

Trigger	Effect	Reset
Abnormal range within the power supply detected by inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C116-145 & C216-145 – Power frequency error

Trigger	Effect	Reset
Inverter PCB detects a reverse phase, open phase, unbalanced phase or a current leak.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Check if any of the phases is missing on the mains power supply terminal, see "To check the power supply of the unit" in "4.1 Electrical circuit" [▸ 234]. Correct if needed.

Possible cause: Missing phase(s) on mains power supply terminal.

3 Check the fuses on the power supply wiring. Replace any broken fuse(s).

Possible cause: Broken fuse(s) on power supply wiring.

4 Using a megger device, check the expansion valve coil, 4-way valve coil, fan motor, pressure sensors, crankcase heater, compressor, … if any earth leakage is found. Replace the component(s) that generate earth leakage.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-65 & C217-65 – Hardware overcurrent protection (instantaneous overcurrent)

Trigger	Effect	Reset
Overcurrent or inverter current abnormality detected by fan inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

> **INFORMATION**
> It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

3 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

4 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-68 & C217-68 – Fin temperature overheat error

Trigger	Effect	Reset
Too high temperature detected by fan inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

2 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

3 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

4 Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

Possible cause: Thermal interface grease NOT applied properly on the heat sink.

5 Check if heat sink plate is correctly fixed with screws.

Possible cause: Heat sink plate not correctly installed.

6 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▶ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-69 & C217-69 – Fin thermistor failure error

Trigger	Effect	Reset
PCB fin thermistor detected open or short-circuit.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Check that the thermal interface grease is applied properly on the (PCB or refrigerant piping) contact surface of the heat sink. Adjust if needed.

Possible cause: Thermal interface grease NOT applied properly on the heat sink.

3 Check if heat sink plate is correctly fixed with screws.

Possible cause: Heat sink plate not correctly installed.

4 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

5 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

6 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

7 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-72 & C217-72 – Fan motor current overload / overcurrent / abnormality

Trigger	Effect	Reset
Overcurrent or inverter current abnormality detected by fan inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the power supply is compliant with the regulations. See "4.1 Electrical circuit" [▸ 234].

Possible cause:
- Faulty or disturbance of the power supply (imbalance >4%),
- Power drop,
- Short circuit.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

3 Perform a check of the inverter PCB. See "3.12 Inverter PCB" [▸ 141].

Possible cause: Faulty inverter PCB.

4 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-75 & C217-75 – IPM error - circuit error detected during waveform output

Trigger	Effect	Reset
Abnormal signal received from outdoor unit fan motor.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-86 & C217-86 – Current detecting circuit offset value

Trigger	Effect	Reset
Abnormal signal received from outdoor unit fan motor.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-88 & C217-88 – Gate driving circuit failure

Trigger	Effect	Reset
Abnormal signal received from outdoor unit fan motor.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-90 & C217-90 – Model setting error

Trigger	Effect	Reset
Main PCB does NOT recognize the fan inverter PCB.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check if the correct spare part is installed for the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Incorrect spare part fan inverter PCB.

2 Check if correct software is installed on the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Incorrect software installed on main PCB.

3 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

4 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C117-91 & C217-91 – EEPROM failure error

Trigger	Effect	Reset
Abnormal signal received from outdoor unit fan motor.	Unit will stop operating.	Reset via user interface.
		Reset on network.

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

2 Perform a check of the fan inverter PCB. See "3.9 Fan inverter PCB" [▸ 128].

Possible cause: Faulty fan inverter PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C119 & C219 – Low discharge superheat alarm

Trigger	Effect	Reset
The unit has worked for too long with low discharge super heat.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface (when it happens for the 3rd time).
		Reset on network (when it happens for the 3rd time)..
		Auto reset (first 2 times when discharge superheat is above 5°C).

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Perform a check of the expansion valve. See "3.8 Expansion valve" [▸ 121].

Possible cause: Faulty expansion valve.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

3 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

4 Perform a check of the compressor. See "3.5 Compressor" [▸ 95].

Possible cause: Faulty compressor or miswiring of the compressor power supply cable.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C120 & C220 – Mechanical high pressure alarm

Trigger	Effect	Reset
Condenser pressure rises above the mechanical high pressure limit.	Unit will stop operating.	Auto reset (first 2 times when Condensing Saturated Temperature is below 65°C).
		Reset via user interface (when it happens for the 3rd time).
		Reset on network (when it happens for the 3rd time).

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Check ambient conditions of the unit. See operation limits in the Databook.

- If ambient temperature is higher than the maximum allowed temperature, perform a reset of the unit.
- If ambient temperature is near the maximum allowed temperature, calibrate the outdoor air thermistor. See "3.21 Thermistors" [▸ 206].
- If ambient temperature is lower than the maximum allowed temperature, continue as described below.

Possible cause: Operation at too high temperature might lead to pressure errors.

2 Perform a check of the outdoor unit fan motor. See "3.15 Outdoor unit fan motor" [▸ 168].

Possible cause: Faulty outdoor unit fan motor.

3 Clean the outdoor heat exchanger. See "5 Maintenance" [▸ 258].

Possible cause: Dirty outdoor heat exchanger.

4 Check ambient temperature. Check if outdoor unit location temperature differs drastically.

5 Check if there is discharge air by-pass on installation location.

Possible cause: External noise. Check further on how to eliminate external factors.

6 Perform a check of the high pressure switch. See "3.11 High pressure switch" [▸ 137].

Possible cause: Faulty high pressure switch.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

2.3.6 Circuit Pumpdown Stop Alarms

> **INFORMATION**
>
> Error codes C1xx are applicable for the main circuit. Error codes C2xx are applicable for the secondary circuit.

C113 & C213 – Suction temperature sensor alarm

Trigger	Effect	Reset
Suction pipe thermistor is NOT operating correctly.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the suction pipe thermistor. See "3.21 Thermistors" [▶ 206].

Possible cause: Faulty suction pipe thermistor or connector fault.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

C114 & C214 – Discharge temperature sensor alarm

Trigger	Effect	Reset
Discharge pipe thermistor is NOT operating correctly.	Unit will stop operating following normal pumpdown procedure.	Reset via user interface.
		Reset on network.
		Auto reset.

To solve the error code

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

1 Perform a check of the discharge pipe thermistor. See "3.21 Thermistors" [▶ 206].

Possible cause: Faulty discharge pipe thermistor or connector fault.

2 Perform a check of the main PCB. See "3.13 Main PCB" [▶ 155].

Possible cause: Faulty main PCB.

> **INFORMATION**
>
> If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

2.3.7 Other errors

ErrC – Communication error

Trigger	Effect	Reset
Incompatible main PCB detected.	Unit will NOT start.	Auto reset when compatible main PCB is detected.
Communication error with HMI.		

To solve the error code

INFORMATION

It is recommended to perform the checks in the listed order.

1 Disconnect the user interface and connect the service monitoring tool to the unit.

- If the main menu list is shown on the service monitoring tool, re-install the user interface and make sure settings are correct. See "1.1 To switch between user interface and service monitoring tool" [▸ 9].
  Possible cause: Incorrect setting on user interface or service monitoring tool.
- If the main menu list is NOT shown on the service monitoring tool, continue with the next step.

2 Check via the user interface that the following parameters are set correctly:

Parameter	Value
Addr: Address	247
Lin: Timeout no communication	60
Butt: timeout tatsi	5
StoP: Modbus stop bits	1 bit
PAr: Parity	EVEn
Baud: Baud rate	57.6 (57600 bps)

- Keep the SET button pressed (7~8 seconds) until Addr is shown on the screen of the user interface.
- Scroll to select the appropriate parameter and press the SET button (parameter value starts flashing = editable).
- Set the desired value and press the SET button to confirm.
- Restart the user interface by turning the power OFF and then ON again via the main switch Q10, or by disconnecting/connecting the user interface cable or main PCB side cable.
  Possible cause: Incorrect parameter setting.

3 Check if the correct spare part is installed for the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Incorrect spare part main PCB.

4 Check if correct software is installed on the main PCB and update as needed. See "3.13 Main PCB" [▸ 155].

Possible cause: Incorrect software installed on main PCB.

5 Perform a check of the main PCB. See "3.13 Main PCB" [▸ 155].

Possible cause: Faulty main PCB.

INFORMATION

If all procedures listed above have been performed and the problem is still present, contact the helpdesk.

3 Components

CAUTION

When replacing a component ALWAYS make sure the correct spare part for your unit is installed.

3.1 5 V DC auxiliary power supply

INFORMATION

ONLY for EWAT/EWYT040~90CZP-A2 units.

3.1.1 Checking procedures

To perform an electrical check of the 5V DC auxiliary power supply

Prerequisite: Stop the unit operation via the user interface.

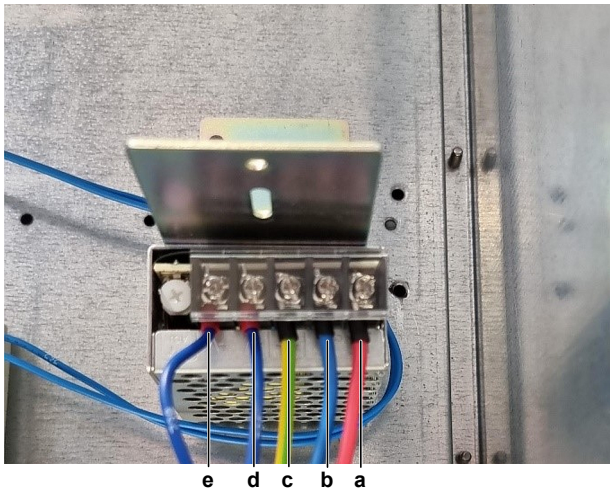
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the output voltage between terminals -V and +V of the auxiliary power supply.

Result: The measured voltage MUST be 5 V DC.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V

Is the measured output voltage correct?	Action
Yes	Auxiliary power supply is OK. Return to troubleshooting of the specific error code and continue with the next procedure.
No	Continue with the next step.

3 Measure the input voltage between terminals L and N of the auxiliary power supply.

Result: The measured voltage MUST be 230 V AC.

Is the measured input voltage correct?	Action
Yes	Replace the auxiliary power supply, see "3.1.2 Repair procedures" [▶ 78].
No	Continue with the next step.

4 Check the power supply to the unit, see "4.1.1 Checking procedures" [▶ 234].

Is the power supply to the unit correct?	Action
Yes	Correct the wiring from the main power supply terminal to the auxiliary power supply, see "6.2 Wiring diagram" [▶ 263].
No	Adjust the power supply to the unit, see "4.1.2 Repair procedures" [▶ 237].

3.1.2 Repair procedures

To remove the 5V DC auxiliary power supply

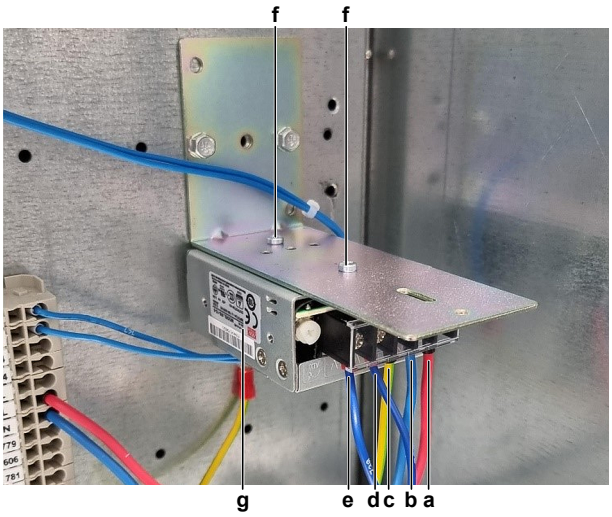
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Remove the plastic cover from the wiring terminals.

2 Loosen the screws and disconnect all the wires from the terminals.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V
f Screw
g Auxiliary power supply

3 Remove the 2 screws that fix the auxiliary power supply to the bracket.

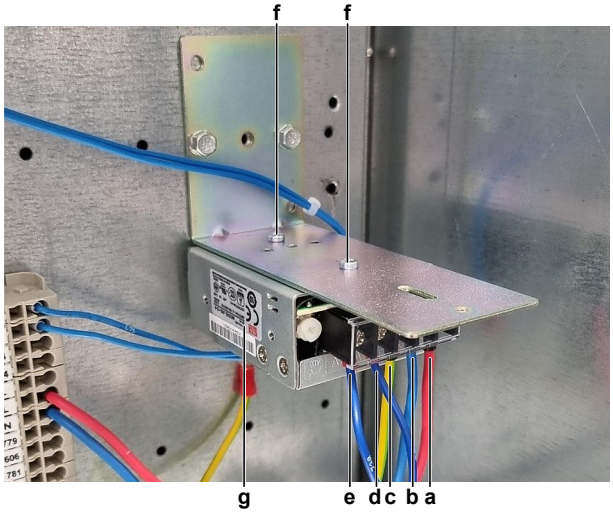
4 Remove the auxiliary power supply from the bracket.

5 To install the auxiliary power supply, see "3.1.2 Repair procedures" [▶ 78].

To install the 5 V DC auxiliary power supply

1 Install the auxiliary power supply in the correct location on the bracket.

2 Install and tighten the 2 screws to fix the auxiliary power supply to the bracket.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V
f Screw
g Auxiliary power supply

3 Connect all the wires to the terminals and tighten the screws to fix the wires.

4 Install the plastic cover on the wiring terminals.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.2 24 V DC auxiliary power supply

3.2.1 Checking procedures

To perform an electrical check of the 24 V DC auxiliary power supply

Prerequisite: Stop the unit operation via the user interface.

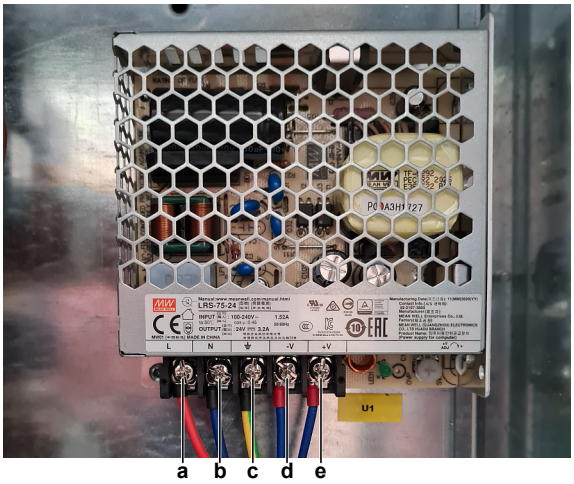
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the output voltage between terminals -V and +V of the auxiliary power supply.

Result: The measured voltage MUST be 24 V DC.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V

Is the measured output voltage correct?	Action
Yes	Auxiliary power supply is OK. Return to troubleshooting of the specific error code and continue with the next procedure.
No	Continue with the next step.

3 Measure the input voltage between terminals L and N of the auxiliary power supply.

Result: The measured voltage MUST be 230 V AC.

Is the measured input voltage correct?	Action
Yes	Replace the auxiliary power supply, see "3.2.2 Repair procedures" [▶ 80].
No	Continue with the next step.

4 Check the power supply to the unit, see "4.1.1 Checking procedures" [▶ 234].

Is the power supply to the unit correct?	Action
Yes	Correct the wiring from the main power supply terminal to the auxiliary power supply, see "6.2 Wiring diagram" [▶ 263].
No	Adjust the power supply to the unit, see "4.1.2 Repair procedures" [▶ 237].

3.2.2 Repair procedures

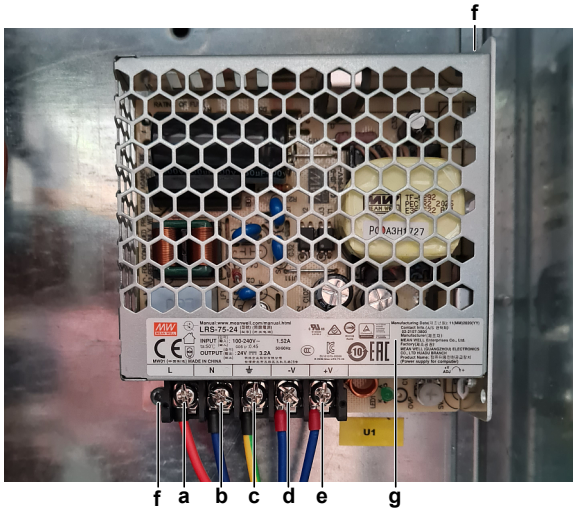
To remove the 24 V DC auxiliary power supply

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Loosen the screws and disconnect all the wires from the terminals.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V
f Screw
g Auxiliary power supply

2 Remove the screws that fix the auxiliary power supply to the switch box.

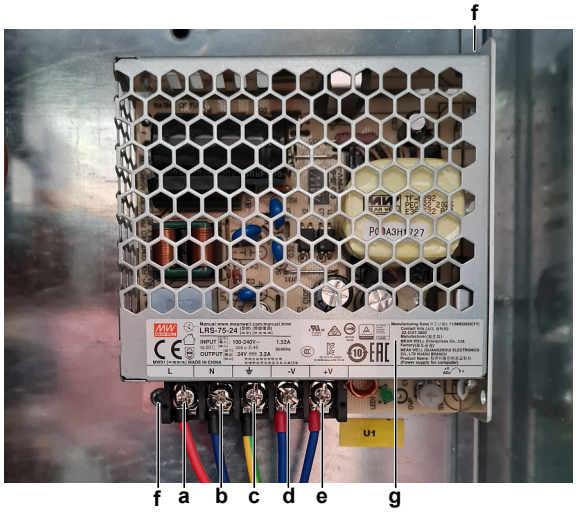
3 Remove the auxiliary power supply from the switch box.

4 To install the auxiliary power supply, see "3.2.2 Repair procedures" [▸ 80].

To install the 24 V DC auxiliary power supply

1 Install the auxiliary power supply in the correct location on the switch box.

2 Install and tighten the screws to fix the auxiliary power supply.



a Terminal L
b Terminal N
c Terminal GND
d Terminal -V
e Terminal +V
f Screw
g Auxiliary power supply

3 Connect all the wires to the terminals and tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.3 4-way valve

3.3.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the 4-way valve

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

DANGER: RISK OF BURNING/SCALDING

The coil gets hot while energized. Wait for it to cool down.

2 Verify that the screw is firmly fixing the coil to the valve body.

3 Check if any damage or burst is present.

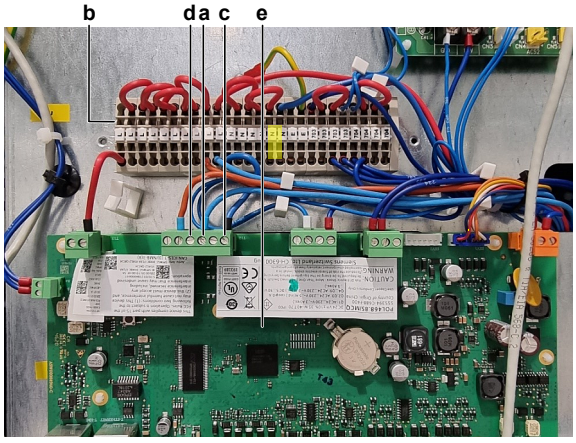
Is the 4-way valve coil firmly fixed and not visually damaged?	Action
Yes	Perform an electrical check of the 4-way valve, see "3.3.1 Checking procedures" [▸ 82].
No	Fix or replace the 4-way valve coil, see "3.3.2 Repair procedures" [▸ 87].

To perform an electrical check of the 4-way valve

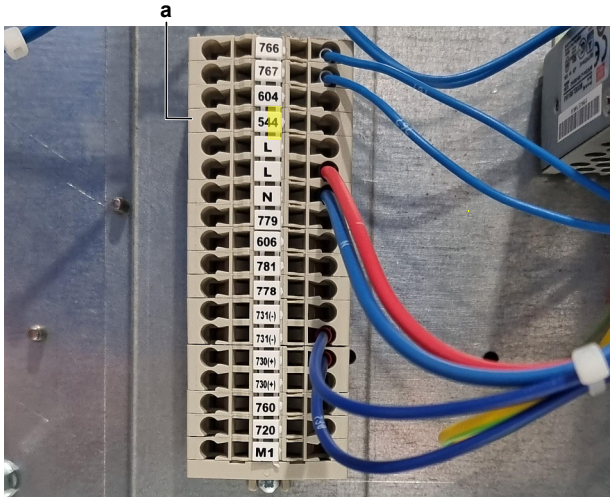
1 First perform a mechanical check of the 4-way valve, see "3.3.1 Checking procedures" [▸ 82].

2 Disconnect the wires of the 4-way valve:

- For 4-way valve Y4W1; disconnect the wire from terminal Q6 of terminal block T12 on the main PCB and the wire from terminal L of terminal block XU.
- For 4-way valve Y4W2, disconnect the wires from terminals 604 and L of terminal block X2.



a Terminal Q6 of terminal block T12
b Terminal block XU
c Terminal COM of terminal block T12
d Terminal Q7 of terminal block T12
e Main PCB



a Terminal block X2

3 Measure the resistance of the 4-way valve coil between the disconnected wires.

Result: The measured resistance MUST be 2.085 kΩ ± 10%.

Is the measured value correct?	Action
Yes	Continue with the next step.
No	Replace the 4-way valve coil, see "3.3.2 Repair procedures" [▶ 87].

4 Connect the 4-way valve wires to the appropriate terminals.

5 Turn ON the power using the main switch Q10.

6 Activate the 4-way valve via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > 4-Way Valve.
- Set to On.

7 Measure the voltage between the following terminals:

Result: The measured voltage MUST be 230 V AC.

4-way valve	Terminals
4-way valve Y4W1	Q6 of terminal block T12 on main PCB and L of terminal block XU
4-way valve Y4W2	L and 604 of terminal block X2

8 De-activate the 4-way valve via the service monitoring tool:

- In the Main Menu, select Commission Unit > Manual Control > Circuit # > 4-Way Valve.
- Set to Off.

9 Again measure the voltage between the terminals.

Result: The measured voltage MUST be 0 V AC.

Are the measured voltages correct?	Action
Yes	Perform a position check of the 4-way valve, see "3.3.1 Checking procedures" [▸ 82].
No	Continue with the next step.

10 Disconnect the wires from the main PCB:

- For 4-way valve Y4W1; disconnect the wires from terminals Q6 and COM of terminal block T12 on the main PCB.
- For 4-way valve Y4W2, disconnect the wires from the terminals Q7 and COM of terminal block T12 on the main PCB.

11 Activate the 4-way valve via the service monitoring tool:

- In the Main Menu, select Commission Unit > Manual Control > Circuit # > 4-Way Valve.
- Set to On.

12 Measure the resistance between the following terminals:

Result: The measurement MUST be short circuit (4-way valve active, switch contact on main PCB = closed).

4-way valve	Terminals
4-way valve Y4W1	COM and Q6 of terminal block T12 on main PCB
4-way valve Y4W2	COM and Q7 of terminal block T12 on main PCB

13 De-activate the 4-way valve via the service monitoring tool:

- In the Main Menu, select Commission Unit > Manual Control > Circuit # > 4-Way Valve.
- Set to Off.

14 Again measure the resistance between the terminals.

Result: The measurement MUST be open circuit (4-way valve NOT active, switch contact on main PCB = open).

Are the measured resistances correct?	Action
Yes	Check and correct the wiring between the main power supply terminal and the 4-way valve connection points, see "6.2 Wiring diagram" [▸ 263].

Are the measured resistances correct?	Action
No	Perform a check the main PCB, see "3.13 Main PCB" [▸ 155].

To perform a position check of the 4-way valve

1 First perform an electrical check of the 4-way valve, see "3.3.1 Checking procedures" [▸ 82].

2 Enable the unit via the service monitoring tool:

- In the Main Menu, select Unit Enable.
- Set to Enable.

When outdoor temperature is mild and unit can switch between heating and cooling

> **INFORMATION**
>
> This procedure is ONLY possible when the outdoor temperature is within the temperature range for both **Heating** and **Cooling** operation mode. See the installation, operation and maintenance manual for the temperature range of the operation modes.

1 Activate **Heating** operation via the service monitoring tool.

> **INFORMATION**
>
> It is recommended to connect the service monitoring tool to the unit and verify the operation mode of the 4-way valve.

2 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "6.3 Piping diagram" [▸ 264]).

> **INFORMATION**
>
> The flow through the 4-way valve is correct if the water temperature after the heat exchanger rises/drops when operating in **Heating**/**Cooling** mode.

Is the flow correct?	Action
Yes	Skip the next step of this procedure.
No	Perform the next step of this procedure.

3 Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "3.3.2 Repair procedures" [▸ 87].
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "4.2.1 Checking procedures" [▸ 237].

4 De-activate **Heating** and activate **Cooling** operation via the service monitoring tool.

5 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram. (See "6.3 Piping diagram" [▸ 264]).

INFORMATION

The flow through the 4-way valve is correct if the water temperature after the heat exchanger rises/drops when operating in **Heating**/**Cooling** mode.

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the body of the 4-way valve, see "3.3.2 Repair procedures" [▸ 87].

When outdoor temperature does not allow the unit to run in cooling or heating mode

INFORMATION

Follow this procedure when the outdoor temperature is outside the temperature range for one of the operation modes (**Heating** or **Cooling**). The unit CANNOT operate in the mode for which the outdoor temperature is outside its temperature range. See the installation, operation and maintenance manual for the temperature range of the operation modes.

1 With the unit operating, connect the service monitoring tool to the unit and check whether the unit is operating in **Heating** or **Cooling** mode.

2 Check with a contact thermometer (or by touching) if the flow through the 4-way valve corresponds with the flow shown in the flow diagram of the specific operation mode. (See "6.3 Piping diagram" [▸ 264]).

INFORMATION

The flow through the 4-way valve is correct if the water temperature after the heat exchanger rises/drops when operating in **Heating**/**Cooling** mode.

Is the flow correct?	Action
Yes	4-way valve is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Perform the next step of this procedure.

3 Connect a manifold to one of the service ports of the refrigerant circuit and check the pressure (suction, discharge). Compare with normal operation conditions of the unit.

Refrigerant pressure correct?	Action
Yes	Replace the body of the 4-way valve, see "3.3.2 Repair procedures" [▸ 87].
No	Leaks may be found in the refrigerant circuit. Perform a pressure test of the refrigerant circuit, see "4.2.1 Checking procedures" [▸ 237].

3.3.2 Repair procedures

To remove the 4-way valve coil

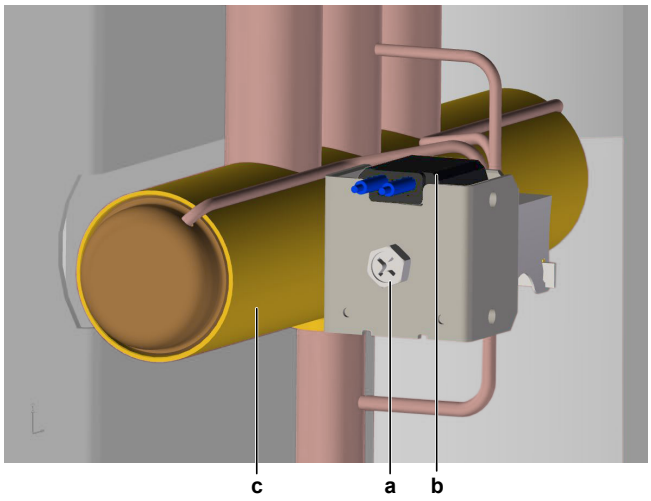
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

Prerequisite: If needed, remove any parts to create more space for the removal of the 4-way valve coil.

1 Remove the screw and remove the 4-way valve coil from the 4-way valve body.

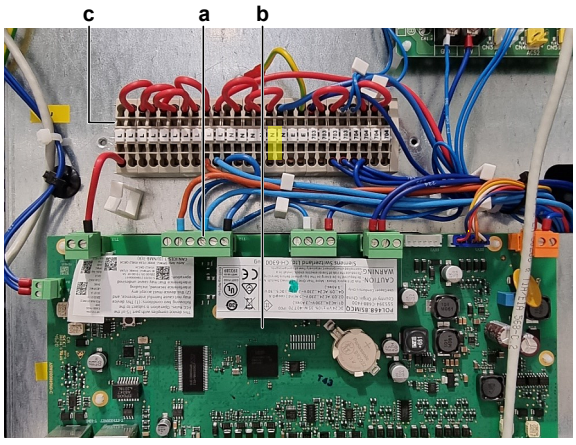


a Screw
b 4-way valve coil
c 4-way valve body

2 Cut all tie straps that fix the 4-way valve coil harness.

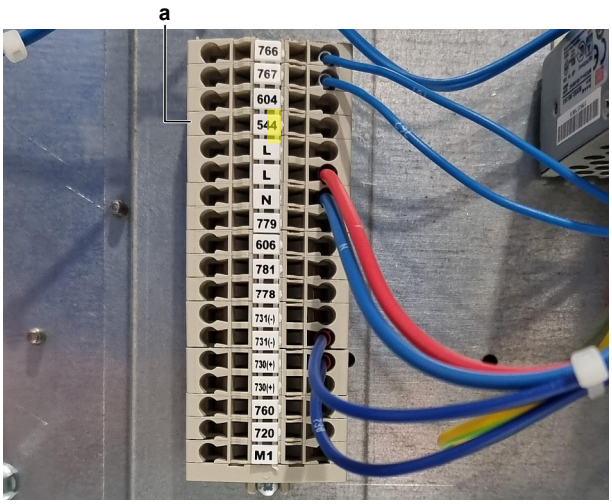
3 Disconnect the wires of the 4-way valve:

- For 4-way valve Y4W1; disconnect the wire from terminal Q6 of terminal block T12 on the main PCB and the wire from terminal L of terminal block XU.



a Terminal Q6 of terminal block T12
b Main PCB
c Terminal block XU

- For 4-way valve Y4W2, disconnect the wires from terminals 604 and L of terminal block X2.



a Terminal block X2

4 To install the 4-way valve coil, see "3.3.2 Repair procedures" [▸ 87].

To remove the 4-way valve body

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

1 Remove the 4-way valve coil from the 4-way valve body, see "3.3.2 Repair procedures" [▸ 87].

2 Remove and keep the putty (if installed) and the insulation (if installed) for re-use.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the components near the 4-way valve pipes. Heat the brazing points of the 4-way valve pipes using an oxygen acetylene torch and remove the 4-way valve pipes from the refrigerant pipes using pliers.

5 Stop the nitrogen supply when the piping has cooled down.

6 Remove the 4-way valve.

INFORMATION

It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the 4-way valve body, see "3.3.2 Repair procedures" [▸ 87].

To install the 4-way valve body

1 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

2 Remove the 4-way valve coil from the spare part 4-way valve body.

3 Install the 4-way valve body in the correct location and correctly oriented. Insert the pipe ends in the pipe expansions.

4 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

5 Wrap a wet rag around the 4-way valve body and any other components near the 4-way valve and solder the 4-way valve pipes to the refrigerant pipes.

CAUTION

Overheating the valve will damage or destroy it.

6 After soldering is done, stop the nitrogen supply after the component has cooled-down.

7 Install the putty (if available) and the insulation (if available) in their original location.

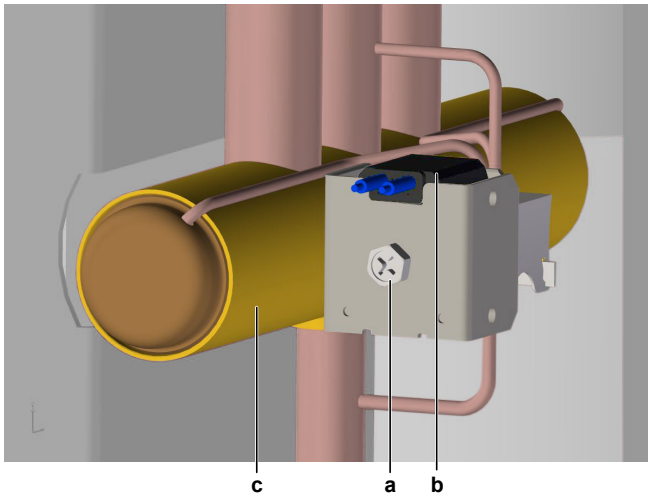
8 Install the 4-way valve coil on the 4-way valve body, see "3.3.2 Repair procedures" [▸ 87].

9 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

10 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

To install the 4-way valve coil

1 Install the 4-way valve coil on the 4-way valve body.

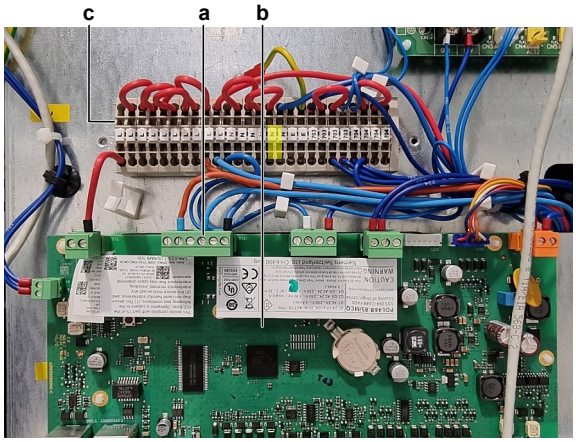


a Screw
b 4-way valve coil
c 4-way valve body

2 Install and tighten the screw to fix the 4-way valve coil.

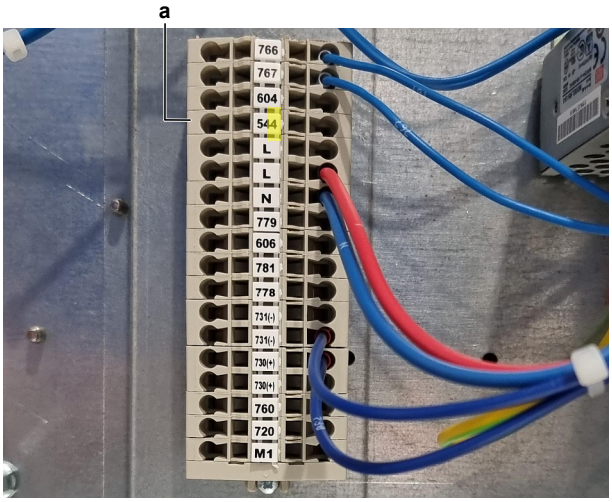
3 Connect the wires of the 4-way valve:

- For 4-way valve Y4W1; connect the wires to terminal Q6 of terminal block T12 on the main PCB and to terminal L of terminal block XU.



a Terminal Q6 of terminal block T12
b Main PCB
c Terminal block XU

- For 4-way valve Y4W2, connect wires to terminals 604 and L of terminal block X2.



a Terminal block X2

4 Fix the 4-way valve coil harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.4 ACS digital I/O PCB

3.4.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the ACS digital I/O PCB

Prerequisite: Stop the unit operation via the user interface.

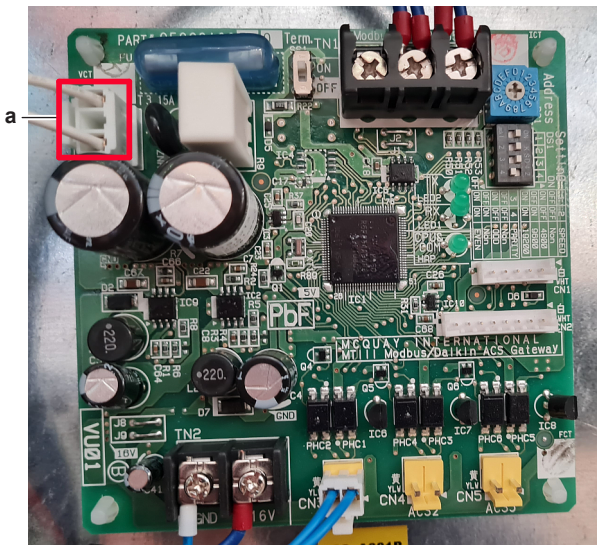
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the voltage between pins of connector CN0 of the ACS digital I/O PCB.

Result: The measured voltage MUST be 24 V DC.



a CN0 connector

Is the measured voltage on the ACS digital I/O PCB correct?	Action
Yes	Return to "3.4.1 Checking procedures" [▸ 90] of the ACS digital I/O PCB and continue with the next procedure.
No	Continue with the next step.

3 Measure the output voltage between terminals -V and +V of the 24 V DC auxiliary power supply.

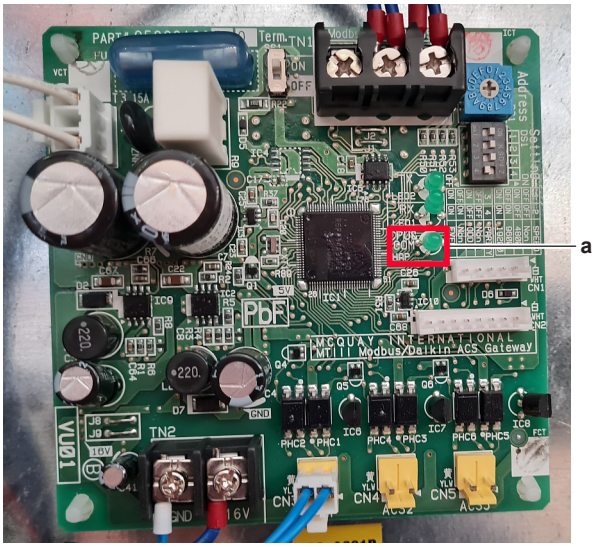
Result: The measured voltage MUST be 24 V DC.

Is the measurement correct?	Action
Yes	Correct the wiring between the ACS digital I/O PCB and the 24 V DC auxiliary power supply, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the 24 V DC auxiliary power supply, see "3.2.1 Checking procedures" [▸ 79].

To check the HAP LED of the ACS digital I/O PCB

Prerequisite: First perform a power check of the ACS digital I/O PCB, see "3.4.1 Checking procedures" [▸ 90].

1 Locate the HAP LED on the ACS digital I/O PCB.



a HAP LED

Does the HAP LED blink in regular intervals (1 second ON/1 second OFF)?	Action
Yes	Return to "3.4.1 Checking procedures" [▸ 90] of the ACS digital I/O PCB and continue with the next procedure.
No	Replace the ACS digital I/O PCB, see "3.4.2 Repair procedures" [▸ 93].

To check if the correct spare part is installed

1. First perform all earlier checks of the ACS digital I/O PCB, see "3.4.1 Checking procedures" [▸ 90].
2. If a spare part PCB is installed in your unit, check that it is the correct one by performing the procedure described below.
3. Make sure the DIP switches of the PCB are set correctly, see "3.4.2 Repair procedures" [▸ 93].
4. Visit your local spare parts webbank.
5. Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the ACS digital I/O PCB installed?	Action
Yes	Return to "3.4.1 Checking procedures" [▸ 90] of the ACS digital I/O PCB and continue with the next procedure.
No	Replace the ACS digital I/O PCB, see "3.4.2 Repair procedures" [▸ 93].

To check the wiring of the ACS digital I/O PCB

Prerequisite: First perform all earlier checks of the ACS digital I/O PCB, see "3.4.1 Checking procedures" [▸ 90].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Check that all wires are properly connected and that all connectors are fully plugged-in.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "6.2 Wiring diagram" [▸ 263].

INFORMATION

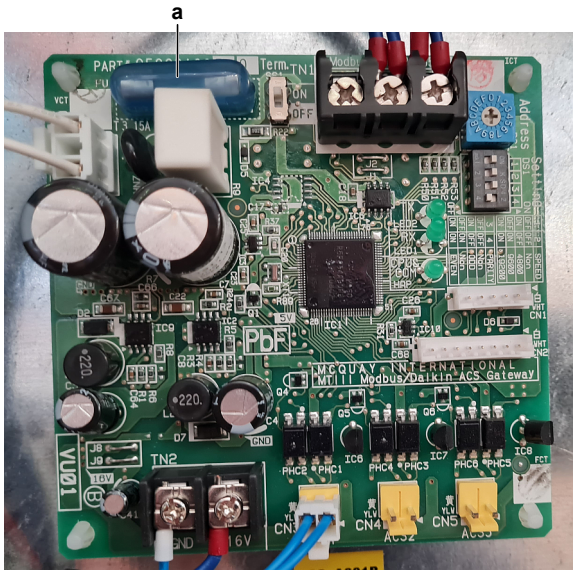
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.4.1 Checking procedures" [▸ 90] of the ACS digital I/O PCB and continue with the next procedure.

To check the fuse of the ACS digital I/O PCB

Prerequisite: First perform all earlier checks of the ACS digital I/O PCB, see "3.4.1 Checking procedures" [▸ 90].

1 Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



a Fuse

Blown fuse on the ACS digital I/O PCB?	Action
Yes	Replace the ACS digital I/O PCB, see "3.4.2 Repair procedures" [▸ 93].
No	Return to "3.4.1 Checking procedures" [▸ 90] of the ACS digital I/O PCB and continue with the next procedure.

3.4.2 Repair procedures

To remove the ACS digital I/O PCB

Prerequisite: Stop the unit operation via the user interface.

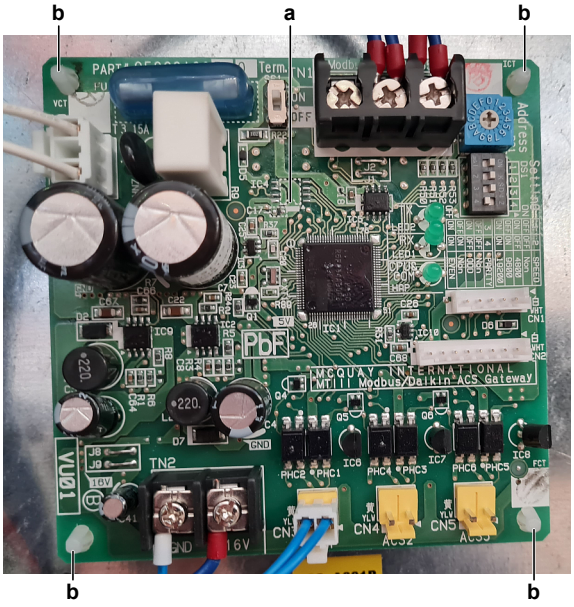
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Disconnect all connectors from the ACS digital I/O PCB.

2 Loosen the screws and disconnect the wires from the ACS digital I/O PCB.

3 Carefully pull the ACS digital I/O PCB and unlatch the PCB supports one by one using a small pair of pliers.



a ACS digital I/O PCB
b PCB support

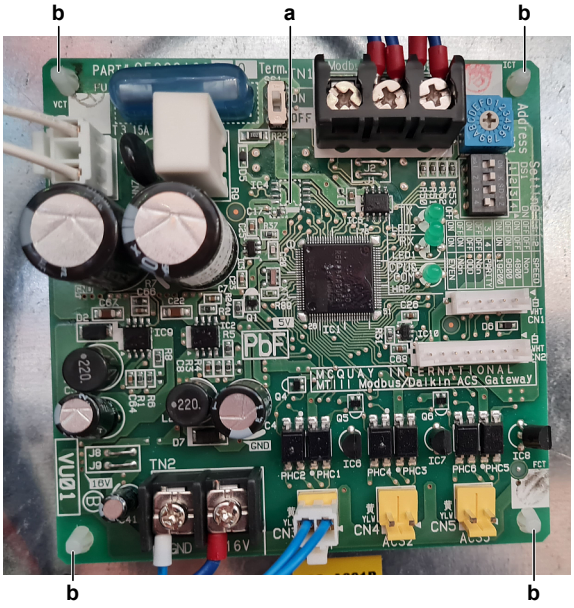
4 Remove the ACS digital I/O PCB from the switch box.

5 To install the ACS digital I/O PCB, see "3.4.2 Repair procedures" [▸ 93].

To install the ACS digital I/O PCB

1 Install the ACS digital I/O PCB in the correct location in the switch box.

2 Attach the ACS digital I/O PCB to the PCB supports.



a ACS digital I/O PCB
b PCB support

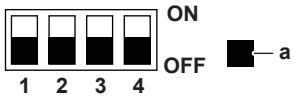
3 Connect all connectors to the ACS digital I/O PCB.

4 Connect the wires to the ACS digital I/O PCB and tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.4.1 Checking procedures" [▶ 90] of the ACS digital I/O PCB and continue with the next procedure.

To set the DIP switches of the spare part ACS digital I/O PCB

If a spare part PCB is installed in your unit, the DIP switches need to be set. By default (factory settings) all switches are in off position.



a Shows the position of a switch
ON ON
OFF OFF

1 Shut the power off.

2 Position the DIP switches as shown below.

ON ON
OFF OFF

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.4.1 Checking procedures" [▶ 90] of the ACS digital I/O PCB and continue with the next procedure.

3.5 Compressor

3.5.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform an auditive check of the compressor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Open the compressor insulation.

2 Turn ON the power using the main switch Q10.

3 Start the unit operation via the user interface or service monitoring tool.

4 Wait for - or create condition to operate the compressor.

5 Or activate the compressor via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > Compressor #.
- Set Control Mode to Manual Stp.
- Set Manual Capacity to 20%.

6 Listen to the compressor when it tries to operate. Judge if a mechanical lock is present.

INFORMATION

If you have a multimeter with data logging functionality, record the current in 1 of the U-V-W wires at compressor start-up. If mechanical lock is present, logged current will drastically increase to a peak value and the unit will trigger an error.

INFORMATION

If a mechanical lock is present, also check and eliminate the root cause. Mechanical lock is most likely caused by lack of lubrication (which might be related to overheat or wet operation), failing crankcase heater (if available), impurities in the refrigerant, ...

A mechanical lock is present on the compressor?	Action
Yes	Replace the compressor, see "3.5.2 Repair procedures" [▸ 102].
No	Perform an mechanical check of the compressor, see "3.5.1 Checking procedures" [▸ 95].

To perform a mechanical check of the compressor

Prerequisite: First perform an auditive check of the compressor, see "3.5.1 Checking procedures" [▸ 95].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Visually check:

- For oil drops around the compressor. Locate and fix as needed.
- Pipes for signs of damage. Replace pipes as needed.

3 Check that the compressor bolts are correctly fixed. Fix as needed.

4 Check that the compressor wire terminals cover is correctly installed and fixed. Correct as needed.

5 Check the compressor dampers for any damage.

a Damper

INFORMATION

The compressor dampers may look different.

Compressor dampers are in a good condition?	Action
Yes	Perform an electrical check of the compressor, see "3.5.1 Checking procedures" [▸ 95].
No	Replace the compressor and/or damaged dampers, see "3.5.2 Repair procedures" [▸ 102].

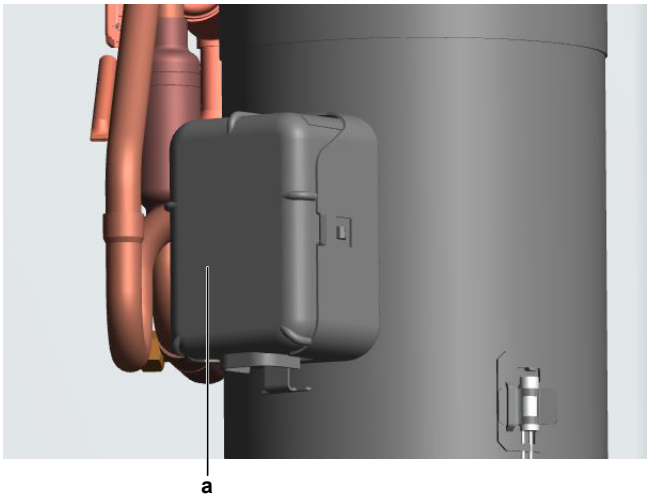
To perform an electrical check of the compressor

1 First perform a mechanical check of the compressor, see "3.5.1 Checking procedures" [▸ 95].

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

3 Loosen and remove the 3 bolts that fix the compressor wiring.

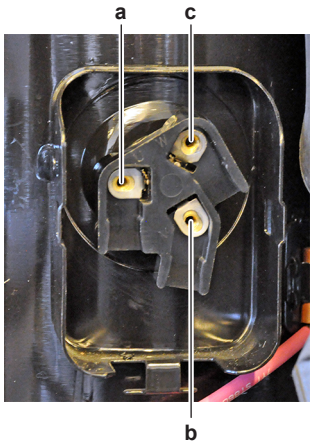
4 Remove the wiring from the compressor wire terminals U, V and W.

5 Carefully straighten the terminal lugs.

6 Remove the black wire guide.

INFORMATION

Note the position of the wiring on the compressor wire terminals to allow correct connection during installation.



a U
b V
c W

CAUTION

Before measuring the compressor motor windings resistance, measure the resistance of the multimeter probes by holding the probes against each other. If the measured resistance is NOT 0 Ω, this value MUST be subtracted from the measured winding resistance.

7 Measure the resistance between the compressor motor windings U-V, V-W and U-W.

Result: All measurements MUST be approximately the same.

Unit	Compressor	Winding resistance value (at temperature of 20°C)
EWAT/EWYT016~25CZP-A1	M1C	0.52 Ω±14%
EWAT/EWYT032~40CZP-A1	M1C	0.237 Ω±14%
EWAT/EWYT040~50CZP-A2	M1C + M2C	0.52 Ω±14%
EWAT/EWYT064CZP-A2	M1C	0.237 Ω±14%
	M2C	0.52 Ω±14%
EWAT/EWYT090CZP-A2	M1C + M2C	0.237 Ω±14%

Compressor motor winding measurements are correct?	Action
Yes	Continue with the next step.
No	Replace the compressor, see "3.5.2 Repair procedures" [▶ 102].

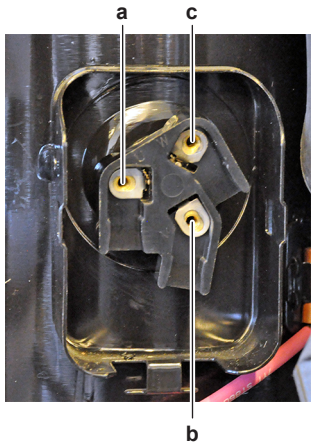
8 Measure the continuity of the U, V and W wires between the compressor and the PCB. If no continuity, correct as needed, see "6.2 Wiring diagram" [▶ 263].

9 Install the black wire guide over the terminal lugs.

10 Bend the terminal lugs against the black wire guide.

11 Align the wiring with the compressor wire terminals U, V and W.

12 Insert and fix the 3 bolts that fix the compressor wiring.



a U
b V
c W

13 Install the compressor insulation.

14 Turn ON the power using the main switch Q10.

15 Start the unit operation via the user interface or service monitoring tool.

16 Wait for – or create condition to operate the compressor.

17 Or activate the compressor via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > Compressor #.
- Set Control Mode to Manual Stp.
- Set Manual Capacity to 20%.

18 Once the compressor operates, measure the U-V-W inverter voltages. All measurements MUST be the same.

Inverter voltage measurements are correct?	Action
Yes	Continue with the next step.
No	Perform a check of the appropriate PCB, see "3 Components" [▸ 77].

19 Measure the current in each phase U, V and W while compressor is operating. All measurements MUST be the same.

Compressor motor winding current measurements are correct?	Action
Yes	Perform an insulation check of the compressor, see "3.5.1 Checking procedures" [▸ 95].
No	Preventively replace the compressor, see "3.5.2 Repair procedures" [▸ 102].

To perform an insulation check of the compressor

Prerequisite: First perform an electrical check of the compressor, see "3.5.1 Checking procedures" [▸ 95].

Prerequisite: Stop the unit operation via the user interface.

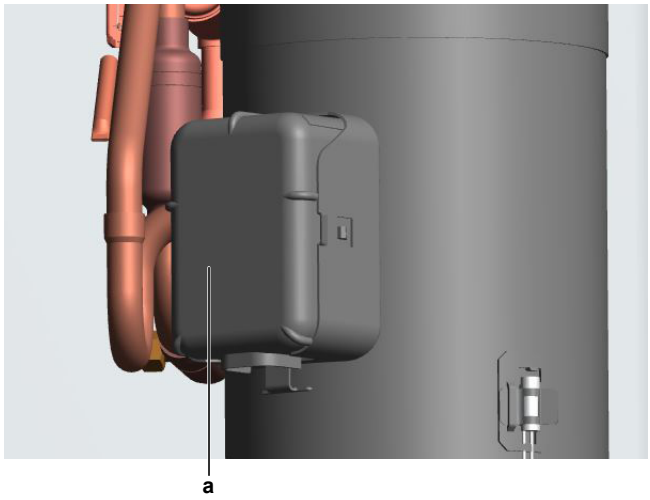
Prerequisite: Turn OFF the main switch Q10.

1 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

3 Loosen and remove the 3 bolts that fix the compressor wiring.

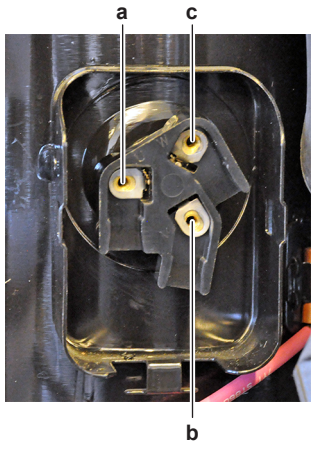
4 Remove the wiring from the compressor wire terminals U, V and W.

5 Carefully straighten the terminal lugs.

6 Remove the black wire guide.

INFORMATION

Note the position of the wiring on the compressor wire terminals to allow correct connection during installation.



a U
b V
c W

7 Set the Megger voltage to 500 V DC or 1000 V DC.

8 Measure the insulation resistance between the following terminals. The measured insulation resistance MUST be >3 MΩ.

- U–ground,
- V–ground,
- W–ground.

Compressor insulation measurements are correct?	Action
Yes	Compressor is OK. Return to troubleshooting of the specific error and continue with the next procedure.

Compressor insulation measurements are correct?	Action
No	Replace the compressor, see "3.5.2 Repair procedures" [▸ 102].

3.5.2 Repair procedures

To remove the compressor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

Prerequisite: Remove the compressor insulation.

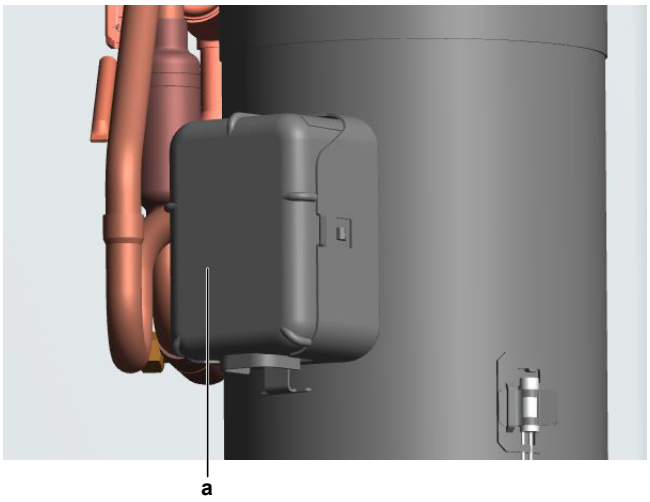
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

1 If needed, remove any parts to create more space for the removal of the compressor.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Remove the cover of the compressor wire terminals.



a Compressor wire terminals cover

3 Loosen and remove the 3 bolts that fix the compressor wiring.

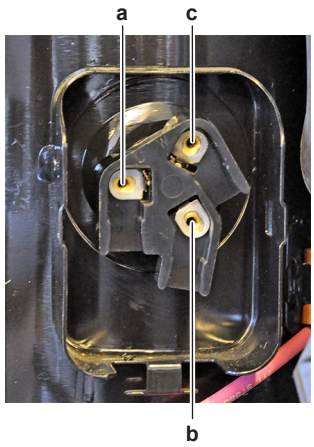
4 Remove the wiring from the compressor wire terminals U, V and W.

5 Carefully straighten the terminal lugs.

6 Remove the black wire guide.

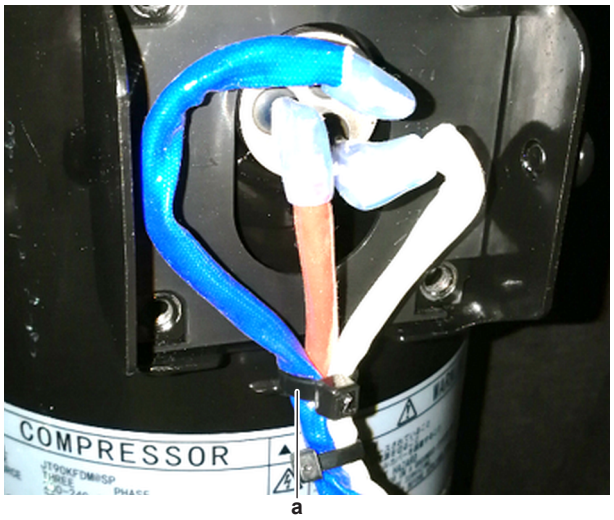
INFORMATION

Note the position of the wiring on the compressor wire terminals to allow correct connection during installation.



a U
b V
c W

7 Cut the tie strap and remove the compressor wiring from the compressor body.



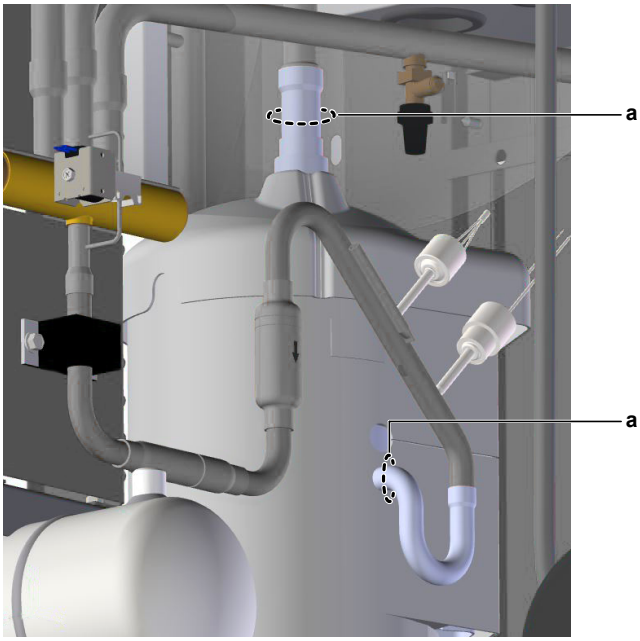
a Tie strap

8 Remove the crankcase heater, see "To remove the crankcase heater" [▸ 118].

9 Remove the compressor thermal protector, see "To remove the compressor thermal protector" [▸ 110].

10 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

11 Wrap a wet rag around the components near the compressor pipes. Heat the brazing points of the compressor pipes using an oxygen acetylene torch and remove the refrigerant pipes from the compressor pipes using pliers.

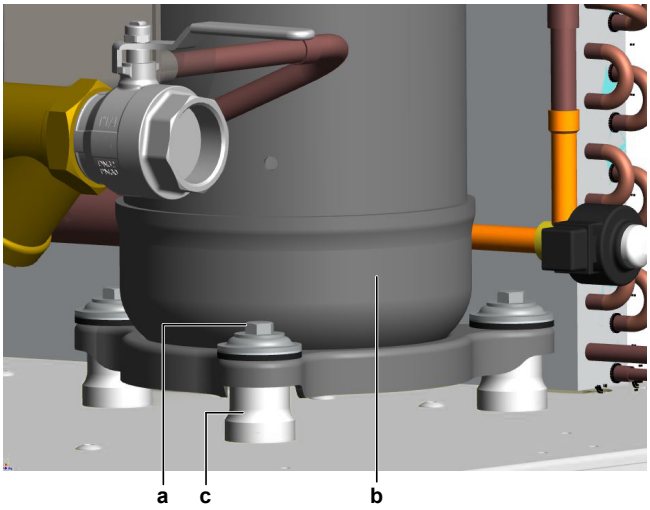


a Compressor pipe

12 Stop the nitrogen supply when the piping has cooled down.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

13 Remove the nuts and bolts and remove the compressor from the unit.



a Bolt
b Compressor
c Damper

14 Remove the 4 dampers from the compressor.

> **INFORMATION**
>
> The compressor dampers may look different.

15 Remove the bushings and keep them for re-use.

16 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

17 To install the compressor, see "3.5.2 Repair procedures" [▸ 102].

To install the compressor

1 Check the state of the dampers. Replace if worn.

2 Install the 4 dampers in the correct location on the unit.

3 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

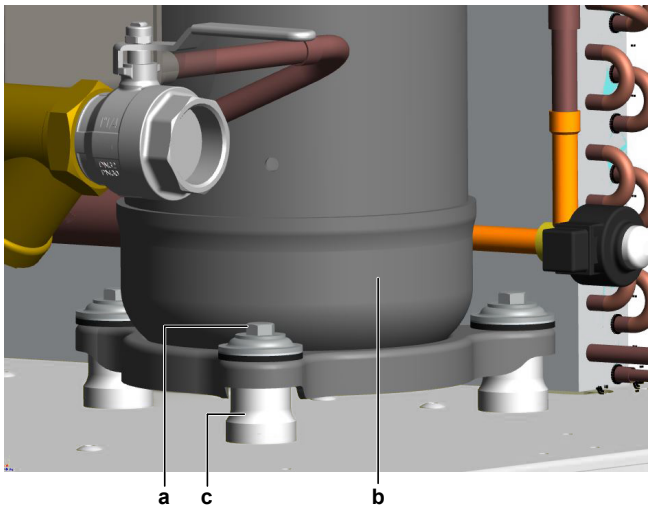
4 Remove the caps from the compressor pipes (of the new compressor).

CAUTION

The oil in the compressor is hygroscopic. Therefore remove the caps from the compressor pipes as late as possible.

5 Install the compressor on the correct location on the dampers. Properly insert the refrigerant pipes in the pipe expansions of the compressor pipes.

6 Install and tighten the bolts and nuts to fix the compressor to the dampers.



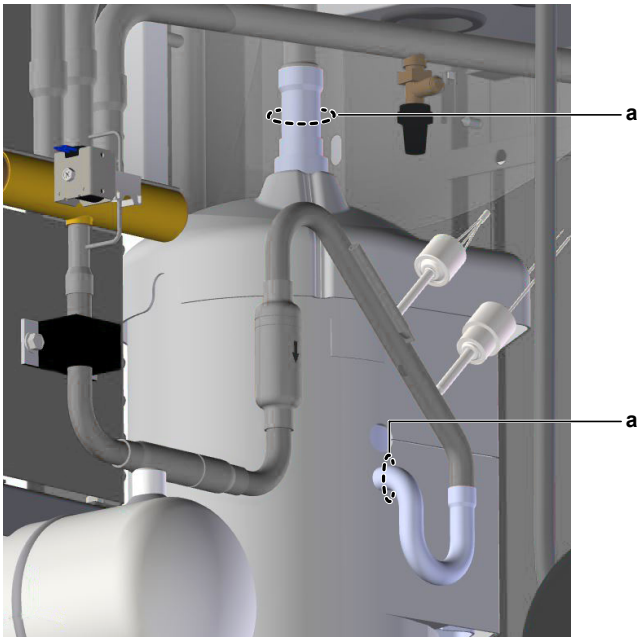
a Bolt
b Compressor
c Damper

INFORMATION

The compressor dampers may look different.

7 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

8 Wrap a wet rag around the compressor pipes and any other components near the compressor and solder the compressor pipes to the refrigerant pipes.



a Compressor pipe

CAUTION

Overheating the compressor pipes (and the oil inside the compressor pipes) will damage or destroy the compressor.

9 After soldering is done, stop the nitrogen supply after the component has cooled-down.

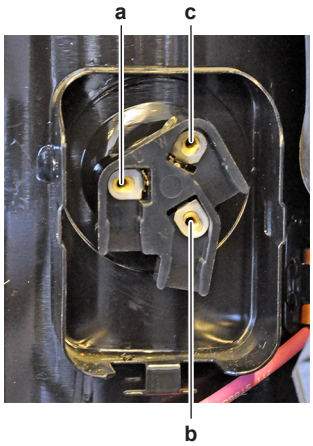
10 Install the compressor thermal protector, see "To install the compressor thermal protector" [▸ 112].

11 Install the black wire guide over the terminal lugs.

12 Bend the terminal lugs against the black wire guide.

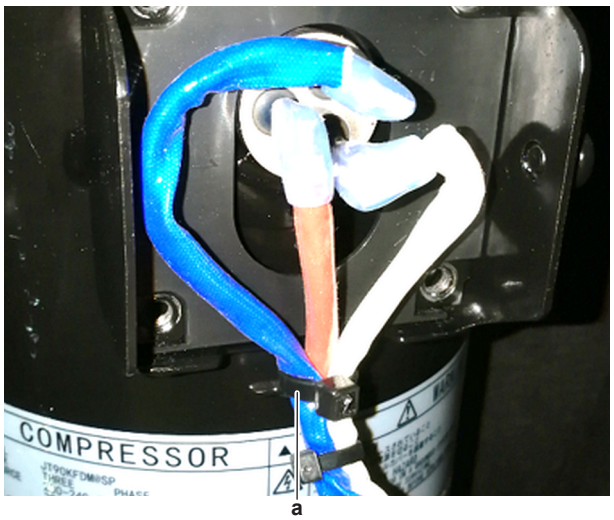
13 Align the wiring with the compressor wire terminals U, V and W.

14 Insert and fix the 3 bolts that fix the compressor wiring.



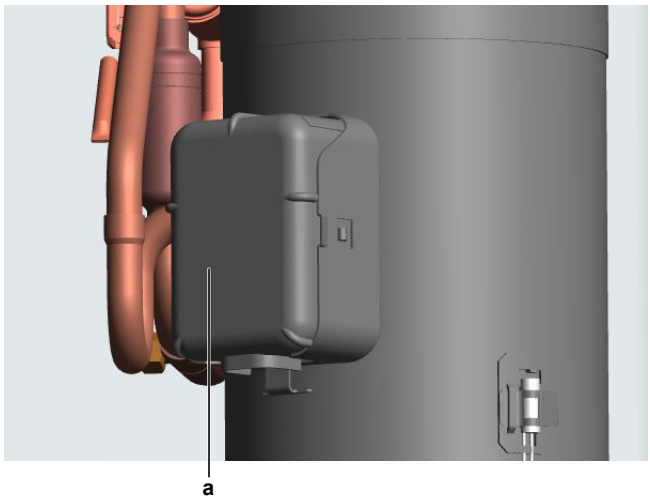
a U
b V
c W

15 Fix the compressor wiring to the protrusion on the compressor body using a new tie strap.



a Tie strap

16 Install the cover of the compressor wire terminals.



a Compressor wire terminals cover

Install the crankcase heater, see "To install the crankcase heater" [▸ 119]

17 Install the compressor insulation, see "3.5.2 Repair procedures" [▸ 102].

18 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

19 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To remove the compressor insulation

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Detach the lower strips and open the bottom part of insulation.

a Insulation (bottom part)
b Insulation (middle part)
c Top strip

2 Detach the side strips and open the middle part of the insulation.

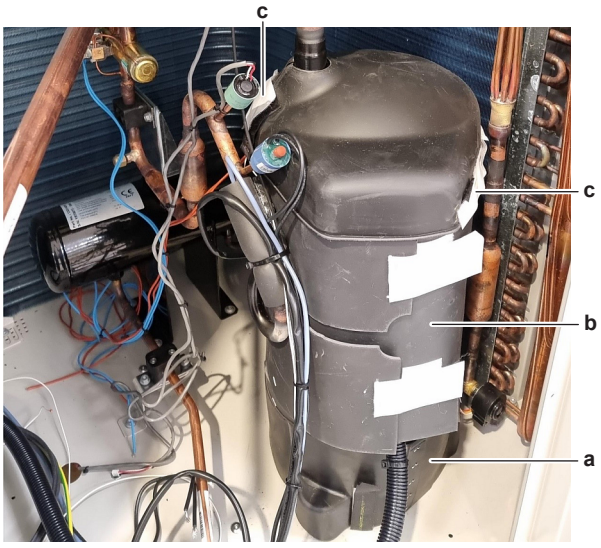
3 Detach the top strips and remove the insulation from the compressor.

4 To install the compressor insulation, see "3.5.2 Repair procedures" [▸ 102].

To install the compressor insulation

1 Install the insulation around the compressor.

2 Fit the top and middle part of the insulation in place and attach the top strips.



a Insulation (bottom part)
b Insulation (middle part)
c Top strip

3 Attach the side strips.

4 Route the compressor wiring, compressor boy thermistor wiring and crankcase heater wiring out of the insulation.

5 Fit the bottom part of the insulation in place and attach the lower strips.

INFORMATION

Make sure that the insulation nicely fits around the compressor.

3.6 Compressor thermal protector

3.6.1 Checking procedures

To perform a mechanical check of the compressor thermal protector

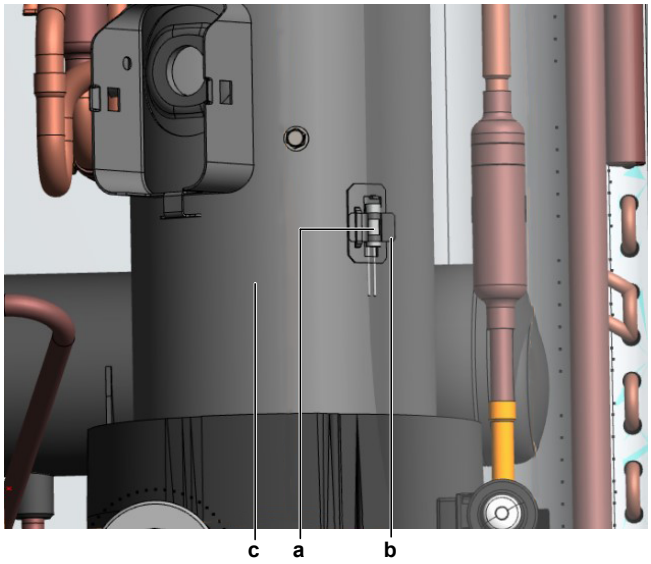
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

Prerequisite: Remove the compressor insulation.

1 Remove the compressor thermal protection from the compressor.



a Compressor thermal protector
b Bracket
c Compressor

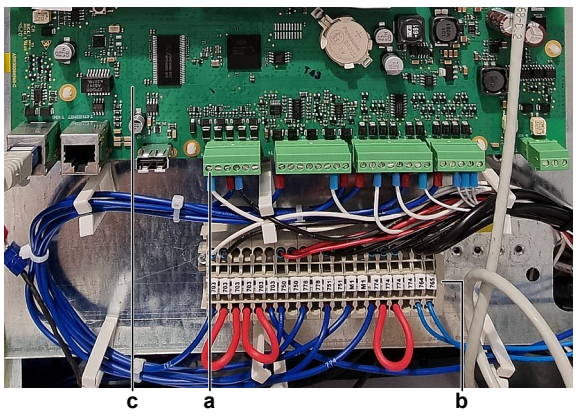
2 If in doubt, measure the temperature of the compressor thermal protection.

Result: The temperature MUST be below 145°C.

3 Using a hot air gun, carefully heat the compressor thermal protection to slightly above 155°C (compressor thermal protection trips at 145~155°C).

4 Disconnect the wires of the compressor thermal protector:

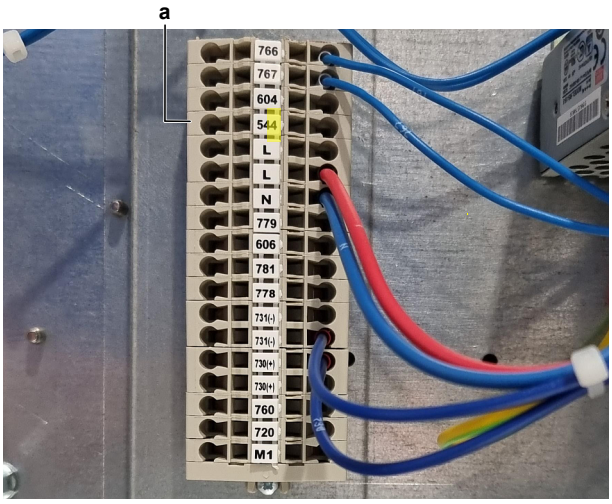
- For compressor thermal protector S1; disconnect the wire from terminal D5 of terminal block T5 on the main PCB and the wire from terminal 703 of terminal block XD.



a Terminal D5 of terminal block T5
b Terminal block XD

c Main PCB

- For compressor thermal protector S2, disconnect the wires from terminals 606 and N of terminal block X2.



a Terminal block X2

> **INFORMATION**
>
> Make sure that all compressor thermal protector wiring between the wiring terminals is properly connected and NOT damaged (check continuity), see "6.2 Wiring diagram" [▸ 263].

5 Measure the resistance between the disconnected wires of the compressor thermal protection.

Result: The contact MUST be open (measured resistance = OL).

6 Let the compressor thermal protection cool down below 105°C (reset temperature is 105~135°C).

7 Again measure the resistance between disconnected wires of the compressor thermal protection.

Result: The contact MUST be closed (measured resistance = 0 Ω).

Does the compressor thermal protector contact open and close at the correct temperature?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the compressor thermal protector, see "3.6.2 Repair procedures" [▸ 110].

3.6.2 Repair procedures

To remove the compressor thermal protector

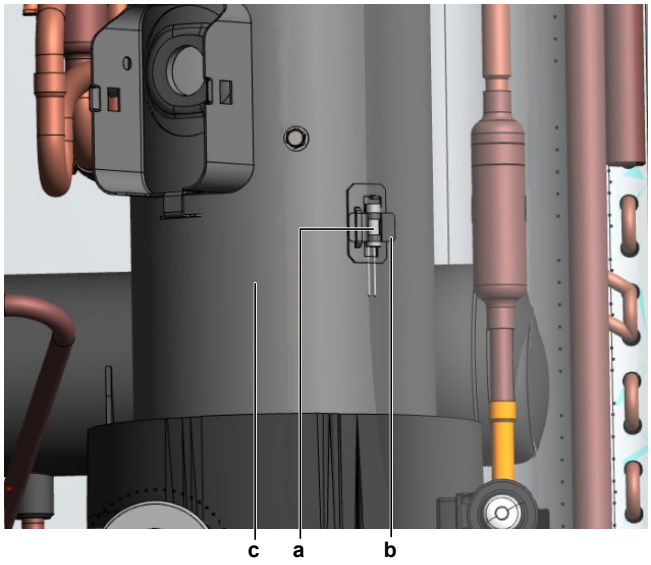
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Remove the compressor insulation.

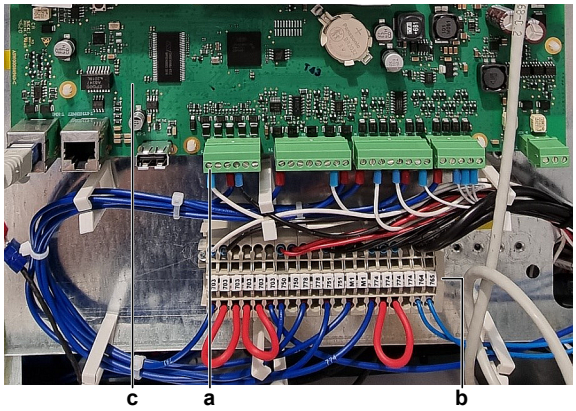
2 Remove the compressor thermal protector from the bracket on the compressor.



a Compressor thermal protector
b Bracket
c Compressor

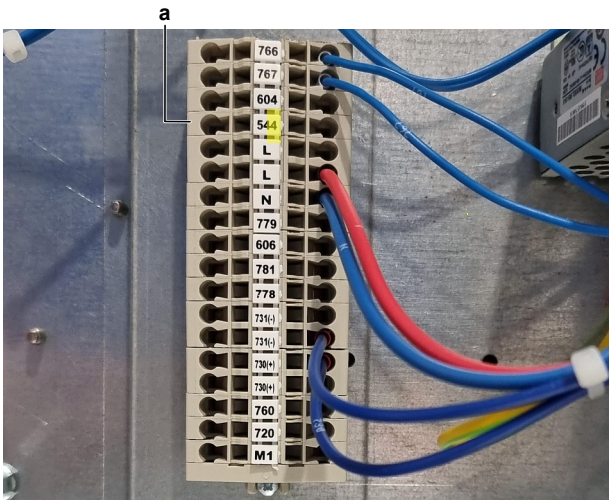
3 Disconnect the wires of the compressor thermal protector:

- For compressor thermal protector S1; disconnect the wire from terminal D5 of terminal block T5 on the main PCB and the wire from terminal 703 of terminal block XD.



a Terminal D5 of terminal block T5
b Terminal block XD
c Main PCB

- For compressor thermal protector S2, disconnect the wires from terminals 606 and N of terminal block X2.



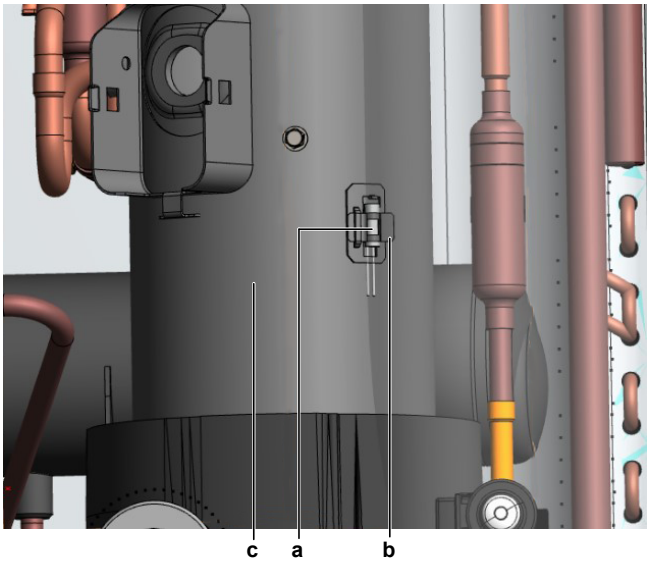
a Terminal block X2

4 Cut all tie straps that fix the compressor thermal protector wiring harness.

5 To install the compressor thermal protector, see "3.5.2 Repair procedures" [▸ 102].

To install the compressor thermal protector

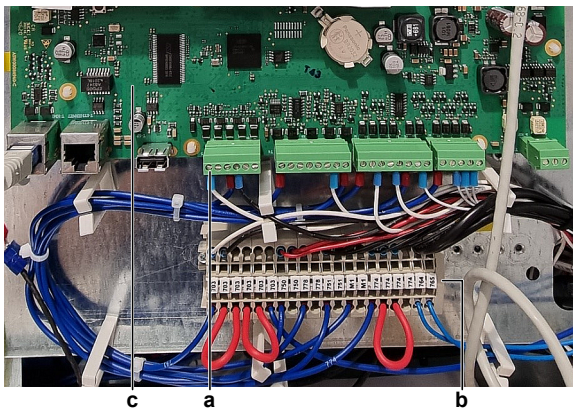
1 Install the compressor thermal protector on the compressor thermal protector bracket.



a Compressor thermal protector
b Bracket
c Compressor

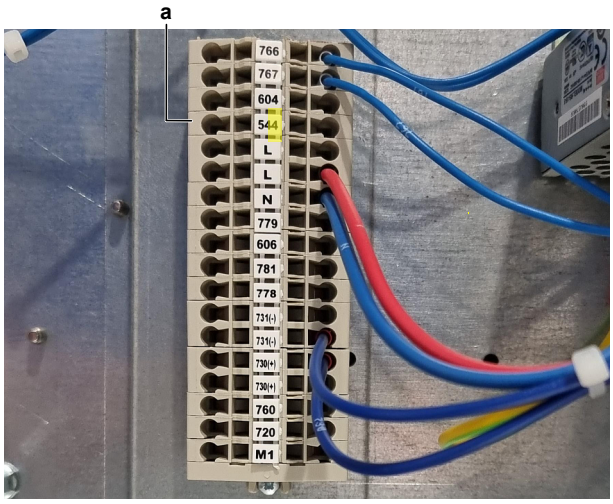
2 Connect the wires of the compressor thermal protector:

- For compressor thermal protector S1; connect the wire to terminal D5 of terminal block T5 and the wire to terminal 703 of terminal block XD.



a Terminal D5 of terminal block T5
b Terminal block XD
c Main PCB

- For compressor thermal protector S2, connect the wires to terminals 606 and N of terminal block X2.



a Terminal block X2

3 Install new tie straps to fix the compressor thermal protector wiring harness.

4 Install the compressor insulation, see "3.5.2 Repair procedures" [▸ 102].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.7 Crankcase heater

3.7.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform an electrical check of the crankcase heater

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

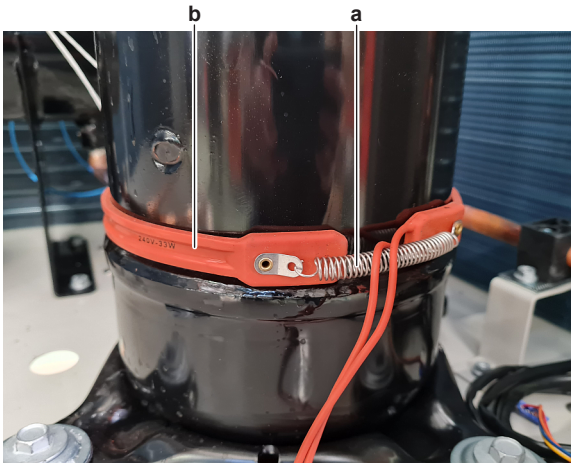
1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Open the compressor insulation.

3 Detach the spring that fixes the crankcase heater on the compressor.

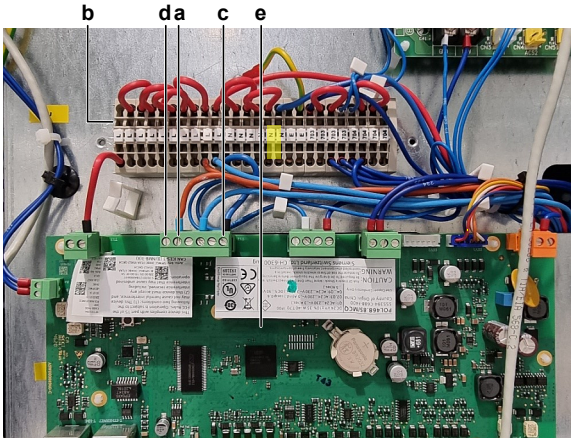


a Spring
b Crankcase heater

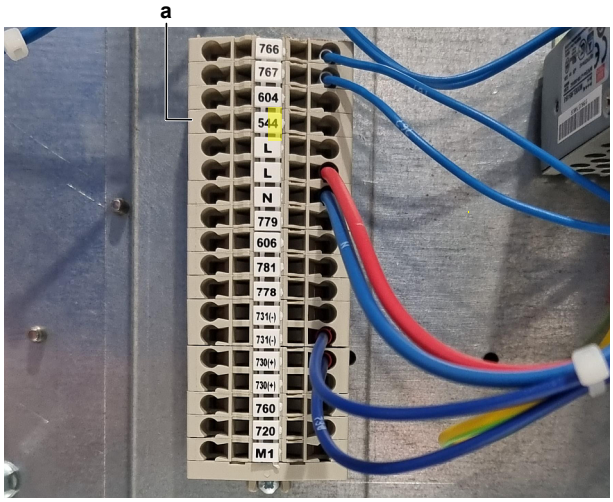
4 Remove the crankcase heater from the compressor and wait for 5 minutes (until the heater element reaches ambient temperature).

5 Disconnect the wires of the crankcase heater:

- For crankcase heater E11HC; disconnect the wire from terminal Q8 of terminal block T12 on the main PCB and the wire from terminal L of terminal block XU.
- For crankcase heater E21HC, disconnect the wires from the terminals 544 and L of terminal block X2.



a Terminal Q8 of terminal block T12
b Terminal block XU
c Terminal COM of terminal block T12
d Terminal Q9 of terminal block T12
e Main PCB



a Terminal block X2

6 Measure the resistance between the disconnected crankcase heater wires.

Result: The resistance MUST be 1.77 kΩ±10%.

Is the measured resistance correct?	Action
Yes	Continue with the next step.
No	Replace the crankcase heater, see "3.7.2 Repair procedures" [▶ 118].

7 Connect the crankcase heater wires to the appropriate terminals and install the crankcase heater on the compressor.

8 Turn ON the power using the main switch Q10.

9 Start the unit operation via the user interface or service monitoring tool.

10 Activate the crankcase heater via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > Crankcase heater.
- Set to On.

INFORMATION

Verify that the read-out of the outdoor air thermistor and discharge thermistor is correct.

- Measure the outdoor temperature. Use a contact thermometer to measure the other thermistor temperatures.
- Compare with the read-out via the service monitoring tool or field settings.

11 Measure the voltage between the following terminals:

Result: The measured voltage MUST be 230 V AC.

Crankcase heater	Terminals
E11HC	Q8 of terminal block T12 on main PCB and L of terminal block XU
E21HC	L and 544 of terminal block X2

INFORMATION

The compressor body temperature MUST raise at least 5°C before the crankcase heater is deactivated.

Is the measured voltage correct?	Action
Yes	Perform an insulation check of the crankcase heater, see "3.7.1 Checking procedures" [▸ 113].
No	Continue with the next step.

12 Disconnect the wires from the main PCB:

- For crankcase heater E11HC; disconnect the wires from terminals Q8 and COM of terminal block T12 on the main PCB.
- For crankcase heater E21HC, disconnect the wires from the terminals Q9 and COM of terminal block T12 on the main PCB.

13 Activate the crankcase heater via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > Crankcase heater.
- Set to On.

INFORMATION

Verify that the read-out of the outdoor air thermistor and discharge thermistor is correct.

- Measure the outdoor temperature. Use a contact thermometer to measure the other thermistor temperatures.
- Compare with the read-out via the service monitoring tool or field settings.

14 Measure the resistance between the following terminals:

Result: The measurement MUST be short circuit (crankcase heater energised, switch contact on main PCB = closed).

Crankcase heater	Terminals
E11HC	COM and Q8 of terminal block T12 on main PCB
E21HC	COM and Q9 of terminal block T12 on main PCB

Is the measured resistance correct?	Action
Yes	Check and correct the wiring between the main power supply terminal and the crankcase heater connection points, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the main PCB, see "3.13 Main PCB" [▸ 155].

To perform an insulation check of the crankcase heater

Prerequisite: First perform an electrical check of the crankcase heater, see "3.7.1 Checking procedures" [▸ 113].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

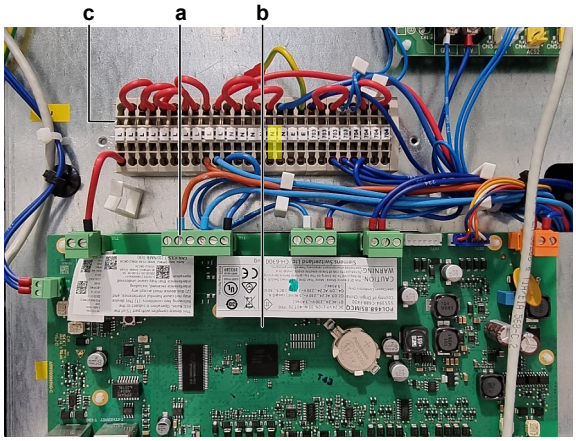
1 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

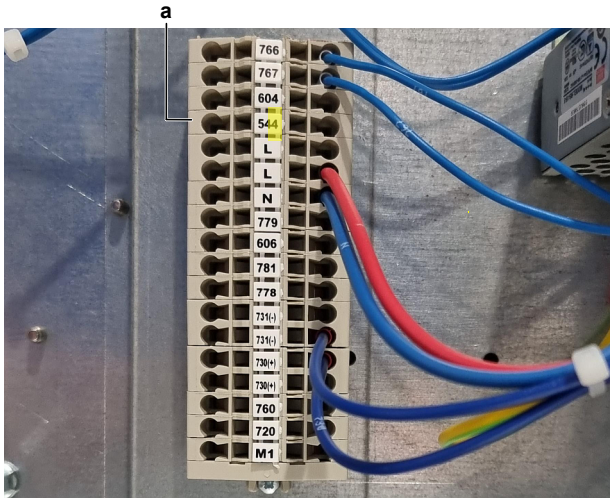
2 Disconnect the wires of the crankcase heater:

- For crankcase heater E11HC; disconnect the wire from terminal Q8 of terminal block T12 on the main PCB and the wire from terminal L of terminal block XU.



a Terminal Q8 of terminal block T12
b Main PCB
c Terminal block XU

- For crankcase heater E21HC, disconnect the wires from the terminals 544 and L of terminal block X2.



a Terminal block X2

3 Set the Megger voltage to at least 500 V DC.

4 Connect the Megger ground test lead directly to the crankcase heater ground wire.

CAUTION

Do NOT connect the Megger ground test lead to any other ground wire.

5 Measure the insulation resistance between the phase and ground wire. The measured insulation resistance MUST be >100 MΩ.

Is the measured insulation resistance correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace the crankcase heater, see "3.7.2 Repair procedures" [▸ 118].

3.7.2 Repair procedures

To remove the crankcase heater

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

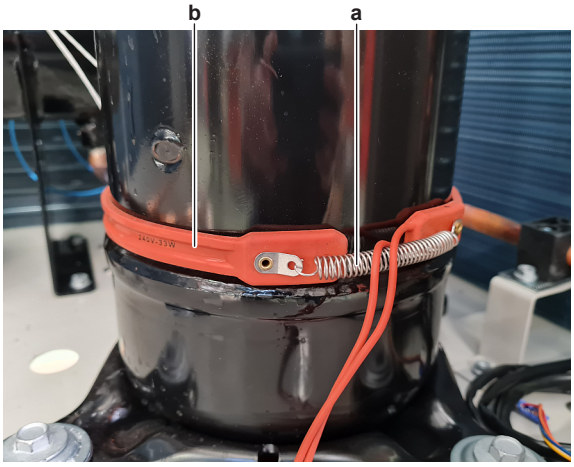
1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Open the compressor insulation.

3 Detach the spring that fixes the crankcase heater on the compressor.

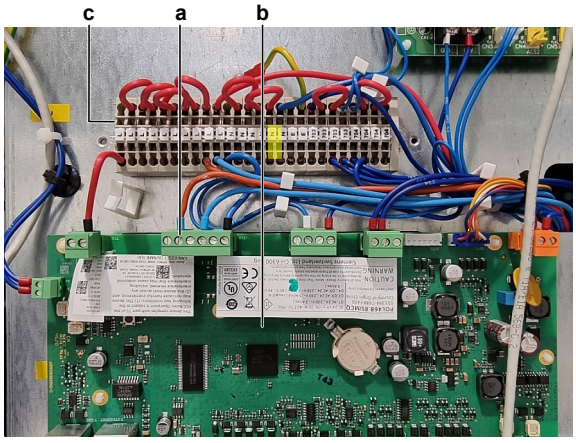


a Spring
b Crankcase heater

4 Cut all tie straps that fix the crankcase heater harness.

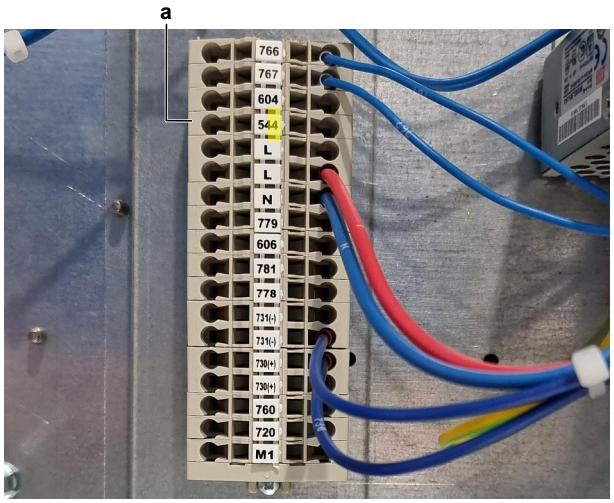
5 Disconnect the wires of the crankcase heater:

- For crankcase heater E11HC; disconnect the wire from terminal Q8 of terminal block T12 on the main PCB and the wire from terminal L of terminal block XU.



a Terminal Q8 of terminal block T12
b Main PCB
c Terminal block XU

- For crankcase heater E21HC, disconnect the wires from the terminals 544 and L of terminal block X2.



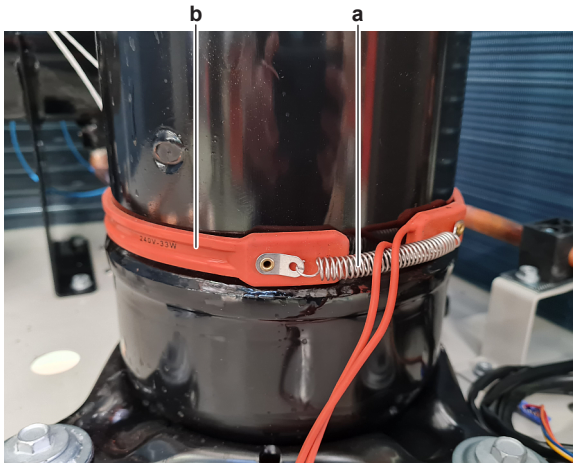
a Terminal block X2

6 To install the crankcase heater, see "3.7.2 Repair procedures" [▸ 118].

To install the crankcase heater

1 Install the crankcase heater on the compressor.

2 Attach the spring to fix the crankcase heater.

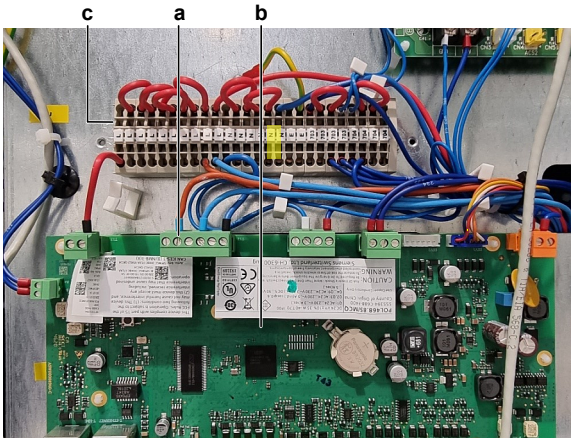


a Spring
b Crankcase heater

3 Route the crankcase heater harness towards the switch box.

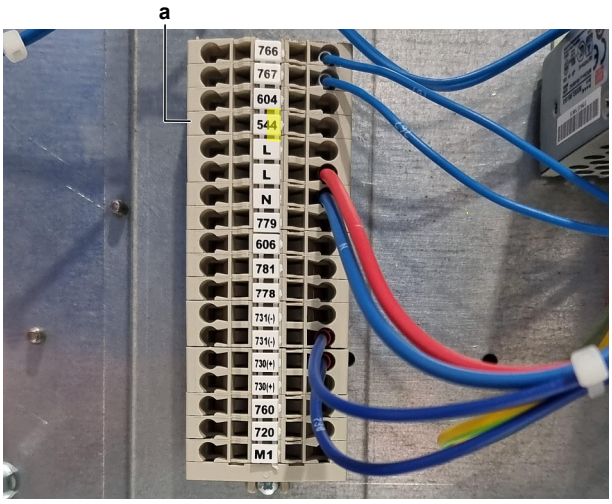
4 Connect the wires of the crankcase heater:

- For crankcase heater E11HC; Connect the wire to the terminal Q8 of terminal block T12 on the main PCB and the wire to terminal L of terminal block XU.



a Terminal Q8 of terminal block T12
b Main PCB
c Terminal block XU

- For crankcase heater E21HC, Connect the wires to the terminals 544 and L of terminal block X2.



a Terminal block X2

5 Fix the crankcase heater harness using new tie straps.

INFORMATION

Replace all cable ties that were cut during removal.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.8 Expansion valve

3.8.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

> **INFORMATION**
>
> Depending on the type, the outdoor units have 1 or 2 refrigerant circuits. Units with one refrigerant circuit have one expansion valve EEXV1, units with two refrigerant circuits have two expansion valves EEXV1 and EEXV2.
>
> As they are equal, the check and repair procedures describe only one.

To perform a mechanical check of the expansion valve

Prerequisite: Power OFF the unit and wait until the pump down procedure is finished. Then turn ON the unit and listen to the expansion valve assembly. If the expansion valve does NOT make a latching sound, continue with the electrical check of the expansion valve, see "3.8.1 Checking procedures" [▸ 121].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Remove the expansion valve insulation (if applicable) and visually check:
   - For oil drops around the expansion valve. Locate and fix as necessary.
   - Pipes for signs of damage. Replace pipes as needed.
   - Coil wires for signs of damage. Replace expansion valve coil as needed. See "3.8.2 Repair procedures" [▸ 124].

2 Remove the expansion valve coil from the expansion valve body, see "3.8.2 Repair procedures" [▸ 124].

3 Slide the expansion valve magnet over the expansion valve body and gently rotate the magnet clockwise/counterclockwise to manually close/open the expansion valve. Listen to check if the valve is closing/opening and manually close the valve when check is done.

> **INFORMATION**
>
> After the check, remove the magnet from the expansion valve body and install the expansion valve coil on the expansion valve body. Make sure that the expansion valve coil is firmly slid onto the expansion valve body.

> **INFORMATION**
>
> It is highly recommended to perform a power reset after checking the valve using a magnet.

Does the expansion valve open?	Action
Yes	Perform an electrical check of the expansion valve, see "3.8.1 Checking procedures" [▸ 121].
No	Replace the expansion valve body, see "3.8.2 Repair procedures" [▸ 124].

To perform an electrical check of the expansion valve

1 First perform a mechanical check of the expansion valve, see "3.8.1 Checking procedures" [▸ 121].

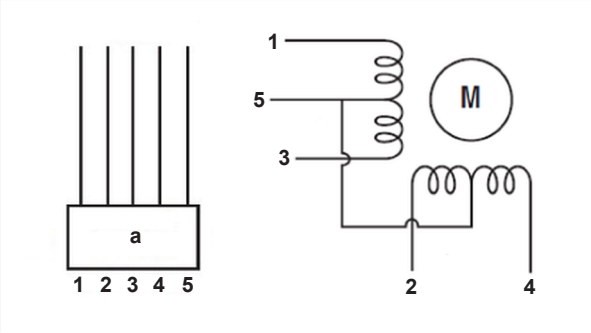
2 Disconnect the electrical connector of the expansion valve coil from the appropriate PCB and measure the resistance of all windings (between the pins of each phase (wire) and the common wire) using a multi meter. All measurements MUST be approximately the same.

Number of refrigerant circuits	Symbol	Location (PCB)	Connector	Winding resistance
1	EEXV1	Main	T8	150±15 Ω
2	EEXV1	Main	T8	150±15 Ω
	EEXV2	Main	T9	150±15 Ω

INFORMATION

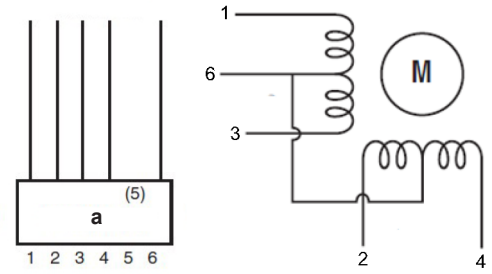
Below are shown examples of the resistance measurements in which the common wire is connected to pin 5 or to pin 6 of the expansion valve coil connector. Connections may differ according to the type of expansion valve.

- Connector pin 1-5,
- Connector pin 2-5,
- Connector pin 3-5,
- Connector pin 4-5.



a Connector

- Connector pin 1-6,
- Connector pin 2-6,
- Connector pin 3-6,
- Connector pin 4-6.



a Connector

3 Check the insulation resistance of the coil by measuring the resistance between the pins of each phase (1, 2, 3, 4) and GND on the unit.

Result: None of the measurements should be short-circuit.

WARNING

When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

Is the measured resistance correct?	Action
Yes	Perform an operation check of the expansion valve, see "3.8.1 Checking procedures" [▸ 121].
No	Replace the expansion valve coil, "3.8.2 Repair procedures" [▸ 124].

To perform an operation check of the expansion valve

Prerequisite: First perform an electrical check of the expansion valve, see "3.8.1 Checking procedures" [▸ 121].

1 Turn ON the power of the unit with main switch Q10.

2 Start the unit operation via the user interface or service monitoring tool.

3 When the expansion valve is closed according to the service monitoring tool, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve. Check that the valve is NOT bleeding.

Result: There MUST be NO flow through the expansion valve.

4 When the expansion valve is open according to the service monitoring tool, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve.

Result: Refrigerant MUST flow through the expansion valve.

5 Wait for the PCB to command the expansion valve to open (when closed) or to close (when open) (pulse output to expansion valve visible on service monitoring tool).

INFORMATION

If the PCB does NOT command the expansion valve to open or close (when it is supposed to), perform a check of the appropriate thermistors and pressure sensors (as their measurements control the operation of the expansion valve(s)).

6 While in opening or closing sequence each expansion valve winding (Φ1, 2, 3, 4) is supplied with 12 V DC from the PCB. You will need a good multimeter, where its range is set to about 20 V DC, and during opening or closing sequence you may be able to measure the supply voltage for a short time. If you set the multimeter range to Auto, then most likely you may NOT read a value between switching ranges. The best way to check is to feel the movement of the valve by touching, rather than trying to measure the driving voltage.

7 When the expansion valve was commanded to close, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve. Check that the valve is NOT bleeding.

Result: There MUST be NO flow through the expansion valve.

8 When the expansion valve was commanded to open, check the inlet and outlet of the valve with a contact thermometer or use an expansion valve stethoscope to see if refrigerant flows through the expansion valve.

Result: Refrigerant MUST flow through the expansion valve.

Is the flow through the expansion valve correct?	Action
Yes	Component is OK. Return to the troubleshooting of the specific error and continue with the next step.
No	Replace the expansion valve, see "3.8.2 Repair procedures" [▸ 124].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.8.2 Repair procedures

To remove the expansion valve coil

Prerequisite: Stop the unit operation via the user interface.

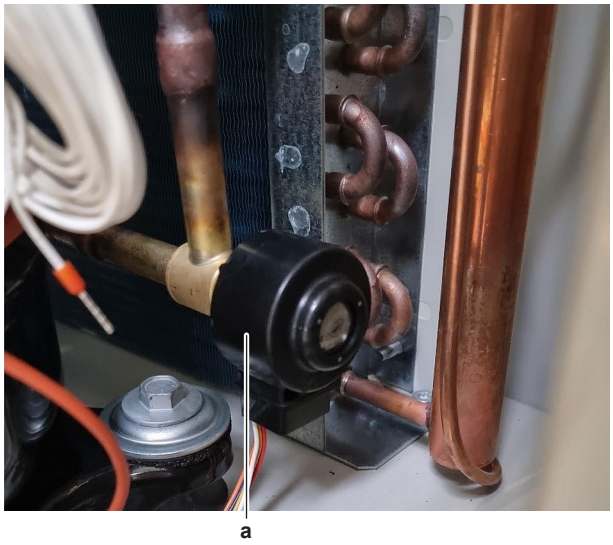
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 If needed, remove any parts or insulation to create more space for the removal.

2 Cut the tie strap and remove the insulation cap.

3 Pull the expansion valve coil to remove it from the expansion valve body.



a Expansion valve coil

> **INFORMATION**
>
> It may be needed to turn the expansion valve coil 1/8 turn counter clockwise to unlock it. Make sure to note the correct orientation (position) of the expansion valve coil before removal.

4 Cut all tie straps that fix the expansion valve coil harness.

5 Disconnect the expansion valve coil connector from the appropriate PCB. See "To perform an electrical check of the expansion valve" [▸ 122] for an overview of the expansion valve connectors and their locations.

6 To install the expansion valve coil, see "3.8.2 Repair procedures" [▸ 124].

To remove the expansion valve body

Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

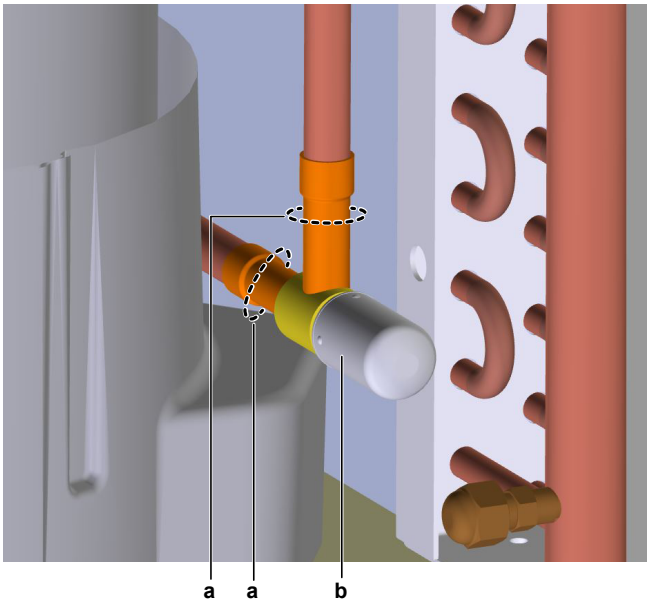
Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Remove the expansion valve coil, see "3.8.2 Repair procedures" [▸ 124].

2 Using a valve magnet, open the expansion valve.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the components near the expansion valve pipes. Heat the brazing points of the expansion valve pipes using an oxygen acetylene torch and remove the expansion valve pipes from the refrigerant pipes using pliers.



a Expansion valve pipe
b Expansion valve body

5 Stop the nitrogen supply when the piping has cooled down.

6 Remove the expansion valve body.

INFORMATION

It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install plugs or caps on the open pipe ends of the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the expansion valve body, see "3.8.2 Repair procedures" [▸ 124].

To install the expansion valve body

1 Remove the plugs or caps from the refrigerant piping and make sure they are clean.

2 Remove the expansion valve coil from the spare part expansion valve body.

3 Install the expansion valve body in the correct location and correctly oriented. Insert the pipe ends in the pipe expansions.

4 Open the expansion valve using a valve magnet.

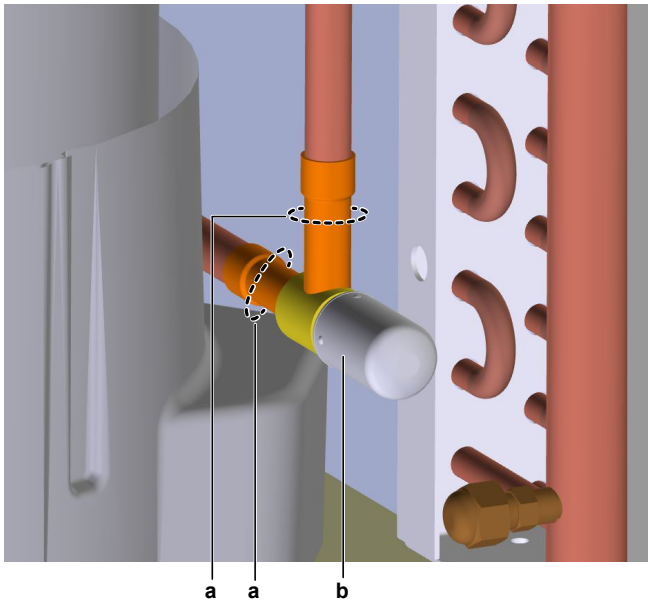
5 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

6 Wrap a wet rag around the expansion valve body and any other components near the expansion valve and solder the expansion valve pipes to the refrigerant pipes.

CAUTION

Overheating the valve will damage or destroy it.

7 After soldering is done, stop the nitrogen supply after the component has cooled-down.



a Expansion valve pipe
b Expansion valve body

8 To install the expansion valve coil, see "3.8.2 Repair procedures" [▸ 124].

9 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

10 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

To install the expansion valve coil

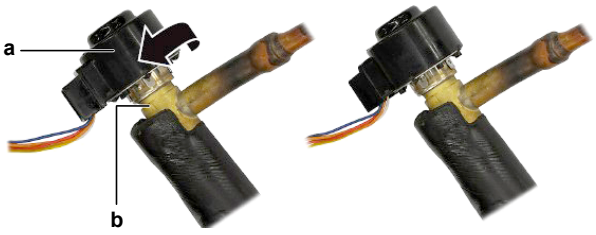
1 Install the expansion valve coil on the expansion valve body.

INFORMATION

Turn the expansion valve coil 1/8 turn clockwise to lock it on the expansion valve body.

INFORMATION

The correct alignment of the expansion valve coil is ensured by dimples.



a Expansion valve coil
b Pipe

2 Route the expansion valve coil harness towards the appropriate PCB.

3 Connect the expansion valve coil connector to the appropriate PCB.

WARNING

When reconnecting a connector to the PCB, make sure to connect it on the correct location and do NOT apply force, as this may damage the connector or connector pins of the PCB.

4 Fix the expansion valve coil harness using new tie straps.

5 Install the insulation cap on the expansion valve coil (if applicable).

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.8.1 Checking procedures" [▶ 121] of the expansion valve and continue with the next procedure.

3.9 Fan inverter PCB

INFORMATION

There is always one fan inverter PCB when there is an inverter PCB TYPE17 installed, There are always two fan inverter PCB's when there is an inverter PCB TYPE27 installed.
As check and repair procedures are equal, they are described only once.

3.9.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the fan inverter PCB

Prerequisite: Stop the unit operation via the user interface.

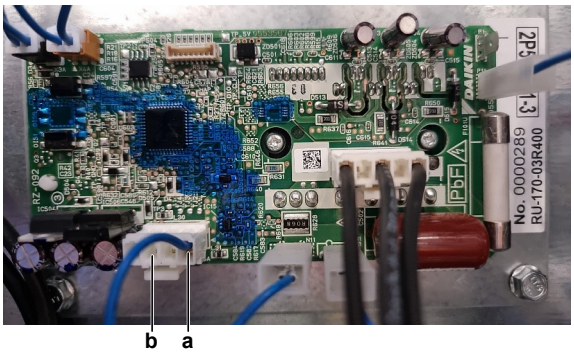
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the voltage between pins 1 and 3 of connector X5A.

Result: The measured voltage MUST be 18 V DC.



a Pin 1
b Pin 3

Is the measured voltage on the PCB correct?	Action
Yes	Return to "3.9.1 Checking procedures" [▶ 128] procedures of the PCB and continue with the next procedure.

Is the measured voltage on the PCB correct?	Action
No	Continue with the next step.

3 Measure the output voltage on connector X601A on the inverter PCB.

Result: The measured voltage MUST be 18 V DC.

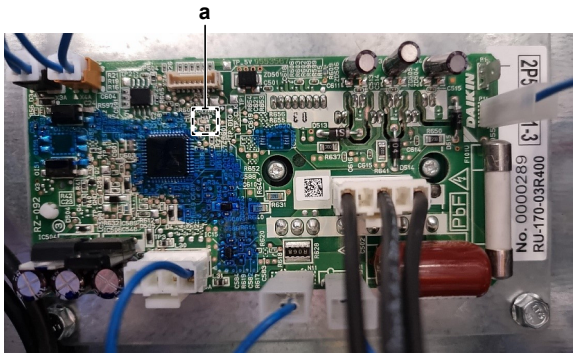
Is the measured output voltage on the inverter PCB correct?	Action
Yes	Correct the wiring between the fan inverter PCB and the inverter PCB, see "4.1.2 Repair procedures" [▶ 237].
No	Perform a check of the inverter PCB, see "3.12.1 Checking procedures" [▶ 142].

To check the HAP LED of the fan inverter PCB

1 First perform a power check of the fan inverter PCB, see "3.9.1 Checking procedures" [▶ 128].

> **INFORMATION**
>
> Make sure that the PCB is NOT in stand-by mode. The HAP LED will NOT blink when in stand-by mode.

2 Locate the HAP LED on the fan inverter PCB.



a HAP LED

Does the HAP LED blink in regular intervals (approximately 1 Hz)?	Action
Yes	Return to "3.9.1 Checking procedures" [▶ 128] of the fan inverter PCB and continue with the next procedure.
No	Replace the fan inverter PCB, see "3.9.2 Repair procedures" [▶ 132].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the fan inverter PCB, see "3.9.1 Checking procedures" [▶ 128].

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the fan inverter PCB installed?	Action
Yes	Return to "3.9.1 Checking procedures" [▶ 128] of the fan inverter PCB and continue with the next procedure.
No	Replace the fan inverter PCB, see "3.9.2 Repair procedures" [▶ 132].

To check the wiring of the fan inverter PCB

Prerequisite: First perform all earlier checks of the fan inverter PCB, see "3.9.1 Checking procedures" [▶ 128].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1. Check that all wires are properly connected and that all connectors are fully plugged-in.
2. Check that no connectors or wires are damaged.
3. Check that the wiring corresponds with the wiring diagram, see "6.2 Wiring diagram" [▶ 263].

INFORMATION

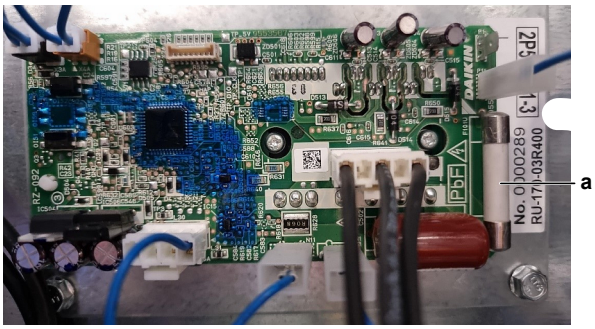
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.9.1 Checking procedures" [▶ 128] of the fan inverter PCB and continue with the next procedure.

To check the fuse of the fan inverter PCB

Prerequisite: First perform all earlier checks of the fan inverter PCB, see "3.9.1 Checking procedures" [▶ 128].

1. Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



a Fuse

Blown fuse on the fan inverter PCB?	Action
Yes	Replace the fan inverter PCB, see "3.9.2 Repair procedures" [▶ 132].

Blown fuse on the fan inverter PCB?	Action
No	Return to "3.9.1 Checking procedures" [▸ 128] of the fan inverter PCB and continue with the next procedure.

To check the rectifier voltage of the fan inverter PCB

Prerequisite: First perform all earlier checks of the fan inverter PCB, see "3.9.1 Checking procedures" [▸ 128].

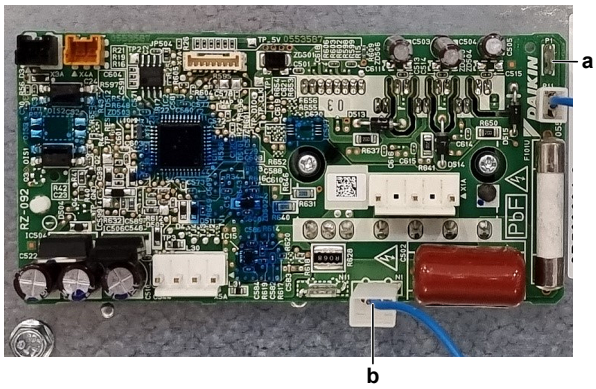
1 Turn ON the power of the unit with main switch Q10.

DANGER: RISK OF ELECTROCUTION

Do NOT touch any live parts or PCB's.

2 Measure the DC voltage on P1 and N1 on the fan inverter PCB.

Result: The measured voltage MUST be approximately 560 V DC.



a Wire terminal P1
b Wire terminal N1

Is the measured voltage correct?	Action
Yes	Perform a power transistor check of the fan inverter PCB, see "3.9.1 Checking procedures" [▸ 128].
No	Continue with the next step.

3 Measure the DC output voltage between the following terminals on the inverter PCB.

Result: The measured voltage MUST be approximately 560 V DC.

Inverter PCB	Terminals
Type 17	P4 and N4
Type 27	P12 and N33

Is the measured output voltage on the inverter PCB correct?	Action
Yes	Correct the wiring between the fan inverter PCB and the inverter PCB, see "4.1.2 Repair procedures" [▸ 237].
No	Perform a check of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

To perform a power transistor check of the fan inverter PCB

Prerequisite: First perform all earlier checks of the fan inverter PCB, see "3.9.1 Checking procedures" [▸ 128].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

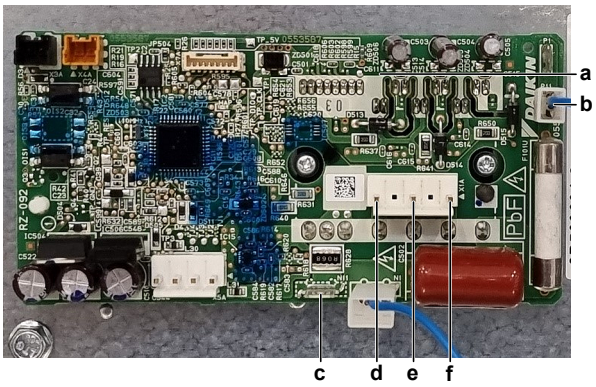
1 Set the multimeter to diode measurement.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Disconnect the connector X1A and Faston connectors P11 and N11 from the fan inverter PCB.

3 Check the fan inverter PCB in reference with the tables below.



a Fan inverter PCB A4P
b Connector P11
c Connector N11
d Connector X1A, pin U
e Connector X1A, pin V
f Connector X1A, pin W

VDC	Com	Ref	VDC	Com	Ref
P11	X1A, pin U	O.L	N11	X1A, pin V	0,423
P11	X1A, pin V	O.L	N11	X1A, pin W	0,423
P11	X1A, pin W	O.L	X1A, pin U	N11	O.L
X1A, pin U	P11	0,423	X1A, pin V	N11	O.L
X1A, pin V	P11	0,423	X1A, pin W	N11	O.L
X1A, pin W	P11	0,423	P11	N11	O.L
N11	X1A, pin U	0,423	N11	P11	0,774

Are the test results OK?	Action
Yes	Power transistors are OK. Return to "3.9.1 Checking procedures" [▸ 128].
No	Replace the fan inverter PCB, see "3.9.2 Repair procedures" [▸ 132].

3.9.2 Repair procedures

To remove the fan inverter PCB

Prerequisite: Stop the unit operation via the user interface.

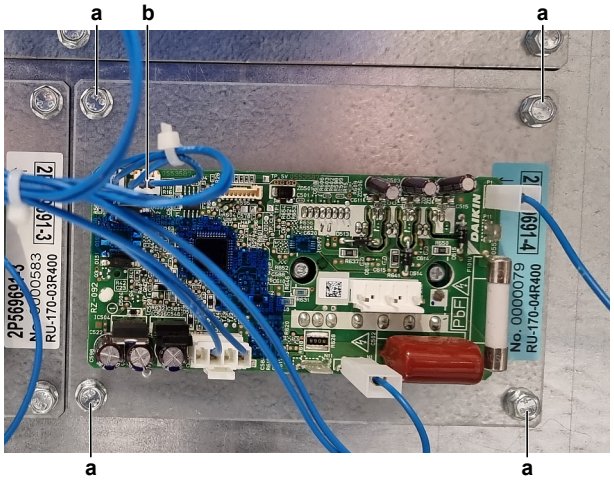
Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

2 Disconnect all connectors from the fan inverter PCB.

> **INFORMATION**
>
> In case of inverter PCB TYPE27 (with two fan inverter PCB's installed) there is a bridge connector X4A installed on the fan inverter PCB A5P21 or A5P22. This bridge connector X4A is not supplied with the spare part PCB. Transfer the bridge connector X4A.

3 Loosen and remove the screws that fix the fan inverter PCB assembly (with heat sink plate) to the switch box.



a Screw (fan inverter assembly)
b Connector X4A

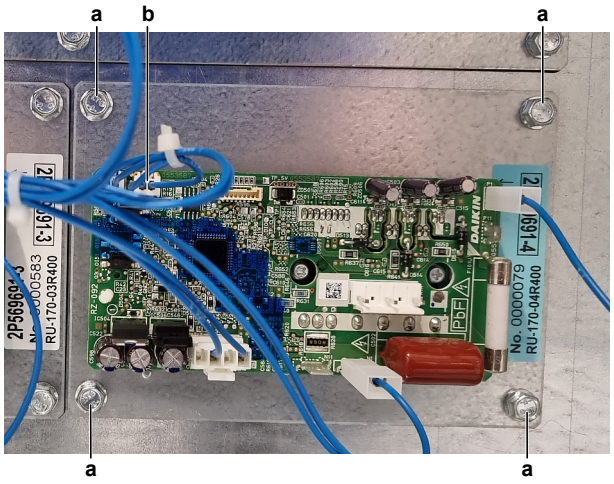
4 Remove the fan inverter PCB assembly (with heat sink plate).

5 To install the new fan inverter PCB, see "3.9.2 Repair procedures" [▸ 132].

To install the fan inverter PCB

1 Install the fan inverter PCB assembly (with heat sink plate) on its correct location.

2 Install and tighten the screws to fix the fan inverter PCB assembly (with heat sink plate) to the switch box.



a Screw (fan inverter assembly)
b Connector X4A

3 Connect all connectors to the fan inverter PCB.

INFORMATION

In case of inverter PCB TYPE27 (with two fan inverter PCB's installed) a bridge connector X4A has to be installed on the A5P fan inverter PCB. Reinstall connector X4A which you recuperated from the removed fan inverter PCB.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.9.1 Checking procedures" [▶ 128] of the fan inverter PCB and continue with the next procedure.

3.10 Flow switch

3.10.1 Checking procedures

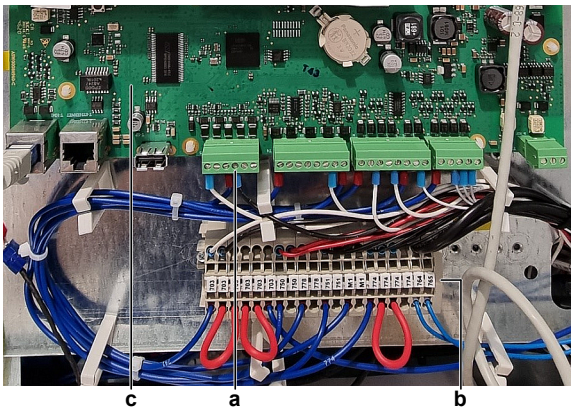
To perform an electrical check of the flow switch

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Disconnect the flow switch wires from terminal D2 of terminal block T5 on the main PCB and from terminal 703 on terminal block XD.



a Terminal D2 on terminal block T5
b Terminal block XD
c Main PCB

2 Turn ON the power of the unit with main switch Q10.

3 Measure the voltage (flow switch power) between the terminal Di2 of terminal block T5 on the main PCB and terminal 703 of terminal block XD.

Result: The measured voltage MUST be approximately 24 V DC.

Is measured voltage correct?	Then
Yes	Skip the next step.
No	Continue with the next step.

4 Measure the output voltage between terminals -V and +V of the 24 V DC auxiliary power supply.

Result: The measured voltage MUST be 24 V DC.

Is the measurement correct?	Action
Yes	Correct the wiring between the appropriate terminals and the 24 V DC auxiliary power supply, see "6.2 Wiring diagram" [▶ 263].
No	Perform a check of the 24 V DC auxiliary power supply, see "3.2.1 Checking procedures" [▶ 79].

5 Make sure that the unit is NOT operating, and there is NO water flow.

6 Measure the resistance between the (disconnected) flow switch wires.

Result: The flow switch MUST be open (OL).

7 Activate the water pump using the service monitoring tool as follows:

- In the Main Menu, select Unit Mode > Mode.
- Set to Test.
- In the Main Menu, select Commission Unit > Manual Control > Unit > Pump #.
- Set to ON.

INFORMATION

For EWAT/EWYT016~090CZN units, manually activate the external water pump as this might not work using the service monitoring tool.

8 Select high speed and check (using a water flow meter) that the water flow is according to the table below:

Model	Flow switch trigger set point (L/min)
EWAT/EWYT016~25CZP-A1	22
EWAT/EWYT032~40CZP-A1	31
EWAT/EWYT040~90CZP-A2	57

9 Again measure the resistance between the (disconnected) flow switch wires.

Result: The flow switch MUST be closed (0 Ω).

Are flow switch measurements correct?	Action
Yes	Flow switch is OK. Return to troubleshooting of the specific error and continue with the next procedure.
No	Replace the flow switch, see "3.10.2 Repair procedures" [▶ 135].

3.10.2 Repair procedures

To remove the flow switch

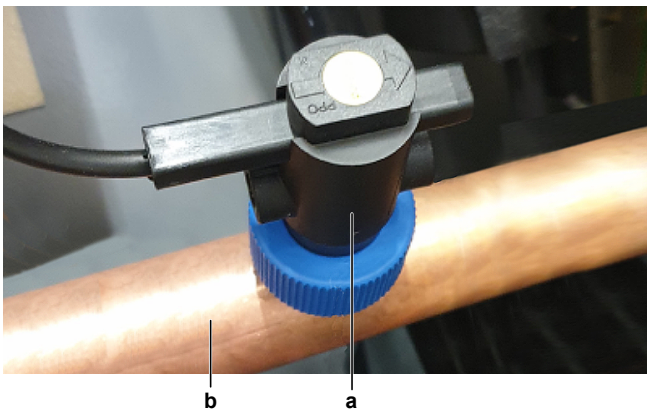
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

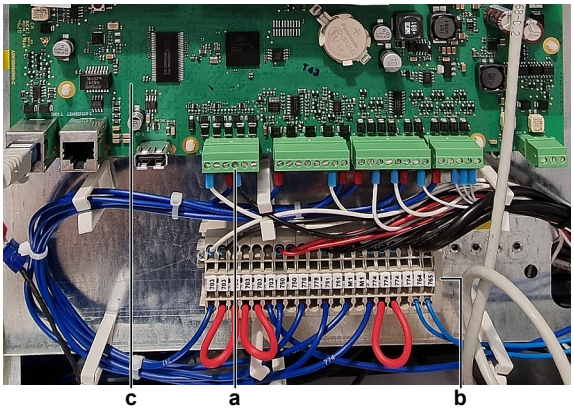
1 Drain the water circuit, see "4.3.2 Repair procedures" [▶ 252].

2 Unscrew the flow switch and remove it from the piping.



a Flow switch
b Piping

3 Disconnect the flow switch wires from terminal D2 of terminal block T5 on the main PCB and from terminal 703 of terminal block XD.



a Terminal D2 on terminal block T5
b Terminal block XD
c Main PCB

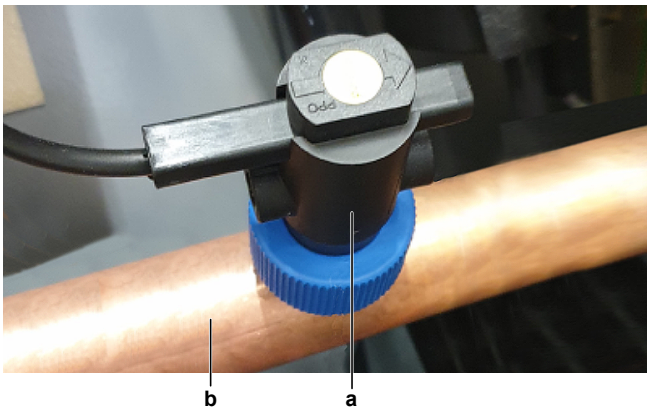
4 Cut all tie straps that fix the wiring harness.

5 Guide the flow switch harness out of the switch box and remove the flow switch.

6 To install the flow switch, see "3.10.2 Repair procedures" [▸ 135].

To install the flow switch

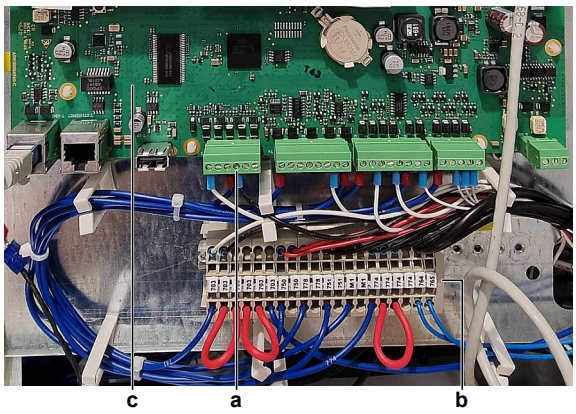
1 Install (screw) the flow switch on correct location on the piping. Ensure that the O-ring is correctly installed and NOT damaged.



a Flow switch
b Piping

2 Route the flow switch harness into the switch box.

3 Connect the flow switch wires to the terminal D2 of terminal block T5 on the main PCB and to terminal 703 of terminal block XD.



a Terminal D2 on terminal block T5
b Terminal block XD
c Main PCB

4 Install new tie straps to fix the flow switch wiring harness.

INFORMATION

Replace all cable ties that were cut during removal.

5 Open the stop valves and add water to the water circuit if needed, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.11 High pressure switch

3.11.1 Checking procedures

To perform an electrical check of the high pressure switch

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

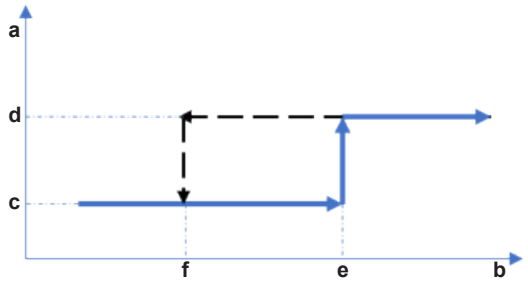
Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

2 Fill the refrigerant circuit with nitrogen until pressurized just below operating pressure of the high pressure switch.

INFORMATION

Make sure that the manual reset button on the high pressure switch is pressed.



a High pressure switch protection control
b Pressure
c High pressure switch closed
d High pressure switch open
e High pressure switch operating pressure
f High pressure switch reset pressure

3 Disconnect the high pressure switch connector from the PCB.

INFORMATION

Measure the continuity of all wiring between the high pressure switch and the appropriate PCB. If NO continuity is measured, repair as needed, see "6.2 Wiring diagram" [▶ 263].

4 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be closed.

5 Fill the refrigerant circuit with nitrogen until pressurized just above operating pressure of the high pressure switch.

6 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be open.

INFORMATION

If the high pressure switch was triggered open, it will stay open until the refrigerant pressure drops below the reset pressure of the high pressure switch.

7 Lower the pressure of the nitrogen in the refrigerant circuit just above reset pressure of the high pressure switch.

8 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be open.

9 Lower the pressure of the nitrogen in the refrigerant circuit just below reset pressure of the high pressure switch.

10 Press the manual reset button on the high pressure switch.

11 Measure the resistance between the pins 1-2 of the high pressure switch connector.

Result: The switch MUST be closed.

High pressure switch connector measurements are correct?	Then
Yes	High pressure switch is OK. Return to the troubleshooting of the specific error and continue with the next procedure.

High pressure switch connector measurements are correct?	Then
No	Replace the high pressure switch, see "3.11.2 Repair procedures" [▸ 139].

3.11.2 Repair procedures

To remove the high pressure switch

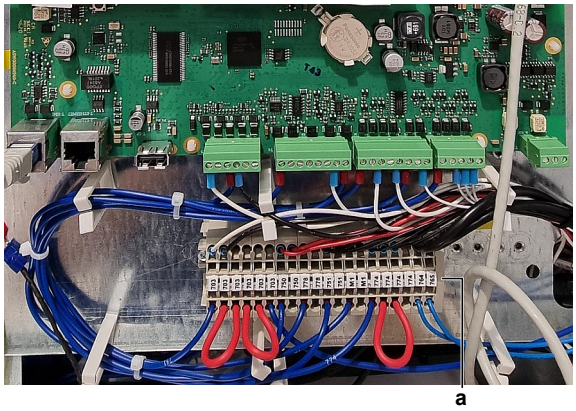
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

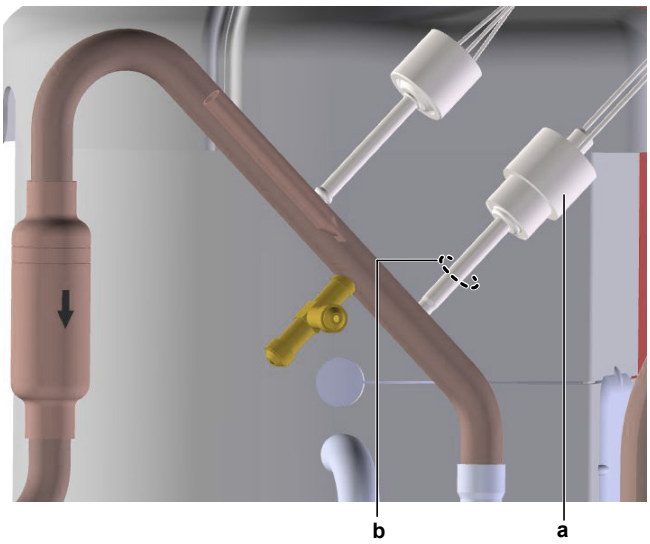
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

1. If needed, remove any parts to create more space for the removal of the high pressure switch.
2. Disconnect the wires of the high pressure switch:
   - For high pressure switch F131; disconnect the wires from terminals 764 and 765 of terminal block XD.
   - For high pressure switch F132; disconnect the wires from terminals 766 and 767 of terminal block XD.



a Terminal block XD

3. Cut all tie straps that fix the high pressure switch harness.
4. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
5. Wrap a wet rag around the components near the high pressure switch. Heat the brazing point of the high pressure switch pipe using an oxygen acetylene torch and remove the high pressure switch pipe from the refrigerant pipe using pliers.



a High pressure switch
b High pressure switch pipe

6 Stop the nitrogen supply when the piping has cooled down.

7 Remove the high pressure switch.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

8 Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.

9 To install the high pressure switch, see "3.11.2 Repair procedures" [▸ 139].

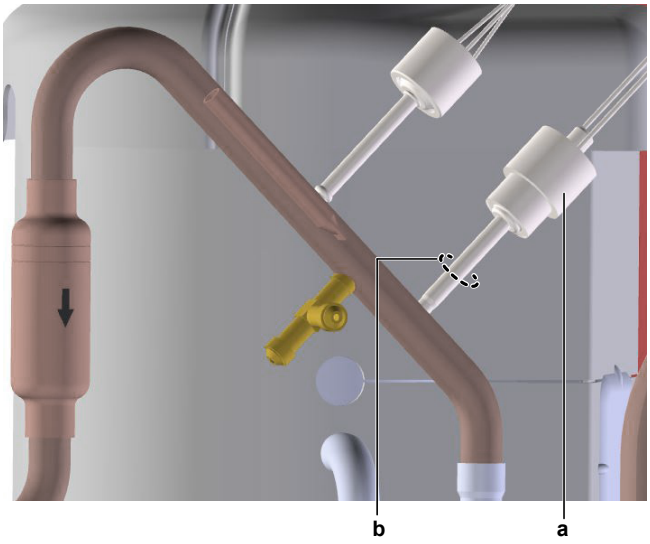
To install the high pressure switch

1 Remove the plug or cap from the refrigerant piping and make sure it is clean.

2 Install the high pressure switch in the correct location.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the high pressure switch and any other components near the high pressure switch and solder the high pressure switch pipe to the refrigerant pipe.



a High pressure switch
b High pressure switch pipe

CAUTION

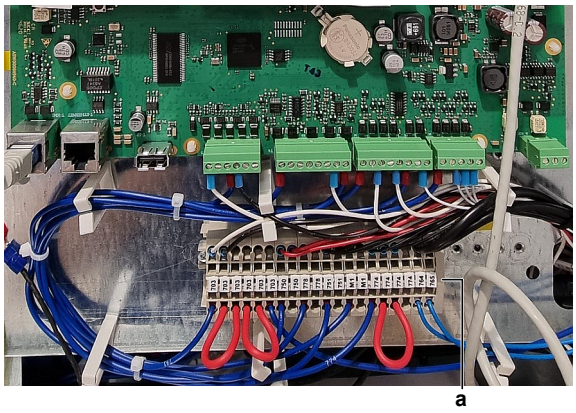
Overheating the pressure switch will damage or destroy it.

5 After soldering is done, stop the nitrogen supply after the component has cooled-down.

6 Route the high pressure switch harness towards the appropriate connector.

7 Connect the wires of the high pressure switch:

- For high pressure switch F131; Connect the wires to the terminals 764 and 765 of terminal block XD.
- For high pressure switch F132; connect the wires to the terminals 766 and 767 of terminal block connector XD.



a Terminal block XD

8 Install new tie straps to fix the high pressure switch harness.

9 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

10 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.12 Inverter PCB

INFORMATION

EWAT/EWYT016~025CZ have one inverter PCB TYPE17, EWAT/EWYT032~40CZP-A1 have one inverter PCB TYPE27, EWAT/EWYT040~50CZP-A2 have two inverter PCB's TYPE17, EWAT/EWYT064CZP-A2 has one inverter PCB TYPE17 and one inverter PCB TYPE27, EWAT/EWYT090CZP-A2 has two inverter PCB's TYPE27. As check and repair procedures are equal, they are described only once.

3.12.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a power check of the inverter PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

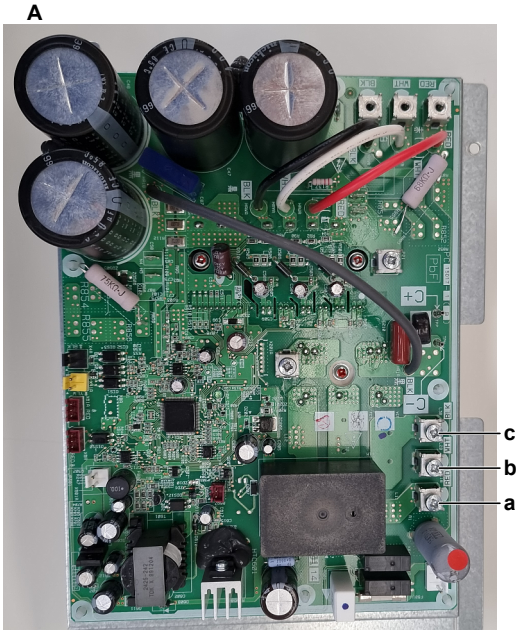
> **DANGER: RISK OF ELECTROCUTION**
>
> Do NOT touch any live parts or PCB's.

2 Measure the voltage between the following wires on the inverter PCB.

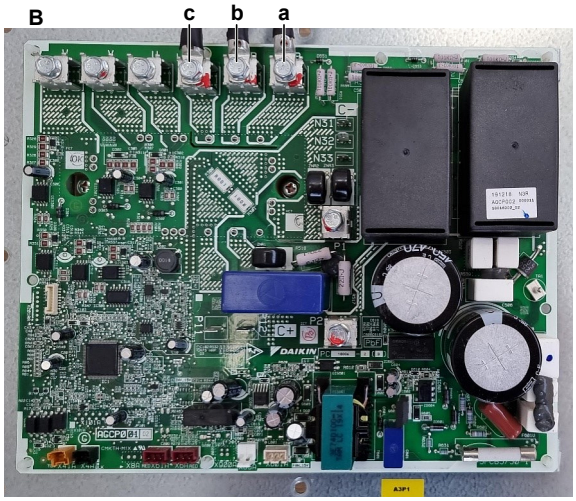
Result: All measurements MUST be 400 V AC.

- L1B –L2B
- L1B –L3B
- L2B –L3B

A



A TYPE17 PCB
a Wire L1B
b Wire L2B
c Wire L3B



A TYPE27 PCB
a Wire L1B
b Wire L2B
c Wire L3B

Does the inverter PCB receive power?	Action
Yes	Return to "3.12.1 Checking procedures" [▸ 142] of the inverter PCB and continue with the next procedure.
No	Continue with the next step.

3 Perform an electrical check of the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

Electrical check of noise filter PCB correct?	Action
Yes	Correct the wiring between the inverter PCB and the noise filter PCB, see "4.1.2 Repair procedures" [▸ 237].
No	Perform a check of the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

To check the HAP LED of the inverter PCB

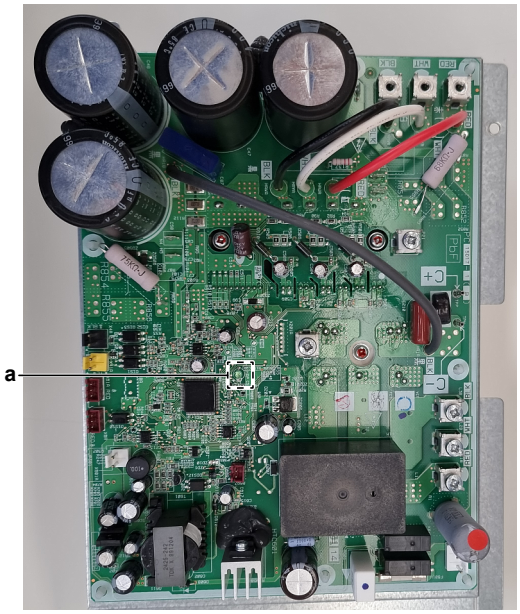
1 First perform a power check of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

INFORMATION

Make sure that the PCB is NOT in stand-by mode. The HAP LED will NOT blink when in stand-by mode.

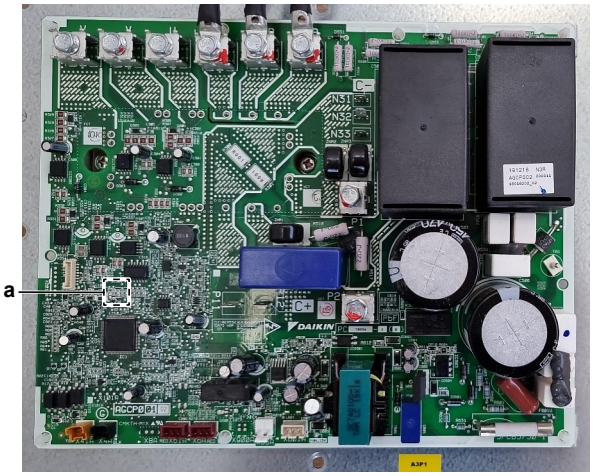
2 Locate the HAP LED on the inverter PCB.

A



A TYPE17 PCB
a HAP LED

B



B TYPE27 PCB
a HAP LED

Does the HAP LED blink in regular intervals (approximately 1 Hz)?	Action
Yes	Return to "3.12.1 Checking procedures" [▸ 142] of the inverter PCB and continue with the next procedure.
No	Replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the inverter PCB installed?	Action
Yes	Return to "3.12.1 Checking procedures" [▶ 142] of the inverter PCB and continue with the next procedure.
No	Replace the inverter PCB, see "3.12.2 Repair procedures" [▶ 152].

To check the wiring of the inverter PCB

Prerequisite: First perform all earlier checks of the inverter PCB, see "3.12.1 Checking procedures" [▶ 142].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Wait until the rectifier voltage is below 10 V DC.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Check that all wires are properly connected and that all connectors are fully plugged-in.

3 Check that no connectors or wires are damaged.

4 Check that the wiring corresponds with the wiring diagram, see "6.2 Wiring diagram" [▶ 263].

INFORMATION

Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.12.1 Checking procedures" [▶ 142] of the inverter PCB and continue with the next procedure.

To check the fuses of the inverter PCB

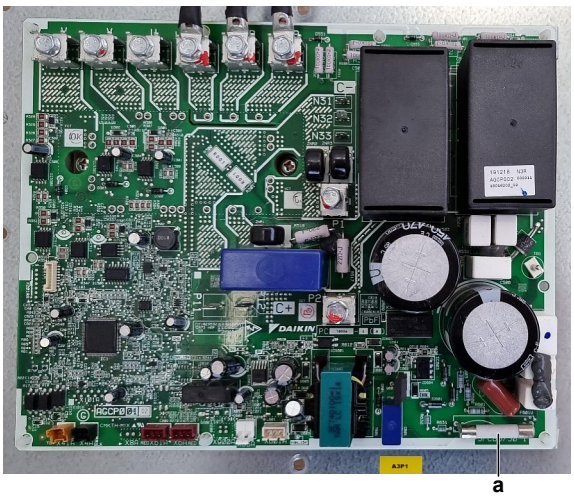
Prerequisite: First perform all earlier checks of the inverter PCB, see "3.12.1 Checking procedures" [▶ 142].

1 Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.

A

A TYPE17 PCB
a Fuse F601U

B



B TYPE27 PCB
a Fuse F601U

Any blown fuses on the inverter PCB?	Action
Yes	Replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].
No	Return to "3.12.1 Checking procedures" [▸ 142] of the inverter PCB and continue with the next procedure.

To check the rectifier voltage of the inverter PCB

Inverter PCB Type 17

Prerequisite: First perform all earlier checks of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

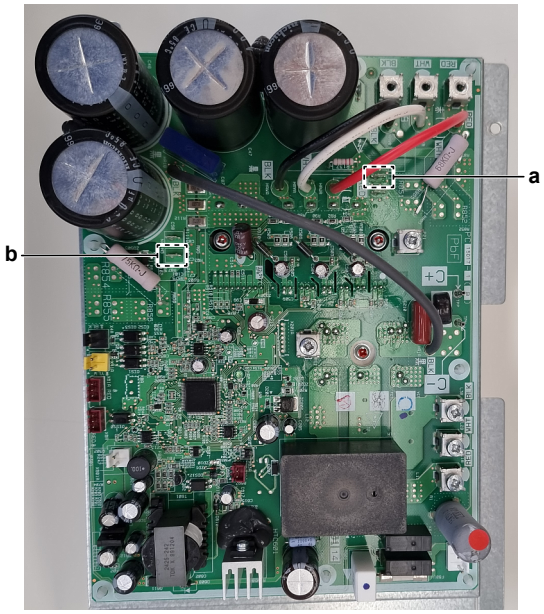
1 Turn ON the power of the unit with main switch Q10.

DANGER: RISK OF ELECTROCUTION

Do NOT touch any live parts or PCB's.

2 Measure the rectifier voltage between the terminals P5 and N5 on the inverter PCB.

Result: The measured voltage MUST be approximately 560 V DC.



a Terminal P5
b Terminal N5

Is the measured voltage correct?	Action
Yes	Diode module is OK. Perform a check of the power module of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].
No	Continue with the next step.

3 Perform a check of the reactor, see "3.18.1 Checking procedures" [▸ 185].

Is the reactor OK?	Action
Yes	Replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].
No	Replace the reactor, see "3.18.2 Repair procedures" [▸ 187].

Inverter PCB Type 27

Prerequisite: First perform all earlier checks of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

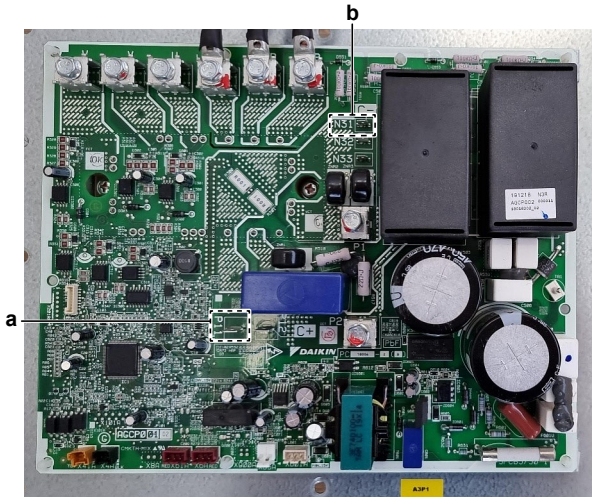
1 Turn ON the power of the unit with main switch Q10.

DANGER: RISK OF ELECTROCUTION

Do NOT touch any live parts or PCB's.

2 Measure the rectifier voltage between the terminals P11 and N31 on the inverter PCB.

Result: The measured voltage MUST be approximately 560 V DC.



a Terminal P11
b Terminal N31

Is the measured voltage correct?	Action
Yes	Diode module is OK. Perform a check of the power module of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].
No	Continue with the next step.

3 Perform a check of both reactors, see "3.18.1 Checking procedures" [▸ 185].

Are both reactors OK?	Action
Yes	Replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].
No	Replace the faulty reactor, see "3.18.2 Repair procedures" [▸ 187].

To perform a diode module check

Inverter PCB Type 17

1 First check the rectifier voltage of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

INFORMATION

If the rectifier voltage is OK, the diode module is OK. If rectifier voltage is NOT OK, proceed as described in the rectifier voltage check procedure.

Below procedure describes how to check the diode module itself.

2 Stop the unit operation via the central controller.

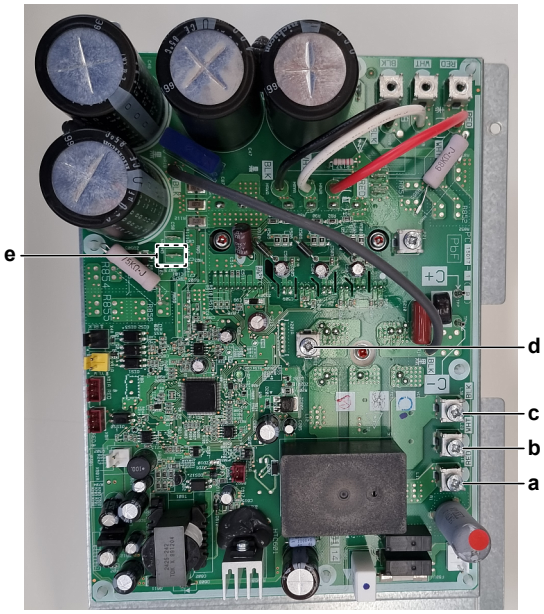
3 Turn OFF the main switch Q10.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

4 Disconnect the wires from the terminals L1B, L2B, L3B and P11 on the inverter PCB.

5 Check the diode module in reference with the table below.



a Wire terminal L1B
b Wire terminal L2B
c Wire terminal L3B
d Wire terminal P11
e Terminal N5

VDC	Com	Ref	VDC	Com	Ref
P11	L1B	O.L	N5	L1B	0.467
P11	L2B	O.L	N5	L2B	0.467
P11	L3B	O.L	N5	L3B	0.467
L1B	P11	0.467	L1B	N5	O.L
L2B	P11	0.467	L2B	N5	O.L
L3B	P11	0.467	L3B	N5	O.L

6 If the diode module is NOT ok, replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].

Inverter PCB Type 27

1 First check the rectifier voltage of the inverter PCB, see "3.12.1 Checking procedures" [▸ 142].

INFORMATION

If the rectifier voltage is OK, the diode module is OK. If rectifier voltage is NOT OK, proceed as described in the rectifier voltage check procedure.

Below procedure describes how to check the diode module itself.

2 Stop the unit operation via the central controller.

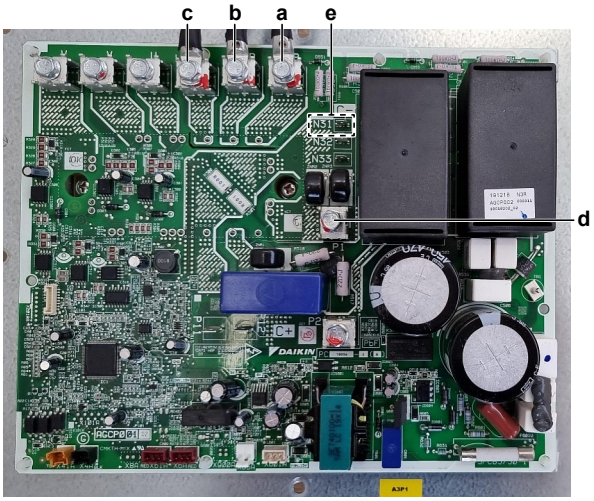
3 Turn OFF the main switch Q10.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

4 Disconnect the wires from the terminals L1B, L2B, L3B and P1 on the inverter PCB.

5 Check the diode module in reference with the table below.



a Wire terminal L1B
b Wire terminal L2B
c Wire terminal L3B
d Wire terminal P1
e Terminal N31

VDC	Com	Ref	VDC	Com	Ref
P1	L1B	O.L	N31	L1B	0,429
P1	L2B	O.L	N31	L2B	0,429
P1	L3B	O.L	N31	L3B	0,429
L1B	P1	0,429	L1B	N31	O.L
L2B	P1	0,429	L2B	N31	O.L
L3B	P1	0,429	L3B	N31	O.L

6 If the diode module is NOT ok, replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].

To perform a power module check

Inverter PCB Type 17

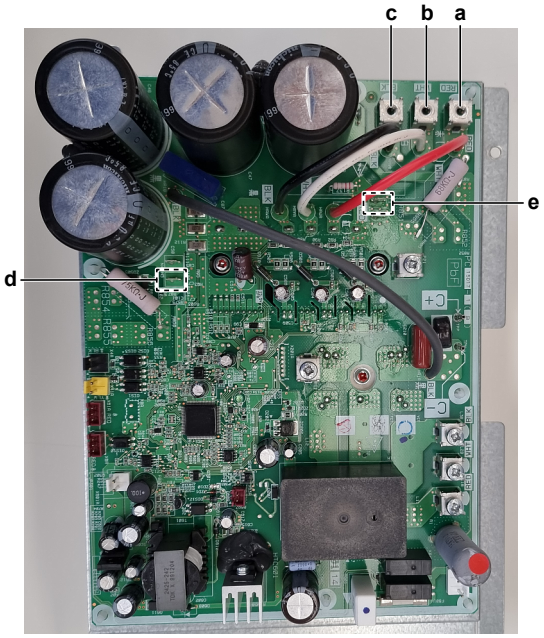
Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the main switch Q10.

> **DANGER: RISK OF ELECTROCUTION**
> Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Disconnect the compressor wires from the inverter PCB.

3 Check the power module in reference with the table below.



a Wire terminal U
b Wire terminal V
c Wire terminal W
d Terminal N5
e Terminal P5

VDC	Com	Ref	VDC	Com	Ref
P5	U	O.L	N5	U	0,417
P5	V	O.L	N5	V	0,417
P5	W	O.L	N5	W	0,417
U	P5	0,417	U	N5	O.L
V	P5	0,417	V	N5	O.L
W	P5	0,417	W	N5	O.L

Are the test results OK?	Action
Yes	Return to "3.12.1 Checking procedures" [▶ 142] of the inverter PCB and continue with the next procedure.
No	Replace the inverter PCB, see "3.12.2 Repair procedures" [▶ 152].

Inverter PCB Type 27

Prerequisite: Stop the unit operation via the user interface.

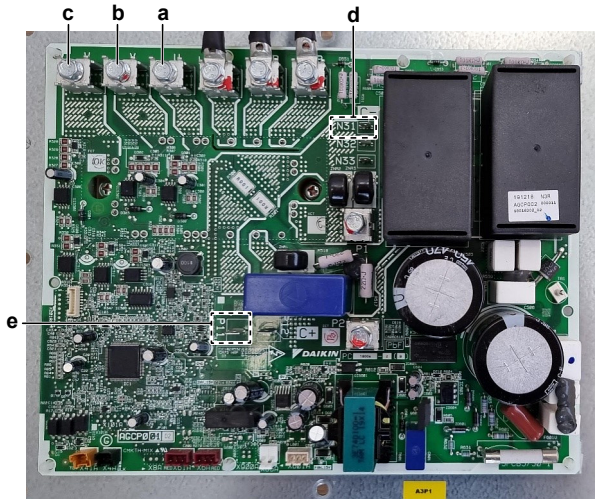
1 Turn OFF the main switch Q10.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Disconnect the compressor wires from the inverter PCB.

3 Check the power module in reference with the table below.



a Wire terminal U
b Wire terminal V
c Wire terminal W
d Terminal N31
e Terminal P11

VDC	Com	Ref	VDC	Com	Ref
P11	U	O.L	N31	U	0,401
P11	V	O.L	N31	V	0,401
P11	W	O.L	N31	W	0,401
U	P11	0,401	U	N31	O.L
V	P11	0,401	V	N31	O.L
W	P11	0,401	W	N31	O.L

Are the test results OK?	Action
Yes	Return to "3.12.1 Checking procedures" [▸ 142] of the inverter PCB and continue with the next procedure.
No	Replace the inverter PCB, see "3.12.2 Repair procedures" [▸ 152].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.12.2 Repair procedures

To remove the inverter PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

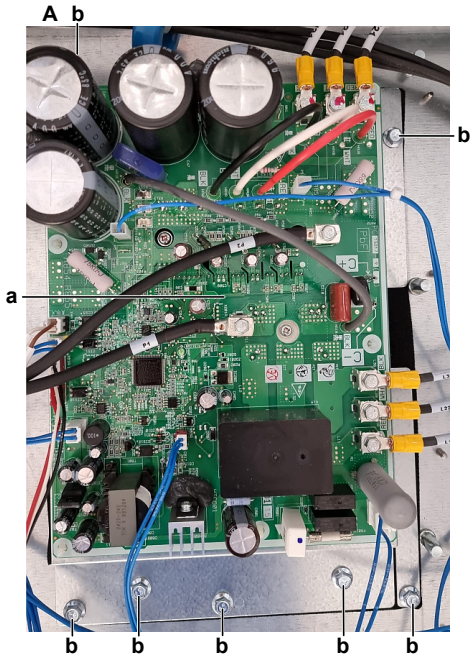
DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

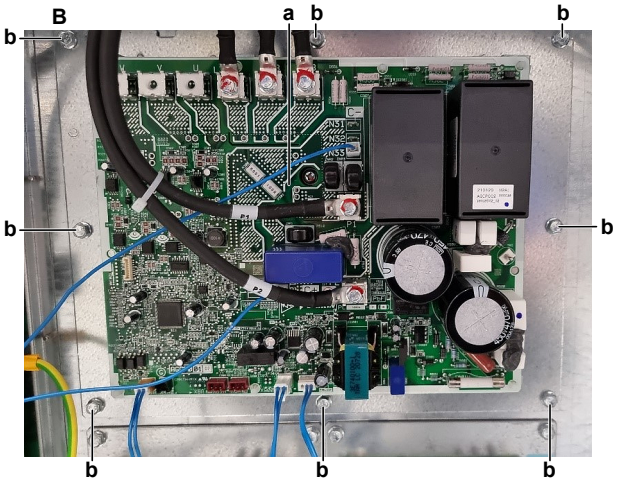
2 Loosen the screws and disconnect the wires from the inverter PCB.

3 Disconnect all connectors from the inverter PCB.

4 Loosen and remove the screws that fix the inverter PCB assembly (with heat sink plate) to the switch box.



A TYPE17 PCB
a Inverter PCB assembly (with heat sink plate)
b Screw



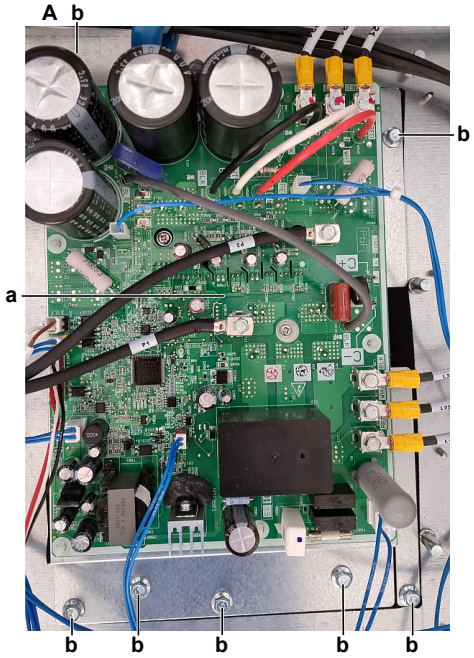
B TYPE27 PCB
a Inverter PCB assembly (with heat sink plate)
b Screw

5 Remove the inverter PCB assembly (with heat sink pate).

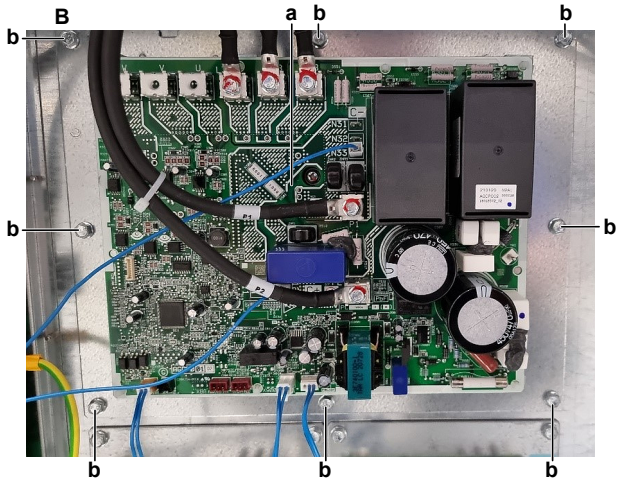
6 To install the new inverter PCB, see "3.12.2 Repair procedures" [▸ 152].

To install the inverter PCB

1 Install the inverter PCB assembly (with heat sink plate) on its correct location.



A TYPE17 PCB
a Inverter PCB assembly (with heat sink plate)
b Screw



B TYPE27 PCB
a Inverter PCB assembly (with heat sink plate)
b Screw

2 Install and tighten the screws to fix the inverter PCB assembly (with heat sink plate) to the switch box.

3 Connect all connectors to the inverter PCB.

4 Connect all wires to the inverter PCB and tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.12.1 Checking procedures" [▸ 142] of the inverter PCB and continue with the next procedure.

3.13 Main PCB

3.13.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To check if the latest software version is installed on the main PCB

1 On the user interface, navigate to page [24.00] and check which software version is currently installed on the main PCB.

2 Go to Daikin Business Portal and check the latest software version available.

Is the latest software version installed?	Action
Yes	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.
No	Update the software of the main PCB, see "1 General operation" [▶ 6].

To perform a power check of the main PCB

Prerequisite: First check if the latest software version is installed, see "3.13.1 Checking procedures" [▶ 155].

Prerequisite: Stop the unit operation via the user interface.

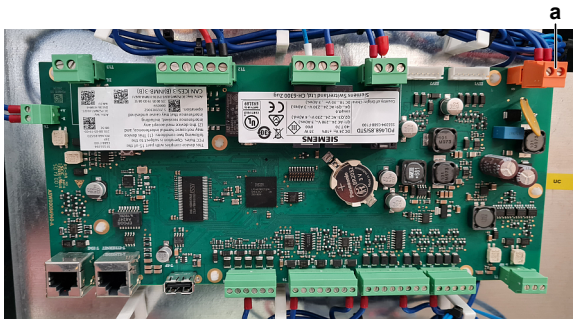
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the voltage between the wires on terminal block T7 of the main PCB.

Result: The measurement MUST be 24 V DC.



a Terminal block T7

Is the measurement correct?	Action
Yes	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.
No	Continue with the next step.

3 Measure the output voltage between terminals -V and +V of the 24 V DC auxiliary power supply.

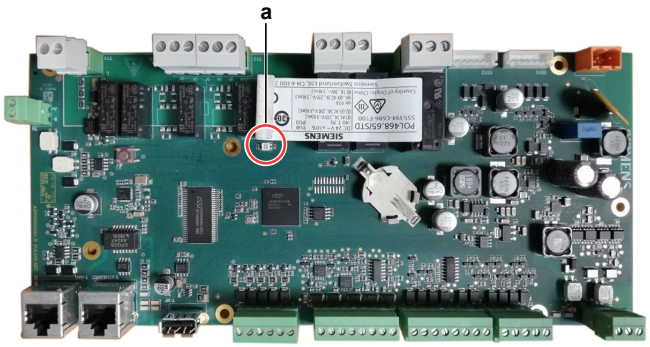
Result: The measured voltage MUST be 24 V DC.

Is the measurement correct?	Action
Yes	Correct the wiring between the main PCB and the 24 V DC auxiliary power supply, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the 24 V DC auxiliary power supply, see "3.2.1 Checking procedures" [▸ 79].

To check the LED of the main PCB

Prerequisite: First check the auxiliary power supply to the main PCB, see "3.13.1 Checking procedures" [▸ 155].

1 Locate the LED on the main PCB.



a LED

> **INFORMATION**
>
> Make sure the correct software is available on the PCB. If NOT, update using the updater tool.

2 Compare the behaviour of the led to the table below.

Color	Flash response	Function	Action
Red/green	Changes at 1 Hz	Software update mode: Download application or new firmware	Complete the update procedure (see "3.13.2 Repair procedures" [▸ 158]) and wait until update is done
Green	Continuous	Application loaded and is running	All OK
Orange	Continuous	Application loaded but is not running	(a)
Orange	Flashing: 50 ms on / 1000 ms off	Application not loaded	(b)
Red	Flashing at 2 Hz	Firmware error	Update software (see "3.13.2 Repair procedures" [▸ 158]), if persists replace PCB

Color	Flash response	Function	Action
Red	Continuous	Hardware fault	Replace PCB (see "3.13.2 Repair procedures" [▶ 158]).

[a] Orange LED will appear when using the SCOPE virtual controller or other Service monitoring tools (command on the toolbar: Start application needed) and also to check during update procedure with USB drive (manual restart required).
[b] Check the Service monitoring tool procedures.

Does the LED function correctly?	Action
Yes	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.
No	Perform necessary action as described in the table above.

3 After necessary action has been performed, again check the behaviour of the LED.

Does the LED function correctly?	Action
Yes	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.
No	Replace the main PCB, "3.13.2 Repair procedures" [▶ 158].

To check if the correct spare part is installed

1 First perform all earlier checks of the main PCB, see "3.13.1 Checking procedures" [▶ 155].

2 Visit your local spare parts webbank.

3 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the main PCB installed?	Action
Yes	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.
No	Replace the main PCB, "3.13.2 Repair procedures" [▶ 158].

To check the wiring of the main PCB

Prerequisite: First perform all earlier checks of the main PCB, see "3.13.1 Checking procedures" [▶ 155].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Check that all wires are properly connected and that all connectors are fully plugged-in.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "6.2 Wiring diagram" [▶ 263].

> **INFORMATION**
>
> Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.13.1 Checking procedures" [▶ 155] of the main PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

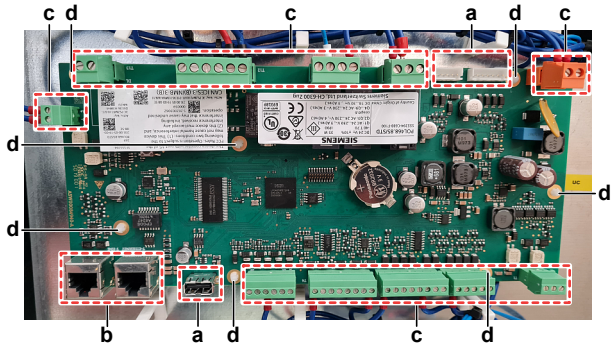
3.13.2 Repair procedures

To remove the main PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1. Remove the required plate work, see "3.16 Plate work" [▶ 173].
2. Disconnect all connectors and LAN cables from the main PCB.

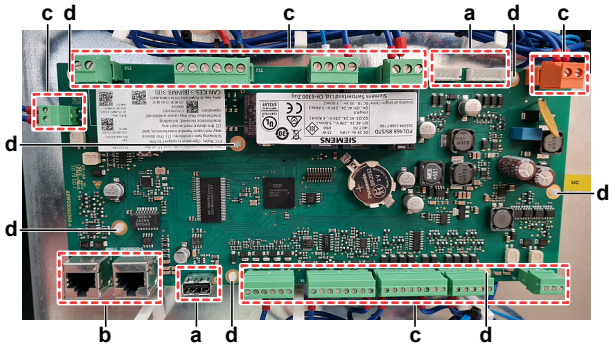


a Connector
b LAN terminal
c Terminal block
d PCB support

3. Disconnect all terminal blocks from the main PCB.
4. Carefully pull the PCB at the side and unlatch the PCB supports one by one using a small pair of pliers.
5. Remove the main PCB.
6. To install the new outdoor unit main PCB, see "3.13.2 Repair procedures" [▶ 158].

To install the main PCB

1. Install the main PCB on its correct location in the switch box.
2. Correctly install the main PCB on the PCB supports.



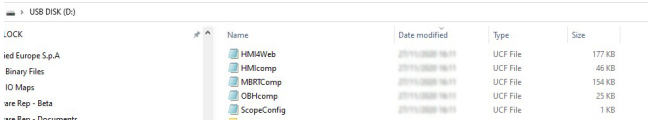
a Connector
b LAN terminal
c Terminal block
d PCB support

3 Connect all terminal blocks to the main PCB.

4 Connect all connectors and LAN cables to the main PCB.

Update software

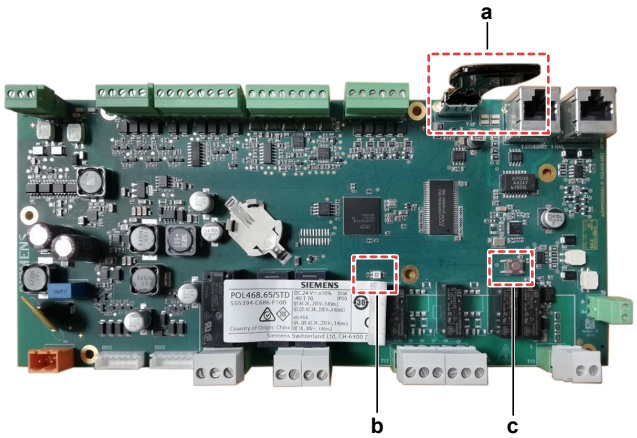
1 Load the files shown in the picture onto an empty USB-drive.



INFORMATION

Latest software version is available on Daikin Business Portal.

2 Insert the USB-drive in the USB-port.



a USB-drive
b LED
c Button

3 Press the button, and keep pressed.

4 With the button still pressed, turn ON the main switch Q10 and power the unit.

Result: The LED blinks green.

5 Keep the button pressed.

Result: The LED blinks green / red.

6 Immediately release the button.

Result: The LED lights up continuously orange.

7 Immediately turn OFF and ON the main switch Q10.

8 On the user interface, check the menu > About chiller.

Result: Software version MUST be the latest version.

Set parameters

1 When installing a new main PCB, the configuration of the unit has to be defined (technician password required):

- Via the user interface: Navigate to page [14] Service Configuration.
- Via the service monitoring tool: In the Main Menu, select Commission Unit > Configuration.

2 Find below an overview of the required settings:

Page	Name	Description
[14.00]	Unit Type	0 = None
		1 = EWAT
		2 = EWYT
[14.01]	Size	0 = 16 kW
		1 = 21 kW
		2 = 25 kW
		3 = 32 kW
		4 = 40 kW Mono
		5 = 40 kW Dual
		6 = 50 kW
		7 = 64 kW
		8 = 90 kW
[14.02]	Pump Type	0 = N Naked (No)
		1 = P: Low Lift (LL)
		2 = H: High Lift (HL)
[14.03]	Option	0 = No option (No)
		1 = High ambient temperature kit (HA) Option code 192
		2 = Antifreeze protection electrical heater (Heater) Option code 191
[14.04]	OnlyHP	OFF = Standard (No)
		ON = OnlyHP (Yes)
[14.05]	HMI Type	OFF = Siemens
		ON = EvCO
[14.06]	Parameter Save	Off = Don't save parameters in USB
		On = Save paramaters in USB
[14.07]	Parameter Restore	0 = No restoration of parameters from USB (No)
		1 = Partial restoration of parameters from USB (Partial)
		2 = Full restoration of parameters from USB (Full)

3 Correctly set the following data for your specific unit:

Unit	[14.00]	[14.01]	[14.02]	[14.03]	[14.04]	[14.05]	Unit	[14.00]	[14.01]	[14.02]	[14.03]	[14.04]	[14.05]
EWAT016CZN-A1	1	0	0	0	On OR Off	On	EWYT016CZN-A1	2	0	0	0	On OR Off	On
EWAT021CZN-A1	1	1	0	0	On OR Off	On	EWYT021CZN-A1	2	1	0	0	On OR Off	On
EWAT025CZN-A1	1	2	0	0	On OR Off	On	EWYT025CZN-A1	2	2	0	0	On OR Off	On
EWAT032CZN-A1	1	3	0	0	On OR Off	On	EWYT032CZN-A1	2	3	0	0	On OR Off	On
EWAT040CZN-A1	1	4	0	0	On OR Off	On	EWYT040CZN-A1	2	4	0	0	On OR Off	On
EWAT040CZN-A2	1	5	0	0	On OR Off	On	EWYT040CZN-A2	2	5	0	0	On OR Off	On
EWAT050CZN-A2	1	6	0	0	On OR Off	On	EWYT050CZN-A2	2	6	0	0	On OR Off	On
EWAT064CZN-A2	1	7	0	0	On OR Off	On	EWYT064CZN-A2	2	7	0	0	On OR Off	On
EWAT090CZN-A2	1	8	0	0	On OR Off	On	EWYT090CZN-A2	2	8	0	0	On OR Off	On
EWAT016CZP-A1	1	0	1	0	On OR Off	On	EWYT016CZP-A1	2	0	1	0	On OR Off	On
EWAT021CZP-A1	1	1	1	0	On OR Off	On	EWYT021CZP-A1	2	1	1	0	On OR Off	On
EWAT025CZP-A1	1	2	1	0	On OR Off	On	EWYT025CZP-A1	2	2	1	0	On OR Off	On
EWAT032CZP-A1	1	3	1	0	On OR Off	On	EWYT032CZP-A1	2	3	1	0	On OR Off	On
EWAT040CZP-A1	1	4	1	0	On OR Off	On	EWYT040CZP-A1	2	4	1	0	On OR Off	On
EWAT040CZP-A2	1	5	1	0	On OR Off	On	EWYT040CZP-A2	2	5	1	0	On OR Off	On
EWAT050CZP-A2	1	6	1	0	On OR Off	On	EWYT050CZP-A2	2	6	1	0	On OR Off	On
EWAT064CZP-A2	1	7	1	0	On OR Off	On	EWYT064CZP-A2	2	7	1	0	On OR Off	On
EWAT090CZP-A2	1	8	1	0	On OR Off	On	EWYT090CZP-A2	2	8	1	0	On OR Off	On
EWAT016CZH-A1	1	0	2	0	On OR Off	On	EWYT016CZH-A1	2	0	2	0	On OR Off	On
EWAT021CZH-A1	1	1	2	0	On OR Off	On	EWYT021CZH-A1	2	1	2	0	On OR Off	On
EWAT025CZH-A1	1	2	2	0	On OR Off	On	EWYT025CZH-A1	2	2	2	0	On OR Off	On
EWAT032CZH-A1	1	3	2	0	On OR Off	On	EWYT032CZH-A1	2	3	2	0	On OR Off	On
EWAT040CZH-A1	1	4	2	0	On OR Off	On	EWYT040CZH-A1	2	4	2	0	On OR Off	On
EWAT040CZH-A2	1	5	2	0	On OR Off	On	EWYT040CZH-A2	2	5	2	0	On OR Off	On
EWAT050CZH-A2	1	6	2	0	On OR Off	On	EWYT050CZH-A2	2	6	2	0	On OR Off	On
EWAT064CZH-A2	1	7	2	0	On OR Off	On	EWYT064CZH-A2	2	7	2	0	On OR Off	On
EWAT090CZH-A2	1	8	2	0	On OR Off	On	EWYT090CZH-A2	2	8	2	0	On OR Off	On
EWAT016CZNAA1	1	0	0	1	On OR Off	On	EWYT016CZNAA1	2	0	0	1	On OR Off	On
EWAT021CZNAA1	1	1	0	1	On OR Off	On	EWYT021CZNAA1	2	1	0	1	On OR Off	On
EWAT025CZNAA1	1	2	0	1	On OR Off	On	EWYT025CZNAA1	2	2	0	1	On OR Off	On
EWAT032CZNAA1	1	3	0	1	On OR Off	On	EWYT032CZNAA1	2	3	0	1	On OR Off	On
EWAT040CZNAA1	1	4	0	1	On OR Off	On	EWYT040CZNAA1	2	4	0	1	On OR Off	On
EWAT040CZNAA2	1	5	0	1	On OR Off	On	EWYT040CZNAA2	2	5	0	1	On OR Off	On
EWAT050CZNAA2	1	6	0	1	On OR Off	On	EWYT050CZNAA2	2	6	0	1	On OR Off	On
EWAT064CZNAA2	1	7	0	1	On OR Off	On	EWYT064CZNAA2	2	7	0	1	On OR Off	On
EWAT090CZNAA2	1	8	0	1	On OR Off	On	EWYT090CZNAA2	2	8	0	1	On OR Off	On
EWAT016CZPAA1	1	0	1	1	On OR Off	On	EWYT016CZPAA1	2	0	1	1	On OR Off	On
EWAT021CZPAA1	1	1	1	1	On OR Off	On	EWYT021CZPAA1	2	1	1	1	On OR Off	On
EWAT025CZPAA1	1	2	1	1	On OR Off	On	EWYT025CZPAA1	2	2	1	1	On OR Off	On
EWAT032CZPAA1	1	3	1	1	On OR Off	On	EWYT032CZPAA1	2	3	1	1	On OR Off	On
EWAT040CZPAA1	1	4	1	1	On OR Off	On	EWYT040CZPAA1	2	4	1	1	On OR Off	On
EWAT040CZPAA2	1	5	1	1	On OR Off	On	EWYT040CZPAA2	2	5	1	1	On OR Off	On
EWAT050CZPAA2	1	6	1	1	On OR Off	On	EWYT050CZPAA2	2	6	1	1	On OR Off	On
EWAT064CZPAA2	1	7	1	1	On OR Off	On	EWYT064CZPAA2	2	7	1	1	On OR Off	On
EWAT090CZPAA2	1	8	1	1	On OR Off	On	EWYT090CZPAA2	2	8	1	1	On OR Off	On
EWAT016CZHAA1	1	0	2	1	On OR Off	On	EWYT016CZHAA1	2	0	2	1	On OR Off	On
EWAT021CZHAA1	1	1	2	1	On OR Off	On	EWYT021CZHAA1	2	1	2	1	On OR Off	On
EWAT025CZHAA1	1	2	2	1	On OR Off	On	EWYT025CZHAA1	2	2	2	1	On OR Off	On
EWAT032CZHAA1	1	3	2	1	On OR Off	On	EWYT032CZHAA1	2	3	2	1	On OR Off	On
EWAT040CZHAA1	1	4	2	1	On OR Off	On	EWYT040CZHAA1	2	4	2	1	On OR Off	On
EWAT040CZHAA2	1	5	2	1	On OR Off	On	EWYT040CZHAA2	2	5	2	1	On OR Off	On
EWAT050CZHAA2	1	6	2	1	On OR Off	On	EWYT050CZHAA2	2	6	2	1	On OR Off	On
EWAT064CZHAA2	1	7	2	1	On OR Off	On	EWYT064CZHAA2	2	7	2	1	On OR Off	On
EWAT090CZHAA2	1	8	2	1	On OR Off	On	EWYT090CZHAA2	2	8	2	1	On OR Off	On

Unit	[14.00]	[14.01]	[14.02]	[14.03]	[14.04]	[14.05]	Unit	[14.00]	[14.01]	[14.02]	[14.03]	[14.04]	[14.05]
EWAT016CZNBA1	1	0	0	2	On OR Off	On	EWYT016CZNBA1	2	0	0	2	On OR Off	On
EWAT021CZNBA1	1	1	0	2	On OR Off	On	EWYT021CZNBA1	2	1	0	2	On OR Off	On
EWAT025CZNBA1	1	2	0	2	On OR Off	On	EWYT025CZNBA1	2	2	0	2	On OR Off	On
EWAT032CZNBA1	1	3	0	2	On OR Off	On	EWYT032CZNBA1	2	3	0	2	On OR Off	On
EWAT040CZNBA1	1	4	0	2	On OR Off	On	EWYT040CZNBA1	2	4	0	2	On OR Off	On
EWAT040CZNBA2	1	5	0	2	On OR Off	On	EWYT040CZNBA2	2	5	0	2	On OR Off	On
EWAT050CZNBA2	1	6	0	2	On OR Off	On	EWYT050CZNBA2	2	6	0	2	On OR Off	On
EWAT064CZNBA2	1	7	0	2	On OR Off	On	EWYT064CZNBA2	2	7	0	2	On OR Off	On
EWAT090CZNBA2	1	8	0	2	On OR Off	On	EWYT090CZNBA2	2	8	0	2	On OR Off	On
EWAT016CZPBA1	1	0	1	2	On OR Off	On	EWYT016CZPBA1	2	0	1	2	On OR Off	On
EWAT021CZPBA1	1	1	1	2	On OR Off	On	EWYT021CZPBA1	2	1	1	2	On OR Off	On
EWAT025CZPBA1	1	2	1	2	On OR Off	On	EWYT025CZPBA1	2	2	1	2	On OR Off	On
EWAT032CZPBA1	1	3	1	2	On OR Off	On	EWYT032CZPBA1	2	3	1	2	On OR Off	On
EWAT040CZPBA1	1	4	1	2	On OR Off	On	EWYT040CZPBA1	2	4	1	2	On OR Off	On
EWAT040CZPBA2	1	5	1	2	On OR Off	On	EWYT040CZPBA2	2	5	1	2	On OR Off	On
EWAT050CZPBA2	1	6	1	2	On OR Off	On	EWYT050CZPBA2	2	6	1	2	On OR Off	On
EWAT064CZPBA2	1	7	1	2	On OR Off	On	EWYT064CZPBA2	2	7	1	2	On OR Off	On
EWAT090CZPBA2	1	8	1	2	On OR Off	On	EWYT090CZPBA2	2	8	1	2	On OR Off	On
EWAT016CZHBA1	1	0	2	2	On OR Off	On	EWYT016CZHBA1	2	0	2	2	On OR Off	On
EWAT021CZHBA1	1	1	2	2	On OR Off	On	EWYT021CZHBA1	2	1	2	2	On OR Off	On
EWAT025CZHBA1	1	2	2	2	On OR Off	On	EWYT025CZHBA1	2	2	2	2	On OR Off	On
EWAT032CZHBA1	1	3	2	2	On OR Off	On	EWYT032CZHBA1	2	3	2	2	On OR Off	On
EWAT040CZHBA1	1	4	2	2	On OR Off	On	EWYT040CZHBA1	2	4	2	2	On OR Off	On
EWAT040CZHBA2	1	5	2	2	On OR Off	On	EWYT040CZHBA2	2	5	2	2	On OR Off	On
EWAT050CZHBA2	1	6	2	2	On OR Off	On	EWYT050CZHBA2	2	6	2	2	On OR Off	On
EWAT064CZHBA2	1	7	2	2	On OR Off	On	EWYT064CZHBA2	2	7	2	2	On OR Off	On
EWAT090CZHBA2	1	8	2	2	On OR Off	On	EWYT090CZHBA2	2	8	2	2	On OR Off	On

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.13.1 Checking procedures" [▸ 155] of the main PCB and continue with the next procedure.

3.14 Noise filter PCB

INFORMATION

EWAT/EWYT016~25CZP-A1 units have one 5039853 noise filter PCB, EWAT/EWYT032~40CZP-A1 units have one 5039863 noise filter PCB, EWAT/EWYT040~50CZP-A2 units have two 5039853 noise filter PCB's, EWAT/EWYT064CZP-A2 units have one 5039863 and one 5039853 noise filter PCB, EWAT/EWYT090CZP-A2 units have two 5039863 noise filter PCB's. As check and repair procedures are equal, they are described ONLY once.

3.14.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a power check of the noise filter PCB

Prerequisite: Stop the unit operation via the user interface.

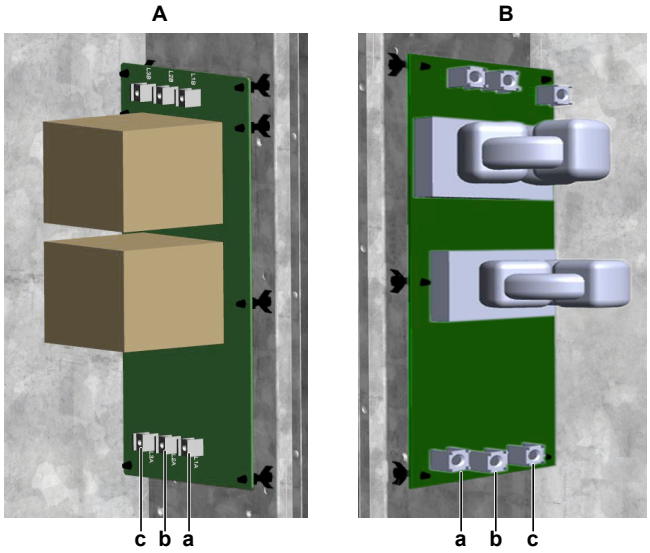
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the voltage between the following wires of the noise filter PCB on the location shown below. All measurements MUST be 400 V AC.

- L1A–L2A
- L1A–L3A
- L2A–L3A



A Noise filter PCB 5039853
B Noise filter PCB 5039863
a L1A
b L2A
c L3A

Is the measured voltage on the PCB correct?	Action
Yes	Return to "3.14.1 Checking procedures" [▸ 162] procedures of the PCB and continue with the next procedure.
No	Continue with the next step.

3 Check the power supply to the unit, see "4.1.1 Checking procedures" [▸ 234].

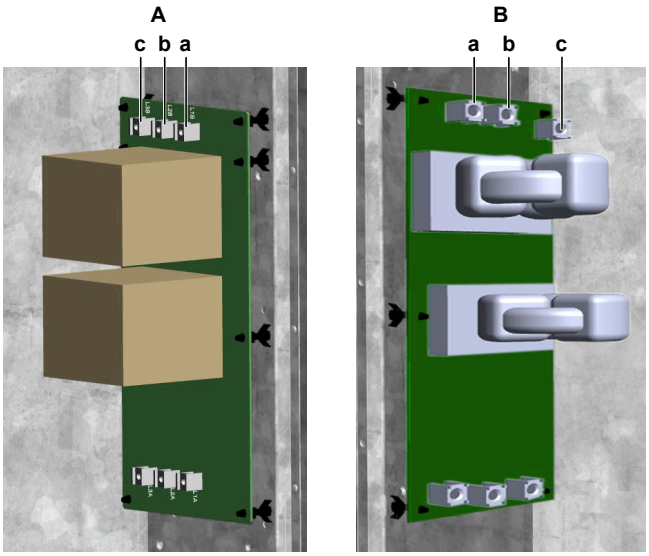
Does the unit receive power?	Action
Yes	Correct the wiring from the main power supply terminal to the noise filter PCB, see "3.14.2 Repair procedures" [▸ 166].
No	Adjust the power supply to the unit, see "4.1.2 Repair procedures" [▸ 237].

To perform an electrical check of the noise filter PCB

Prerequisite: First check the power supply to the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

1 Measure the voltage between the following output wires of the noise filter PCB on the location shown below. All measurements MUST be 400 V AC.

- L1B–L2B
- L1B–L3B
- L2B–L3B



A Noise filter PCB 5039853
B Noise filter PCB 5039863
a L1B
b L2B
c L3B

Is the output voltage on the noise filter PCB correct?	Action
Yes	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.
No	Replace the noise filter PCB, see "3.14.2 Repair procedures" [▸ 166].

To check if the correct spare part is installed

Prerequisite: First perform all earlier checks of the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

1 Visit your local spare parts webbank.

2 Enter the model name of your unit and check if the installed spare part number corresponds with the spare part number indicated in the webbank.

Is the correct spare part for the noise filter PCB installed?	Action
Yes	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.
No	Replace the noise filter PCB, see "3.14.2 Repair procedures" [▸ 166].

To check the wiring of the noise filter PCB

Prerequisite: First perform all earlier checks of the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Check that all wires are properly connected and that all connectors are fully plugged-in.

2 Check that no connectors or wires are damaged.

3 Check that the wiring corresponds with the wiring diagram, see "6.2 Wiring diagram" [▸ 263].

INFORMATION

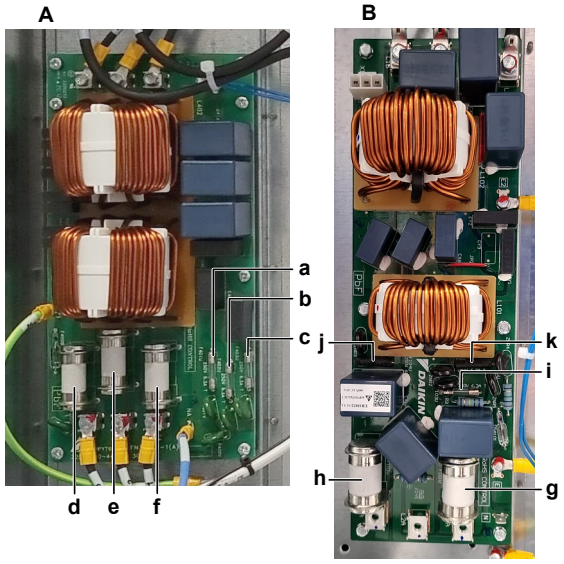
Correct the wiring as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.

To check the fuses of the noise filter PCB

Prerequisite: First perform all earlier checks of the noise filter PCB, see "3.14.1 Checking procedures" [▸ 162].

1 Measure the continuity of the fuse. If no continuity is measured, the fuse has blown.



A Noise filter PCB 5039853
B Noise filter PCB 5039863
a Fuse F401U
b Fuse F402U
c Fuse F403U
d Fuse F410U
e Fuse F411U
f Fuse F412U
g Fuse F101U
h Fuse F102U
i Fuse F103U
j Fuse F104U
k Fuse F105U

Blown fuse on the noise filter PCB?	Action
Yes	Replace the noise filter PCB, see "3.14.2 Repair procedures" [▸ 166].

Blown fuse on the noise filter PCB?	Action
No	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.14.2 Repair procedures

To correct the wiring from the main power supply terminal to the noise filter PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Access the switch box, see "3.16 Plate work" [▸ 173].
2. Make sure that all wires are firmly and correctly connected, see "6.2 Wiring diagram" [▸ 263].
3. Check the continuity of all wires.
4. Replace any damaged or broken wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.

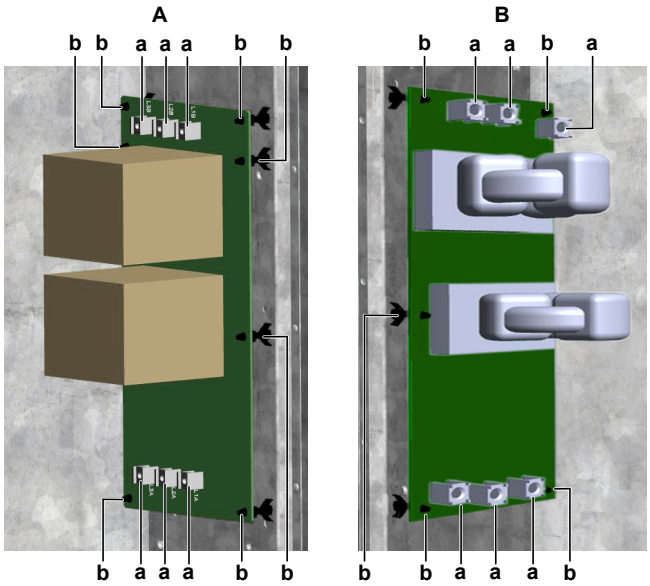
To remove the noise filter PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Loosen the screws and disconnect all the wires from the noise filter PCB.



A Noise filter PCB 5039853
B Noise filter PCB 5039863
a Wire terminal
b PCB supports

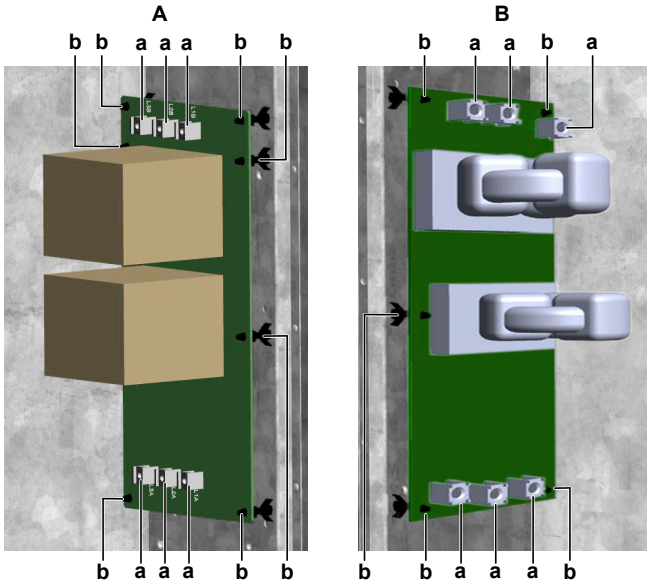
2 Carefully pull the PCB at the side and unlatch the PCB supports one by one using a small pair of pliers.

3 To install the new noise filter PCB, see "3.14.2 Repair procedures" [▸ 166].

To install the noise filter PCB

1 Install the noise filter PCB on its correct location.

2 Latch the PCB supports to fix the noise filter PCB.



A Noise filter PCB 5039853
B Noise filter PCB 5039863
a Wire terminal
b PCB supports

3 Connect all the wires to the wire terminals on the noise filter PCB and tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to "3.14.1 Checking procedures" [▸ 162] of the noise filter PCB and continue with the next procedure.

3.15 Outdoor unit fan motor

3.15.1 Checking procedures

INFORMATION

Depending on the type, the outdoor units have 1, 2, 3 or 4 fans. As they are all equal, the check and repair procedures describe only one.

EWAT/EWYT016~025CZ have 1 fan,

EWAT/EWYT032~050CZ have 2 fans,

EWAT/EWYT064CZ have 3 fans,

EWAT/EWYT090CZ have 4 fans.

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the propeller fan blade assembly

Prerequisite: First perform a power transistor check of the fan inverter PCB, see "3.9 Fan inverter PCB" [▸ 128]. If power transistor is OK, proceed as follows:

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 If propeller fan blade touches the bell mouth, check if the fan motor is correctly mounted on its base, see "3.15.2 Repair procedures" [▸ 170].

2 Check the state of the propeller fan blade assembly for damage, deformations and cracks.

Is the propeller fan blade assembly damaged?	Action
Yes	Replace the propeller fan blade assembly, see "3.15.2 Repair procedures" [▸ 170]
No	Perform a mechanical check of the DC fan motor assembly, see "3.15.1 Checking procedures" [▸ 168].

To perform a mechanical check of the DC fan motor assembly

Prerequisite: First perform a mechanical check of the propeller fan blade assembly, see "3.15.1 Checking procedures" [▸ 168].

1 Visually check:

- For any burnt-out part or wire. If found, replace the fan motor, see "3.15.2 Repair procedures" [▸ 170].
- That fan motor fixation bolts are correctly installed and fixed. Correct as needed.

2 Manually rotate the fan motor shaft. Check that it rotates smoothly.

3 Check the friction of the DC fan motor shaft bearing.

Is the DC fan motor shaft friction normal?	Action
Yes	Perform an electrical check of the DC fan motor assembly, see "3.15.1 Checking procedures" [▸ 168].
No	Replace the DC fan motor assembly, see "3.15.2 Repair procedures" [▸ 170].

To perform an electrical check of the DC fan motor assembly

1 First perform a mechanical check of the DC fan motor assembly, see "3.15.1 Checking procedures" [▸ 168].

INFORMATION

Check the DC fan motor power supply (voltage) circuit on the PCB.

2 Turn ON the power of the unit with main switch Q10.

3 Activate the desired outdoor unit fan via the service monitoring tool:

- Enter technician password.
- In the Main Menu, select Unit Enable.
- Set to Disable.
- In the Main Menu, select Unit Mode > Test to put the unit in test mode.
- In the Main Menu, select Commission Unit > Manual Control > Circuit # > Fan Out #.
- Set to On.

4 Check the functioning of the outdoor unit fan.

Outdoor unit fan …	Action
Rotates continuously (without interruption)	DC fan motor assembly is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
Does not rotate or rotates for a short time	Continue with the next step.

5 Stop the unit operation via the user interface.

6 Turn OFF the main switch Q10.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

7 Check that the DC fan motor connector X1A is properly connected to the PCB.

8 Unplug the DC fan motor connector and measure the resistance between the pins 1–3, 3–5, and 1–5 of the DC fan motor connector.

Result: All measurements MUST be 3.94 Ω±5% at 20°C.

INFORMATION

Winding resistance values above are given for reference. You should NOT be reading a value in kΩ or a short-circuit. Make sure that the propeller fan blade does NOT rotate, as this could affect resistance measurements.

9 Set the Megger voltage to 500 V DC or 1000 V DC.

10 Measure the insulation resistance for the motor terminals. Measurements between each phase and fan motor body (e.g. axle) MUST be >1000 MΩ.

Are the measured resistance values correct?	Action
Yes	Perform a check of the fan inverter PCB, see "3.9.1 Checking procedures" [▸ 128].
No	Replace the DC fan motor, see "3.15.2 Repair procedures" [▸ 170].

Problem solved?

After all checking procedures listed above have been performed:

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.15.2 Repair procedures

To remove the propeller fan blade assembly

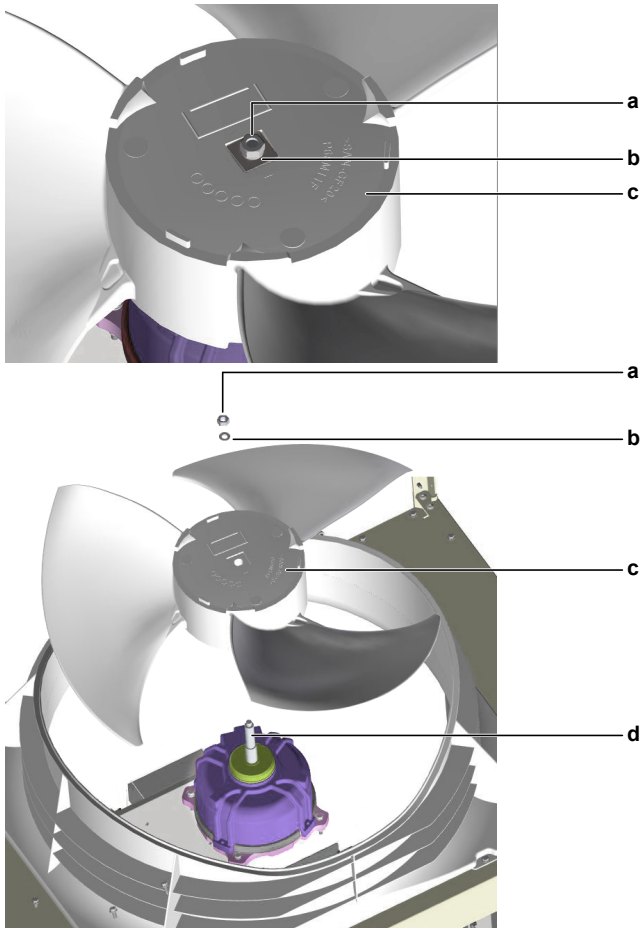
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

2 Loosen and remove the nut and washer using a wrench.

3 Remove the propeller fan blade from the fan motor axle.

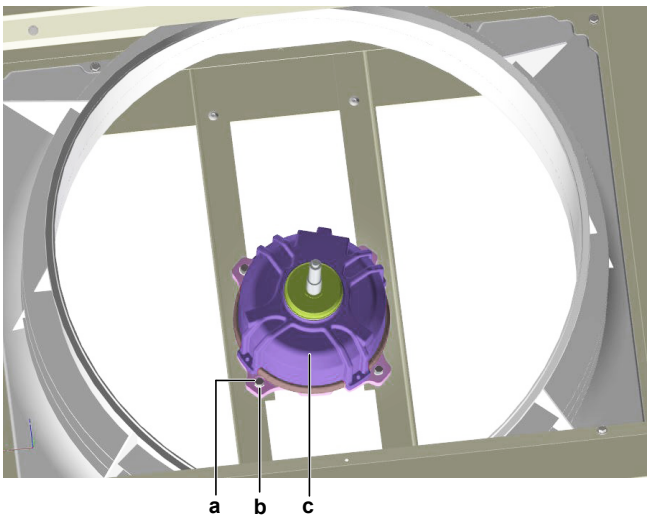


a Nut
b Washer
c Propeller fan blade assembly
d Motor axle

4 To install the propeller fan blade assembly, see "3.15.2 Repair procedures" [▸ 170].

To remove the DC fan motor assembly

1 Remove the propeller fan blade assembly from the DC fan motor assembly, see "3.15.2 Repair procedures" [▸ 170].
2 Remove the required plate work, see "3.16 Plate work" [▸ 173].
3 Disconnect the DC fan motor connector from the fan inverter PCB.
4 Remove the ferrite bead.
5 Cut the tie strap.



a Screw
b Washer
c DC fan motor assembly

6 Remove the 4 screws and washers that fix the DC fan motor assembly.

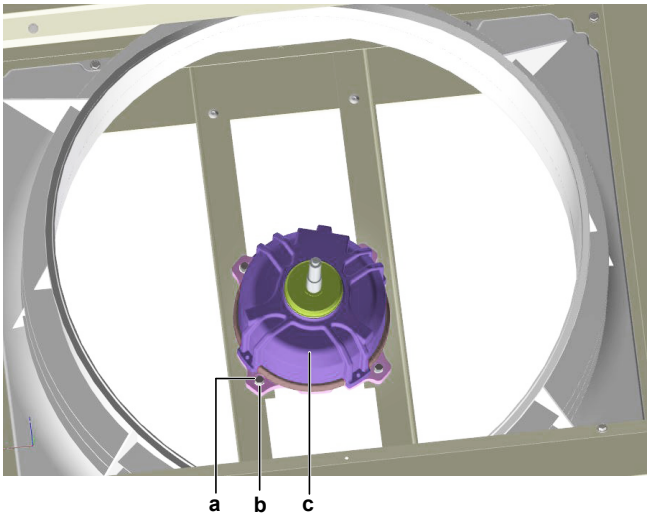
7 Remove the DC fan motor assembly from the unit.

8 To install the DC fan motor assembly, see "3.15.2 Repair procedures" [▸ 170].

To install the DC fan motor assembly

1 Install the DC fan motor assembly in the correct location.

2 Install and tighten the washers and scerws to fix the DC fan motor assembly to the unit.



a Nut
b Washer
c DC fan motor assembly

3 Connect the DC fan motor connector to the connector on the fan inverter PCB.

4 Install the ferrite bead.

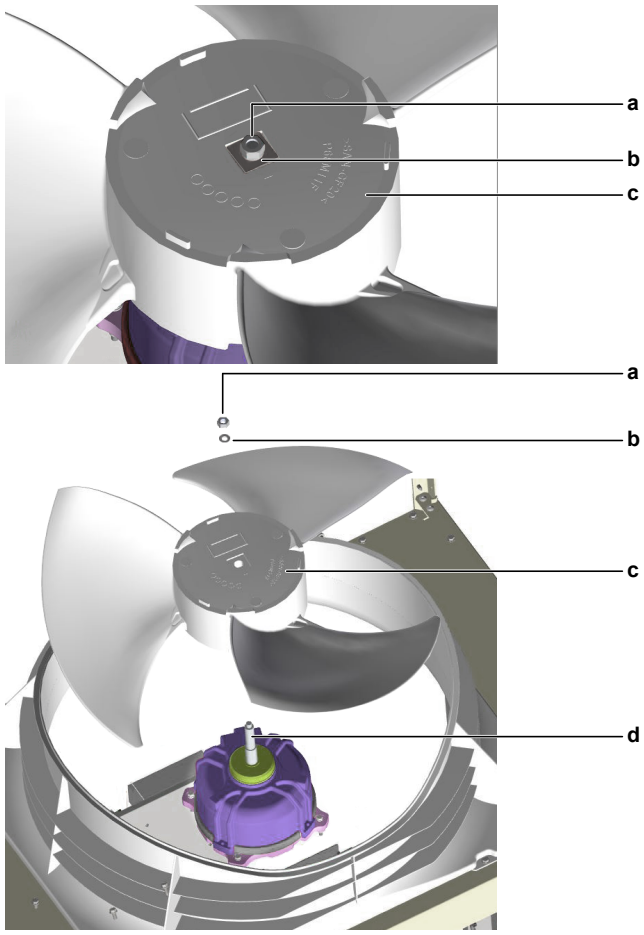
5 Install new tie straps to fix the fan motor harness.

6 Install the propeller fan blade assembly, see "3.15.2 Repair procedures" [▸ 170].

To install the propeller fan blade assembly

1 Install the propeller fan blade assembly on the DC fan motor assembly motor axle.

> **CAUTION**
> Do NOT install a damaged propeller fan blade assembly.



a Nut
b Washer
c Propeller fan blade assembly
d Motor axle

2 Install the nut and washer, and tighten using a wrench.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.15.1 Checking procedures" [▸ 168] of the outdoor unit fan motor and continue with the next procedure.

3.16 Plate work

3.16.1 To remove the plate work

To remove the main switch box cover

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove (pull out) the main switch from the unit.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Loosen and remove the 10 screws that fix the switch box cover.

a Main switch
b Screw
c Main circuit switch box cover
d Screw (top cover)
e Top cover

3 Carefully remove the switch box cover and disconnect the wiring from the user interface.

INFORMATION

The user interface is wired to the main PCB with a LAN to 4-pin cable. This cable CANNOT be removed from the outside.
Remove the switch box cover carefully so the cable does NOT break.

4 Remove the switch box cover from the unit.

5 Remove the 2 screws that fix the switch box top cover and remove the cover.

To remove the secondary switch box cover

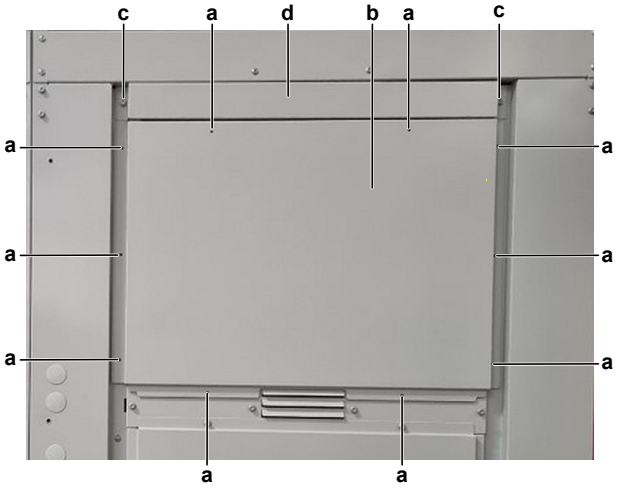
Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the main switch Q10.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Loosen and remove the 10 screws that fix the switch box cover.



a Screw
b Secondary circuit switch box cover
c Screw (top cover)
d Top cover

3 Remove the switch box cover.

4 Remove the 2 screws that fix the switch box top cover and remove the cover.

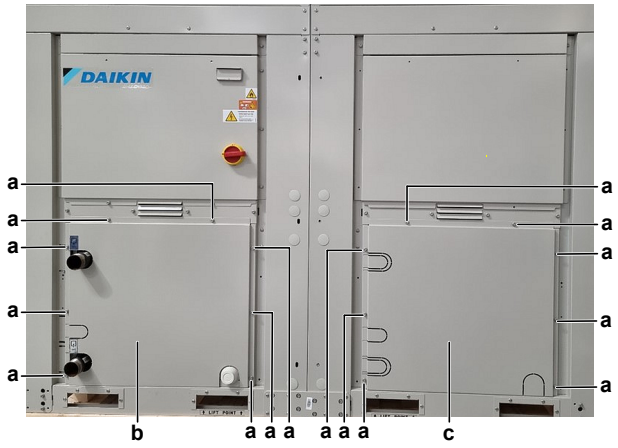
To remove the lower cover

Prerequisite: Stop the unit operation via the user interface.

1 Turn OFF the main switch Q10.

> **DANGER: RISK OF ELECTROCUTION**
> Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Loosen and remove the 8 screws that fix the lower cover.



a Screw
b Main circuit lower cover
c Secondary circuit lower cover

3 Remove the lower cover.

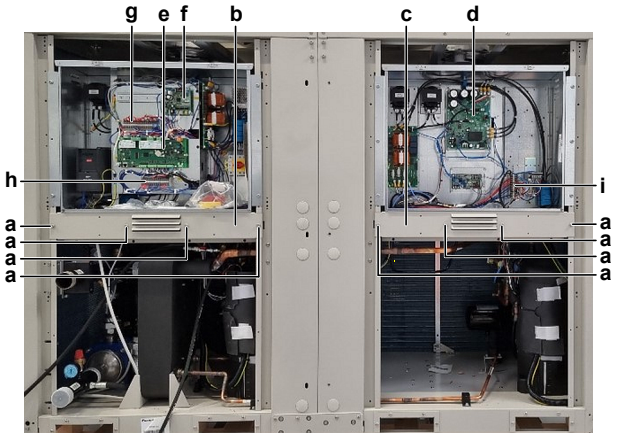
3.16.2 To remove the switch box

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Remove the 4 screws and remove the heat sink panel from the unit.



a Screw
b Heat sink panel (main circuit switch box)
c Heat sink panel (secondary circuit switch box)
d Secondary circuit inverter PCB
e Main PCB
f ACS digital I/O PCB
g Terminal block XU
h Terminal block XD
i Terminal block X2

2 Disconnect the power supply wiring:

- From the main switch (for main circuit switch box removal).
- From the noise filter PCB (for secondary switch box removal).

3 Disconnect the wiring of the following components:

Main circuit switch box		Secondary circuit switch box	
Component	**Wiring position**	**Component**	**Wiring position**
High pressure switch	▪ Terminal block XD: 764-765	High pressure switch	▪ Terminal block XD: 766-767
High pressure sensor	▪ Terminal X3 of terminal block T3 on main PCB ▪ Terminal block XD: 750-751	High pressure sensor	▪ Terminal block X2: 730-731-760
Low pressure sensor	▪ Terminal X1 of terminal block T3 on main PCB ▪ Terminal block XD: 750-751	Low pressure sensor	▪ Terminal block X2: 730-731-720
Compressor thermal protector	▪ Terminal D5 of terminal block T5 on main PCB ▪ Terminal block XD: 703	Compressor thermal protector	▪ Terminal block X2: 606-N
Crankcase heater	▪ Terminal Q8 of terminal block T12 on main PCB ▪ Terminal block XU: L	Crankcase heater	▪ Terminal block X2: 544-L
Expansion valve	▪ Connector T8 on main PCB	Expansion valve	▪ Connector T9 on main PCB
4-way valve (if applicable)	▪ Terminal Q6 of terminal block T12 on main PCB ▪ Terminal block XU: L	4-way valve (if applicable)	▪ Terminal block X2: 604-L
Suction pipe thermistor	▪ Terminal B5 of terminal block T3 on main PCB ▪ Terminal block XD: M1	Suction pipe thermistor	▪ Terminal block X2: 779-M1

Main circuit switch box		Secondary circuit switch box	
Component	**Wiring position**	**Component**	**Wiring position**
Discharge pipe thermistor	▪ Terminal X5 of terminal block T4 on main PCB ▪ Terminal block XD: 778	Discharge pipe thermistor	▪ Terminal block X2: 778-781
Outdoor air thermistor	▪ Terminal B3 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Inlet water thermistor	▪ Terminal B1 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Outlet water thermistor	▪ Terminal B2 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Flow switch	▪ Terminal D2 of terminal block T5 on main PCB ▪ Terminal block XD: 703		
Water pump	Pump inverter OR Contactor KM90		

4 Disconnect the wiring of all field accessories and options.

5 For units with 2 refrigerant circuits: Disconnect the wiring of the secondary circuit inverter PCB:
- From terminal Q4 of terminal block T11 on the main PCB and from the ACS digital I/O PCB (for main circuit switch box removal).
- From the inverter PCB itself (for secondary switch box removal).

6 For units with 2 refrigerant circuits: Disconnect all extension wiring between the main circuit switch box and secondary circuit switch box:
- From the main PCB and terminal blocks XU and XD (for main circuit switch box removal).
- From terminal block X2 (for secondary switch box removal).

7 For main circuit switch box ONLY: Access the back plate of the switch box, see "3.16 Plate work" [▸ 173].

8 Disconnect the compressor wiring from the inverter PCB.

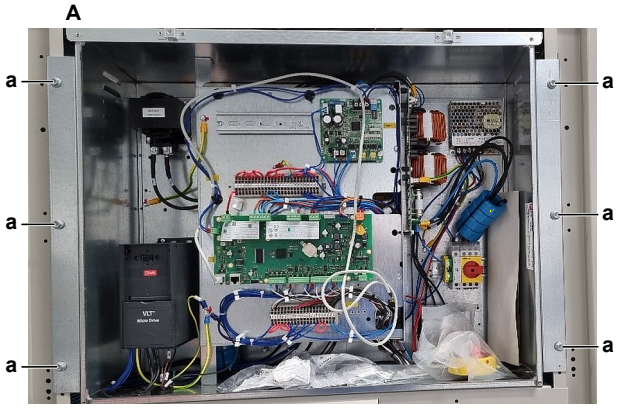
9 Disconnect the fan motor connectors.

10 Cut all tie straps that fix the wiring to the switch box and route the wiring out of the switch box as needed.

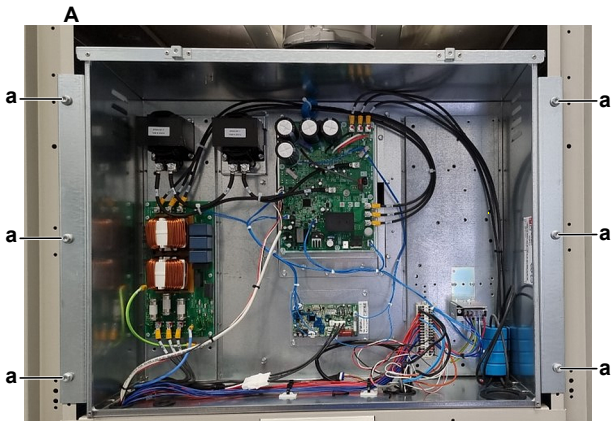
INFORMATION

Make sure ALL wiring is disconnected from the switch box before removing as this may damage the wiring.

11 Remove the 6 screws that fix the switch box.



A Main circuit switch box
a Screw



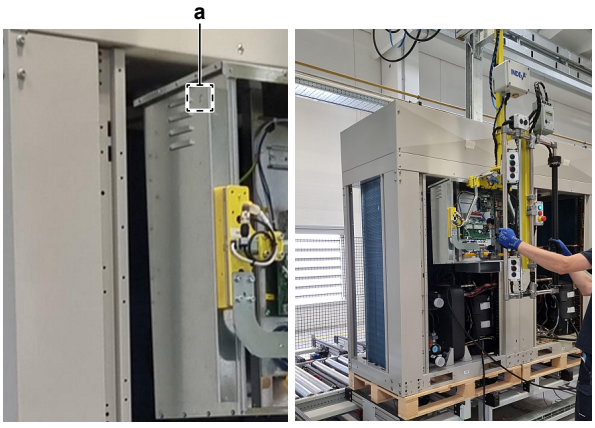
A Secondary circuit switch box
a Screw

12 Using a hoist, lift the switch box to unhook it from the unit.

CAUTION

The switch box is very heavy. Handle with care and look for support when handling.

13 Carefully move the switch box out of the unit.



a Hook

14 To install the switch box, see "3.16 Plate work" [▸ 173].

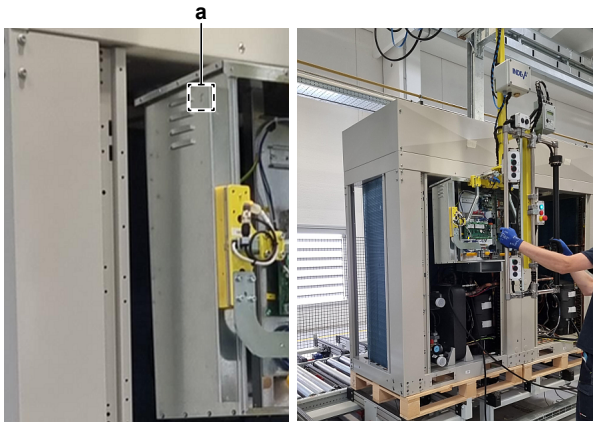
3.16.3 To install the switch box

1 Using a hoist, lift the switch box to the correct position in front of the unit.

CAUTION

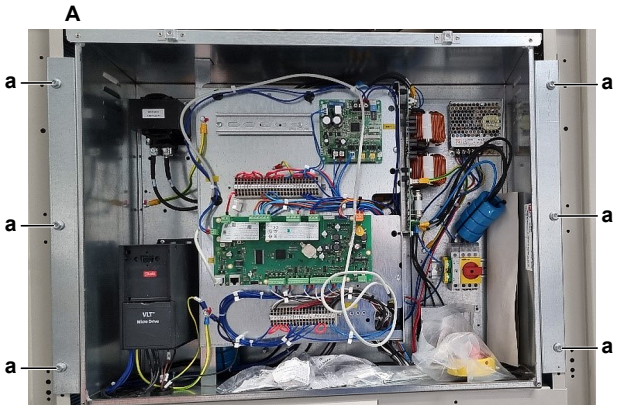
The switch box is very heavy. Handle with care and look for support when handling.

2 Carefully move the switch box inside the unit. Lower the switch box and make sure the hooks are inserted in the holes on the unit.

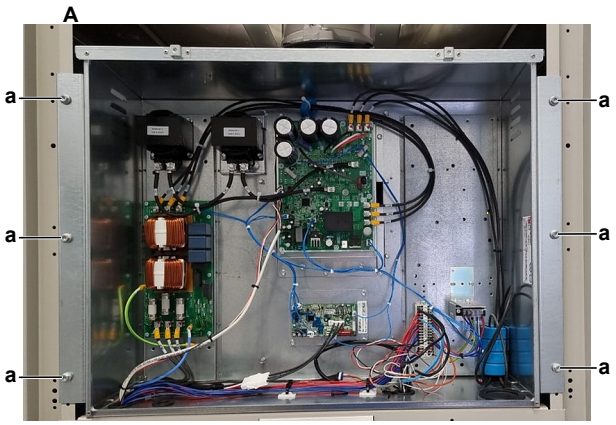


a Hook

3 Install and tighten the 6 screws to fix the switch box to the unit.



A Main circuit switch box
a Screw



A Secondary circuit switch box
a Screw

4 For main circuit switch box ONLY: Access the back plate of the switch box, see "3.16 Plate work" [▸ 173].

5 Route the compressor wiring inside the switch box and connect the compressor wiring to the inverter PCB.

6 Route the fan motor wiring inside the switch box and connect the fan motor connectors.

7 For main circuit switch box ONLY: Re-install the front plate of the switch box, see "3.16 Plate work" [▸ 173].

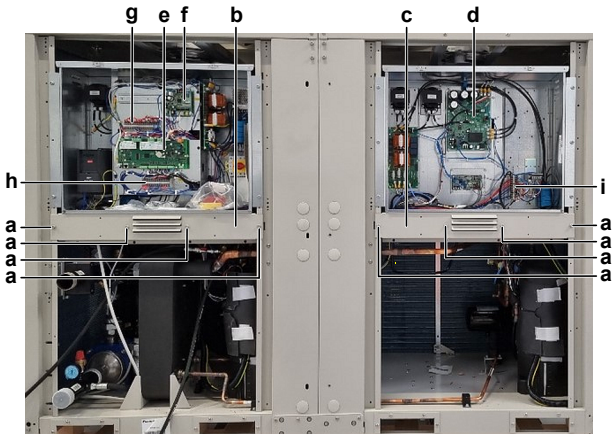
8 Correctly route and connect the wiring of the following components:

Main circuit switch box		Secondary circuit switch box	
Component	**Wiring position**	**Component**	**Wiring position**
High pressure switch	▪ Terminal block XD: 764-765	High pressure switch	▪ Terminal block XD: 766-767
High pressure sensor	▪ Terminal X3 of terminal block T3 on main PCB ▪ Terminal block XD: 750-751	High pressure sensor	▪ Terminal block X2: 730-731-760
Low pressure sensor	▪ Terminal X1 of terminal block T3 on main PCB ▪ Terminal block XD: 750-751	Low pressure sensor	▪ Terminal block X2: 730-731-720
Compressor thermal protector	▪ Terminal D5 of terminal block T5 on main PCB ▪ Terminal block XD: 703	Compressor thermal protector	▪ Terminal block X2: 606-N
Crankcase heater	▪ Terminal Q8 of terminal block T12 on main PCB ▪ Terminal block XU: L	Crankcase heater	▪ Terminal block X2: 544-L
Expansion valve	▪ Connector T8 on main PCB	Expansion valve	▪ Connector T9 on main PCB
4-way valve (if applicable)	▪ Terminal Q6 of terminal block T12 on main PCB ▪ Terminal block XU: L	4-way valve (if applicable)	▪ Terminal block X2: 604-L
Suction pipe thermistor	▪ Terminal B5 of terminal block T3 on main PCB ▪ Terminal block XD: M1	Suction pipe thermistor	▪ Terminal block X2: 779-M1
Discharge pipe thermistor	▪ Terminal X5 of terminal block T4 on main PCB ▪ Terminal block XD: 778	Discharge pipe thermistor	▪ Terminal block X2: 778-781
Outdoor air thermistor	▪ Terminal B3 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Inlet water thermistor	▪ Terminal B1 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Outlet water thermistor	▪ Terminal B2 of terminal block T2 on main PCB ▪ Terminal block XD: 774		
Flow switch	▪ Terminal D2 of terminal block T5 on main PCB ▪ Terminal block XD: 703		
Water pump	Pump inverter OR Contactor KM90		

9 Correctly route and connect the wiring of all field accessories and options.

10 For units with 2 refrigerant circuits: Correctly route and connect the wiring of the secondary circuit inverter PCB:

- To terminal Q4 of terminal block T11 on the main PCB and to the ACS digital I/O PCB (for main circuit switch box installation).
- To the inverter PCB itself (for secondary switch box installation).



a Screw
b Heat sink panel (main circuit switch box)
c Heat sink panel (secondary circuit switch box)
d Secondary circuit inverter PCB
e Main PCB
f ACS digital I/O PCB
g Terminal block XU
h Terminal block XD
i Terminal block X2

11 For units with 2 refrigerant circuits: Correctly route and connect all extension wiring between the main circuit switch box and secondary circuit switch box:

- To the main PCB and terminal blocks XU and XD (for main circuit switch box installation).
- To terminal block X2 (for secondary switch box installation).

12 Connect the power supply wiring:

- To the main switch (for main circuit switch box installation).
- To the noise filter PCB (for secondary switch box installation).

13 Install the heat sink panel. Install and tighten the 4 screws to fix the heat sink panel to the unit.

3.16.4 To access the back plate of the switch box

INFORMATION

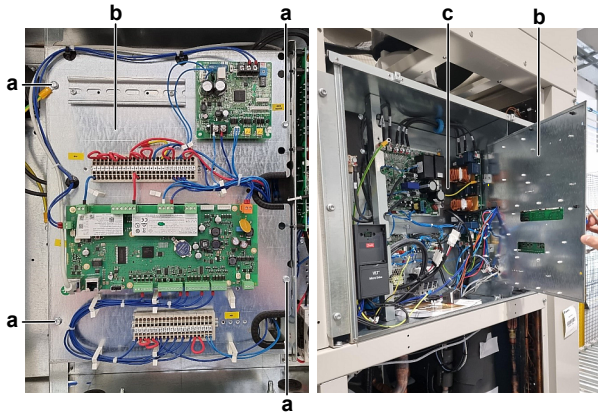
This procedure is ONLY applicable for the main circuit switch box.

1 Remove the switch box cover, see "3.16 Plate work" [▸ 173].

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Remove the 4 screws from the front plate of the switch box.



a Screw
b Front plate
c Back plate

3 Carefully pull and open the front plate to create access to the back plate of the switch box.

CAUTION

Take care NOT to damage the wiring or cables when repositioning the front plate.

3.17 Pump inverter

3.17.1 Checking procedures

No checking procedures available.

3.17.2 Repair procedures

To perform the configuration of the pump inverter

On the units EWAT/EWYTCZ(H)(P)-A and EWAT/EWYTCZ(H)(P)BA, a pump inverter is installed which is factory programmed with the following parameters:

Parameter	Definition	Pre-configured value
1-01	Motor Control Principle	[0] U/f
1-03	Torque characteristic	[2] Auto Energy Optmization
1-20	Motor Power	(a)
1-22	Motor Voltage	400 V
1-23	Motor Frequency	50 Hz
1-24	Motor Current	(a)
1-25	Motor Nominal Speed	2900 rpm
3-00	Reference Range	[0] Min-Max
3-02	Minimum Reference	30
3-03	Maximum Reference	50
3-15	Reference Resoruce 1	[11] Local Bus Reference
3-16	Reference Resoruce 2	[0] No Function
3-17	Reference Resoruce 3	[0] No Function

Parameter	Definition	Pre-configured value
3-41	Ramp 1 Ramp Up Time	15 s
3-42	Ramp 1 Ramp Down Time	15 s
4-10	Motor Speed Direction	[2] Both
4-12	Motor Speed Low Limit [Hz]	30 Hz
4-14	Motro Speed High Limit [Hz]	50 Hz
5-10	Terminal 18 DI	[0] No function
5-11	Terminal 19 DI	[0] No function
5-12	Terminal 27 DI	[8] Start
5-13	Terminal 29 DI	[0] No operation
5-15	Terminal 33	[0] No operation
8-01	Control Site	[0] Digital and Control Word
8-30	Protocol	[2] Modbus RTU
8-31	Address	[4] Pump
8-32	Baud rate	[3] 19200 Baud
8-33	Parity / Stop Bits	[3] No Parity, 2 Stop Bit
8-42.00	PCD write configuration	[14] [1685] Control Word
8-42.01	PCD write configuration	[15] [1686] REF
8-43.00	PCD read configuration	[7] [1603] Status Word
8-43.01	PCD read configuration	[8] [1605] Main Actual Value [%]
8-43.02	PCD read configuration	[13] [1613] Frequency
8-43.03	PCD read configuration	[14] [1614] Motor Current
8-43.04	PCD read configuration	[34] [1690] Alarm Word
8-43.05	PCD read configuration	[34] [1690] Alarm Word
8-43.06	PCD read configuration	[18] [1634] Heatsink Temperatures
8-43.07	PCD read configuration	[10] [1610] Power [kW]
8-43.08	PCD read configuration	[3] [1502] kWh Counter
8-43.9	PCD read configuration	[3] [1502] kWh Counter
8-43.10	PCD read configuration	[17] [1630] DC Link Voltage
8-43.11	PCD read configuration	[19] [1635] Inverter Thermal
8-43.12	PCD read configuration	[35] [1692] Warning Word
8-43.13	PCD read configuration	[35] [1692] Warning Word
8-43.14	PCD read configuration	[16] [1618] Motor Thermal

[a] See below these values depending on the unit model.

Unit	1-20	1-24
EWAT/EWYT016~25CZP-A1	1.1 [kW]	2.4 [A]
EWAT/EWYT032~40CZP-A1 EWAT/EWYT040~50CZP-A2	1.1 [kW]	2.4 [A]

Unit	1-20	1-24
EWAT/EWYT064~090CZP-A2	2.2 [kW]	4.56 [A]
EWAT/EWYT016~025CZH-A1	1.5 [kW]	3.2 [A]
EWAT/EWYT032~040CZH-A1 EWAT/EWYT040~050CZH-A2	2.2 [kW]	4.56 [A]
EWAT/EWYT064~090CZH-A2	3 [kW]	6.35 [A]

When you want to check / update these parameters on a properly functioning pump inverter OR when you need to set the parameters on a new pump inverter, the Danfoss keypad (PN 5902740) is needed (order as spare part).

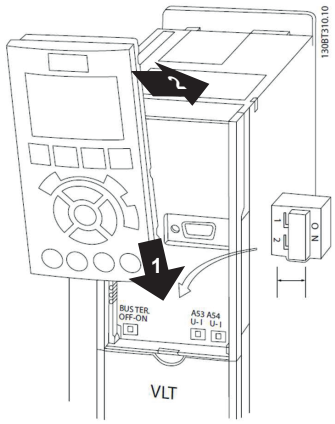
To set the parameters

CAUTION

Make sure to set the parameters as shown above. When a new pump inverter is installed, all parameters MUST be checked and set correctly!

Prerequisite: Order the Danfoss keypad (PN 5902740).

1 Insert the keypad on the front of the pump inverter, and slide it in the appropriate guides. Slightly press the upper part of the keypad to fix it on the pump inverter.



2 Set all parameters as shown above. Use the following instructions to navigate to the different parameters:

- Press the Menu button on the keypad to open the Main Menu. "0" is shown on the display.
- Use the up/down buttons to navigate to the desired menu.
- Press the OK button to enter the menu.
- Use the up/down buttons to navigate to the desired sub-menu.
- Press the OK button to enter the sub-menu.

3 When done, remove the keypad from the pump inverter.

INFORMATION

There is a possibility to copy/paste parameters from the pump inverter to the Danfoss keypad for storage. ALSO, when parameters are copied (stored) to the keypad, it is possible to copy/paste them to the pump inverter on the unit. For more information, see the documentation of the pump inverter.

Do NOT use the copy/paste function when the pump inverter is faulty or broken!

To set the current value on the circuit breaker

To complete the configuration of the pump inverter on the unit (after all parameters have been set correctly) it is necessary to adjust the circuit breaker to an appropriate current value. Below are the current values corresponding to the different units.

Unit	Circuit breaker current
EWAT/EWYT016~25CZP-A1	S00 3RV20 11-1DA10 (2.2 ; 3.2) **Set 2.4 A**
EWAT/EWYT032~40CZP-A1 EWAT/EWYT040~50CZP-A2	S00 3RV20 11-1DA10 (2.2 ; 3.2) **Set 2.4 A**
EWAT/EWYT064~090CZP-A2	S00 3RV20 11-1GA10 (4.5 ; 6.3) **Set 4.6 A**
EWAT/EWYT016~025CZH-A1	S00 3RV20 11-1EA10 (2,8 ; 4,0) **Set 3.2 A**
EWAT/EWYT032~040CZH-A1 EWAT/EWYT040~050CZH-A2	S00 3RV20 11-1GA10 (4.5 ; 6.3) **Set 4.6 A**
EWAT/EWYT064~090CZH-A2	S00 3RV20 11-1HA10 (5.5 ; 8.0) **Set 6.4 A**

Use the screw on the circuit breaker to set the correct current value (according to the unit).

a Screw

3.18 Reactor

3.18.1 Checking procedures

To perform an electrical check of the reactor

Prerequisite: Stop the unit operation via the user interface.

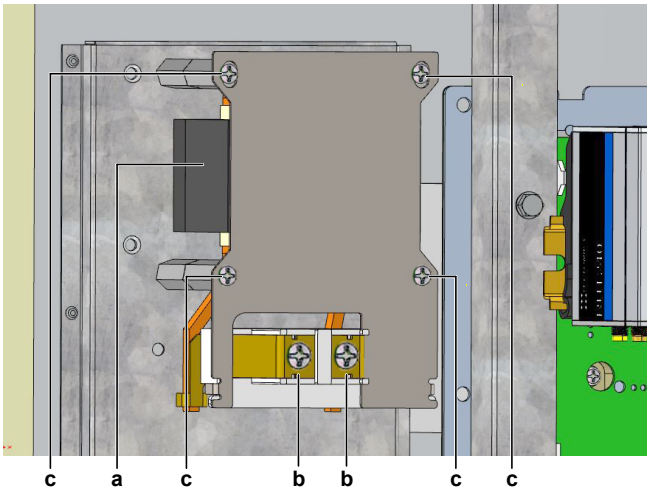
Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

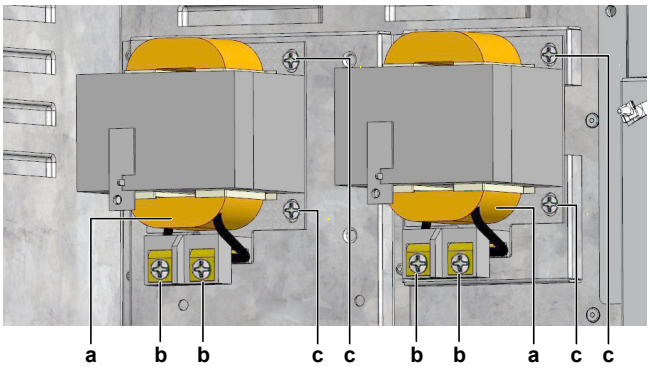
DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Visually check the reactor for any damage or burnt-out components. If any damage is found, replace the reactor, see "3.18.2 Repair procedures" [▸ 187].



a Reactor (always 1 in combination with inverter PCB type JT27)
b Terminal
c Screw



a Reactor (always 2 in combination with inverter PCB type JT17)
b Terminal
c Screw

3 Check the connections of the reactor on the inverter PCB and check continuity of the wires, see "6.2 Wiring diagram" [▸ 263].

4 Remove the wiring from the reactor terminals.

5 Using a megger device of 500 V DC, check the insulation resistance. Make sure there is no earth leakage.

Is the measured insulation resistance correct?	Action
Yes	Continue with the next step.
No	Replace the reactor, see "3.18.2 Repair procedures" [▸ 187].

6 Measure the continuity of the reactor.

Is the continuity measurement correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next step.
No	Replace the reactor, see "3.18.2 Repair procedures" [▸ 187].

3.18.2 Repair procedures

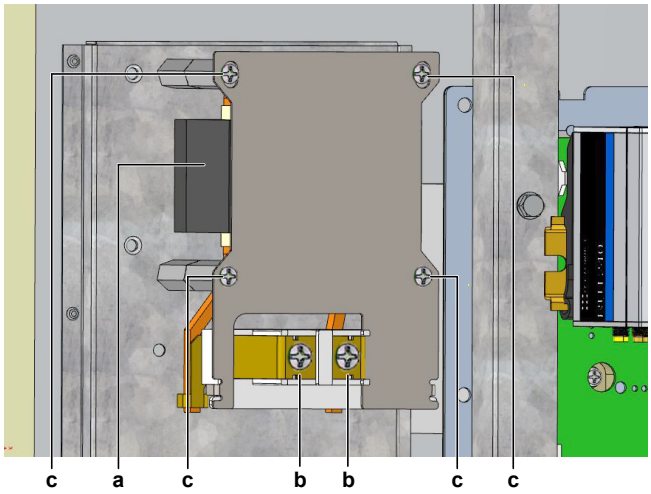
To remove the reactor

Prerequisite: Stop the unit operation via the user interface.

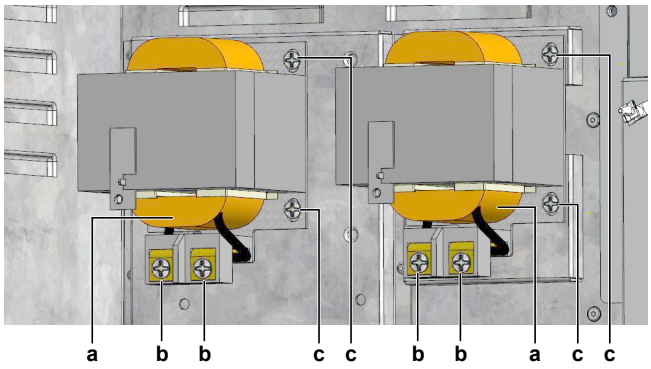
Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

> **DANGER: RISK OF ELECTROCUTION**
>
> Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.



a Reactor (always 1 in combination with inverter PCB type JT27)
b Terminal
c Screw



a Reactor (always 2 in combination with inverter PCB type JT17)
b Terminal
c Screw

2 Loosen the screws and disconnect the wires from the terminals.

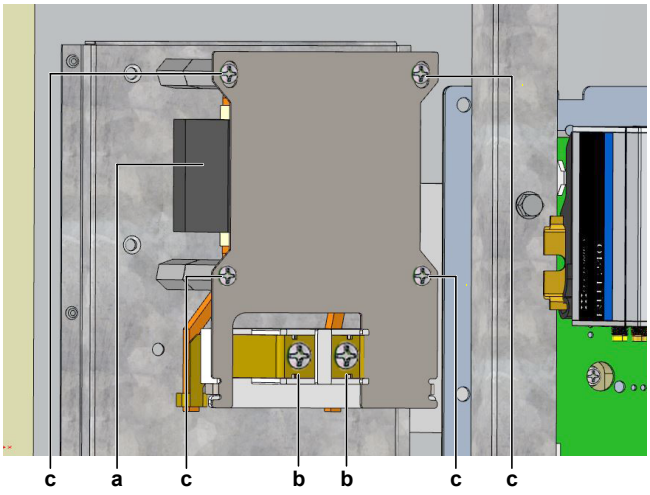
3 Remove the 4 screws that fix the reactor to the switch box.

4 Remove the reactor.

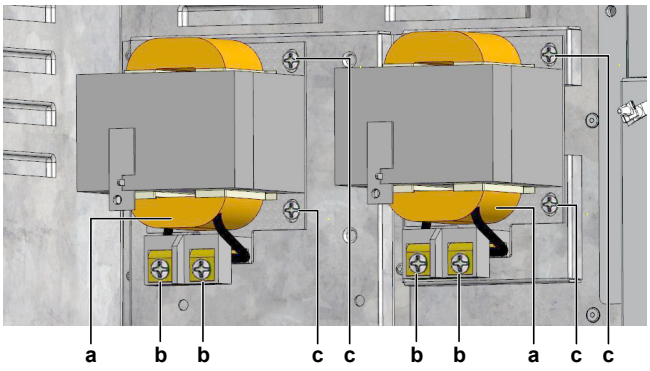
5 To install the reactor, see "3.18.2 Repair procedures" [▸ 187].

To install the reactor

1 Install the reactor on the correct location on the switch box.



a Reactor (always 1 in combination with inverter PCB type JT27)
b Terminal
c Screw



a Reactor (always 2 in combination with inverter PCB type JT17)
b Terminal
c Screw

2 Install the 4 screws that fix the reactor to the switch box.

3 Connect the wires to the reactor terminals. Install and tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.19 Refrigerant high pressure sensor

3.19.1 Checking procedures

To perform an electrical check of the refrigerant pressure sensor

Prerequisite: Check that the pressure sensor is correctly calibrated. Perform the calibration procedure as needed, see "3.19.2 Repair procedures" [▸ 193].

Prerequisite: Stop the unit operation via the user interface.

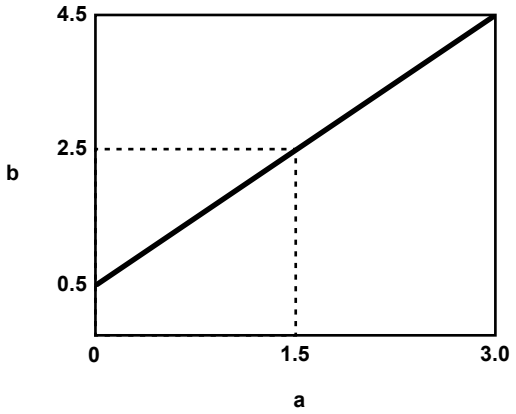
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Connect a pressure gauge to the high pressure service port. Read the pressure.

3 Using the graphic below, determine the expected sensor output voltage based on the pressure obtained in the previous step.



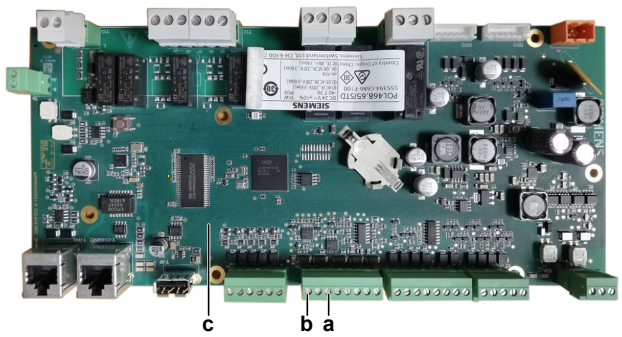
a Detected pressure (MPa)
b Output voltage (V)

V (DC)	Detected pressure MPa
0.5	0
0.6	0.075
0.7	0.15
0.8	0.225
0.9	0.3
1.0	0.375
1.1	0.45
1.2	0.525
1.3	0.6
1.4	0.675
1.5	0.75
1.6	0.825
1.7	0.9
1.8	0.975
1.9	1.05
2.0	1.125
2.1	1.2
2.2	1.275
2.3	1.35
2.4	1.425
2.5	1.5
2.6	1.575
2.7	1.65
2.8	1.725

V (DC)	Detected pressure MPa
2.9	1.8
3.0	1.875
3.1	1.95
3.2	2.025
3.3	2.1
3.4	2.175
3.5	2.25
3.6	2.325
3.7	2.4
3.8	2.475
3.9	2.55
4.0	2.625
4.1	2.7
4.2	2.775
4.3	2.85
4.4	2.925
4.5	3

High pressure sensor CNP1

4 Measure the output voltage between terminals X3 and M of terminal block T3 on the main PCB.



a Terminal X3 on terminal block T3
b Terminal M on terminal block T3
c Main PCB

5 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

INFORMATION

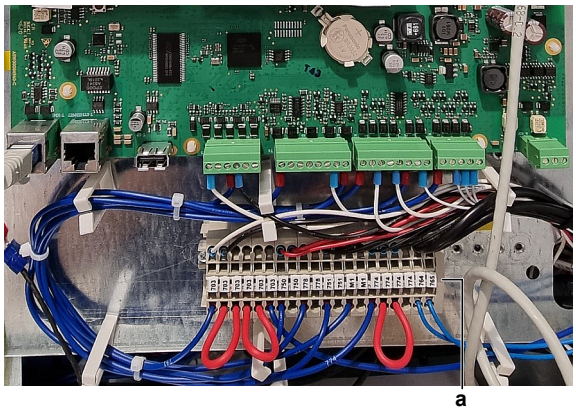
In most cases, the user interface (7-segment display) allows to monitor the high pressure.

If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure is NOT correct on the user interface (7-segment display), replace the main PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

6 Measure the voltage (power supply) between terminals 750 and 751 of terminal block XD.

Result: The measured voltage MUST be +5 V DC.

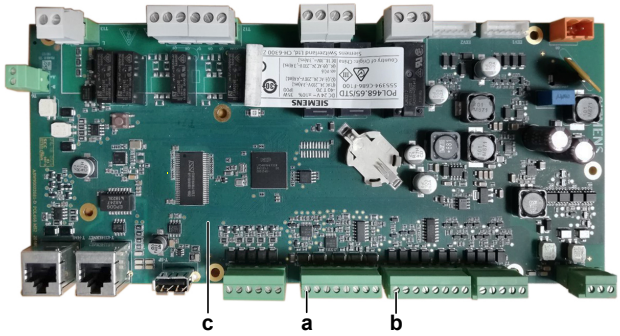


a Terminal block XD

Is the measured voltage +5 V DC?	Then
Yes	Replace the pressure sensor see "3.20.2 Repair procedures" [▶ 202].
No	Continue with the next step.

7 Measure the output voltage between terminal M of terminal block T3 and terminal VDCout of terminal block T4 on the main PCB.

Result: The measured voltage MUST be +5 V DC.



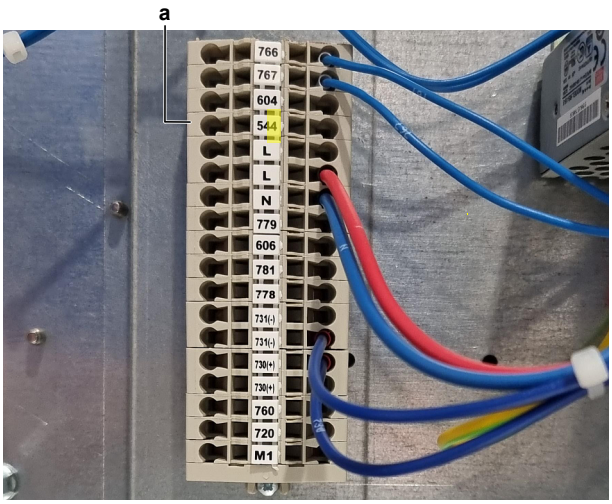
a Terminal M on terminal block T3
b Terminal VDCout on terminal block T4
c Main PCB

Is the measured output voltage +5 V DC?	Then
Yes	Correct the wiring between the terminal block XD and the terminal blocks on the main PCB, see "6.2 Wiring diagram" [▶ 263].

Is the measured output voltage +5 V DC?	Then
No	Perform a check of the main PCB, see "3.13.1 Checking procedures" [▶ 155].

High pressure sensor CNP2

1 Measure the output voltage between terminals 760 and 731 of terminal block X2. Make sure that the wire connected to terminal X4 of terminal block T3 on the main PCB is NOT damaged or broken (continuity).



a Terminal block X2

2 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

> **INFORMATION**
>
> In most cases, the user interface (7-segment display) allows to monitor the high pressure.
>
> If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure is NOT correct on the user interface (7-segment display), replace the main PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

3 Measure the voltage (power supply) between terminals 730 and 731 of terminal block X2.

Result: The measured voltage MUST be +5 V DC.

Is the measured voltage +5 V DC?	Then
Yes	Replace the pressure sensor see "3.20.2 Repair procedures" [▶ 202].
No	Continue with the next step.

4 Measure the output voltage between terminals -V and +V of the 5 V DC auxiliary power supply.

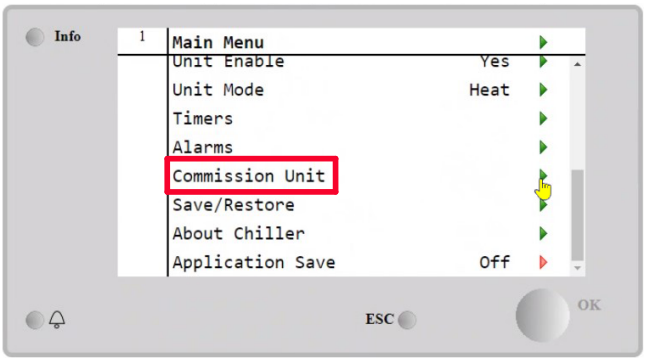
Result: The measured voltage MUST be 5 V DC.

Is the output voltage correct?	Action
Yes	Correct the wiring between the appropriate terminals and the 5 V DC auxiliary power supply, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the 5 V DC auxiliary power supply, see "3.1.1 Checking procedures" [▸ 77].

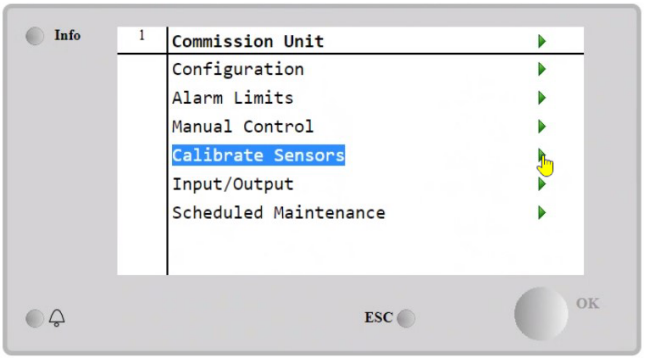
3.19.2 Repair procedures

To calibrate the refrigerant pressure sensor

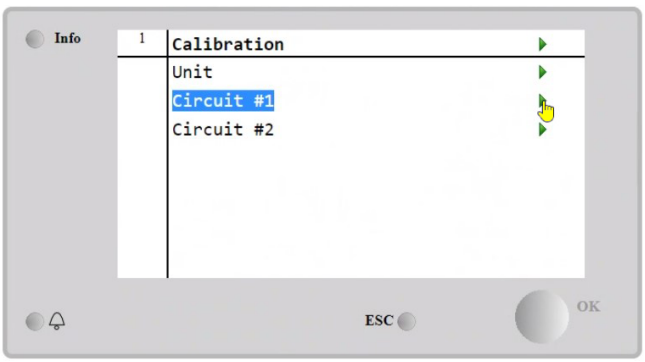
On the service monitoring tool:



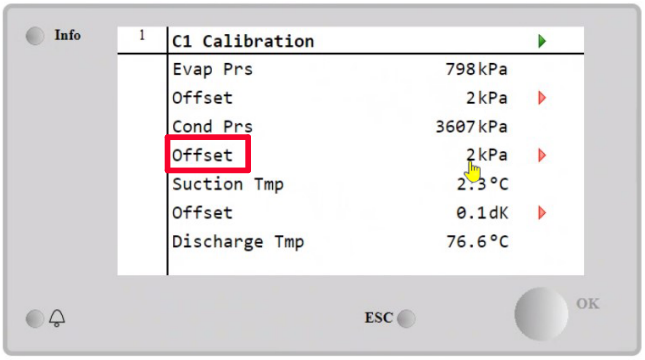
1 Select Commission Unit.



2 Select Calibrate Sensors.



3 Select Circuit #.



4 Select Offset.

5 Modify the Offset to obtain the same pressure as measured by the reference gauge.

If the required correction is out of the possible range (from -100 kPa to 100 kPa) replace the pressure sensor, see "3.19.2 Repair procedures" [▸ 193].

Is the problem solved?	Action
Yes	No further actions required.
No	Perform an electrical check of the refrigerant pressure sensor, see "3.19.1 Checking procedures" [▸ 188].

To remove the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

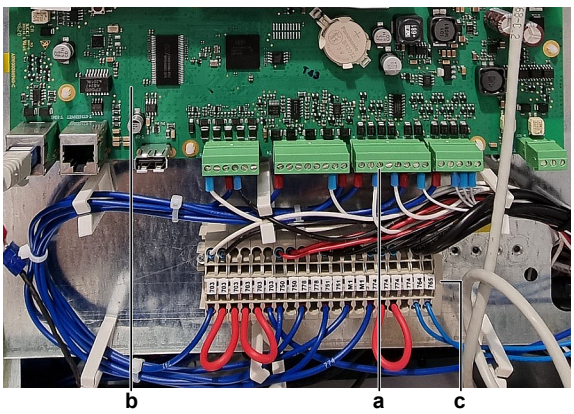
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Cut all tie straps that fix the refrigerant pressure sensor harness.

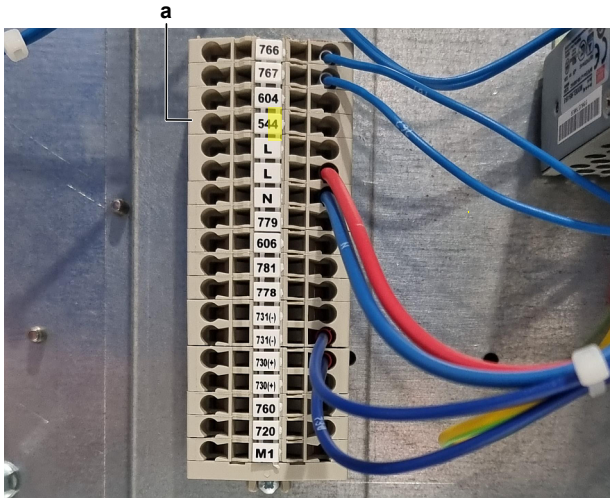
2 Disconnect the wires of the pressure sensor:

- For pressure sensor CNP1; disconnect the wire from terminal X3 of terminal block T3 on the main PCB and the wires from terminals 750 and 751 of terminal block XD.



a Terminal X3 of terminal block T3
b Main PCB
c Terminal block XD

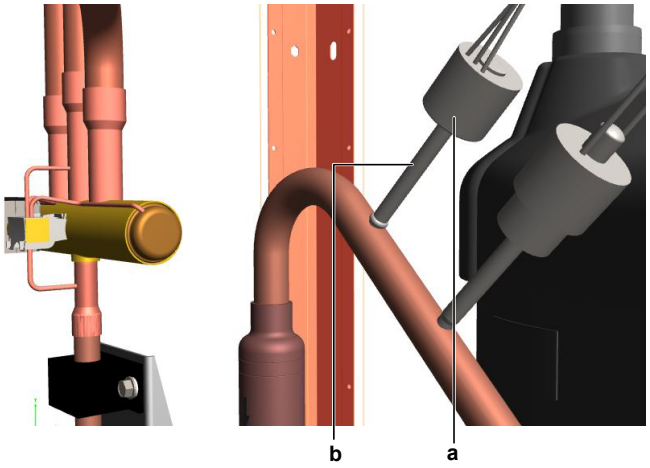
- For pressure sensor CNP2; disconnect the wires from terminals 760, 730 and 731 of terminal block X2.



a Terminal block X2

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the components near the refrigerant pressure sensor. Heat the brazing point of the refrigerant pressure sensor pipe using an oxygen acetylene torch and remove the refrigerant pressure sensor pipe from the refrigerant pipe using pliers.



a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

5 Stop the nitrogen supply when the piping has cooled down.

6 Remove the refrigerant pressure sensor.

INFORMATION

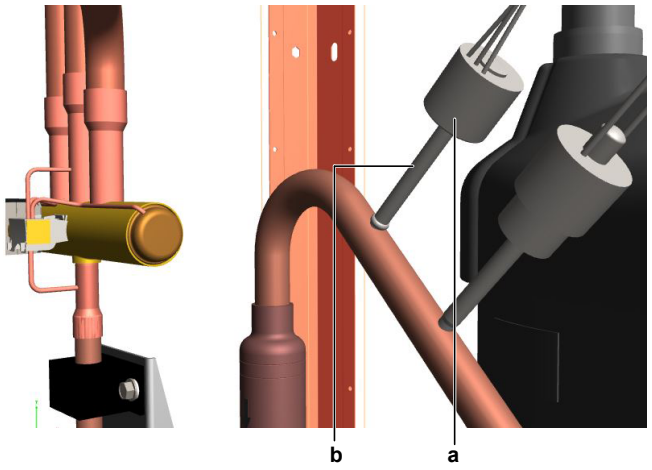
It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7 Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.

8 To install the refrigerant pressure sensor, see "3.19.2 Repair procedures" [▸ 193].

To install the refrigerant pressure sensor

1. Remove the plug or cap from the refrigerant piping and make sure it is clean.
2. Install the refrigerant pressure sensor in the correct location.
3. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
4. Wrap a wet rag around the refrigerant pressure sensor and any other components near the pressure sensor and solder the refrigerant pressure sensor pipe to the refrigerant pipe.

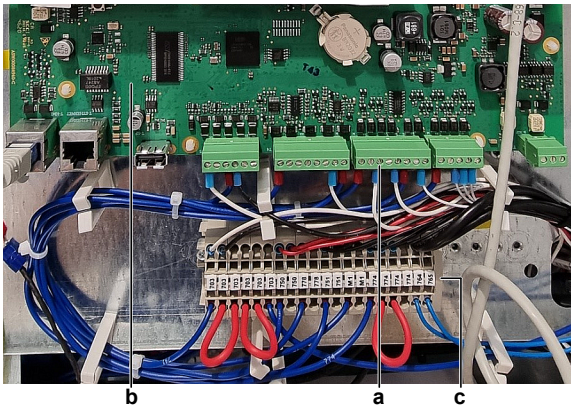


a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

CAUTION

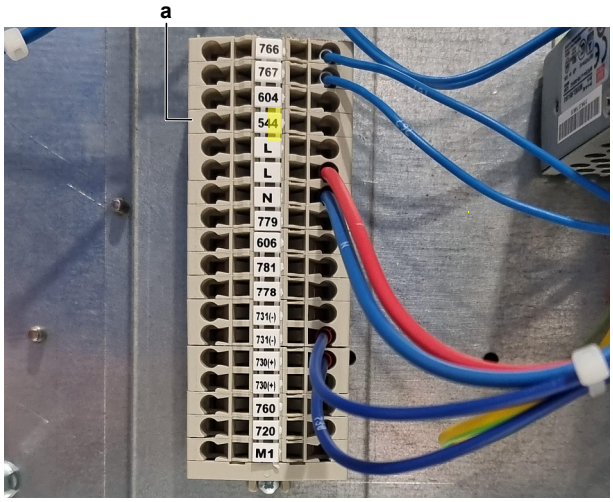
Overheating the pressure sensor will damage or destroy it.

5. After soldering is done, stop the nitrogen supply after the component has cooled-down.
6. Connect the wires of the pressure sensor:
   - For pressure sensor CNP1; connect the wire to terminal X3 of terminal block T3 on the main PCB and the wires to the terminals 750 and 751 of terminal block XD.



a Terminal X3 of terminal block T3
b Main PCB
c Terminal block XD

   - For pressure sensor CNP2; connect the wires to the terminals 760, 730 and 731 of terminal block X2.



a Terminal block X2

7 Fix the refrigerant pressure sensor harness using new tie straps.

8 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

9 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.20 Refrigerant low pressure sensor

3.20.1 Checking procedures

To perform an electrical check of the refrigerant pressure sensor

Prerequisite: Check that the pressure sensor is correctly calibrated. Perform the calibration procedure as needed, see "3.20.2 Repair procedures" [▸ 202].

Prerequisite: Stop the unit operation via the user interface.

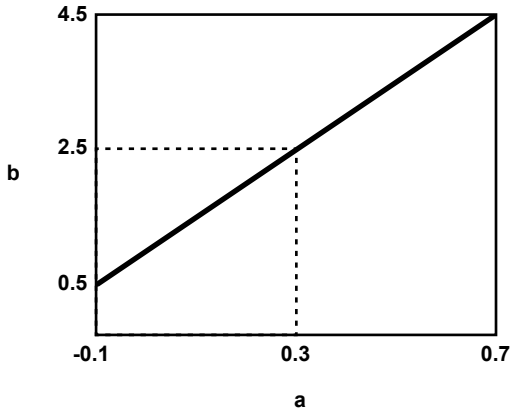
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Connect a pressure gauge to the low pressure service port. Read the pressure.

3 Using the graphic below, determine the expected sensor output voltage based on the pressure obtained in the previous step.



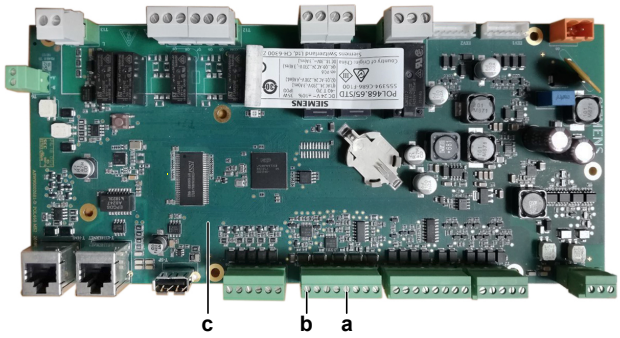
a Detected pressure (MPa)
b Output voltage (V)

V (DC)	Detected pressure MPa
0.5	-0.1
0.6	-0.08
0.7	-0.06
0.8	-0.04
0.9	-0.02
1.0	0
1.1	0.02
1.2	0.04
1.3	0.06
1.4	0.08
1.5	0.1
1.6	0.12
1.7	0.14
1.8	0.16
1.9	0.18
2.0	0.2
2.1	0.22
2.2	0.24
2.3	0.26
2.4	0.28
2.5	0.3
2.6	0.32
2.7	0.34
2.8	0.36
2.9	0.38
3.0	0.4
3.1	0.42

V (DC)	Detected pressure MPa
3.2	0.44
3.3	0.46
3.4	0.48
3.5	0.5
3.6	0.52
3.7	0.54
3.8	0.56
3.9	0.58
4.0	0.6
4.1	0.62
4.2	0.64
4.3	0.66
4.4	0.68
4.5	0.7

Low pressure sensor EVP1

4 Measure the output voltage between terminals X1 and M of terminal block T3 on the main PCB.



a Terminal X1 on terminal block T3
b Terminal M on terminal block T3
c Main PCB

5 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

INFORMATION

In most cases, the user interface (7-segment display) allows to monitor the low pressure.

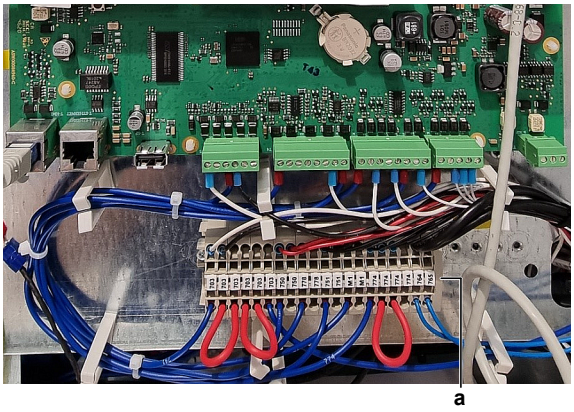
If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure is NOT correct on the user interface (7-segment display), replace the main PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.

The measured voltage is inside the expected range?	Action
No	Continue with the next step.

6 Measure the voltage (power supply) between terminals 750 and 751 of terminal block XD.

Result: The measured voltage MUST be +5 V DC.

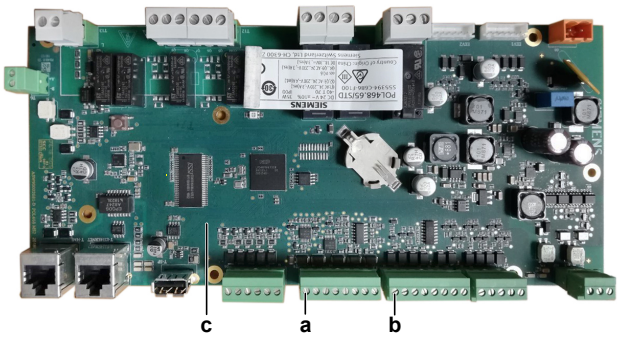


a Terminal block XD

Is the measured voltage +5 V DC?	Then
Yes	Replace the pressure sensor see "3.19.2 Repair procedures" [▶ 193].
No	Continue with the next step.

7 Measure the output voltage between terminal M of terminal block T3 and terminal VDCout of terminal block T4 on the main PCB.

Result: The measured voltage MUST be +5 V DC.

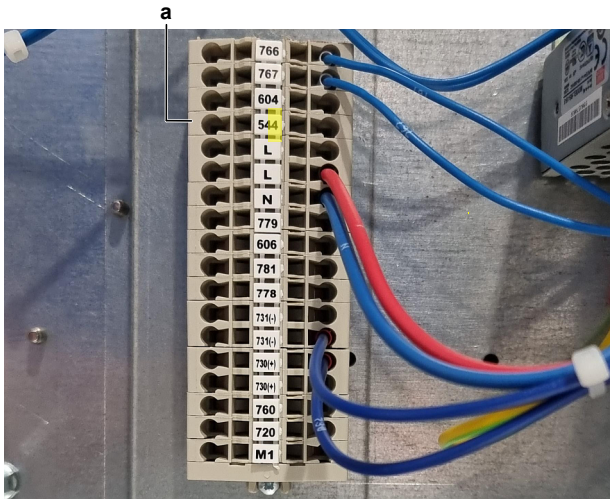


a Terminal M on terminal block T3
b Terminal VDCout on terminal block T4
c Main PCB

Is the measured output voltage +5 V DC?	Then
Yes	Correct the wiring between the terminal block XD and the terminal blocks on the main PCB, see "6.2 Wiring diagram" [▶ 263].
No	Perform a check of the main PCB, see "3.13.1 Checking procedures" [▶ 155].

Low pressure sensor EVP2

1 Measure the output voltage between terminals 720 and 731 of terminal block X2. Make sure that the wire connected to terminal X2 of terminal block T3 on the main PCB is NOT damaged or broken (continuity).



a Terminal block X2

2 Check that the measured voltage is in line with the expected voltage through the read refrigerant pressure.

> **INFORMATION**
>
> In most cases, the user interface (7-segment display) allows to monitor the low pressure.
>
> If the measured output voltage value matches the voltage determined through the measured pressure, but the pressure is NOT correct on the user interface (7-segment display), replace the main PCB.

The measured voltage is inside the expected range?	Action
Yes	Refrigerant pressure sensor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

3 Measure the voltage (power supply) between terminals 730 and 731 of terminal block X2.

Result: The measured voltage MUST be +5 V DC.

Is the measured voltage +5 V DC?	Then
Yes	Replace the pressure sensor see "3.19.2 Repair procedures" [▶ 193].
No	Continue with the next step.

4 Measure the output voltage between terminals -V and +V of the 5 V DC auxiliary power supply.

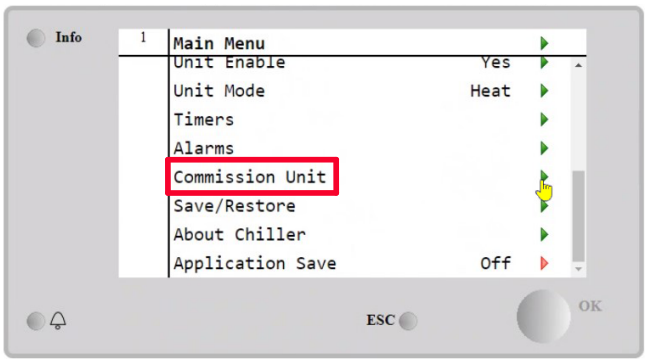
Result: The measured voltage MUST be 5 V DC.

Is the output voltage correct?	Action
Yes	Correct the wiring between the appropriate terminals and the 5 V DC auxiliary power supply, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the 5 V DC auxiliary power supply, see "3.1.1 Checking procedures" [▸ 77].

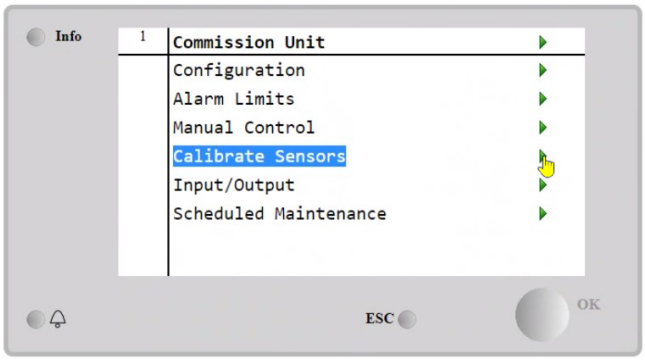
3.20.2 Repair procedures

To calibrate the refrigerant pressure sensor

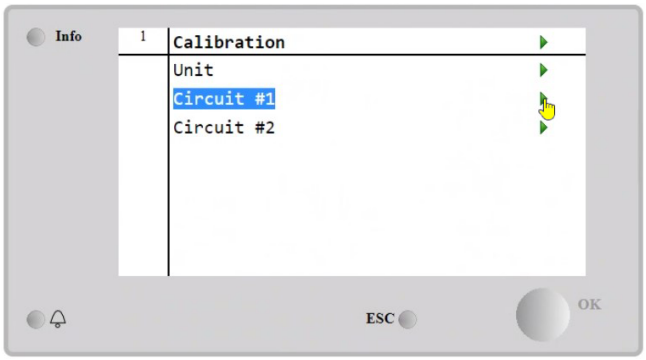
On the service monitoring tool:



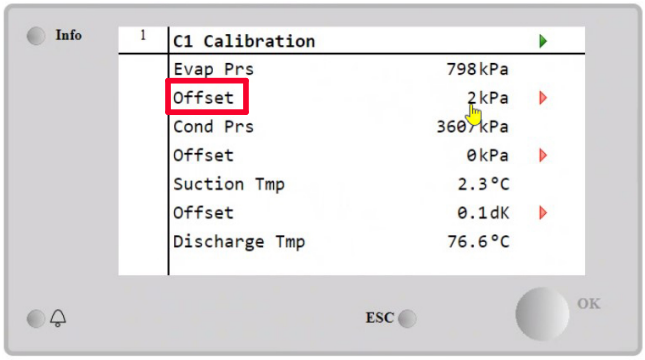
1 Select Commission Unit.



2 Select Calibrate Sensors.



3 Select Circuit #.



4 Select Offset.

5 Modify the Offset to obtain the same pressure as measured by the reference gauge.

If the required correction is out of the possible range (from -100 kPa to 100 kPa) replace the pressure sensor, see "3.20.2 Repair procedures" [▸ 202].

Is the problem solved?	Action
Yes	No further actions required.
No	Perform an electrical check of the refrigerant pressure sensor, see "3.20.1 Checking procedures" [▸ 197].

To remove the refrigerant pressure sensor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

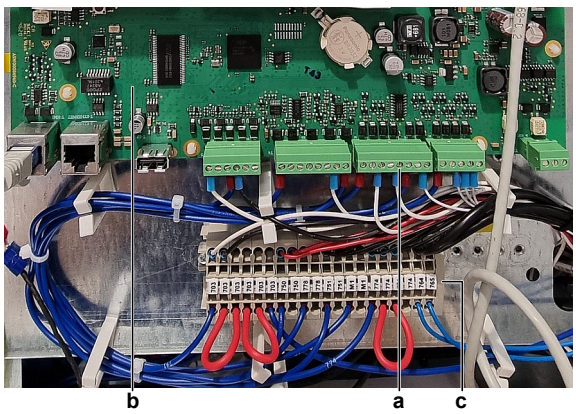
Prerequisite: Recuperate the refrigerant from the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Prerequisite: If needed, remove any parts or insulation to create more space for the removal.

1 Cut all tie straps that fix the refrigerant pressure sensor harness.

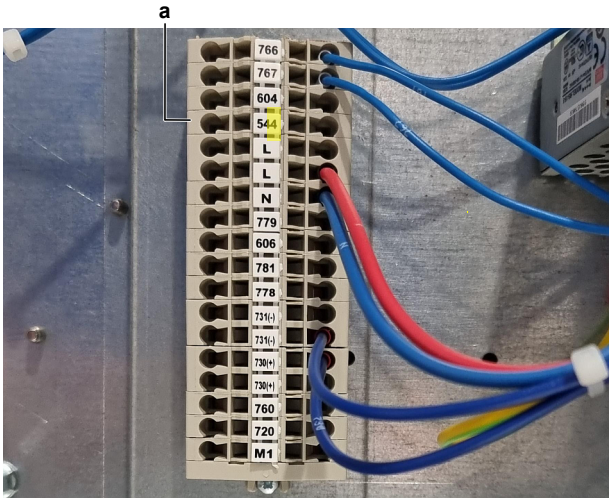
2 Disconnect the wires of the pressure sensor:

- For pressure sensor EVP1; disconnect the wire from terminal X1 of terminal block T3 on the main PCB and the wires from the terminals 750 and 751 of terminal block XD.



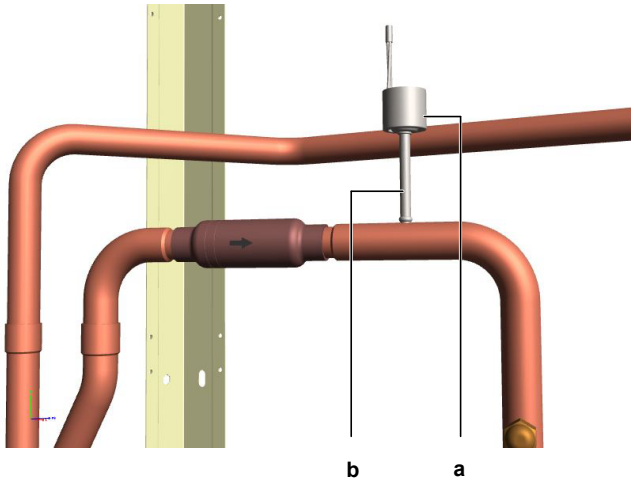
a Terminal X1 on terminal block T3
b Main PCB
c Terminal block XD

- For pressure sensor EVP2; disconnect the wires from terminals 720, 730 and 731 of terminal block X2.



a Terminal block X2

3. Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.
4. Wrap a wet rag around the components near the refrigerant pressure sensor. Heat the brazing point of the refrigerant pressure sensor pipe using an oxygen acetylene torch and remove the refrigerant pressure sensor pipe from the refrigerant pipe using pliers.



a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

5. Stop the nitrogen supply when the piping has cooled down.
6. Remove the refrigerant pressure sensor.

> **INFORMATION**
>
> It is ALSO possible to cut the component pipe(s) using a pipe cutter. Make sure to remove the remaining component pipe end(s) from the refrigerant pipes by heating the brazing point(s) of the component pipe(s) using an oxygen acetylene torch.

7. Install a plug or cap on the refrigerant piping to avoid dirt or impurities from entering the piping.
8. To install the refrigerant pressure sensor, see "3.20.2 Repair procedures" [▸ 202].

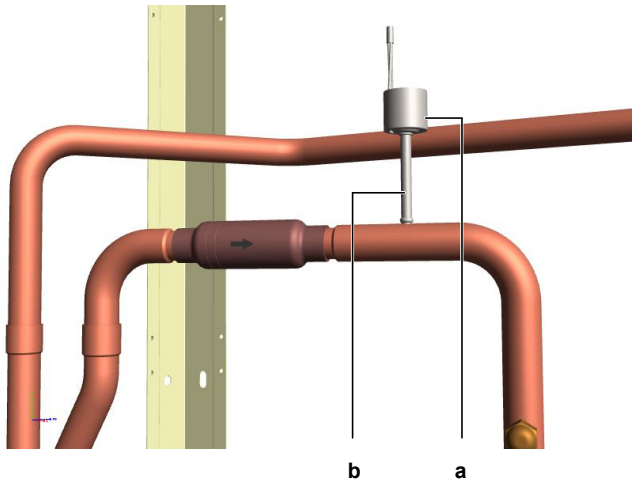
To install the refrigerant pressure sensor

1 Remove the plug or cap from the refrigerant piping and make sure it is clean.

2 Install the refrigerant pressure sensor in the correct location.

3 Supply nitrogen to the refrigerant circuit. The nitrogen pressure MUST NOT exceed 0.02 MPa.

4 Wrap a wet rag around the refrigerant pressure sensor and any other components near the pressure sensor and solder the refrigerant pressure sensor pipe to the refrigerant pipe.



a Refrigerant pressure sensor
b Refrigerant pressure sensor pipe

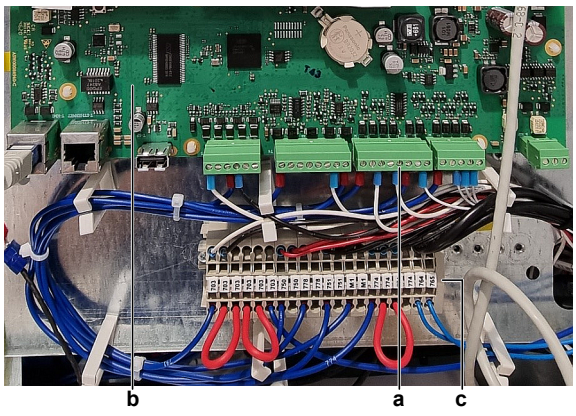
CAUTION

Overheating the pressure sensor will damage or destroy it.

5 After soldering is done, stop the nitrogen supply after the component has cooled-down.

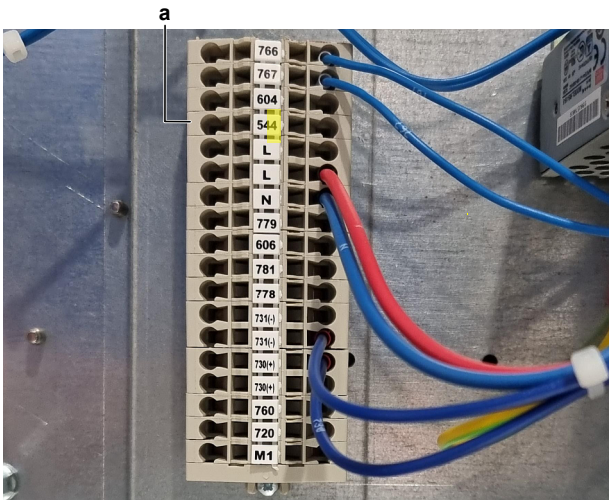
6 Connect the wires of the pressure sensor:

- For pressure sensor EVP1; connect the wire to terminal X1 of terminal block T3 on the main PCB and the wires to the terminals 750 and 751 of terminal block XD.



a Terminal X1 on terminal block T3
b Main PCB
c Terminal block XD

- For pressure sensor EVP2; connect the wires to the terminals 720, 730 and 731 of terminal block X2.



a Terminal block X2

7 Fix the refrigerant pressure sensor harness using new tie straps.

8 Perform a pressure test, see "4.2.1 Checking procedures" [▸ 237].

9 Add refrigerant to the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.21 Thermistors

3.21.1 Refrigerant side thermistors

Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To perform a mechanical check of the specific thermistor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Locate the thermistor and remove the insulation if needed. Check that the thermistor is correctly installed and that there is thermal contact between the thermistor and the piping or ambient (for air thermistor).

Is the thermistor correctly installed (thermal contact between the thermistor and the piping)?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" [▸ 206].

Is the thermistor correctly installed (thermal contact between the thermistor and the piping)?	Action
No	Correctly install the thermistor, see "Repair procedures" [▶ 209].

To perform an electrical check of the specific thermistor

Prerequisite: Check that the thermistors are correctly calibrated. Perform the calibration procedure as needed, see "Repair procedures" [▶ 209].

1 First perform a mechanical check of the thermistor, see "Checking procedures" [▶ 206].

2 Locate the thermistor.

INFORMATION

Remove the thermistor from its holder if not reachable with a contact thermometer.

3 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Terminal block (terminals)	Inter-mediate terminal block (terminals)	Reference (table)
Air thermistor	OAT	Main	T2: B3-M	XD: 774	A
Discharge pipe thermistor (circuit 1)	DT1	Main	T4: X5-M	XD: 778	B
Discharge pipe thermistor (circuit 2)	DT2	Main	T4: X6-M	X2: 778-781	B
Suction thermistor (circuit 1)	ST1	Main	T3: B5-M1	XD: M1	A
Suction thermistor (circuit 2)	ST2	Main	T3: B6-M1	X2: 779-M1	A

4 Determine the thermistor resistance that matches the measured temperature.

Thermistor – Table A

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–40	3452.75	5	254.90	50	36.62	95	8.11
–35	2478.40	10	199.56	55	30.40	100	7.01
–30	1800.31	15	157.41	60	25.36	105	6.08
–25	1322.51	20	125.04	65	21.26	110	5.29
–20	981.87	25	100.00	70	17.91	115	4.62
–15	736.31	30	80.50	75	15.16	120	4.05
–10	557.45	35	65.21	80	12.88	125	3.56
–5	425.86	40	53.14	85	11.00		
0	328.13	45	43.55	90	9.43		

Thermistor – Table B

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–50	8330.587	40	51.279	130	2.322	220	0.289
–45	5761.987	45	41.534	135	2.025	225	0.263
–40	4037.777	50	33.828	140	1.771	230	0.239
–35	2864.682	55	27.698	145	1.553	235	0.218
–30	2056.307	60	22.795	150	1.366	240	0.199
–25	1492.489	65	18.853	155	1.204	245	0.182
–20	1094.712	70	15.666	160	1.065	250	0.167
–15	811.006	75	13.077	165	0.944	255	0.153
–10	606.555	80	10.964	170	0.838	260	0.141
–5	457.761	85	9.232	175	0.747	265	0.130
0	348.454	90	7.805	180	0.666	270	0.119
5	267.432	95	6.624	185	0.596	275	0.110
10	206.862	100	5.644	190	0.534	280	0.102
15	161.211	105	4.826	195	0.480	285	0.094
20	126.536	110	4.142	200	0.432	290	0.087
25	100.000	115	3.566	205	0.390	295	0.081
30	79.548	120	3.081	210	0.352	300	0.075
35	63.677	125	2.670	215	0.319		

5 Disconnect the wires from the terminals of the appropriate terminal block.

6 Measure the resistance between the disconnected wires.

7 Check that the measured resistance value matches the resistance determined through the measured temperature (earlier step in the procedure).

- E.g. ST1 thermistor:
- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the thermistor table A):
  Resistance at 23°C: 100.9 kΩ,
  Resistance at 24°C: 100.4 kΩ,
- Disconnect the wires from terminals B5 and M1 of terminal block T3 and measure resistance between the wires:
  Measured resistance: 100.8 kΩ,
- Measured resistance value is inside the range. ST1 thermistor passes the check.

INFORMATION

All thermistors have a resistance tolerance of 3%.

INFORMATION

In most cases, the user interface allows to monitor the thermistors.

If the measured resistance value matches the resistance determined through the measured temperature, but the temperature for the corresponding thermistor is NOT correct on the user interface display, replace the applicable PCB.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

8 Disconnect the thermistor wires from the terminals of the intermediate terminal block and measure the resistance of the thermistor (between the thermistor wires).

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Correct the wiring between the terminal block on the PCB and the intermediate terminal block, see "6.2 Wiring diagram" [▸ 263].
No	Replace the specific thermistor, see "Repair procedures" [▸ 209].

Repair procedures

To calibrate the thermistor

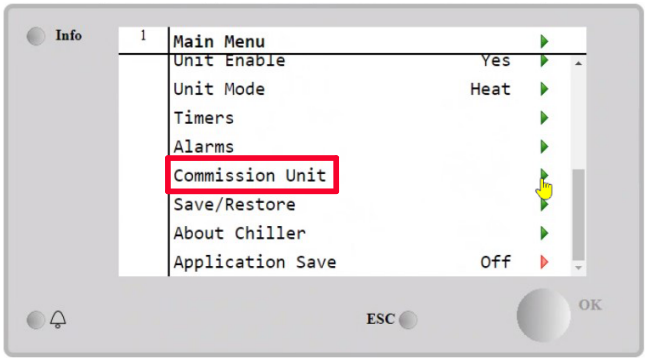
Air thermistor

1 Place the sample thermistor and the outdoor air thermistor in ambient temperature.

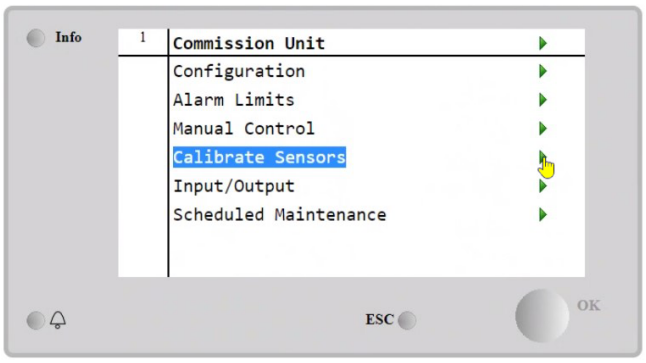
INFORMATION

Make sure to have stable ambient air conditions and wait until the thermistor read-out on the unit and sample temperatures are stable.

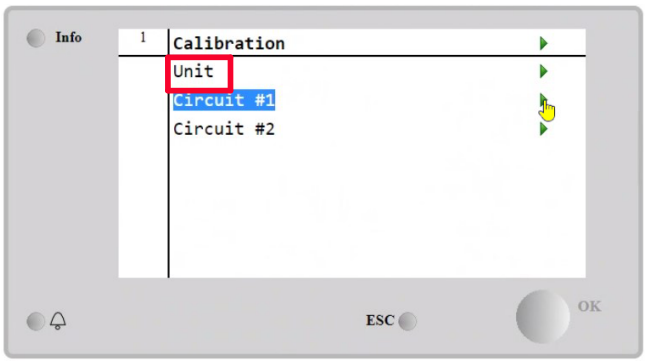
2 On the service monitoring tool, select Commission Unit.



3 Select Calibrate Sensors.



4 Select Unit.



5 Check the air thermistor read-out and compare with the temperature value detected by the sample thermistor.

6 Select Offset of the air thermistor.

7 Set the temperature difference (between air thermistor read-out and sample temperature) in the offset parameter.

8 Save the modifications before proceeding with startup of the unit.

Other thermistors

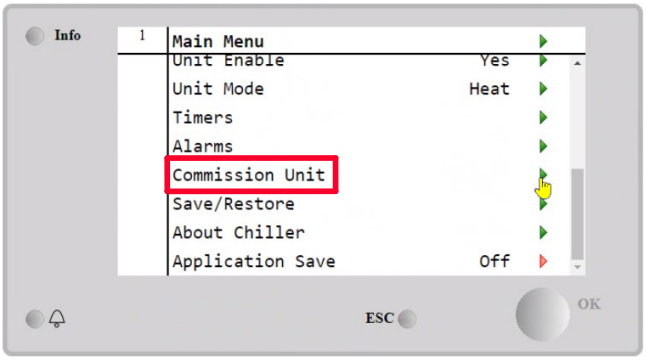
1 Place the sample thermistor and the unit thermistor in a container with ice.

INFORMATION

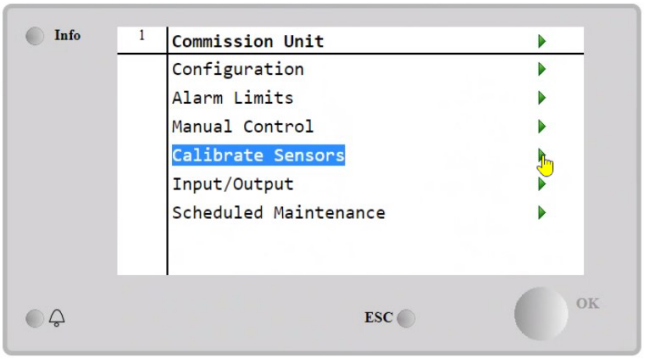
Make sure to have a proper water/ice mix and wait until the water/ice temperature is stable.

Place both thermistors in the middle of the container in order to NOT affect the readings.

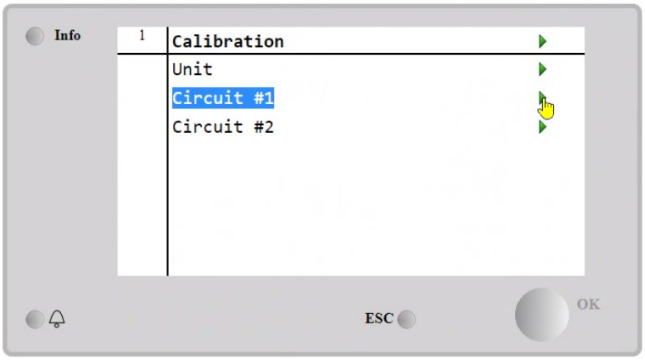
2 On the user interface, select Commission Unit.



3 Select Calibrate Sensors.



4 Select Circuit # of the specific thermistor.



5 Check the specific thermistor read-out and compare with the temperature value detected by the sample thermistor.

6 Select Offset of the specific thermistor.

7 Set the temperature difference (between thermistor read-out and sample temperature) in the offset parameter.

CAUTION

Suction thermistor is the most crucial one because it controls the correct functioning of the expansion valve and consequent safe compressor running.

8 Save the modifications before proceeding with startup of the unit.

Is the problem solved?	Action
Yes	No further actions required.
No	Perform an electrical check of the thermistor, see "Checking procedures" [▸ 206].

To remove the thermistor

Prerequisite: Stop the unit operation via the user interface.

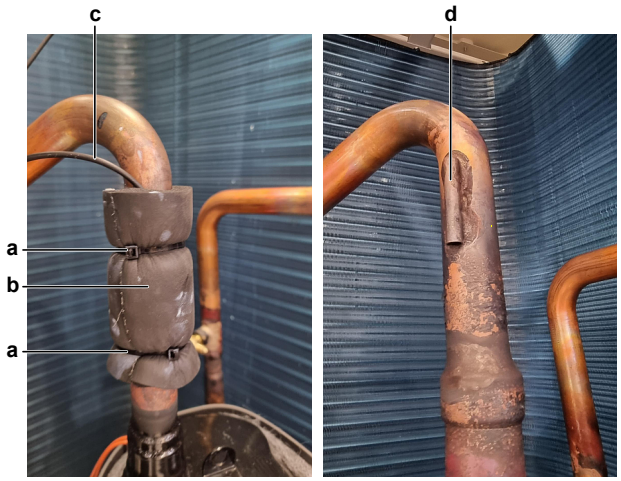
Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Locate the thermistor that needs to be removed.

2 Remove the thermistor from the thermistor holder as follows:

- For air (ambient) thermistor:
  Unscrew and remove the thermistor from the casing.
- For refrigerant piping thermistors:
  - Cut the tie straps that fix the insulation and the thermistor wire.
  - Cut and remove the insulation.
  - Remove the thermistor from the thermistor holder.



a Tie strap
b Insulation
c Thermistor wire
d Thermistor holder

3 Cut all tie straps that fix the thermistor harness.

4 Disconnect the thermistor wires from the terminals of the appropriate terminal block(s) and remove the thermistor.

Name	Symbol	Terminal block (terminals)
Air thermistor	OAT	T2 on main PCB: B3 XD: 774
Discharge pipe thermistor (circuit 1)	DT1	T4 on main PCB: X5 XD: 778
Discharge pipe thermistor (circuit 2)	DT2	X2: 778-781
Suction thermistor (circuit 1)	ST1	T3 on main PCB: B5 XD: M1
Suction thermistor (circuit 2)	ST2	X2: 779-M1

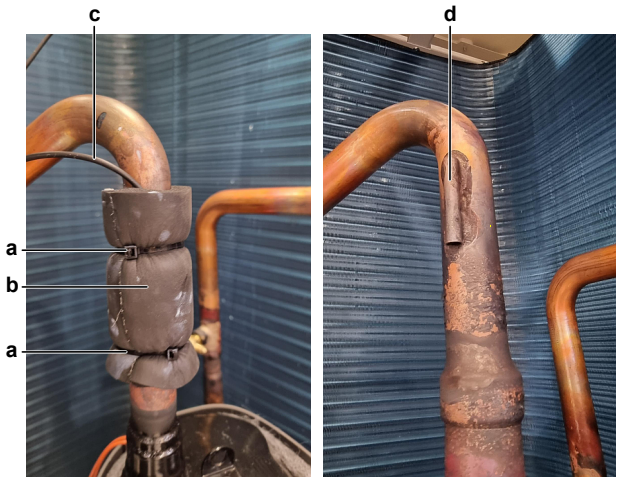
5 To install the thermistor, see "Repair procedures" [▸ 209].

To install the thermistor

1 Install the thermistor in the thermistor holder as follows:

- For air (ambient) thermistor:
  Install and tighten the thermistor in the correct location on the casing.

- For refrigerant piping thermistors:
  Install the thermistor in the specific thermistor holder.



a Tie strap
b Insulation
c Thermistor wire
d Thermistor holder

2 Route the thermistor harness towards the appropriate terminal block(s).

3 Connect the thermistor wires to the appropriate terminals of the terminal block(s).

Name	Symbol	Terminal block (terminals)
Air thermistor	OAT	T2 on main PCB: B3 XD: 774
Discharge pipe thermistor (circuit 1)	DT1	T4 on main PCB: X5 XD: 778
Discharge pipe thermistor (circuit 2)	DT2	X2: 778-781
Suction thermistor (circuit 1)	ST1	T3 on main PCB: B5 XD: M1
Suction thermistor (circuit 2)	ST2	X2: 779-M1

4 Fix the thermistor harness using new tie straps

5 Install the insulation around the thermistor.

6 Fix the insulation and the thermistor wire using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.21.2 Water side thermistors

Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To perform a mechanical check of the specific thermistor

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the required plate work, see "3.16 Plate work" [▸ 173].

2 Locate the thermistor. Check that the thermistor is correctly installed.

Is the thermistor correctly installed?	Action
Yes	Perform an electrical check of the specific thermistor, see "Checking procedures" [▸ 214].
No	Correctly install the thermistor, see "Repair procedures" [▸ 216].

To perform an electrical check of the specific thermistor

Prerequisite: Check that the thermistors are correctly calibrated. Perform the calibration procedure as needed, see "Repair procedures" [▸ 209].

1 First perform a mechanical check of the thermistor, see "Checking procedures" [▸ 214].

2 Locate the thermistor.

> **INFORMATION**
>
> Remove the thermistor from its holder if not reachable with a contact thermometer.

3 Measure the temperature using a contact thermometer.

Name	Symbol	Location (PCB)	Terminal block (terminals)	Inter-mediate terminal block (terminals)	Reference (table)
Inlet water thermistor	EEWT	Main	T2: B1-M	XD: 774	A
Outlet water thermistor	ELWT	Main	T2: B2-M	XD: 774	A

4 Determine the thermistor resistance that matches the measured temperature.

Thermistor – Table A

T °C	kΩ	T °C	kΩ	T °C	kΩ	T °C	kΩ
–40	3452.75	5	254.90	50	36.62	95	8.11
–35	2478.40	10	199.56	55	30.40	100	7.01
–30	1800.31	15	157.41	60	25.36	105	6.08
–25	1322.51	20	125.04	65	21.26	110	5.29
–20	981.87	25	100.00	70	17.91	115	4.62
–15	736.31	30	80.50	75	15.16	120	4.05
–10	557.45	35	65.21	80	12.88	125	3.56
–5	425.86	40	53.14	85	11.00		
0	328.13	45	43.55	90	9.43		

5 Disconnect the wires from the terminals of the appropriate terminal block and measure the resistance between the disconnected wires.

- E.g. EEWT thermistor:
- Measured temperature with contact thermometer: 23.1°C,
- Resistance value determined through temperature (using the thermistor table A):
  Resistance at 23°C: 100.9 kΩ,
  Resistance at 24°C: 100.4 kΩ,
- Disconnect the wires from terminals Ai1 and M of terminal block T2 and measure resistance between the wires:
  Measured resistance: 100.8 kΩ,
- Measured resistance value is inside the range. EEWT thermistor passes the check.

INFORMATION

All thermistors have a resistance tolerance of 3%.

INFORMATION

In most cases, the user interface allows to monitor the thermistors.

If the measured resistance value matches the resistance determined through the measured temperature, but the temperature for the corresponding thermistor is NOT correct on the user interface display, replace the applicable PCB.

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Thermistor is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

6 Disconnect the thermistor wires from the terminals of the intermediate terminal block and measure the resistance of the thermistor (between the thermistor wires).

Does the measured resistance of the thermistor match with the temperature determined resistance?	Action
Yes	Correct the wiring between the terminal block on the PCB and the intermediate terminal block, see "6.2 Wiring diagram" [▸ 263].
No	Replace the specific thermistor, see "Repair procedures" [▸ 216].

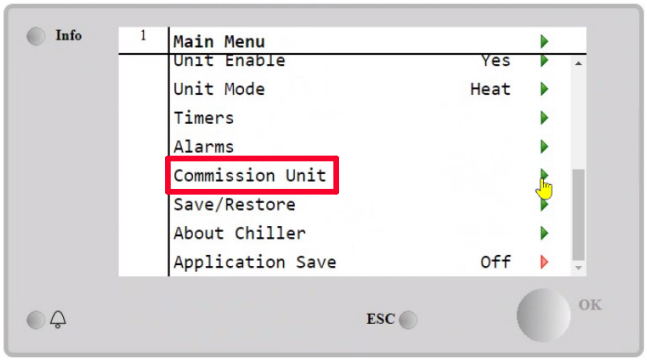
Repair procedures

To calibrate the thermistor

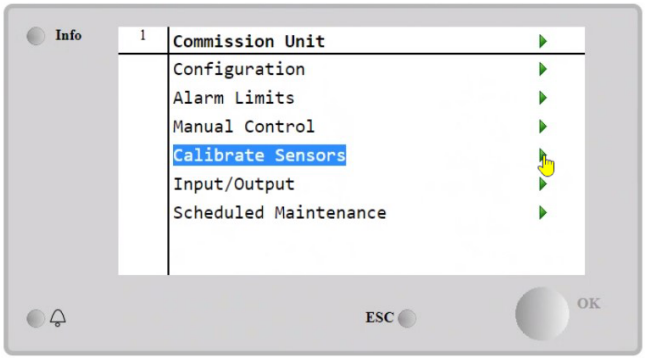
1 Place the sample thermistor and the unit thermistor in a container with ice.

> **INFORMATION**
>
> Make sure to have a proper water/ice mix and wait until the water/ice temperature is stable.
>
> Place both thermistors in the middle of the container in order to NOT affect the readings.

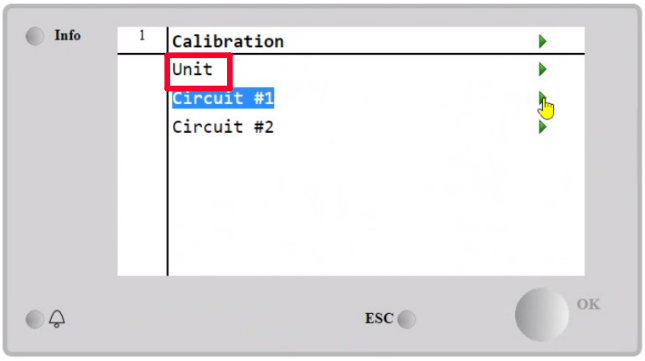
2 On the service monitoring tool, select Commission Unit.



3 Select Calibrate Sensors.



4 Select Unit.



5 Check the specific thermistor read-out and compare with the temperature value detected by the sample thermistor.

6 Select Offset of the specific thermistor.

7 Set the temperature difference (between thermistor read-out and sample temperature) in the offset parameter.

8 Save the modifications before proceeding with startup of the unit.

Is the problem solved?	Action
Yes	No further actions required.
No	Perform an electrical check of the thermistor, see "Checking procedures" [▸ 214].

To remove the thermistor

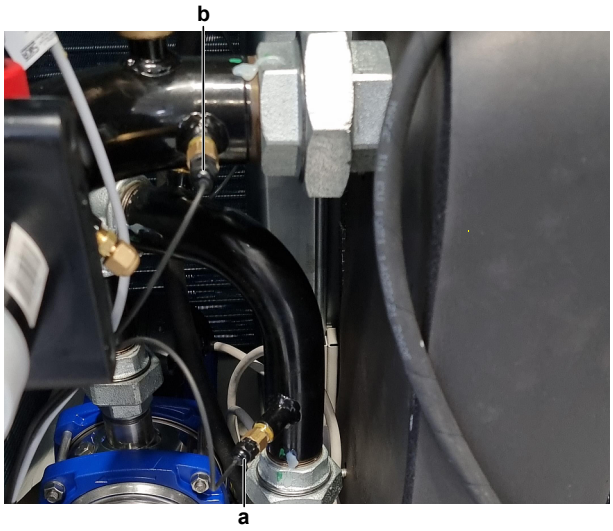
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Locate the thermistor that needs to be removed.

2 Remove the thermistor from the thermistor holder.



a Inlet water thermistor EEWT
b Outlet water thermistor ELWT

3 Cut the tie straps that fix the thermistor harness.

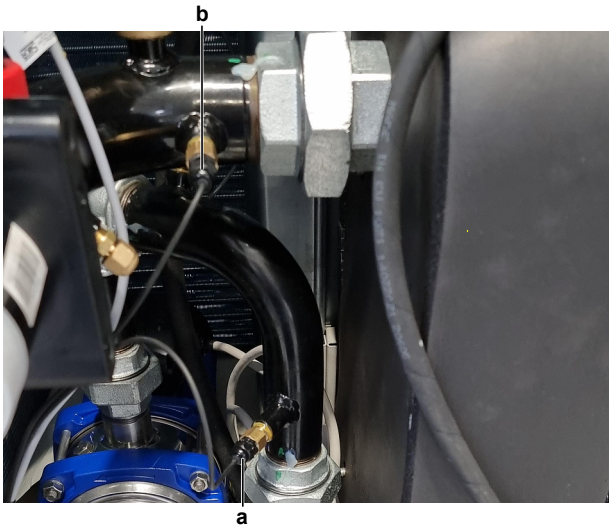
4 Disconnect the thermistor wires from the terminals of the appropriate terminal block(s) and remove the thermistor.

Name	Symbol	Terminal block (terminals)
Inlet water thermistor	EEWT	T2 on main PCB: B1 XD: 774
Outlet water thermistor	ELWT	T2 on main PCB: B2 XD: 774

5 To install the thermistor, see "Repair procedures" [▶ 216].

To install the thermistor

1 Correctly install the thermistor in the specific thermistor holder.



a Inlet water thermistor EEWT
b Outlet water thermistor ELWT

2 Route the thermistor harness towards the appropriate terminal block(s).

3 Connect the thermistor wires to the appropriate terminals of the terminal block(s).

Name	Symbol	Terminal block (terminals)
Inlet water thermistor	EEWT	T2 on main PCB: B1 XD: 774
Outlet water thermistor	ELWT	T2 on main PCB: B2 XD: 774

4 Fix the thermistor harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.22 User interface

3.22.1 Checking procedures

> **INFORMATION**
>
> It is recommended to perform the checks in the listed order.

To check the power supply to the user interface

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1. Remove the main switch box cover, see "3.16 Plate work" [▸ 173].
2. Turn ON the power to the unit with main switch Q10.
3. Measure the voltage between pins 1-4 on the LAN cable (that was disconnected from the user interface).

   Result: The measured voltage MUST be 24 V DC.

Does the user interface receive power?	Action
Yes	Check if the user interface functions correctly, see "3.22.1 Checking procedures" [▸ 219].
No	Continue with the next step.

4. Check the communication wiring between the user interface and the unit PCB, see "3.22.1 Checking procedures" [▸ 219].

Is the communication wiring correct?	Action
Yes	Perform a check of the main PCB, see "3.13.1 Checking procedures" [▸ 155].
No	Replace the user interface cable, see "3.22.2 Repair procedures" [▸ 221].

To check the correct functioning of the user interface

Prerequisite: First perform a power check of the user interface, see "3.22.1 Checking procedures" [▸ 219].

1. Check the display for the following items:
   - Pinhole, bright spot, black spot, white spot, black line, white line, foreign particle, bubble:
     The color of a small area is different from the remainder. The phenomenon does NOT change with voltage.
   - Contrast variation:
     The color of a small area is different from the remainder. The phenomenon changes with voltage.
   - Polarizer defect:
     Scratch, dirt, particle, bubble on polarizer or between polarizer and glass.
   - Dot defect:
     The pixel appears bright or dark abnormally.
   - Functional defect:
     No display, abnormal display, open or missing segment, short circuit, false viewing direction.
   - Glass defect:
     Glass cracks, shaved corner of glass, surplus glass.

2 Check that information is shown correctly and can be navigated through on the display of the user interface.

3 Check that settings can be changed and saved, see "3.22.2 Repair procedures" [▶ 221].

Does the user interface function correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

4 Perform a check of the communication wiring between the user interface and the unit PCB.

Is the communication wiring correct?	Action
Yes	Replace the user interface, see "3.22.2 Repair procedures" [▶ 221].
No	Replace the user interface cable, see "3.22.2 Repair procedures" [▶ 221].

To check the communication wiring between the user interface and the unit PCB

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove (pull out) the main switch from the unit.

DANGER: RISK OF ELECTROCUTION

Wait for at least 10 minutes after the circuit breaker has been turned OFF, to be sure the rectifier voltage is below 10 V DC before proceeding.

2 Loosen and remove the 10 screws that fix the switch box cover.

a Main switch
b Screw
c Main circuit switch box cover
d Screw (top cover)
e Top cover

3 Carefully move the switch box cover to the front without disconnecting the wiring from the user interface.

4 Make sure the user interface cable is firmly and correctly connected to the user interface connector 1-2-3-4 and to the LAN connector T-HMI on the main PCB, see "6.2 Wiring diagram" [▸ 263].

5 Disconnect the user interface cable from the user interface and main PCB and check the continuity of all wires of the user interface cable.

Is the user interface cable correct?	Action
Yes	Return to checking procedures of the specific error code and continue with the next procedure.
No	Replace the user interface cable, see "3.22.2 Repair procedures" [▸ 221].

To check the settings

1 See the relevant documentation (installer reference guide, …) to check the specific setting.

Is the setting correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the specific setting see "3.22.2 Repair procedures" [▸ 221].

3.22.2 Repair procedures

To remove the user interface

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the main switch box cover (including the user interface), see "3.16 Plate work" [▸ 173].

2 Push the sides and remove the user interface from the main switch box cover.

3 To install the user interface, see "3.22.2 Repair procedures" [▸ 221].

To install the user interface

1 Install the user interface display in the correct on the main switch box cover.

2 Install the main switch box cover on the unit, see "3.16 Plate work" [▸ 173].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

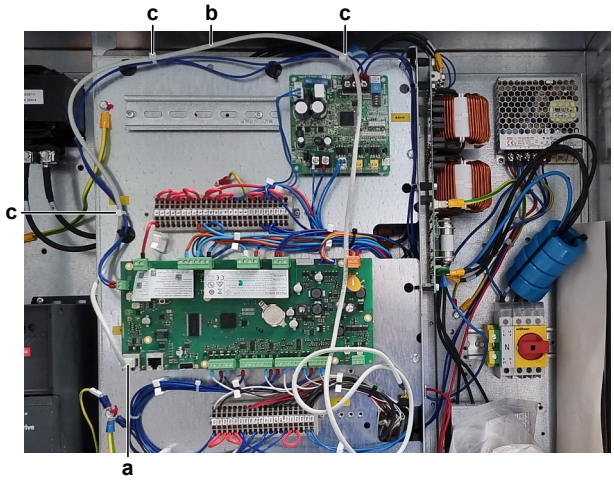
To remove the user interface cable

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1 Remove the main switch box cover (including the user interface), see "3.16 Plate work" [▸ 173].

2 Disconnect the user interface cable from the main PCB.



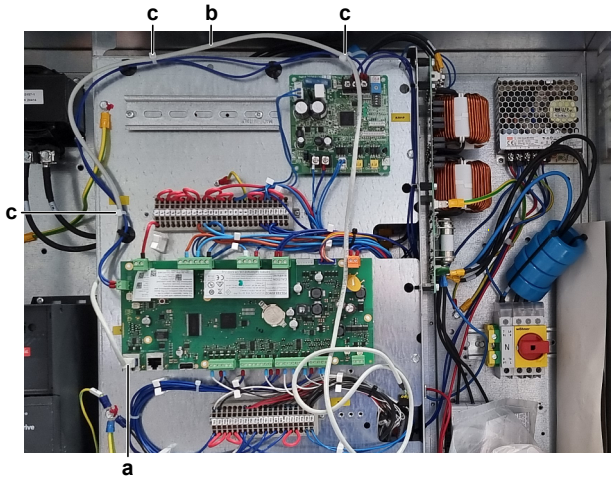
a User interface cable connected on main PCB
b User interface cable
c Tie strap

3 Cut the tie straps that fix the user interface cable and remove the cable.

4 To install the user interface cable, see "3.22.2 Repair procedures" [▸ 221].

To install the user interface cable

1 Connect the user interface cable to the main PCB.



a User interface cable connected on main PCB
b User interface cable
c Tie strap

2 Route the user interface cable as shown and fix it using new tie straps.

3 Install the main switch box cover, see "3.16 Plate work" [▸ 173].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To adjust the settings

1 See the relevant documentation (installer reference guide, …) to adjust the specific setting.

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Return to the troubleshooting of the specific error and continue with the next procedure.

3.23 Water pump

INFORMATION

For EWAT/EWYT016~090CZN units, the water pump is an external component, please see the documentation of the water pump.

For EWAT/EWYT016~090CZH and EWAT/EWYT016~090CZP units, water pump procedures are described below.

3.23.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

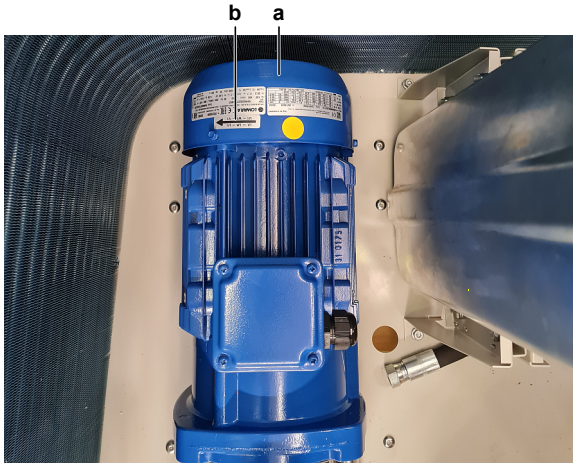
To perform an electrical check of the water pump

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Turn ON the power of the unit with main switch Q10.
2. Connect the service monitoring tool to the unit.
3. Activate the water pump using the service monitoring tool as follows:
   - In the Main Menu, select Unit Mode > Mode.
   - Set to Test.
   - In the Main Menu, select Commission Unit > Manual Control > Unit > Pump #.
   - Set to ON.
4. Check through the water pump motor cover or the coupling protection if the motor is rotating (water pump is working). Use a small mirror as needed.



a Water pump motor cover
b Rotating direction indication

5 Also check the rotating direction (correct rotating direction indicated on the pump cover). If rotating direction is NOT correct:

- Stop the unit operation and turn off the main switch Q10.
- Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.
- Swap 2 of the 3 phases of the water pump power supply and reinstall the cover on the electrical connection box.
- Turn ON the main switch Q10. Start the unit operation, operate the water pump via the service monitoring tool and check that rotating direction is correct.

Is the water pump working correctly?	Action
Yes	Water pump is OK. Return to the troubleshooting of the specific error and continue with the next procedure.
No	Perform the next step.

6 Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.

7 Measure the water pump power supply voltage between the phases U1-V1, U1-W1 and V1-W1.

Result: All measured voltages MUST be 400 V AC.

Is the measured power supply voltage correct?	Action
Yes	Perform a mechanical check of the water pump, see "3.23.1 Checking procedures" [▸ 223].
No	Perform as described below for the specific pump.

Units with high ambient water pump

1 Measure the output voltage between the terminals 2-4, 2-6 and 4-6 of the water pump contactor KM90.

Result: All measured voltages MUST be 400 V AC.

Is the measured output voltage correct?	Action
Yes	Replace the water pump wiring harness, see "3.23.2 Repair procedures" [▸ 228].
No	Perform a check of the water pump contactor, see "3.23.1 Checking procedures" [▸ 223].

Units with inverter water pump

1 Measure the output voltage between the terminals U-V, U-W and V-W of the pump inverter.

Result: All measured voltages MUST be 400 V AC.

Is the measured output voltage correct?	Action
Yes	Replace the water pump wiring harness, see "3.23.2 Repair procedures" [▸ 228].

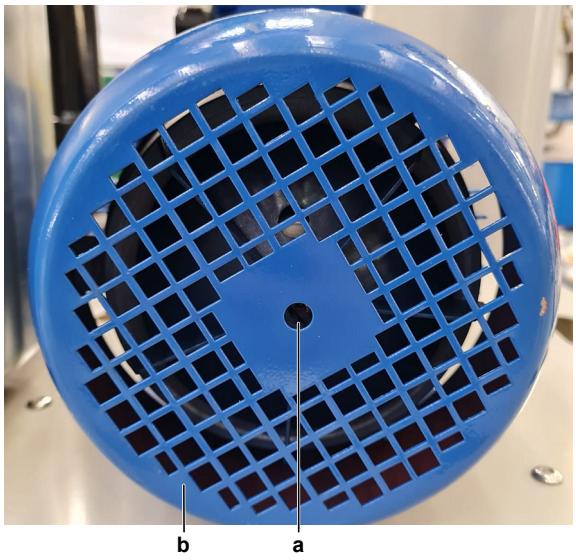
Is the measured output voltage correct?	Action
No	Perform a check of the pump inverter, see documentation of the pump inverter for more information.

To perform a mechanical check of the water pump

Prerequisite: First perform an electrical check of the water pump, see "3.23.1 Checking procedures" [▸ 223].

1 Remove the water pump, see "3.23.2 Repair procedures" [▸ 228].

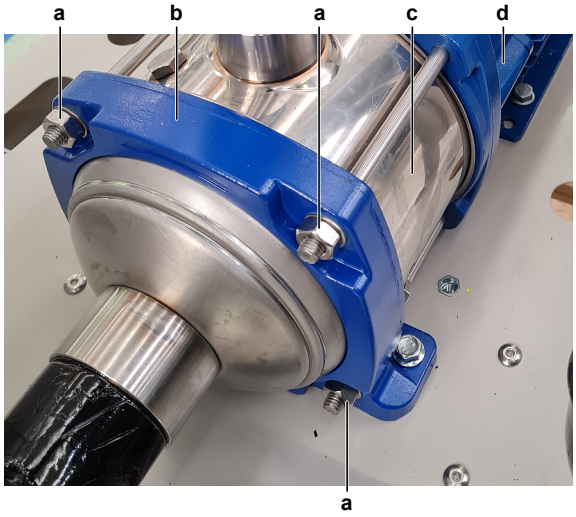
2 Insert a flat screwdriver in the slot of the rotor shaft of the water pump (through the hole in the pump motor cover); press and turn it to rotate the water pump rotor shaft.



a Hole
b Water pump motor cover

Does the rotor of the water pump motor rotate smoothly?	Action
Yes	Replace the water pump, see "3.23.2 Repair procedures" [▸ 228].
No	Continue with the next step.

3 Remove the 4 nuts and remove the bracket from the water pump.



a Nut
b Bracket
c Water pump housing
d Water pump motor

4 Separate the water pump housing from the pump motor.

5 Check for impurities or any objects that may block the water pump.

Any impurities or objects found?	Action
Yes	Remove the impurities or objects that may block the water pump, see "3.23.2 Repair procedures" [▶ 228].
No	Replace the water pump, see "3.23.2 Repair procedures" [▶ 228].

To perform a check of the water pump contactor

INFORMATION
The water pump contactor is ONLY applicable for units with high ambient pump.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Measure the power supply voltage between the following terminals of the water pump contactor:

- KM90: 1-3, 1-5, 3-5
  The measured voltages MUST be 400 V AC ± 10%.

Is the measured power supply voltage correct?	Action
Yes	Skip the next step.
No	Continue with the next step.

3 Check the power supply to the unit, see "4.1.1 Checking procedures" [▶ 234].

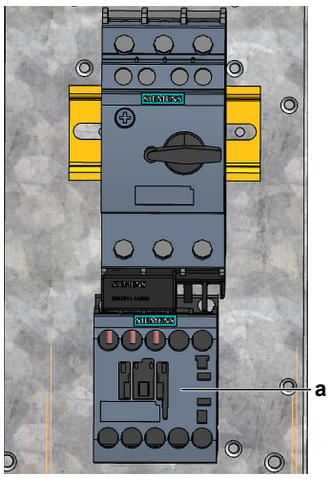
Does the unit receive power?	Action
Yes	Correct the wiring and/or components between the main power supply terminal and the water pump contactor KM90, see "6.2 Wiring diagram" [▶ 263].
No	Adjust the power supply to the unit, see "4.1.2 Repair procedures" [▶ 237].

4 Activate the water pump using the service monitoring tool as follows:

- In the Main Menu, select Unit Mode > Mode.
- Set to Test.
- In the Main Menu, select Commission Unit > Manual Control > Unit > Pump #.
- Set to ON.

5 Measure the voltage between the following terminals of the water pump contactor:

- KM90: 2-4, 2-6, 4-6
  The measured voltages MUST be 400 V AC ± 10% (contacts closed).



a Water pump contactor KM90

Are the measured voltages of the water pump contactor correct (contacts closed)?	Action
Yes	Continue with the next step.
No	Skip the next steps and continue with the operating voltage check of the contactor.

6 Stop the water pump using the service monitoring tool.

7 Measure the voltage between the following terminals of the water pump contactor:

- KM90: 2-4, 2-6, 4-6
  The measured voltages MUST be 0 V AC (contacts open).

Are the measured voltages of the water pump contactor correct (contacts open)?	Action
Yes	Contactor is OK. Return to troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

8 Measure the operating voltage between the terminals A1-A2 on the water pump contactor.

Result: The measured operating voltage MUST be:

- 230 V AC when the contactor contacts should be closed.
- 0 V AC when the contactor contacts should be open.

Is the measured operating voltage of the contactor correct?	Action
Yes	Replace the water pump contactor, see "3.23.2 Repair procedures" [▶ 228].
No	Continue with the next step.

9 Disconnect the wires from the terminals COM and Q1 (NO) of the terminal block T10 on the main PCB.

10 Measure the resistance between the terminals COM and Q1 (NO) of the terminal block T10 on the main PCB.

Result: The measured resistance MUST be: short-circuit (switch contact on main PCB = closed).

- Short-circuit (switch contact on main PCB = closed) when the contactor contacts should be closed..
- OL (switch contact on main PCB = open) when the contactor contacts should be open.

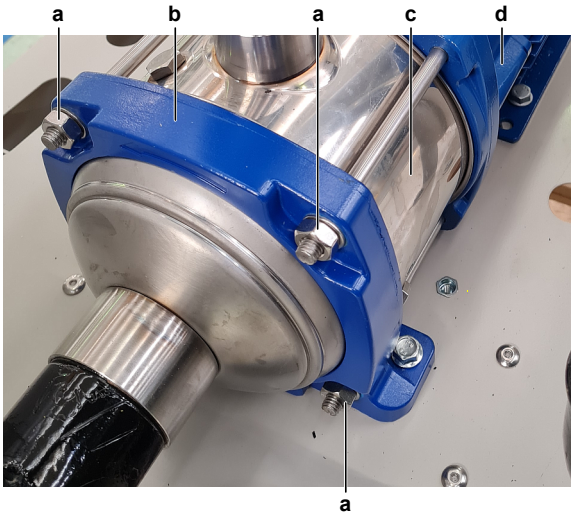
Is the measured resistance correct?	Action
Yes	Check and correct the wiring between the main power supply terminal and the operating voltage terminals of the water pump contactor, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check the main PCB, see "3.13 Main PCB" [▸ 155].

3.23.2 Repair procedures

To remove impurities from the water pump

Prerequisite: Remove the water pump, see "3.23.2 Repair procedures" [▸ 228].

1 Remove the 4 nuts and remove the bracket from the water pump.



a Nut
b Bracket
c Water pump housing
d Water pump motor

2 Separate the water pump housing from the pump motor.

3 Remove any impurities or objects that may block the water pump.

4 Install the water pump housing on the pump motor. Make sure the seal is installed correctly.

5 Correctly install the bracket on the water pump. Install and tighten the 4 nuts to fix the cover.

6 Install the water pump, see "3.23.2 Repair procedures" [▸ 228].

Is the problem solved?	Action
Yes	No further actions required.

Is the problem solved?	Action
No	Replace the water pump, see "3.23.2 Repair procedures" [▶ 228].

To remove the water pump

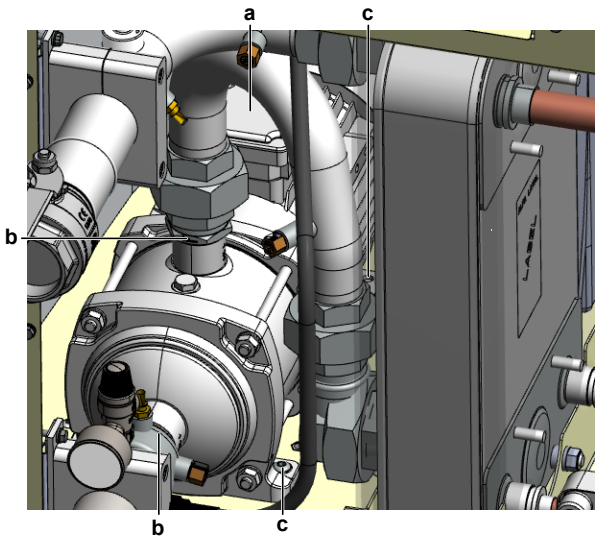
Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▶ 173].

1 Drain water from the water circuit, see "4.3.2 Repair procedures" [▶ 252].

2 Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.



a Electrical connection box cover
b Water circuit pipe
c Bolt (pump fixation)

3 Note down the connection position of the wires. Remove the screws and disconnect the wires from the electrical connection box.

4 Route the water pump harness through the grommet out of the electrical connection box.

5 Unscrew and disconnect the water circuit pipes from the water pump.

6 Remove the bolts that fix the water pump to the unit frame.

Unit	Number of fixation bolts
EWAT/EWYT016~025CZ	4
EWAT/EWYT032~090CZ	6

7 Remove the water pump from the unit.

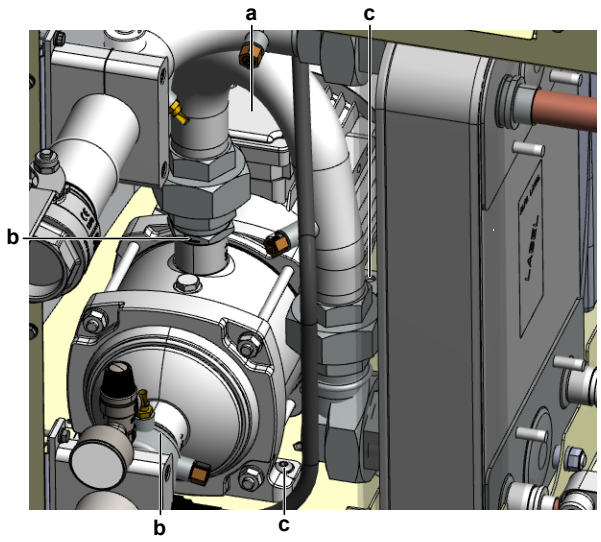
8 To install the water pump, see "3.23.2 Repair procedures" [▶ 228].

To install the water pump

1 Install the water pump in the correct location.

2 Install and tighten the bolts to fix the water pump to the unit frame.

Unit	Number of fixation bolts
EWAT/EWYT016~025CZ	4
EWAT/EWYT032~090CZ	6



a Electrical connection box cover
b Water circuit pipe
c Bolt (pump fixation)

3 Connect (screw-in) the water circuit pipes to the water pump. Make sure that the seals are correctly installed.

> **INFORMATION**
> ALWAYS install new seals before connecting the water pump to the piping.

4 Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.

5 Route the water pump harness through the grommet, inside the electrical connection box of the water pump.

6 Connect the wires to the correct locations in the electrical connection box.

7 Install the cover on the electrical connection box. Install and tighten the 4 bolts to fix the cover.

8 Open the stop valves and add water to the water circuit if needed, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

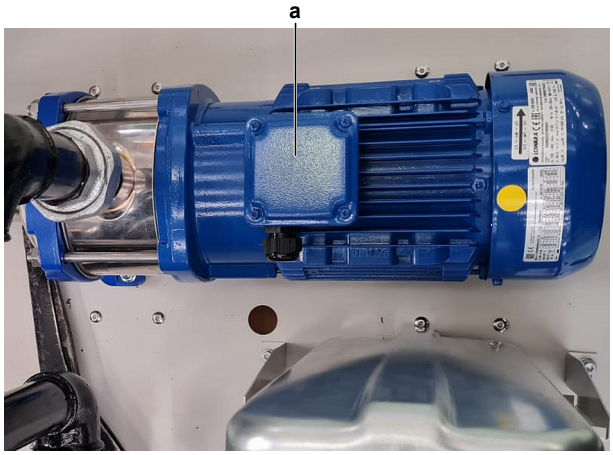
To remove the water pump wiring harness

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.



a Electrical connection box cover

2 Note down the connection position of the wires. Remove the screws and disconnect the wires from the electrical connection box.

3 Route the water pump harness through the grommet out of the electrical connection box.

4 Disconnect the other end of the wiring harness from the:

- water pump contactor KM90 (for units with high ambient water pump).
- pump inverter (for units with inverter water pump).

5 Cut all tie straps that fix the wiring harness, and remove the wiring harness from the unit.

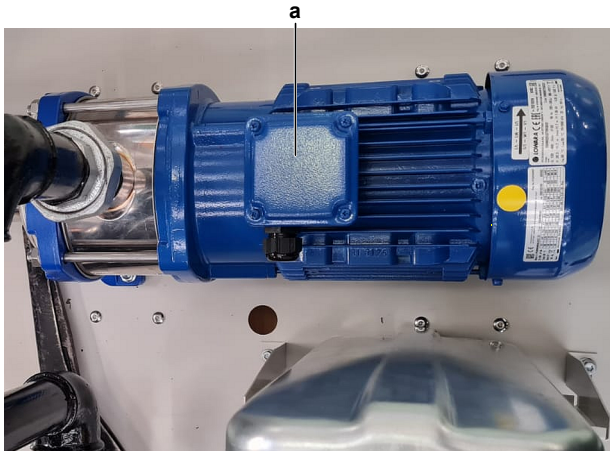
6 To install the water pump wiring harness, see "3.23.2 Repair procedures" [▸ 228].

To install the water pump wiring harness

1 Correctly connect the wiring harness (see "6.2 Wiring diagram" [▸ 263]) to the:

- water pump contactor KM90 (for units with high ambient water pump).
- pump inverter (for units with inverter water pump).

2 Loosen the 4 bolts and remove the cover from the electrical connection box of the water pump.



a Electrical connection box cover

3 Route the water pump harness through the grommet, inside the electrical connection box of the water pump.

4 Connect the wires to the correct locations in the electrical connection box.

5 Install the cover on the electrical connection box. Install and tighten the 4 bolts to fix the cover.

6 Fix the wiring harness using new tie straps.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To remove the water pump contactor

INFORMATION

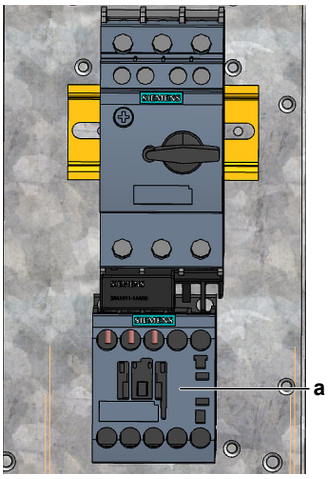
The water pump contactor is ONLY applicable for units with high ambient pump.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn off the main switch Q10 and the circuit breaker of the water pump.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Loosen the screws and disconnect the wiring from the water pump contactor terminals.



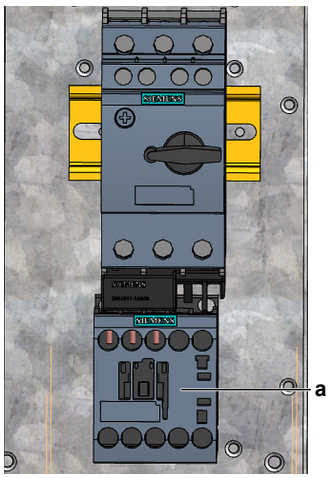
a Water pump contactor KM90

2 Remove the screws and remove the water pump contactor from the switch box.

3 To install the water pump contactor, see "3.23.2 Repair procedures" [▸ 228].

To install the water pump contactor

1 Install the water pump contactor in the switch box. Install and tighten the screws to fix the contactor.



a Water pump contactor KM90

2 Connect the wiring to the correct water pump contactor terminals. Tighten the screws to fix the wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to "3.23.1 Checking procedures" [▸ 223] of the water pump and continue with the next procedure.

4 Third party components

4.1 Electrical circuit

4.1.1 Checking procedures

To check the power supply of the unit

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Measure the insulation resistance between each power supply terminal and the ground using a megger device of 500 V DC. All measurements MUST be >1MΩ. If insulation resistance is <1MΩ, earth leakage is present.
2. Turn ON the power of the unit with main switch Q10.
3. Measure the voltage between the phases L1-L2-L3 on the power operation switch Q10. The voltage MUST be 400 V AC ± 10%.
4. Measure the voltage between each phase and N on the power operation switch Q10. The voltage MUST be 230 V AC ± 10%.
5. Unbalance between the phases MUST NOT exceed 2%.

Is the measured voltage (power supply) correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the power supply, see "4.1.2 Repair procedures" [▸ 237].

To check if the power supply is compliant with the regulations

1. Check that the power source is in line with the requirements described in the databook.

Is the power supply compliant with the regulations?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the power supply, see "4.1.2 Repair procedures" [▸ 237].

To check the demand limit input signal

The demand limit function allows the unit to be limited to a specified maximum load. Capacity limit level is regulated using an external 0~10 V signal with a linear relationship. A signal of 0 V indicates the maximum capacity available whereas a signal of 10 V indicates the minimum capacity available.

The demand limit function CAN be enabled via field setting (menu) 18.00 in the user interface or via the Web interface.

Procedure

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Turn ON the power of the unit with main switch Q10.

2 Make sure the demand limit function is enabled (field setting menu 18.00 in the user interface or via Web interface).

3 Via the external controller, set the demand limit function to maximum capacity.

4 Measure the input voltage between terminals X2-M of terminal block T4 on the option PCB.

Result: The measured voltage MUST be 0 V.

5 Via the external controller, set the demand limit function to minimum capacity.

6 Again measure the input voltage between terminals X2-M of terminal block T4 on the option PCB.

Result: The measured voltage MUST be 10 V.

Are the measured voltages correct?	Action
Yes	Demand limit input signal is OK.
No	Continue with the next step.

7 Via the external controller, leave the demand limit function to minimum capacity.

8 Measure the output voltage between the respective terminals on the terminal block of the external controller.

Result: The measured voltage MUST be 10 V.

9 Via the external controller, set the demand limit function to maximum capacity.

10 Again measure the output voltage between the respective terminals on the terminal block of the external controller.

Result: The measured voltage MUST be 0 V.

Output voltages on the external controller are correct?	Action
Yes	Correct the transmission wiring between the external controller and the option PCB, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the external controller, see "4.4.1 Checking procedures" [▸ 256].

To check the setpoint reset input signal

The setpoint reset function CAN override the chiller water temperature active setpoint when certain circumstances occur. The aim of this function is to reduce the unit energy consumption whilst maintaining the same comfort level.

To this purpose, 3 different control strategies are available (through field setting menu 20.00 in the user interface):

- Setpoint reset by outside air temperature
- Setpoint reset by an external signal (0~10 V)
- Setpoint reset by evaporator ΔT

When the external signal (0~10 V) strategy is selected, the active setpoint is calculated applying a correction based on an external 0~10 V signal. 0 V corresponds to 0°C correction, whereas 10 V corresponds to a correction of the maximum reset quantity (to be set via field setting 20.01 in the user interface).

Procedure

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Turn ON the power of the unit with main switch Q10.
2. Make sure the setpoint reset function is correctly set (field setting menu 20.00 and 20.01 in the user interface).
3. Via the external controller, set the setpoint reset function to 0°C.
4. Measure the input voltage between terminals X5-M of terminal block T5 on the option PCB.

   Result: The measured voltage MUST be 0 V.
5. Via the external controller, set the setpoint reset function to the maximum value.
6. Again measure the input voltage between terminals X5-M of terminal block T5 on the option PCB.

   Result: The measured voltage MUST be 10 V.

Are the measured voltages correct?	Action
Yes	Setpoint reset input signal is OK.
No	Continue with the next step.

7. Via the external controller, leave the setpoint reset function to the maximum value.
8. Measure the output voltage between the respective terminals on the terminal block of the external controller.

   Result: The measured voltage MUST be 10 V.
9. Via the external controller, set the setpoint reset function to 0°C.
10. Again measure the output voltage between the respective terminals on the terminal block of the external controller.

    Result: The measured voltage MUST be 0 V.

Output voltages on the external controller are correct?	Action
Yes	Correct the transmission wiring between the external controller and the option PCB, see "6.2 Wiring diagram" [▸ 263].
No	Perform a check of the external controller, see "4.4.1 Checking procedures" [▸ 256].

4.1.2 Repair procedures

To adjust the power supply

1 Make sure that the power source is in line with the requirements described in the databook.

2 Adjust the power supply within 50 Hz ± 3%.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To correct the wiring between PCB's

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 Make sure that all wires are firmly and correctly connected, see "6.2 Wiring diagram" [▸ 263].

2 Check the continuity of all wires.

3 Replace any damaged or broken wires.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.2 Refrigerant circuit

4.2.1 Checking procedures

INFORMATION

It is recommended to perform the checks in the listed order.

To check if the refrigerant circuit is clogged

1 Check that all field piping is done according to the refrigeration practice and installer reference guide:

- Correct piping diameters
- Piping distance limits are followed
- NO pipes are squeezed
- NO short radius bends

2 Turn ON the power of the unit with main switch Q10.

3 Activate `Cooling` operation via the user interface or service monitoring tool.

4 Wait for the system to run at a more or less stable condition.

5 On the refrigerant liquid piping (between the refrigerant/water heat exchanger and the outdoor unit heat exchanger (coil)), using a contact thermometer, measure the temperature before and after every restricting

device. If a big temperature difference is measured (>2.5~4K), an internal pipe obstruction may be present at this location.

INFORMATION

Focus on positions with a potential risk for clogging such as:

- Filters
- Valves
- Brazing points
- ...

INFORMATION

A bigger temperature drop before and after the expansion valve can be normal, however excessive ice is indicating a malfunction of the expansion valve or internal obstruction of the valve (dirt or ice build up in case of humidity in the system).

Temperature drop found?	Action
Yes	Replace the clogged part, see "4.2.2 Repair procedures" [▶ 242].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check if the refrigerant circuit is correctly charged

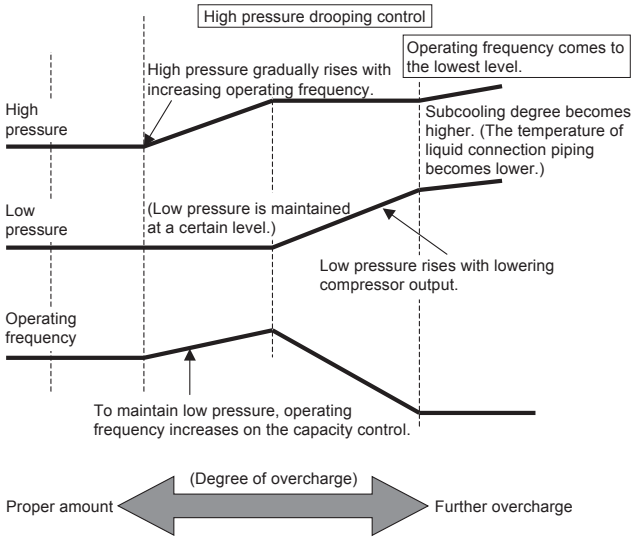
Due to the relationship to pressure control and electronic expansion valve control, the amount of refrigerant needs to be examined according to operating conditions.

Refer to the procedures shown below for correct examination.

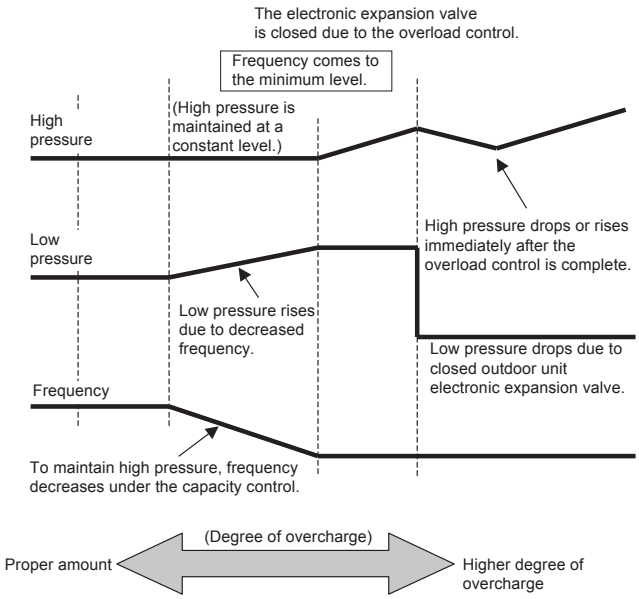
Refrigerant overcharge diagnosis

1. High pressure rises. Consequently, overload control is conducted to cause insufficient cooling capacity.
2. The superheated degree of suction gas lowers (or the wet operation is performed). Consequently, the compressor consumes more power and is noisy (before over-current relay trips).
3. The subcooling degree of refrigerant in liquid form rises (values >4~5K are NOT normal).

Cooling



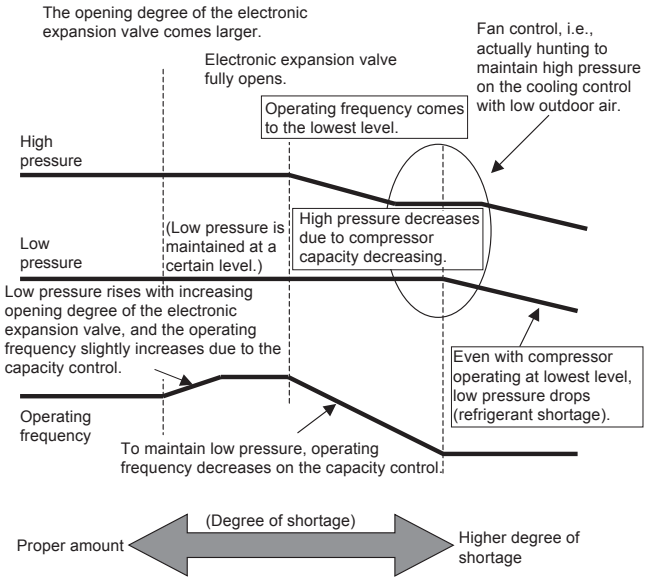
Heating



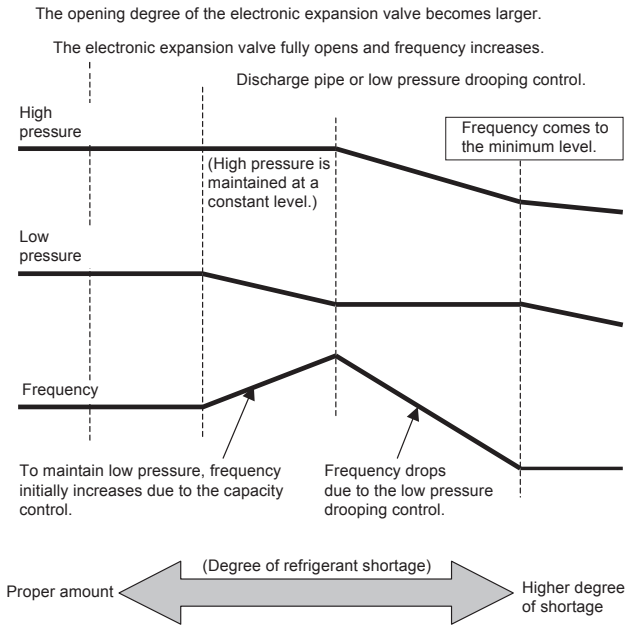
Refrigerant shortage diagnosis

1. The superheated degree of suction gas rises. Consequently, the compressor discharge gas temperature becomes higher than normal.
2. The superheated degree of suction gas rises. Consequently, the electronic expansion valve turns open more than normal or completely open for average output.
3. Low pressure drops to cause the unit not to reach cooling capacity (or heating capacity).

Cooling



Heating



Is the refrigerant circuit charged correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Add or recuperate refrigerant until correctly charged, see "4.2.2 Repair procedures" [▸ 242].

To check for non-condensables in the refrigerant circuit

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

1. Wait for the refrigerant to reach the outdoor temperature.
2. Connect a manometer to the service port.
3. Measure the pressure of the refrigerant. The measured pressure converted into saturated temperature MUST be in line with the expected pressure / saturated temperature at current ambient temperature.
4. If the measured pressure is significantly higher (>5K), non-condensables gasses are most likely present in the refrigerant.

Any non-condensables found in the refrigerant circuit?	Action
Yes	To replace the refrigerant, see "4.2.2 Repair procedures" [▸ 242].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To perform a leak test

The leak test must satisfy the specifications of EN378-2.

1. Determine the leak test interval according to the F-gas law:

Leak test interval	Tonnes of CO_2 equivalent	Refrigerant charge (kg)
12 months	5 ≤t CO_2e <50	7.4 – 74
6 months	50 ≤t CO_2e <500	74 – 740
3 months	t CO_2e ≥500	≥740

- Refrigerant charge and tonnes of CO_2 equivalent can be found on the refrigerant charge label on the unit.
- Tonnes of CO_2 equivalent can ALSO be calculated:
  tCO_2e = (Refrigerant charge x Global Warming Potential)/1000 with Global Warming Potential = 675.
- If tonnes of CO_2 equivalent is less than 5 tonnes, leak test is NOT required by the current law.

INFORMATION

Units with double refrigerant circuit have 2 separate circuits which are NOT mixed in the heat exchanger. Use the complete unit refrigerant charge to determine the leak test interval.

2 When a leak test is done, ALWAYS fill in the logbook of the unit. Keep the logbook close to the unit.

3 Optionally, an F-gas inspection sticker CAN be placed on the unit to indicate the next maintenance time.

4 Perform the two leaks tests below.

To check for leaks: Vacuum leak test

1 Evacuate the system from the liquid and gas piping to –100.7 kPa (–1.007 bar) (5 Torr absolute) for more than 2 hours.

2 Once reached, turn off the vacuum pump and check that the pressure does not rise for at least 1 minute.

3 Should the pressure rise, the system may either contain moisture (see vacuum drying below) or have leaks.

To check for leaks: Pressure leak test

1 Test for leaks by applying a bubble test solution to all piping connections.

2 Discharge all nitrogen gas.

3 Break the vacuum by pressurising with nitrogen gas to a minimum gauge pressure of 0.2 MPa (2 bar). Never set the gauge pressure higher than the maximum operation pressure of the unit.

NOTICE

ALWAYS use a recommended bubble test solution from your wholesaler.

NEVER use soap water:

- Soap water may cause cracking of components, such as flare nuts or stop valve caps.
- Soap water may contain salt, which absorbs moisture that will freeze when the piping gets cold.
- Soap water contains ammonia which may lead to corrosion of flared joints (between the brass flare nut and the copper flare).

Problem solved?

Any leaks found in the refrigerant circuit?	Action
Yes	Replace the leaking part of the refrigerant circuit, see "4.2.2 Repair procedures" [▸ 242].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.2.2 Repair procedures

To replace the clogged/leaking part of the refrigerant circuit

1 See the correct procedure for the component that needs to be repaired. See also "Repair information" [▸ 244] for more details.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To recuperate the refrigerant

INFORMATION

Note the last operation mode of the unit (heating or cooling) as this will determine how the vacuum pump, manifold, recovery unit, and refrigerant bottle are to be connected.

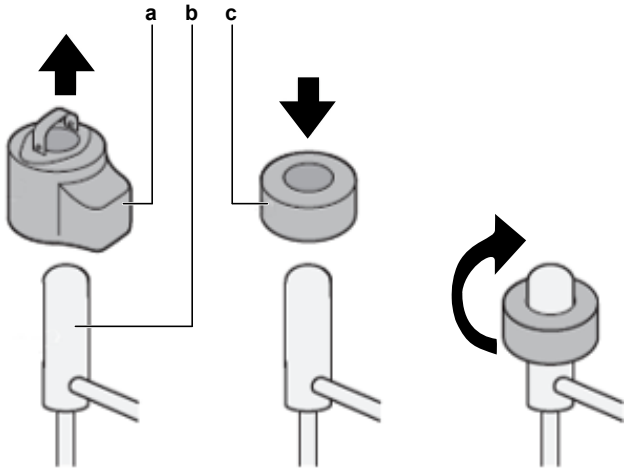
1 Stop the unit operation via the central controller.

Result: The pump down operation starts.

2 Wait until the pump down operation is finished.

3 Turn OFF the main switch Q10.

4 Manually open all expansion valves if the unit has no power or the PCB is faulty.



a Expansion valve coil
b Expansion valve body
c Expansion valve magnet

5 Remove the expansion valve coil, see "To remove the expansion valve coil" [▸ 124].

6 Slide the expansion valve magnet on the expansion valve.

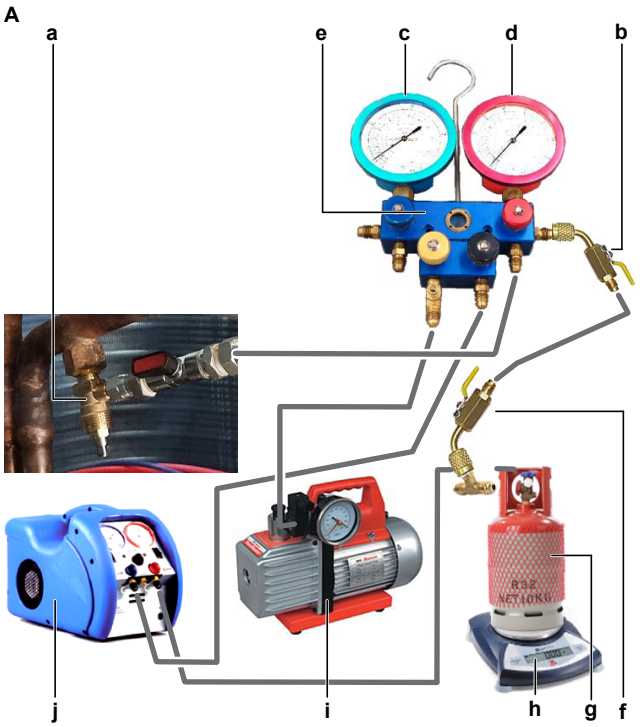
7 Turn the magnet clockwise to fully open the expansion valve.

INFORMATION

All expansion valves for all units have a diameter of 21.75 mm. Make sure to use an appropriate magnet.

If you are not sure about the open position direction, keep the valve in its middle position.
This way the valve is at least half open, and refrigerant can pass.

8 Connect the vacuum pump, manifold, recovery unit, and refrigerant bottle to the service port of the refrigerant circuit as shown below.



A In heating mode (high pressure)
a Service port
b Connection valve
c Gauge (low pressure)
d Gauge (high pressure)
e Manifold
f Connection valve
g Refrigerant cylinder
h Scale (10 gr read out)
i Vacuum pump (2-stage with solenoid valve)
j Refrigerant recovery unit

B In cooling mode (low pressure)
a Service port
b Connection valve
c Gauge (low pressure)
d Gauge (high pressure)
e Manifold
f Connection valve
g Refrigerant cylinder
h Scale (10 gr read out)
i Vacuum pump (2-stage with solenoid valve)
j Refrigerant recovery unit

9 To add refrigerant, see "4.2.2 Repair procedures" [▶ 242].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To add refrigerant

1 See the installation, operation and maintenance manual for the correct procedure.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to troubleshooting of the specific error and continue with the next procedure.

Repair information

Refrigerant piping handling

- Make sure that the applied pressure is never higher than the unit design pressure indicated on the nameplate (PS).
- Work according to the F-gas regulation and/or local regulations.

- Make sure the correct amount of refrigerant is charged after repair according to the F-gas regulation label on the unit (factory + additional where required).
- Make sure to use the appropriate equipment and tools according to the refrigerant and unit type.
- R32 can be charged in gas phase.
- Make sure to use a digital scale (no charging cylinder).
- Execute correct vacuum drying procedure after repair:
  - –0.1 MPa / –760 mm Hg / –750 Torr / –1 bar for at least 1 hour.
  - Connect the unit according to the available service ports.
  - Use related field setting where necessary to open expansion valve / solenoid valve.

To perform refrigerant pump down operation

The unit is equipped with an automatic pump down operation which will collect all refrigerant from the field piping and indoor unit in the outdoor unit. To protect the environment, make sure to perform the following pump down operation when relocating the unit.

DANGER: RISK OF EXPLOSION

Pump down – Refrigerant leakage. If you want to pump down the system, and there is a leak in the refrigerant circuit:

- Do NOT use the unit's automatic pump down function, with which you can collect all refrigerant from the system into the outdoor unit. **Possible consequence:** Self-combustion and explosion of the compressor because of air going into the operating compressor.
- Use a separate recovery system so that the unit's compressor does NOT have to operate.

CAUTION

Some outdoor units are equipped with a low pressure switch to protect the compressor by switching it off. NEVER short-circuit the low pressure switch during pump down operation.

1. Remove the refrigerant connection cover, see "3.16 Plate work" [▸ 173].
2. Remove the cap from the stop valves.
3. Perform pump down operation, see installer reference guide for the correct procedure.
4. After 5~10 minutes (after only 1~2 minutes in case temperature <–10°C), close the liquid stop valve using a hexagonal wrench.
5. Check the manifold if vacuum is reached. Close the gas stop valve and stop forced cooling operation.

Refrigerant piping repair

- Make sure to cover open pipe ends during repair so no dust or moisture can enter.
- Make sure to re-apply insulation removed during repair.

- Pipe expansion / flare making:
  - Remove any burrs on the cut surface using the correct tool such as reamer or scraper (note that excessive deburring can thin the pipe walls and cause cracking of the pipe).
  - Make sure the flare has the correct size (use a flare gauge).
  - Make sure no particles remain in the piping.
  - Apply just a drop of refrigerant oil on the inner surface of the flare.
  - Make sure the flare connection is tightened with the correct torque (torque values refer to installation manual).
- Brazing:
  - Use the correct brazing tool.
  - Use a phosphor copper filler metal (silver composition of 0 to 2%). Do not use flux material.
  - Flush the piping before brazing with nitrogen to avoid oxidation of the inside of the copper tubes (nitrogen purity ≥99.99%).

4.3 Water circuit

4.3.1 Checking procedures

To check for an external pump

1 Inspect the installation outside the unit and check for the presence of an external pump. This may have an impact on the water flow inside the unit.

An external pump was found in the installation?	Action
Yes	Remove the external pump from the installation, see "4.3.2 Repair procedures" [▸ 252].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check the water pressure

1 Turn ON the power of the unit.

2 Read the water pressure on the pressure gauge located at the water pump.

Result: The pressure MUST be 1~2 bar.

Is the water pressure correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Add or remove water from the water circuit until the pressure is correct, see "4.3.2 Repair procedures" [▸ 252].

To check the water flow

1 Turn ON the power using the main switch Q10.

2 Activate `Cooling` or `Heating` operation via the user interface.

3 Use a flow meter to check the water flow.

Result: The water flow MUST be at least:

Model	Miniumum flow (L/min)
EWAT/EWYT016~25CZP-A1	22
EWAT/EWYT032~40CZP-A1	31
EWAT/EWYT040~90CZP-A2	57

Is the water flow correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Continue with the next step.

4 Check the water pressure, see "4.3.1 Checking procedures" [▸ 246].

Is the water pressure correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Add or remove water from the water circuit until the pressure is correct, see "4.3.2 Repair procedures" [▸ 252].

To check the glycol concentration

If the unit operates below 4°C (water temperature), a proper water / glycol mixture is required. Check the glycol concentration as follows:

1 Take a water sample at the water drain valve.

2 Using a refractometer, define the glycol concentration.

Result: The glycol concentration MUST be:

Ambient temperature	Glycol concentration
–3°C	10%
–8°C	20%
–15°C	30%
–20°C	40%

3 Add glycol until the correct concentration in the water is reached.

This can be done in different ways:

- Use a filler kit and check the concentration using a refractometer.
- Calculate the amount of glycol to be added.
  Glycol volume to be added = [(Target concentration–Measured concentration)/100] x Total water volume.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check the water quality

1 Take a water sample at the water drain valve.

2 Send the water sample to an accredited lab for testing.

Result: The water MUST comply with the following specifications:

Specifications	Water quality requirements
Ph (25°C)	7.5 – 9.0
Electrical conductivity (25°C)	<500 µS/cm
Chloride ion	<70 mg Cl/L (Heat pump) <300 mg Cl/L (Cooling ONLY)
Sulphate ion	<100 mg SO_4^2/L
Alkalinity	<200 mg $CaCO_3$/L
Total hardness	75 ÷ 150 mg $CaCO_3$/L
Iron	<0.2 mg Fe/L
Ammonium ion	<0.5 mg NH^4+/L
Silica	
Chmorine molecular	<0.5 mg Cl_2/L

Is the water quality OK?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Replace with water of appropriate quality, see "4.3.2 Repair procedures" [▸ 252].

To check if the water circuit stop valves are open

1 The stop valves are located outside the unit. Check that all valves are in open position (in line with the piping).

All valves are open?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Open the specific valve(s) of the water circuit, see "4.3.2 Repair procedures" [▸ 252].

To check for an external heat source

1 Inspect the installation outside the unit and check for the presence of an external heat source. This may have an impact on the water temperature inside the unit.

An external heat source was found in the installation?	Action
Yes	Remove the external heat source from the installation, see "4.3.2 Repair procedures" [▸ 252].

An external heat source was found in the installation?	Action
No	Return to the troubleshooting of the specific error and continue with the next procedure.

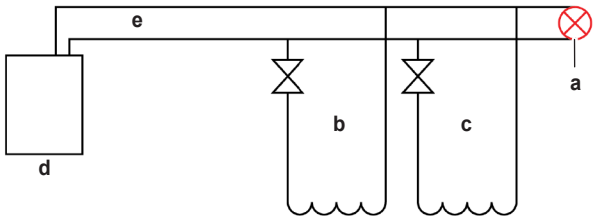
To check if the field installed air purge valves are installed on the correct locations

1 Check the installation outside the unit. All highest points of the installation MUST have air purge valves installed. The air purge valves MUST NOT be installed on other locations.

All air purge valves are installed on the correct locations?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Install the specific air purge valve(s) on the correct location(s) in the water circuit, see "4.3.2 Repair procedures" [▸ 252].

To check if a by-pass is installed in the water circuit

1 A by-pass MUST be installed in the water circuit outside the unit. This is needed to make sure that water can still flow through the circuit even when all loops (underfloor heating, radiators, …) are shut-off (e.g. for anti-freeze function).



a By-pass
b Underfloor heating (cooling) circuit
c Radiators circuit
d Indoor or outdoor unit
e Space heating (cooling) water circuit

Is a by-pass installed in the water circuit?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Install a by-pass in the water circuit, see "4.3.2 Repair procedures" [▸ 252].

To check for a leaking field installed domestic hot water tap

1 Inspect the installation outside the unit and check for a leaking domestic hot water tap.

Was a leaking domestic hot water tap found in the installation?	Action
Yes	Replace the leaking domestic hot water tap, see "4.3.2 Repair procedures" [▸ 252].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check for leaks in the water circuit

1 Inspect the installation outside the unit and check for leaks.

A leak was found in the installation?	Action
Yes	Repair the leak in the installation, see "4.3.2 Repair procedures" [▸ 252].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To check the pressure drop on the plate heat exchanger

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 On the inlet and outlet piping of the plate heat exchanger, install pressure gauges at the appropriate fittings.

2 Turn ON the power of the unit with main switch Q10.

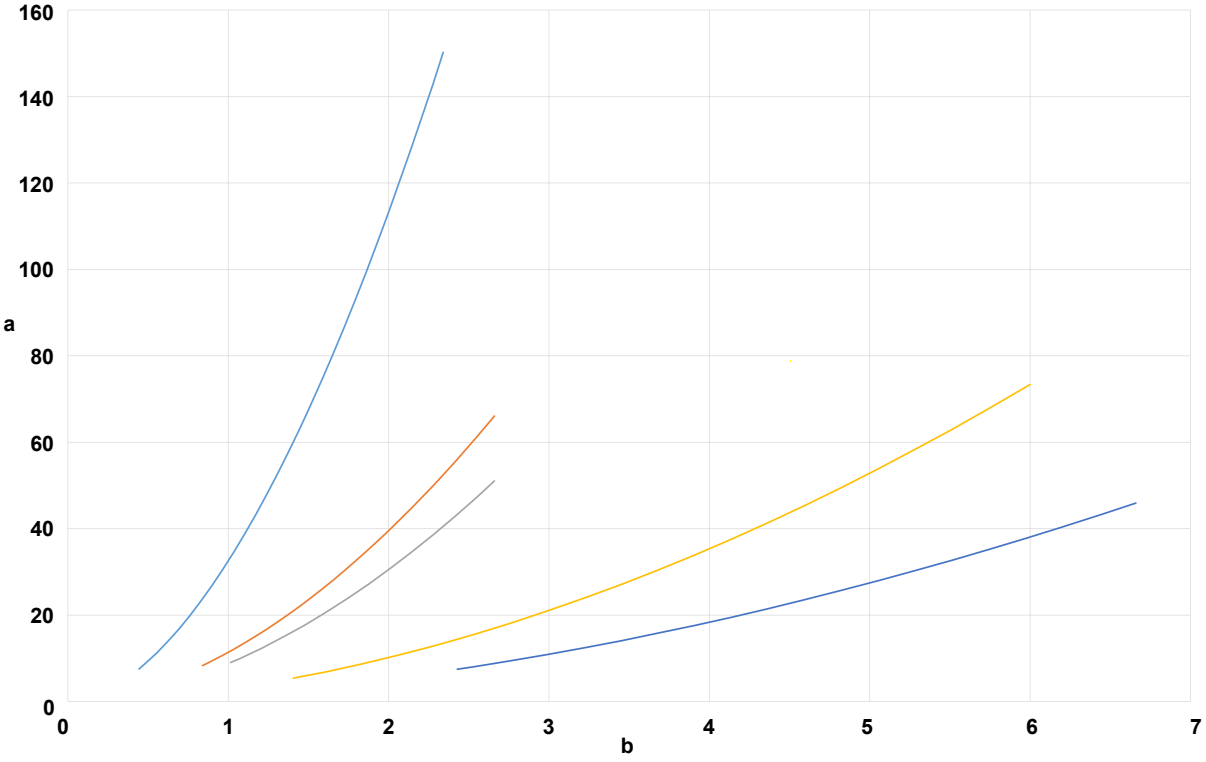
3 Activate `Cooling` operation via the user interface or service monitoring tool.

4 Wait a few minutes until the system is operating properly.

5 Read the pressure on both pressure gauges and calculate the difference = pressure drop on the plate heat exchanger.

6 Check the water flow, see "4.3.1 Checking procedures" [▸ 246].

7 Using the graphic below, determine the expected pressure drop (for your specific unit) according to the measured water flow.



a Pressure drop (KPa)
b Water flow (l/s)
EWAT/EWYT016CZ
EWAT/EWYT021CZ + EWAT/EWYT025CZ
EWAT/EWYT032CZ + EWAT/EWYT040CZ-A1
EWAT/EWYT040CZ-A2 + EWAT/EWYT050CZ + EWAT/EWYT064CZ
EWAT/EWYT090CZ

8 Compare the measured pressure drop with the pressure drop determined using the graphic above.

Is the pressure drop on the plate heat exchanger correct?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Check for the reason of incorrect pressure drop or contact your service manager.

To check the main water supply and pressure

1 Check that the main water supply and pressure of the installation is within the expected range (>1 bar).

Main water supply and pressure within expected range?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Adjust the main water supply of the installation, see "4.3.2 Repair procedures" [▸ 252].

To check if the water circuit is clogged

1 Check that all field piping is done according to the good practice and installation, operation and maintenance manual:
   - Correct piping diameters
   - Piping distance limits are followed
   - NO pipes are squeezed
   - NO short radius bends

2 Turn ON the power of the unit with main switch Q10.

3 Activate `Cooling` operation via the user interface or service monitoring tool.

4 Wait for the system to run at a more or less stable condition.

5 On the water circuit piping, using a contact thermometer, measure the temperature before and after every position with a potential risk for clogging. If a big temperature difference is measured, an internal pipe obstruction may be present at this location.

INFORMATION

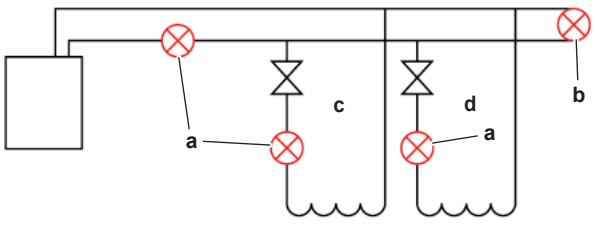
Focus on positions with a potential risk for clogging such as:
- Filters
- Valves
- Brazing points
- ...

Temperature drop found?	Action
Yes	Replace the clogged part, see "4.3.2 Repair procedures" [▶ 252].
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.3.2 Repair procedures

To remove the external pump from the water circuit

1 If an external pump is found in the installation outside the unit, the pump MUST be programmed as such that it ONLY works when the water pump of the unit is off. See the specific dealer manual of the external pump for this procedure.



a External pump
b By-pass
c Underfloor heating circuit
e Radiators circuit

2 If impossible to program as such, the external pump needs to be removed from the installation.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To remove/drain water from the water circuit

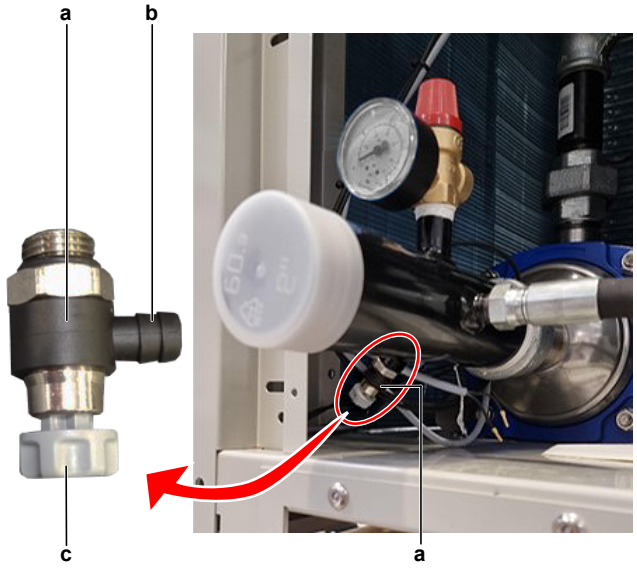
> **INFORMATION**
>
> This procedure partially drains the water circuit, sufficient for component replacement.

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1. Close the stop valves of the water circuit.
2. Connect a drain hose to the drain port.
3. Open the drain port. Collect the drained water in the drain pan, bottle, sink,... using the installed drain hose.



a Drain port
b Drain pipe connection
c Opener

4. To add water to the water circuit, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To add water to the water circuit

Prerequisite: Stop the unit operation via the user interface.

Prerequisite: Turn OFF the main switch Q10.

Prerequisite: Remove the required plate work, see "3.16 Plate work" [▸ 173].

1 To fill the water circuit, use a field supply filling kit. Make sure you comply with the applicable legislation.

2 Purge the water circuit, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

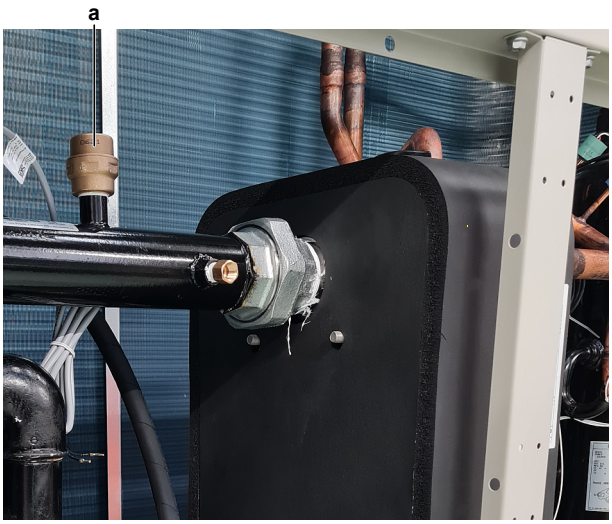
To open the stop valves of the water circuit

1 The stop valves are located outside the unit. Open the valves by placing them in line with the piping.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To open the air purge valves of the water circuit

1 An automatic air purge valve is installed in the unit.



a Automatic air purge valve

2 Place all field installed air purge valves in the open position.

3 Purge the water circuit, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To install the field installed air purge valves on the highest points of the water circuit

Prerequisite: Stop the unit operation via the user interface.

1 Install field installed air purge valves on all highest points of the installation outside the unit.

2 Purge the water circuit, see "4.3.2 Repair procedures" [▸ 252].

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To purge the water circuit

1 Check that all field installed air purge valves are installed in the correct locations, see "4.3.1 Checking procedures" [▸ 246].

2 See "To open the air purge valves of the water circuit" [▸ 254] for detailed information about the unit air purge valves.

3 Run the water pump ONLY (test mode via the service monitoring tool) as follows:

- 10 minutes run, then 2 minutes stop. Do this 3 times.
- 10 minutes stop.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To remove the external heat source from the water circuit

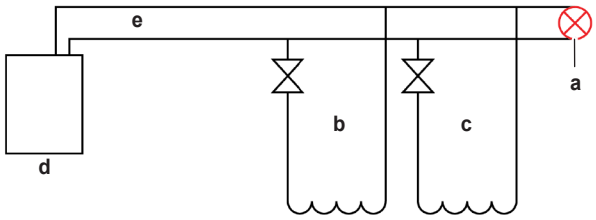
1 Remove the external heat source from the installation outside the unit.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To install a by-pass in the water circuit

Prerequisite: Stop the unit operation via the user interface.

1 Install a by-pass in the water circuit outside the installation as shown below.



a By-pass
b Underfloor heating (cooling) circuit
c Radiators circuit
d Indoor or outdoor unit
e Space heating (cooling) water circuit

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To replace the leaking domestic hot water tap in the water circuit

1 Replace the leaking domestic hot water tap in the water circuit with a correct one.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To repair the leak in the water circuit

1 Repair the leak in the water circuit.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To adjust the main water supply of the installation

1 Adjust the main water supply of the installation to be within the expected range (>1 bar).

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

To replace the clogged/leaking part of the water circuit

1 See the correct procedure for the component that needs to be repaired.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.4 Manufacturer components

4.4.1 Checking procedures

To check the correct operation / setting of the manufacturer component

1 See the specific dealer manual to check for the correct installation, operation or setting of your component.

Does the component function correctly?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.

Does the component function correctly?	Action
No	Adjust the specific component, see "4.4.2 Repair procedures" [▶ 257].

4.4.2 Repair procedures

To adjust the manufacturer component

1 See the specific dealer manual to adjust your component.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

4.5 External factors

4.5.1 Checking procedures

To check the outdoor temperature

1 The temperature ranges for the different operation modes of the unit can be found in the databook on Business Portal.

INFORMATION

If the outdoor temperature is outside the range of operation, the unit may NOT operate or may NOT deliver the required capacity.

Is the outdoor temperature within the operating range?	Action
Yes	Return to the troubleshooting of the specific error and continue with the next procedure.
No	Wait for the outdoor temperature to return within the operating range.

To check the required space around the outdoor unit heat exchanger

1 Check if the space around the outdoor unit heat exchanger is sufficient. See the installation manual for the required space specifications. Adjust as needed.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

5 Maintenance

NOTICE

General maintenance/inspection checklist. Next to the maintenance instructions in this chapter, a general maintenance/inspection checklist is also available on the Daikin Business Portal (authentication required).

The general maintenance/inspection checklist is complementary to the instructions in this chapter and can be used as a guideline and reporting template during maintenance.

5.1 Maintenance schedule

See next page.

Standard routine maintenance schedule

List of activities	Weekly	Monthly[a]	Yearly/Seasonal[b]
General			
Reading of operating data[c]	X		
Visual inspection of unit for any damage and/or loosening		X	
Verification of thermal insulation integrity		X	
Cleaning		X	
Paint where necessary			X
Analysis of water[d]			X
Check of flow switch operation		X	
Electrical installation			
Verification of control sequence			X
Verify contactor wear – Replace if necessary			X
Verify that all electrical terminals are tight – Tighten if necessary		X (Quarterly)	
Clean inside the electrical control board			X
Visual inspection of components for any signs of overheating		X	
Verify operation of compressor and electrical resistance		X	
Refrigerant circuit			
Check for any refrigerant leakage (leak test)		X	
Analyze compressor vibrations			X
Hydraulic circuit			
Check for any water leakage		X	
Check hydraulic connections		X	
Check the pressure at the pump inlet		X	
Clean the water filter			X
Check the glycol concentration			X
Check the water flow rate		X	
Check the safety valve			X
Coil section			
Check the cleaning of coils and water heat exchangers[e]			X
Verify that fans are well tightened			X
Verify the coil fins			X
Plate heat exchanger			
Check the cleaning of the plate heat exchanger			X

[a] Monthly activities include all the weekly ones.
[b] The annual (or early season) activities include all weekly and monthly activities.
[c] Daily reading of the operating values of the unit allows maintaining high observational standards.
[d] Check for any dissolved metals.
[e] Clean condenser banks with clean water and water heat exchangers with appropriate chemicals. Particles and fibers could clog up the exchangers, especially for water exchangers pay attention if water rich in calcium carbonate is used. An increase in pressure drops or a decrease in thermal efficiency means that the heat exchangers are clogged. In environments with a high concentration of airborne particles, it might be necessary to clean the condenser bank more often.

Routine maintenance schedule for critical application and/or highly aggressive environment

List of activities	Weekly	Monthly[(a)]	Yearly/Seasonal[(b)]
General			
Reading of operating data[(c)]	X		
Visual inspection of unit for any damage and/or loosening		X	
Verification of thermal insulation integrity		X	
Cleaning		X	
Paint where necessary			X
Analysis of water[(d)]			X
Check of flow switch operation		X	
Electrical installation			
Verification of control sequence			X
Verify contactor wear – Replace if necessary			X
Verify that all electrical terminals are tight – Tighten if necessary			X
Clean inside the electrical control board		X	
Visual inspection of components for any signs of overheating		X	
Verify operation of compressor and electrical resistance		X	
Measure compressor motor insulation			X
Refrigerant circuit			
Check for any refrigerant leakage (leak test)		X	
Analyze compressor vibrations			X
Hydraulic circuit			
Check for any water leakage		X	
Check hydraulic connections		X	
Check the pressure at the pump inlet		X	
Clean the water filter			X
Check the glycol concentration			X
Check the water flow rate		X	
Check the safety valve			X

List of activities	Weekly	Monthly[a]	Yearly/Seasonal[b]
Coil section			
Checking the cleaning of the air heat exchanger[e]		X	
Check the cleaning of water heat exchangers[e]			X
Verify that fans are well tightened			X
Verify the coil fins		X	
Plate heat exchanger			
Check the cleaning of the plate heat exchanger			X

[a] Monthly activities include all the weekly ones.
[b] The annual (or early season) activities include all weekly and monthly activities.
[c] Daily reading of the operating values of the unit allows maintaining high observational standards.
[d] Check for any dissolved metals.
[e] Clean condenser banks with clean water and water heat exchangers with appropriate chemicals. Particles and fibers could clog up the exchangers, especially for water exchangers pay attention if water rich in calcium carbonate is used. An increase in pressure drops or a decrease in thermal efficiency means that the heat exchangers are clogged. In environments with a high concentration of airborne particles, it might be necessary to clean the condenser bank more often.

CAUTION

Units placed or stored in a highly aggressive environment for long time without operation are still subject to these routine maintenance steps.

5.2 To clean the outdoor unit heat exchanger

1. Straighten the hair fins.
2. Clear the outdoor unit heat exchanger from dust, leaves,... using a fin-comb or compressed air/$N_{2.}$

CAUTION

Avoid bending or damaging the hair fins of the outdoor unit heat exchanger during the cleaning process.

Do NOT use a high-pressure washer.

Is the problem solved?	Action
Yes	No further actions required.
No	Return to the troubleshooting of the specific error and continue with the next procedure.

6 Technical data

6.1 Detailed information setting mode

6.1.1 Detailed information setting mode: Outdoor unit

See the installer reference guide on business portal for more information.

6.1.2 Detailed information setting mode: Remote controller

See the installer reference guide on business portal for more information.

6.2 Wiring diagram

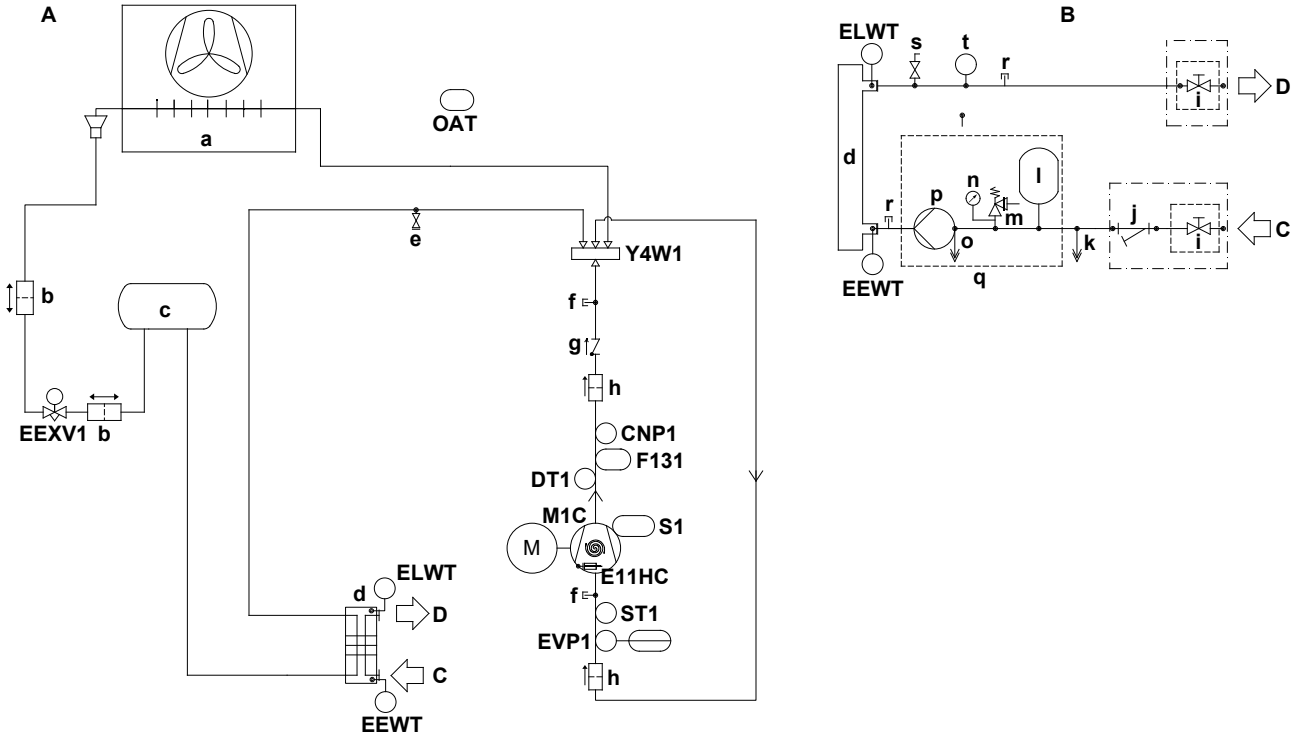
See the internal wiring diagram supplied with the unit. The wiring diagram is ALSO available on the Daikin Business Portal (authentication required).

6.3 Piping diagram

6.3.1 Piping diagram: Outdoor unit

EWYT016~040CZ-A1

> **INFORMATION**
>
> The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

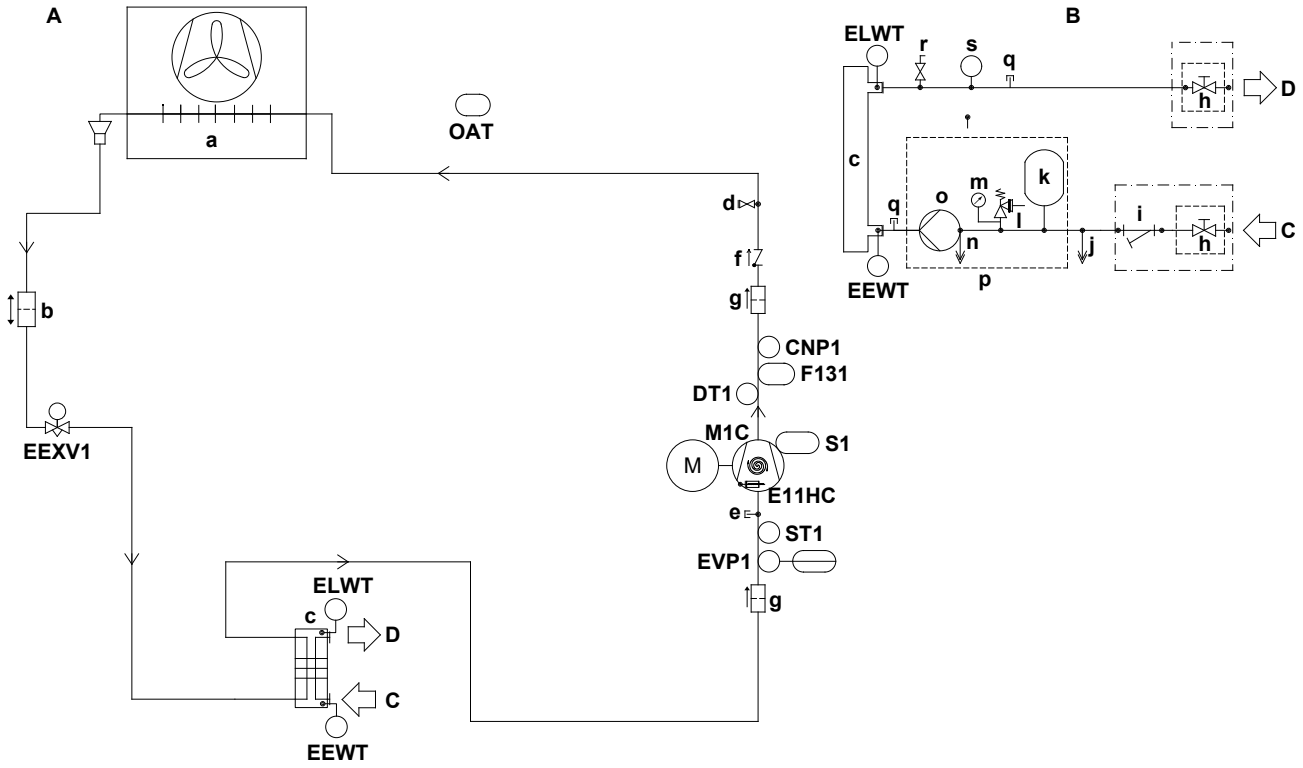


A	Refrigerant circuit
B	Water circuit
C	Water IN
D	Water OUT
a	Heat exchanger
b	Biflux filter
c	Liquid receiver
d	Plate heat exchanger
e	Receiver valve
f	Access fitting
g	Check valve
h	Filter
i	Stop valve
j	Water filter
k	Drain (ONLY when NO pump kit installed)
l	Expansion vessel
m	Safety valve
n	Pressure gauge
o	Drain (on pump kit)
p	Water pump
q	Pump kit
r	Plugged fitting
s	Air purge valve
t	Flow switch
CNP1	Refrigerant high pressure sensor
DT1	Discharge pipe thermistor
E11HC	Crankcase heater
EEWT	Inlet water thermistor
EEXV1	Expansion valve
ELWT	Outlet water thermistor
EVP1	Refrigerant low pressure sensor
F131	High pressure switch
M1C	Compressor
S1	Compressor thermal protector
ST1	Suction thermistor
Y4W1	4-way valve
----------	Option
– · – · – · –	Field installed

EWAT016~040CZ-A1

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

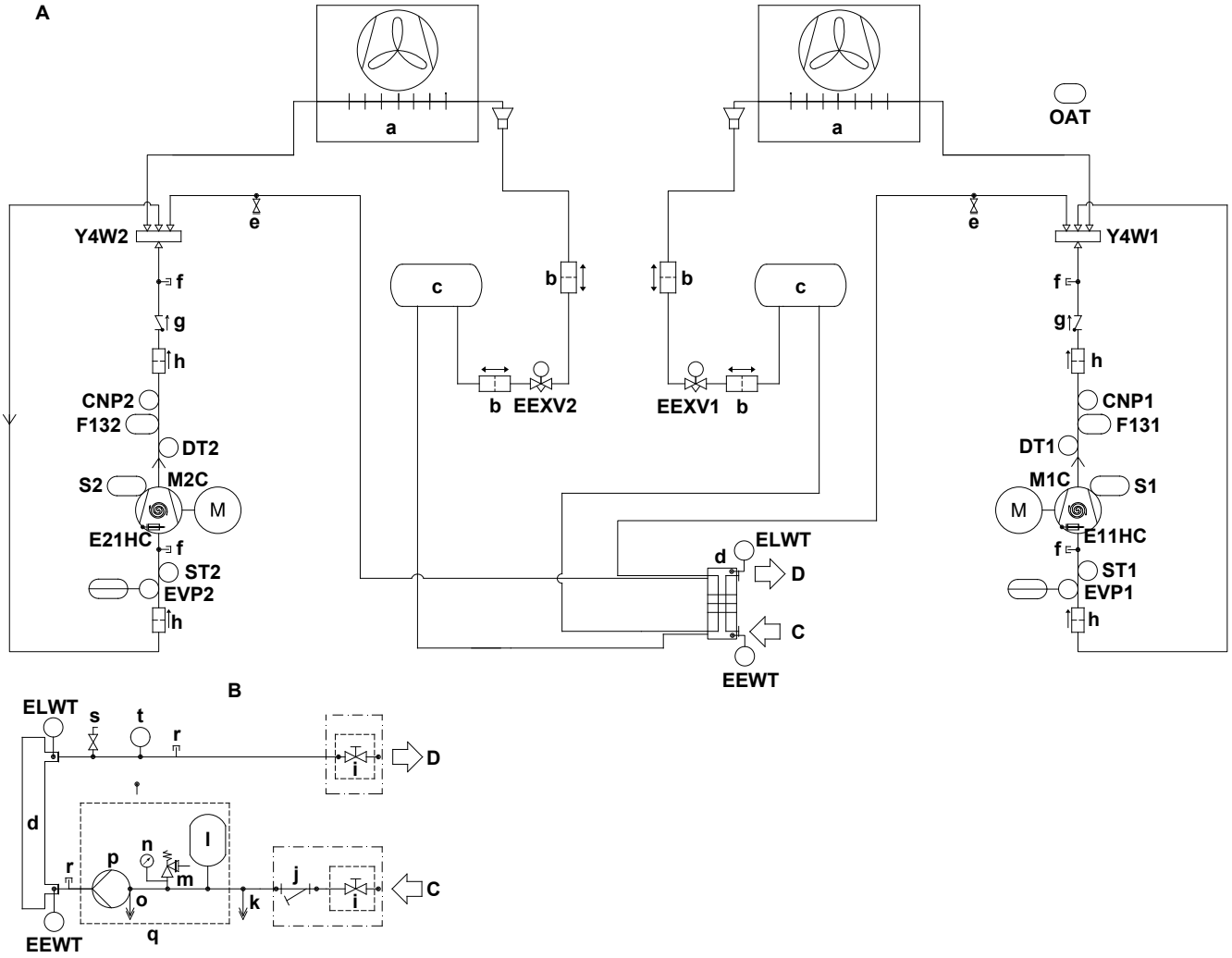


A	Refrigerant circuit	**o**	Water pump
B	Water circuit	**p**	Pump kit
C	Water IN	**q**	Plugged fitting
D	Water OUT	**r**	Air purge valve
a	Heat exchanger	**s**	Flow switch
b	Biflux filter	**CNP1**	Refrigerant high pressure sensor
c	Plate heat exchanger	**DT1**	Discharge pipe thermistor
d	Receiver valve	**E11HC**	Crankcase heater
e	Access fitting	**EEWT**	Inlet water thermistor
f	Check valve	**EEXV1**	Expansion valve
g	Filter	**ELWT**	Outlet water thermistor
h	Stop valve	**EVP1**	Refrigerant low pressure sensor
i	Water filter	**F131**	High pressure switch
j	Drain (ONLY when NO pump kit installed)	**M1C**	Compressor
k	Expansion vessel	**S1**	Compressor thermal protector
l	Safety valve	**ST1**	Suction thermistor
m	Pressure gauge	----------	Option
n	Drain (on pump kit)	–·–·–·–	Field installed

EWYT040~090CZ-A2

INFORMATION

The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.

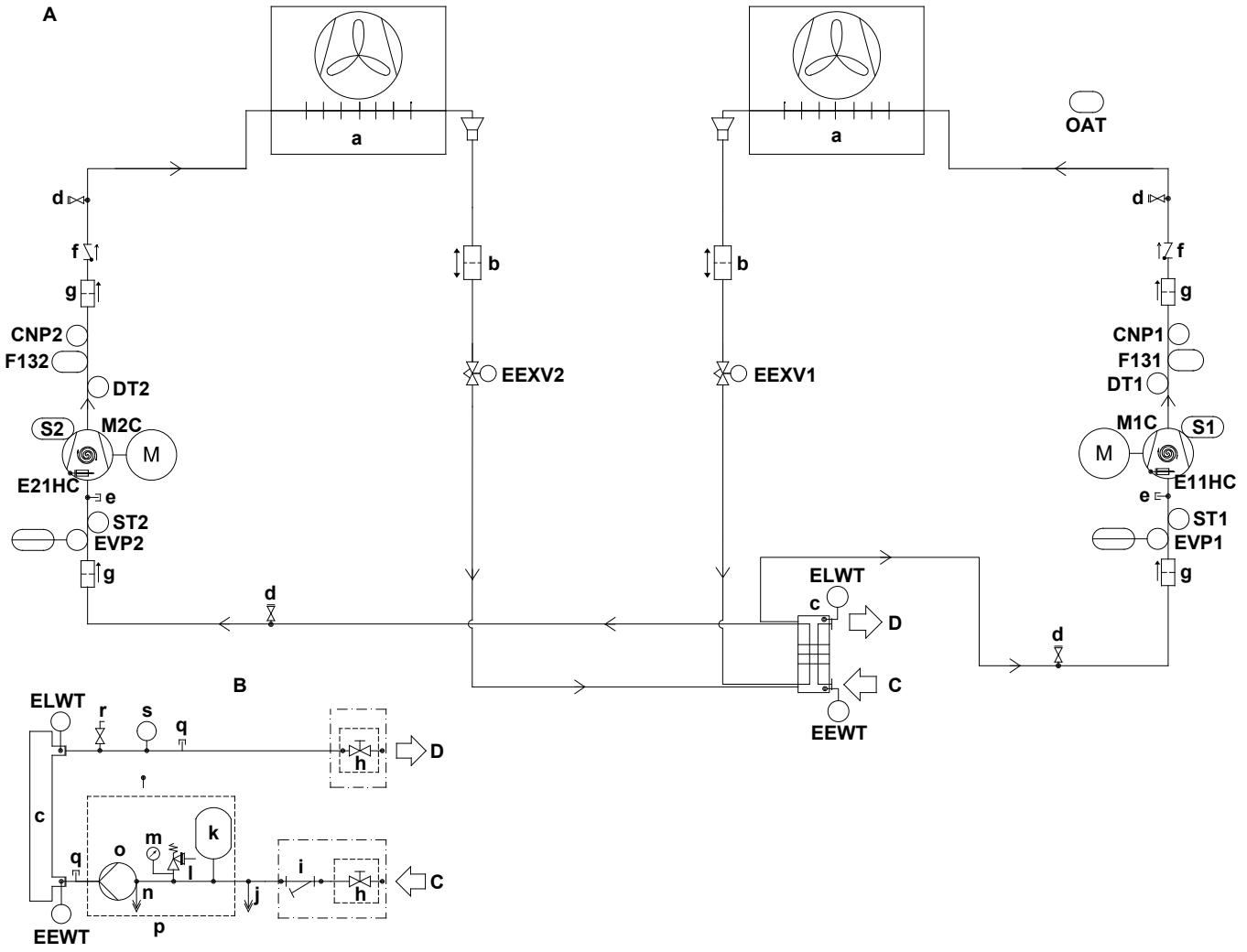


A	Refrigerant circuit	**m**	Safety valve	**EEXV2**	Expansion valve
B	Water circuit	**n**	Pressure gauge	**ELWT**	Outlet water thermistor
C	Water IN	**o**	Drain (on pump kit)	**EVP1**	Refrigerant low pressure sensor
D	Water OUT	**p**	Water pump	**EVP2**	Refrigerant low pressure sensor
a	Heat exchanger	**q**	Pump kit	**F131**	High pressure switch
b	Biflux filter	**r**	Plugged fitting	**F132**	High pressure switch
c	Liquid receiver	**s**	Air purge valve	**M1C**	Compressor
d	Plate heat exchanger	**t**	Flow switch	**M2C**	Compressor
e	Receiver valve	**CNP1**	Refrigerant high pressure sensor	**S1**	Compressor thermal protector
f	Access fitting	**CNP2**	Refrigerant high pressure sensor	**S2**	Compressor thermal protector
g	Check valve	**DT1**	Discharge pipe thermistor	**ST1**	Suction thermistor
h	Filter	**DT2**	Discharge pipe thermistor	**ST2**	Suction thermistor
i	Stop valve	**E11HC**	Crankcase heater	**Y4W1**	4-way valve
j	Water filter	**E21HC**	Crankcase heater	**Y4W2**	4-way valve
k	Drain (ONLY when NO pump kit installed)	**EEWT**	Inlet water thermistor	----------	Option
l	Expansion vessel	**EEXV1**	Expansion valve	– · – · – · –	Field installed

EWAT040~090CZ-A2

INFORMATION

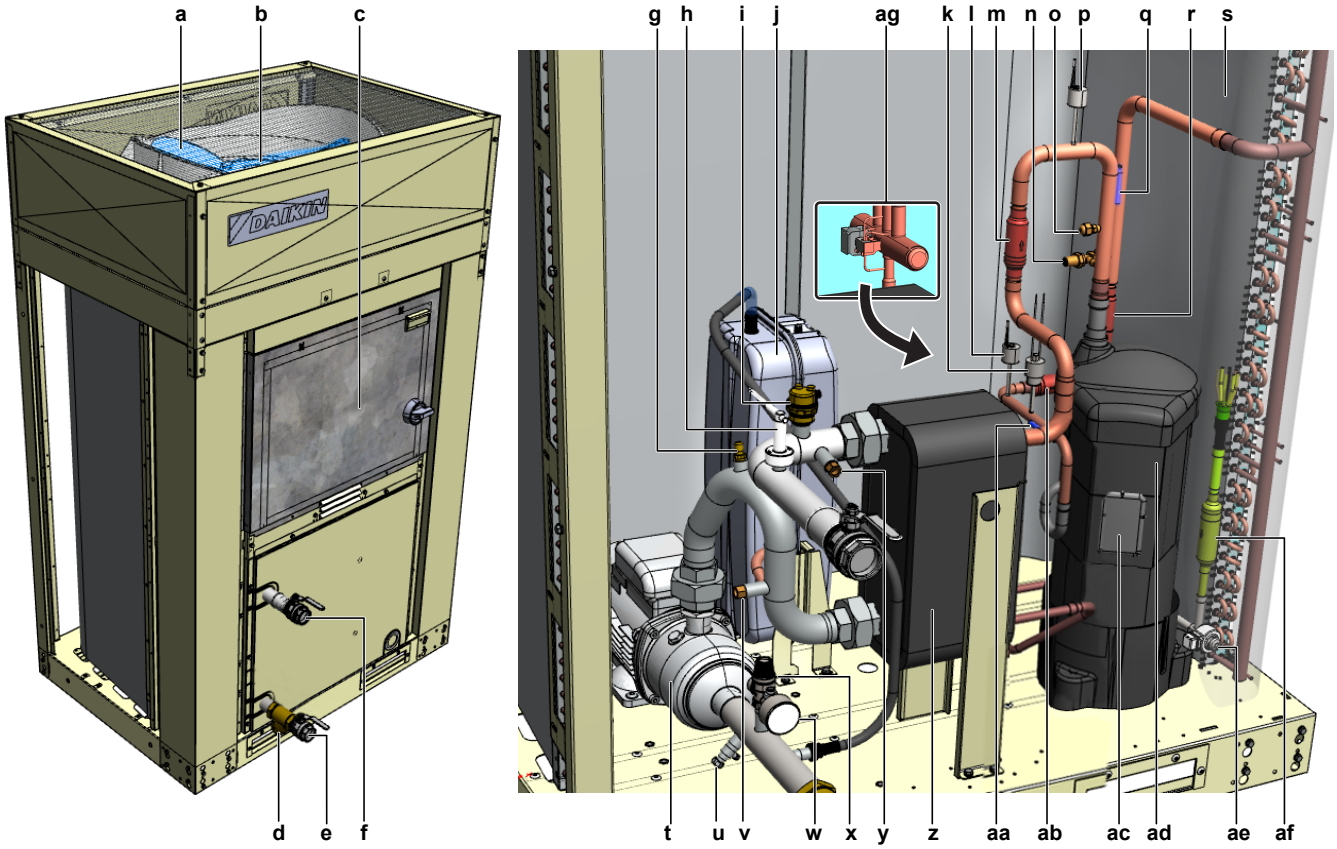
The diagrams shown in this manual may be incorrect due to changes/updates to the unit. Correct diagrams are supplied with the unit and can also be found in the technical data book.



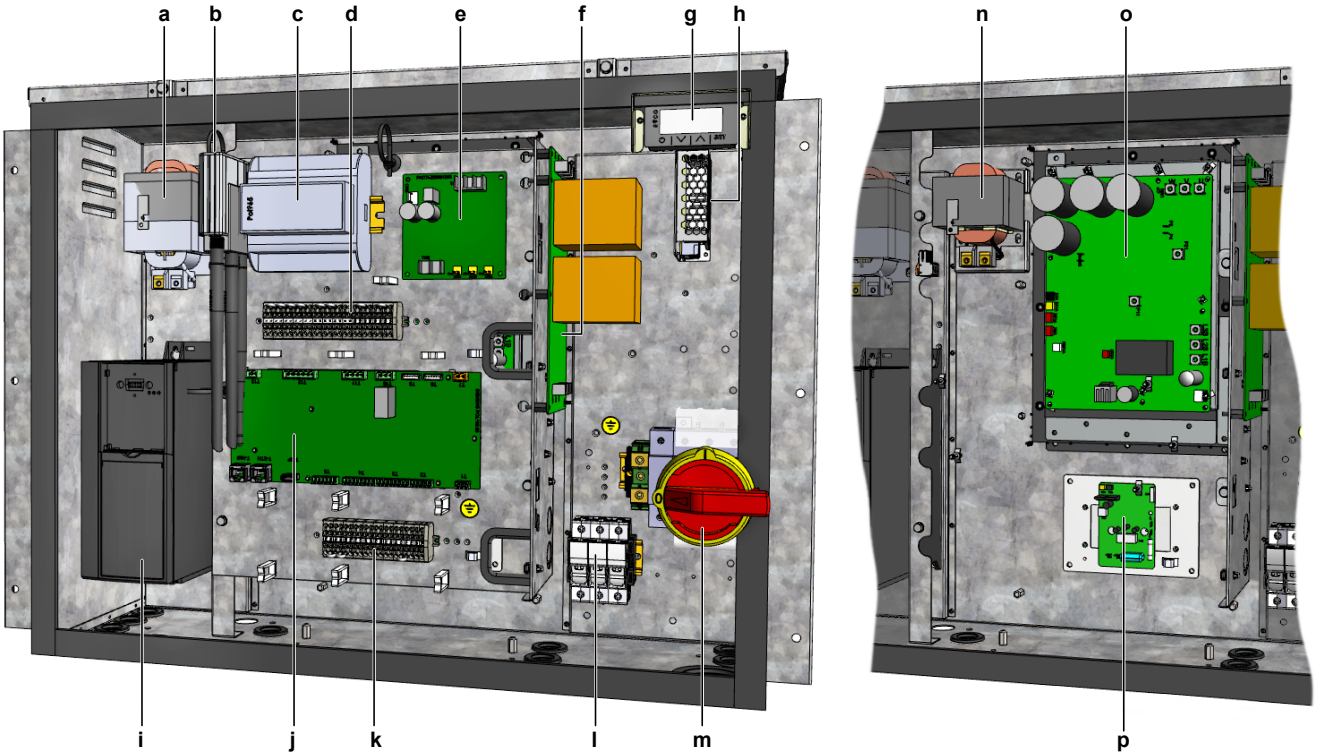
A	Refrigerant circuit	**l**	Safety valve	**EEXV1**	Expansion valve
B	Water circuit	**m**	Pressure gauge	**EEXV2**	Expansion valve
C	Water IN	**n**	Drain (on pump kit)	**ELWT**	Outlet water thermistor
D	Water OUT	**o**	Water pump	**EVP1**	Refrigerant low pressure sensor
a	Heat exchanger	**p**	Pump kit	**EVP2**	Refrigerant low pressure sensor
b	Biflux filter	**q**	Plugged fitting	**F131**	High pressure switch
c	Plate heat exchanger	**r**	Air purge valve	**F132**	High pressure switch
d	Receiver valve	**s**	Flow switch	**M1C**	Compressor
e	Access fitting	**CNP1**	Refrigerant high pressure sensor	**M2C**	Compressor
f	Check valve	**CNP2**	Refrigerant high pressure sensor	**S1**	Compressor thermal protector
g	Filter	**DT1**	Discharge pipe thermistor	**S2**	Compressor thermal protector
h	Stop valve	**DT2**	Discharge pipe thermistor	**ST1**	Suction thermistor
i	Water filter	**E11HC**	Crankcase heater	**ST2**	Suction thermistor
j	Drain (ONLY when NO pump kit installed)	**E21HC**	Crankcase heater	----------	Option
k	Expansion vessel	**EEWT**	Inlet water thermistor	-·-·-·-·-	Field installed

6.4 Component overview

6.4.1 Component overview: EWAT/EWYT016~025CZ

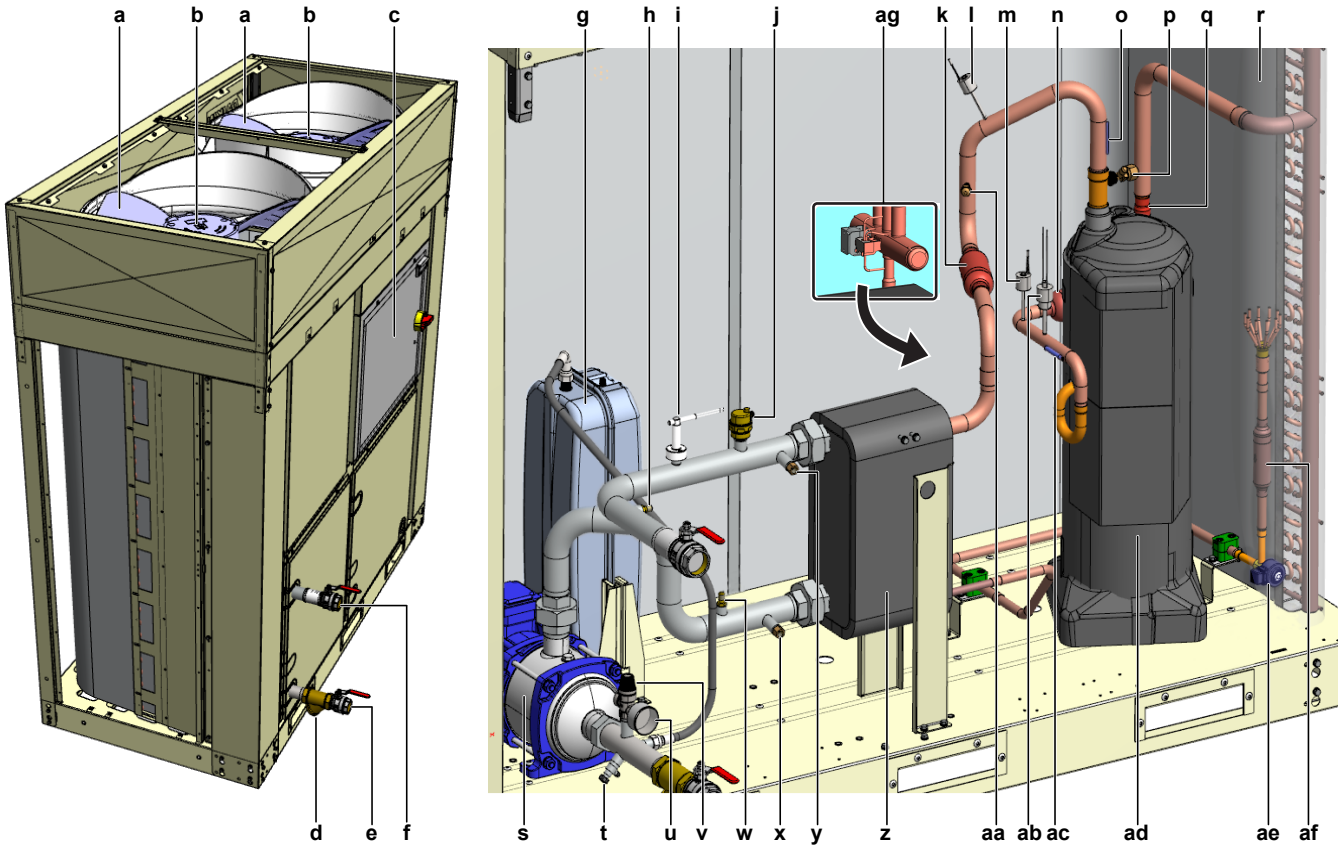


- **a** Fan
- **b** Fan motor M1F
- **c** Switch box
- **d** Water filter
- **e** Water inlet
- **f** Water outlet
- **g** Plugged fitting
- **h** Flow switch
- **i** Air purge valve
- **j** Expansion vessel
- **k** High pressure switch F131
- **l** Refrigerant high pressure sensor CNP1
- **m** Filter
- **n** Receiver valve
- **o** Acces fitting
- **p** Refrigerant low pressure sensor EVP1
- **q** Suction thermistor ST1
- **r** Check valve
- **s** Heat exchanger
- **t** Water pump
- **u** Drain
- **v** Inlet water thermistor EEWT
- **w** Pressure gauge
- **x** Safety valve
- **y** Outlet water thermistor ELWT
- **z** Plate type heat exchanger
- **aa** Discharge pipe thermistor DT1
- **ab** Filter
- **ac** Electrical connection box
- **ad** Compressor M1C
- **ae** Expansion valve EEXV1
- **af** Biflux filter
- **ag** 4-way valve (only for heating+cooling units)

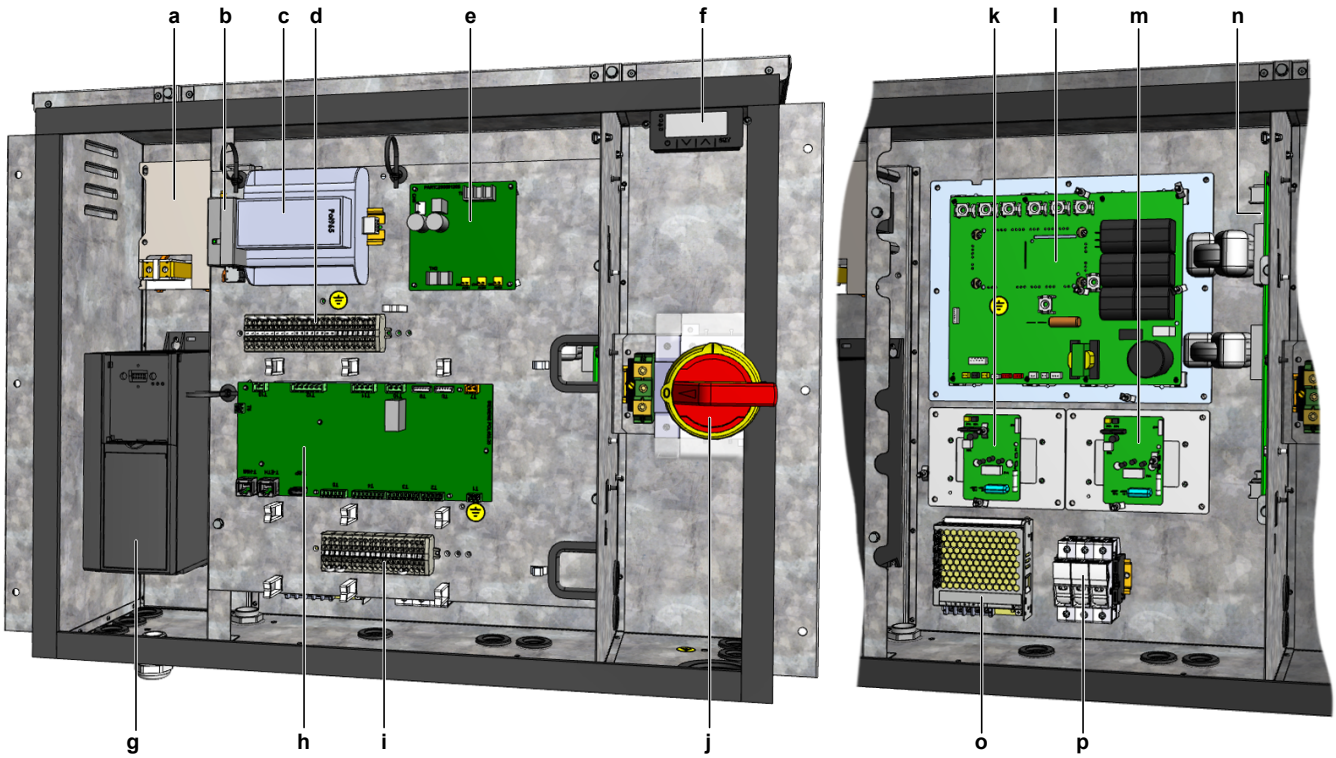


a Reactor
b Daikin on site modem
c Additional board (option PCB)
d Terminal block XU
e ACS digital I/O PCB A301P
f Noise filter PCB type 5039853
g Interface display
h 24 V DC auxiliary power supply U1
i Pump inverter
j Main PCB
k Terminal block XD
l Circuit breaker
m Main switch Q10
n Reactor
o Inverter PCB type 17
p Fan inverter PCB A4P11

6.4.2 Component overview: EWAT/EWYT032CZ+EWAT/EWYT040CZ-A1

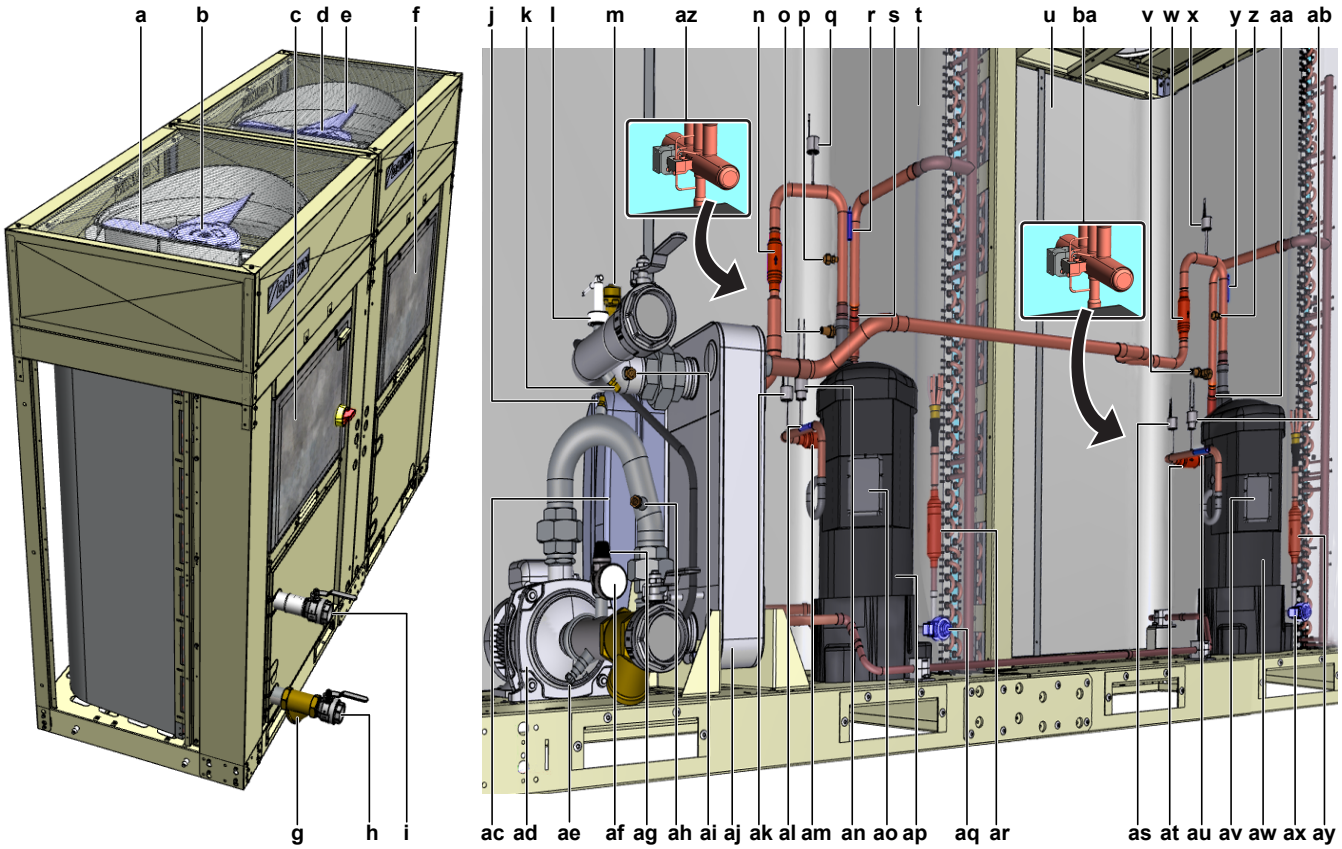


- **a** Fan
- **b** Fan motor M1F
- **c** Switch box
- **d** Water filter
- **e** Water inlet
- **f** Water outlet
- **g** Expansion vessel
- **h** Plugged fitting
- **i** Flow switch
- **j** Air purge valve
- **k** Filter
- **l** Refrigerant low pressure sensor EVP1
- **m** Refrigerant high pressure sensor CNP1
- **n** Filter
- **o** Suction thermistor ST1
- **p** Receiver valve
- **q** Check valve
- **r** Heat exchanger
- **s** Water pump
- **t** Drain
- **u** Pressure gauge
- **v** Safety valve
- **w** Plugged fitting
- **x** Inlet water thermistor EEWT
- **y** Outlet water thermistor ELWT
- **z** Plate type heat exchanger
- **aa** Acces fitting
- **ab** High pressure switch F131
- **ac** Discharge pipe thermistor DT1
- **ad** Compressor M1C
- **ae** Expansion valve EEXV1
- **af** Biflux filter
- **ag** 4-way valve (only for heating+cooling units) Y4W1



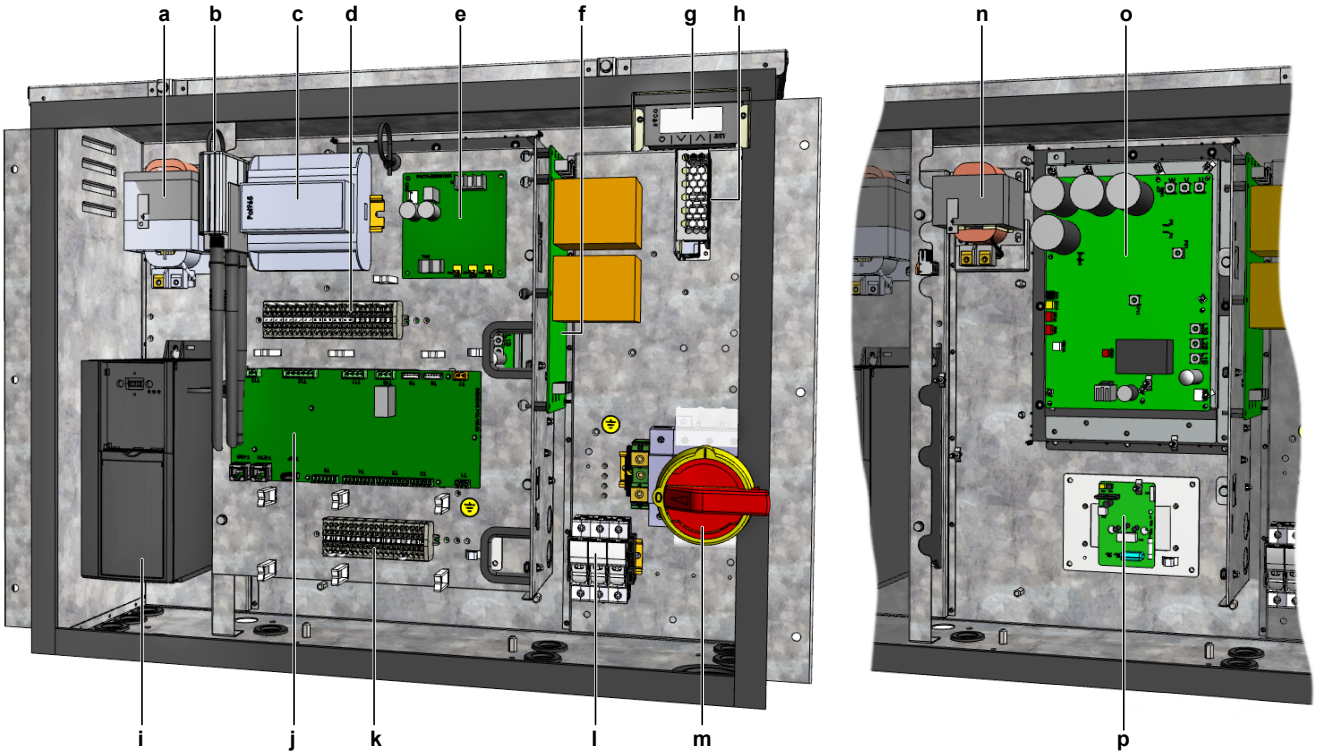
a Reactor
b Daikin on site modem
c Additional board (option PCB)
d Terminal block XU
e ACS digital I/O PCB A301P
f Interface display
g Pump inverter
h Main PCB
i Terminal block XD
j Main switch Q10
k Fan inverter PCB A4P11
l Inverter PCB type 27
m Fan inverter PCB A4P12
n Noise filter PCB type 5039863
o 24 V DC auxiliary power supply U1
p Circuit breaker

6.4.3 Component overview: EWAT/EWYT040CZ-A2+EWAT/EWYT050CZ



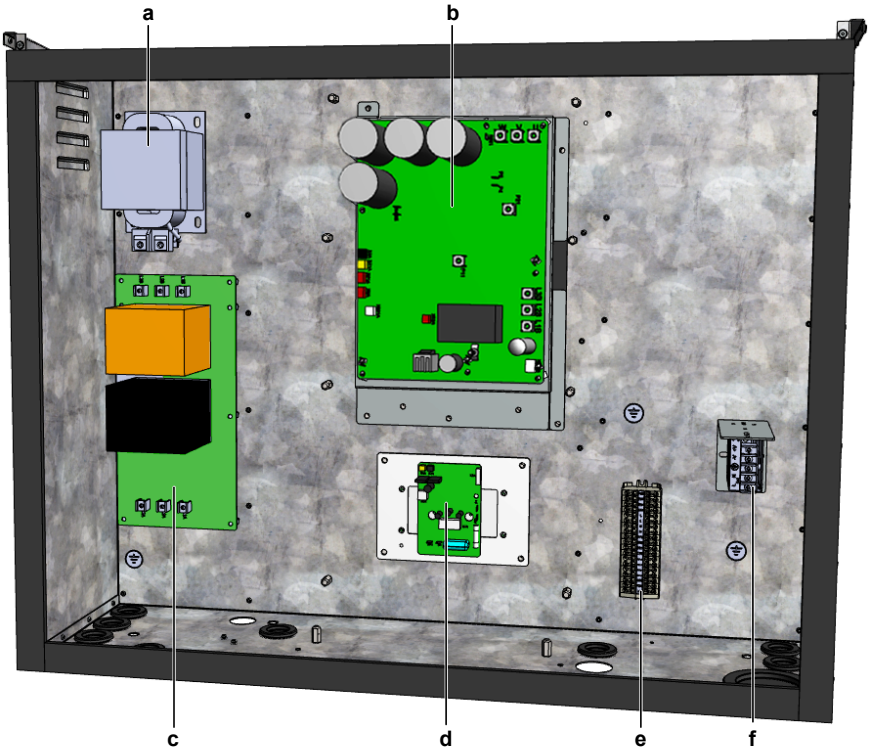
- **a** Fan
- **b** Fan motor M1F
- **c** Main switch box
- **d** Fan motor M2F
- **e** Fan
- **f** Secondary switch box
- **g** Water filter
- **h** Water inlet
- **i** Water outlet
- **j** Plugged fitting
- **k** Plugged fitting
- **l** Flow switch
- **m** Air purge valve
- **n** Filter
- **o** Receiver valve
- **p** Acces fitting
- **q** Refrigerant low pressure sensor EVP1
- **r** Suction thermistor ST1
- **s** Check valve
- **t** Heat exchanger
- **u** Heat exchanger
- **v** Receiver valve
- **w** Filter
- **x** Refrigerant low pressure sensor EVP2
- **y** Suction thermistor ST2
- **z** Acces fitting
- **aa** Check valve
- **ab** High pressure switch F132
- **ac** Expansion vessel
- **ad** Water pump
- **ae** Drain
- **af** Pressure gauge
- **ag** Safety valve
- **ah** Inlet water thermistor EEWT
- **ai** Outlet water thermistor ELWT
- **aj** Plate type heat exchanger
- **ak** Refrigerant high pressure sensor CNP1
- **al** Discharge pipe thermistor DT1
- **am** Filter
- **an** High pressure switch F131
- **ao** Electrical connection box
- **ap** Compressor M1C
- **aq** Expansion valve EEXV1
- **ar** Biflux filter
- **as** Refrigerant high pressure sensor CNP2
- **at** Filter
- **au** Discharge pipe thermistor DT2
- **av** Electrical connection box
- **aw** Compressor M2C
- **ax** Expansion valve EEXV2
- **ay** Biflux filter
- **az** 4-way valve (only for heating+cooling units) Y4W1
- **ba** 4-way valve (only for heating+cooling units) Y4W2

Main circuit switch box



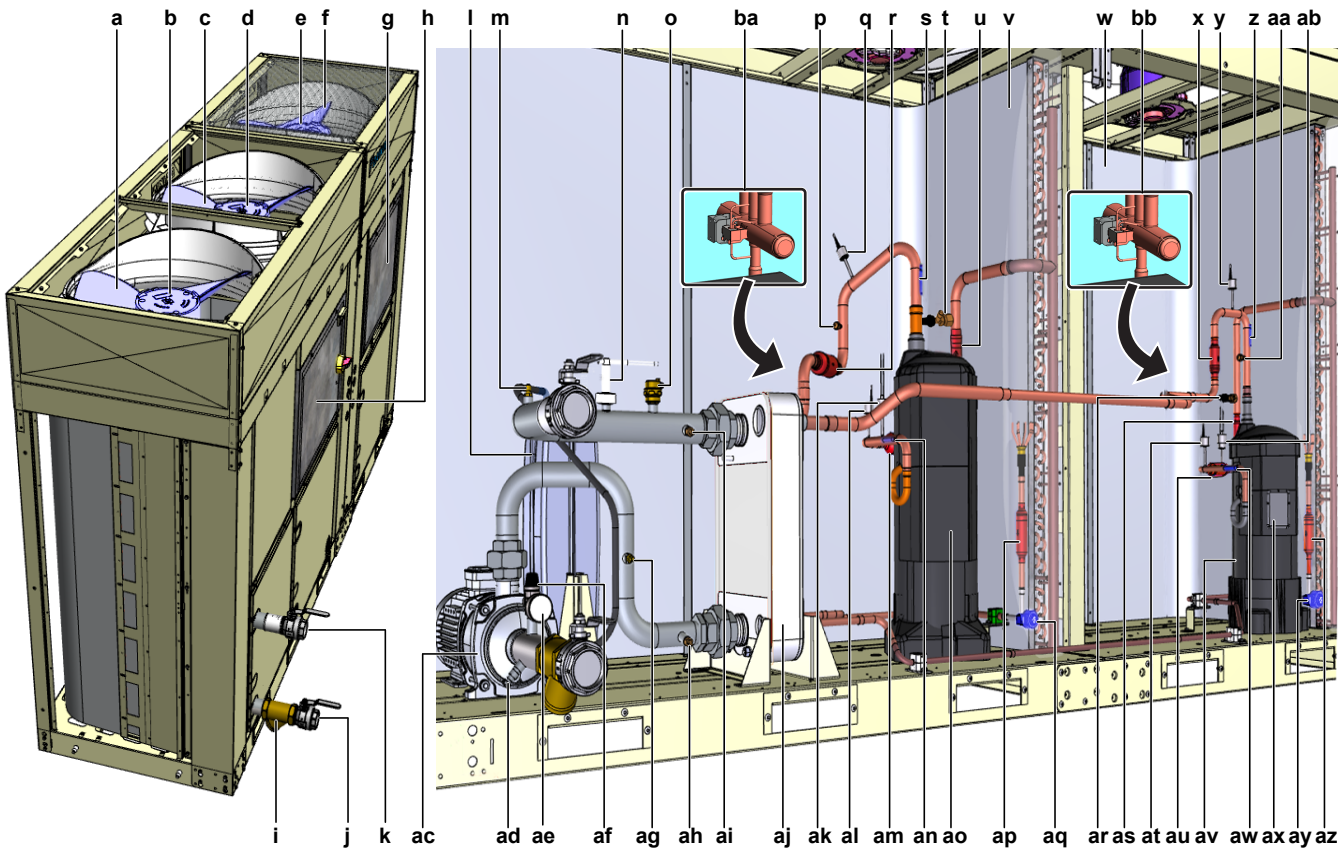
a Reactor
b Daikin on site modem
c Additional board (option PCB)
d Terminal block XU
e ACS digital I/O PCB A301P
f Noise filter PCB type 5039853
g Interface display
h 24 V DC auxiliary power supply U1
i Pump inverter
j Main PCB
k Terminal block XD
l Circuit breaker
m Main switch Q10
n Reactor
o Inverter PCB type 17
p Fan inverter PCB A4P11

Secondary circuit switch box



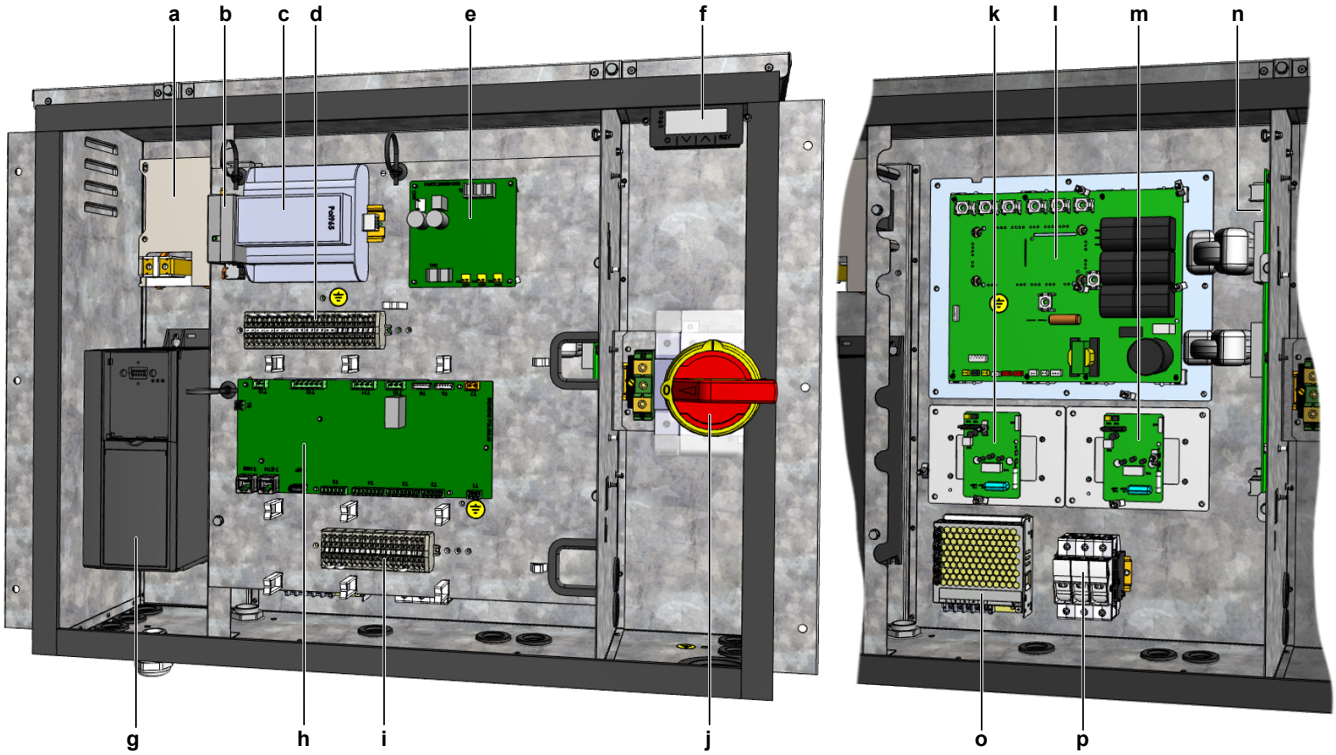
a Reactor
b Inverter PCB type 17
c Noise filter PCB type 5039853
d Fan inverter PCB A4P12
e Terminal block X2
f 5 V DC auxiliary power supply U2

6.4.4 Component overview: EWAT/EWYT064CZ



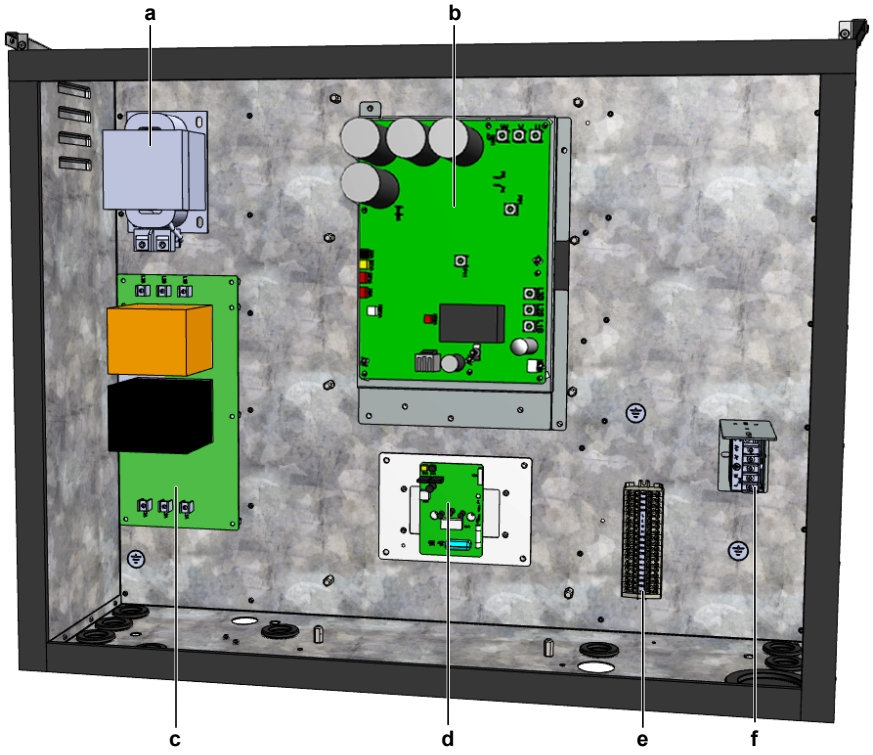
a Fan
b Fan motor M11F
c Fan
d Fan motor M21F
e Fan motor M12F
f Fan
g Secondary switch box
h Main switch box
i Water filter
j Water inlet
k Water outlet
l Expansion vessel
m Plugged fitting
n Flow switch
o Air purge valve
p Acces fitting
q Refrigerant low pressure sensor EVP1
r Filter
s Suction thermistor ST1
t Receiver valve
u Check valve
v Heat exchanger
w Heat exchanger
x Filter
y Refrigerant low pressure sensor EVP2
z Suction thermistor ST2
aa Acces fitting
ab High pressure switch F132
ac Water pump
ad Drain
ae Pressure gauge
af Safety valve
ag Plugged fitting
ah Inlet water thermistor EEWT
ai Outlet water thermistor ELWT
aj Plate type heat exchanger
ak High pressure switch F131
al Refrigerant high pressure sensor CNP1
am Filter
an Discharge pipe thermistor DT1
ao Compressor M1C
ap Biflux filter
aq Expansion valve EEXV1
ar Receiver valve
as Check valve
at Refrigerant high pressure sensor CNP2
au Filter
av Compressor M2C
aw Discharge pipe thermistor DT2
ax Electrical connection box
ay Expansion valve EEXV2
az Biflux filter
ba 4-way valve (only for heating+cooling units) Y4W1
bb 4-way valve (only for heating+cooling units) Y4W2

Main circuit switch box



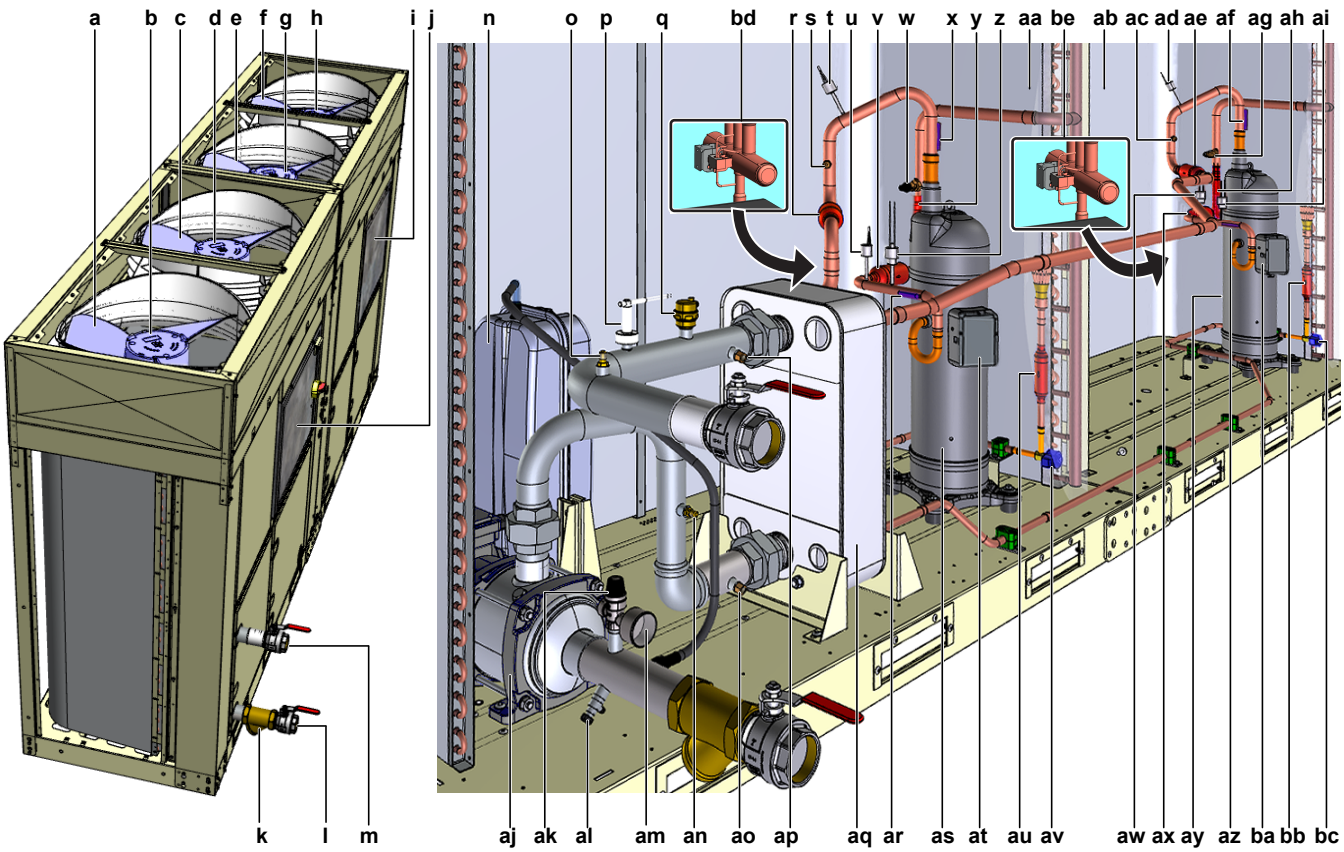
a Reactor
b Daikin on site modem
c Additional board (option PCB)
d Terminal block XU
e ACS digital I/O PCB A301P
f Interface display
g Pump inverter
h Main PCB
i Terminal block XD
j Main switch Q10
k Fan inverter PCB A4P11
l Inverter PCB type 27
m Fan inverter PCB A4P12
n Noise filter PCB type 5039863
o 24 V DC auxiliary power supply U1
p Circuit breaker

Secondary circuit switch box



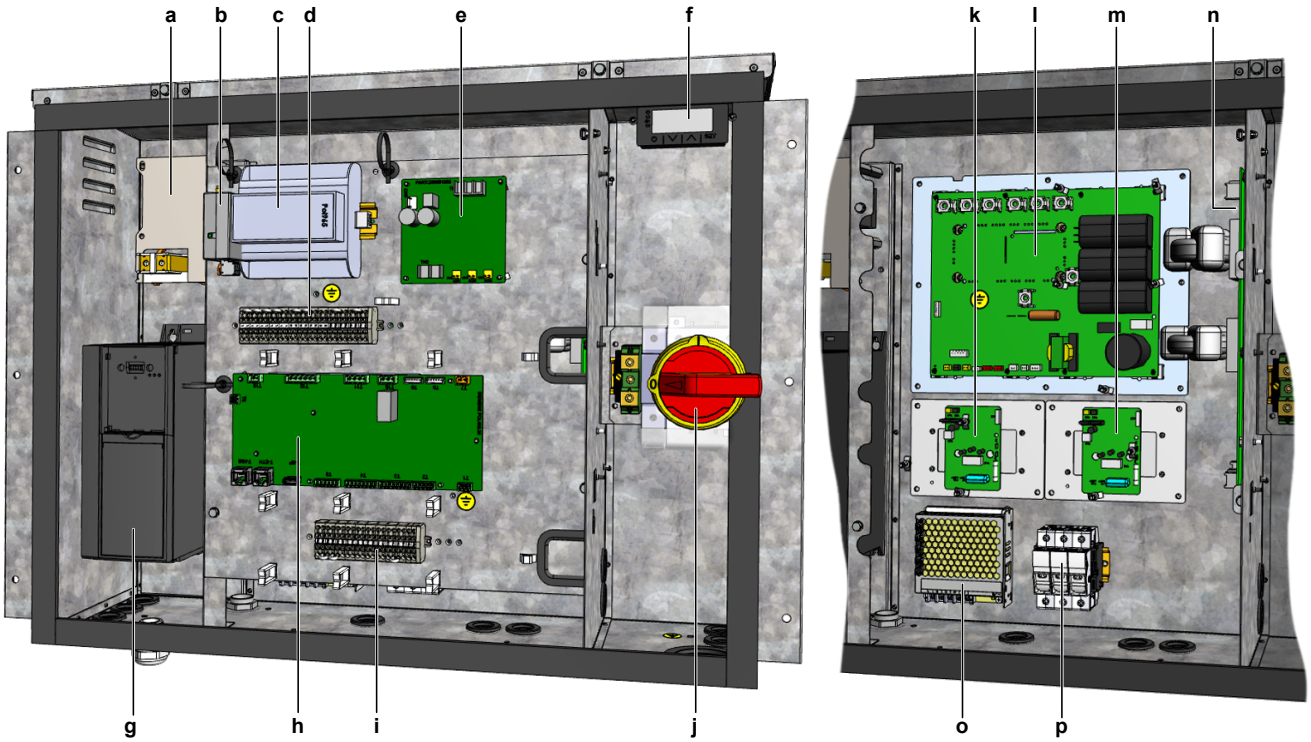
a Reactor
b Inverter PCB type 17
c Noise filter PCB type 5039853
d Fan inverter PCB A4P12
e Terminal block X2
f 5 V DC auxiliary power supply U2

6.4.5 Component overview: EWAT/EWYT090CZ



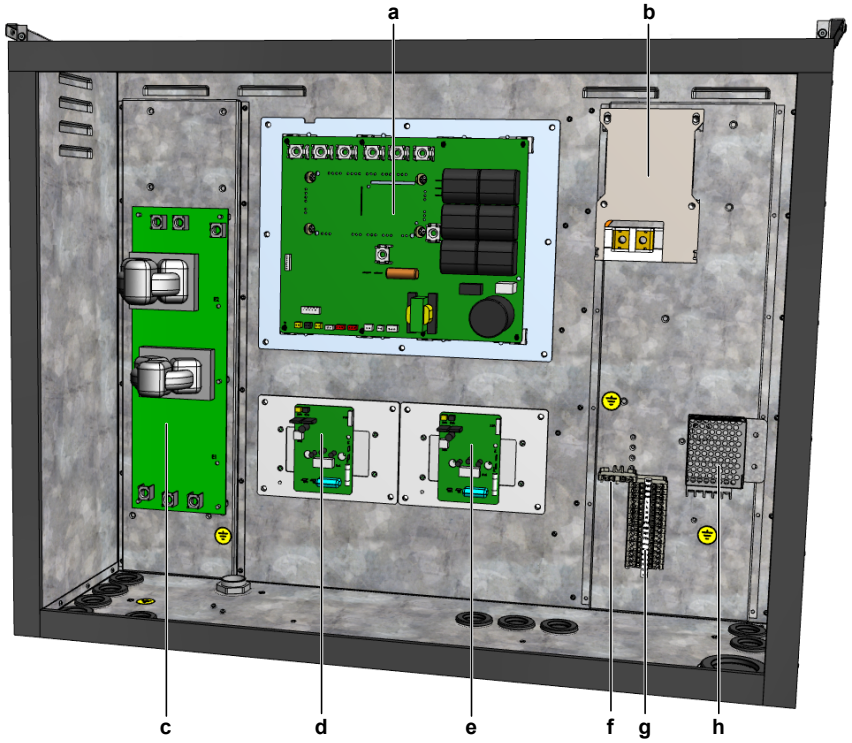
- **a** Fan
- **b** Fan motor M11F
- **c** Fan
- **d** Fan motor M21F
- **e** Fan
- **f** Fan
- **g** Fan motor M12F
- **h** Fan motor M22F
- **i** Secondary switch box
- **j** Main switch box
- **k** Water filter
- **l** Water inlet
- **m** Water outlet
- **n** Expansion vessel
- **o** Plugged fitting
- **p** Flow switch
- **q** Air purge valve
- **r** Filter
- **s** Acces fitting
- **t** Refrigerant low pressure sensor EVP1
- **u** Refrigerant high pressure sensor CNP1
- **v** Filter
- **w** Receiver valve
- **x** Suction thermistor ST1
- **y** Check valve
- **z** High pressure switch F131
- **aa** Heat exchanger
- **ab** Heat exchanger
- **ac** Acces fitting
- **ad** Refrigerant low pressure sensor EVP2
- **ae** Filter
- **af** Suction thermistor ST2
- **ag** Receiver valve
- **ah** Check valve
- **ai** High pressure switch F132
- **aj** Water pump
- **ak** Safety valve
- **al** Drain
- **am** Pressure gauge
- **an** Plugged fitting
- **ao** Inlet water thermistor EEWT
- **ap** Outlet water thermistor ELWT
- **aq** Plate type heat exchanger
- **ar** Discharge pipe thermistor DT1
- **as** Compressor M1C
- **at** Electrical connection box
- **au** Biflux filter
- **av** Expansion valve EEXV1
- **aw** Refrigerant high pressure sensor CNP2
- **ax** Filter
- **ay** Compressor M2C
- **az** Discharge pipe thermistor DT2
- **ba** Electrical connection box
- **bb** Biflux filter
- **bc** Expansion valve EEXV2
- **bd** 4-way valve (only for heating+cooling units) Y4W1
- **be** 4-way valve (only for heating+cooling units) Y4W2

Main circuit switch box



a Reactor
b Daikin on site modem
c Additional board (option PCB)
d Terminal block XU
e ACS digital I/O PCB A301P
f Interface display
g Pump inverter
h Main PCB
i Terminal block XD
j Main switch Q10
k Fan inverter PCB A4P11
l Inverter PCB type 27
m Fan inverter PCB A4P12
n Noise filter PCB type 5039863
o 24 V DC auxiliary power supply U1
p Circuit breaker

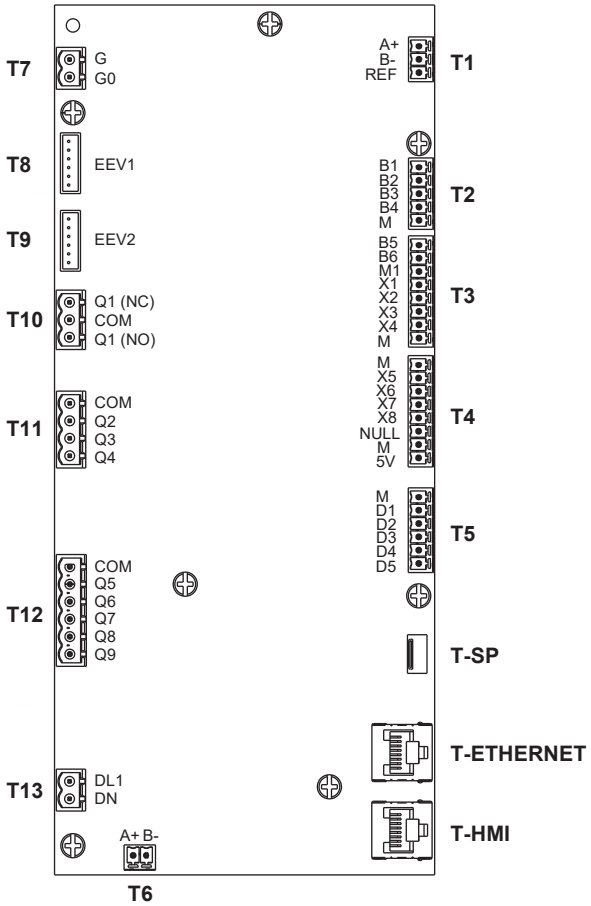
Secondary circuit switch box



a Inverter PCB type 27
b Reactor
c Noise filter PCB type 5039863
d Fan inverter PCB A5P21
e Fan inverter PCB A5P22
f Terminal block (PE) X1
g Terminal block X2
h 5 V DC auxiliary power supply U2

6.4.6 PCB Overview

Main PCB

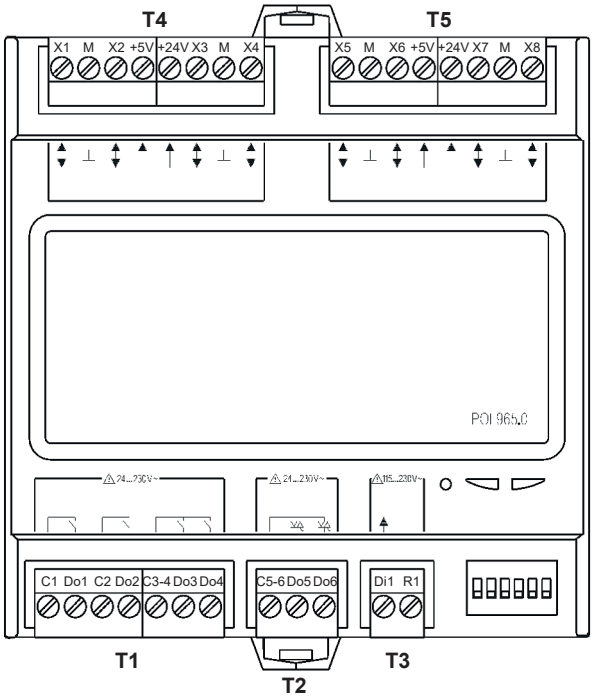


Terminal block	Terminal	Description	
T1	A+	RS485	Modbus RTU / Master and Slave / EKRSCIO
	B–	RS485	
	REF	RS485	
T2	B1	Ai1	Evaporator inlet water temperature
	B2	Ai2	Evaporator outlet water temperature
	B3	Ai3	Outside ambient temperature
	B4	Ai4	System temperature
	M		
T3	B5	Ai5	Suction temperature circuit 1
	B6	Ai6	Suction temperature circuit 2
	M1		
	X1	Ai1	Refrigerant low pressure sensor circuit 1
	X2	Ai2	Refrigerant low pressure sensor circuit 2
	X3	Ai3	Refrigerant high pressure sensor circuit 1
	X4	Ai4	Refrigerant high pressure sensor circuit 2
	M		

Terminal block	Terminal	Description	
T4	M		
	X5	X5	Discharge temperature circuit 1
	X6	X6	Discharge temperature circuit 2
	X7		
	X8	X8	Pump speed (0~10 V)
	NULL	NULL	
	M		
	5V	VDCout	
T5	M		
	D1	Di1	Unit ON/OFF switch
	D2	Di2	Evaporator flow switch (mandatory)
	D3	Di3	External alarm / Emergency stop (remove jumper 741)
	D4	Di4	Cool/Heat switch
	D5	Di5	Circuit 1 thermal protection
T6	A+	RS485	Extension interface
	B–	RS485	
T7	G	24 V DC	Unit control power supply
	G0	0 V	
T8	A	12 V DC	Expansion valve circuit 1
	B	12 V DC	
	C	12 V DC	
	D	12 V DC	
	COM		
	COM		
T9	A	12 V DC	Expansion valve circuit 2
	B	12 V DC	
	C	12 V DC	
	D	12 V DC	
	COM		
	COM		
T10	Q1 (NC)	24…230 V AC	ON-OFF control evaporator pump (optional)
	COM	24…230 V AC	
	Q1 (NO)	24…230 V AC	
T11	COM		
	Q2	24…230 V AC	Unit alarm (maximum load 10 mA – 16 V DC)
	Q3	24…230 V AC	Compressor 1 enable
	Q4	24…230 V AC	Compressor 2 enable

Terminal block	Terminal	Description	
T12	COM		
	Q5	24…230 V AC	Defrost evaporator / expansion vessel heater (OP191).
	Q6	24…230 V AC	4-way valve circuit 1
	Q7	24…230 V AC	4-way valve circuit 2
	Q8	24…230 V AC	Oil heater circuit 1
	Q9	24…230 V AC	Oil heater circuit 2
T13	DL1		
	DN		
T-SP		T-SP	
T-ETHERNET		T-IP, Ethernet for Climatic IC	
T-HMI		T-HMI (RJ45), not galvanically isolated	

Option PCB



Terminal block	Terminal	Description	
T1	C1		
	Do1	Do	Cooling/Heating state
	C2		
	Do2	Do	Defrost state
	C3-4		
	Do3	Do	Bypass valve (VFP, maximum load 2 A – 230 V AC)
	Do4	Do	Domestic hot water 3-way valve (maximum load 2 A – 230 V AC)
T2	C5-6		
	Do5	Do	
	Do6	Do	

Terminal block	Terminal	Description	
T3	Di1	Di	Double setpoint
	R1		
T4	X1	Di	Domestic hot water sensor
	M		
	X2	Ai	Demand / current limit (0~10 V)
	+5V		
	+24V		
	X3	Ai	Evaporator DP (VPF, output signal 0~10 V DC) OR Domestic hot water 3-way valve feedback open
	M		
	X4	Di	System DP (VPF, output signal 0~10 V DC) OR Domestic hot water 3-way valve feedback closed
T5	X5	Di	Setpoint reset (0~10 V DC)
	M		
	X6	Di	Low noise enable
	+5V		
	+24V		
	X7	Di	
	M		
	X8	Ao	Domestic hot water enable

6.5 Field information report

See next page.

In case a problem occurred on the unit which could not be resolved by using the content of this service manual or in case you have a problem which could be resolved but of which the manufacturer should be notified, we advise you to contact your distributor.
To facilitate the investigation, additional information is required. Please fill out the following form before contacting your distributor.

FIELD INFORMATION REPORT	
Key person information	
Name:	Company name:
Your contact details Phone number:	E-mail address:
Site address:	
Your reference:	Date of visit:
Claim information	
Title:	
Problem description:	
Error code:	Trouble date:
Problem frequency:	
Investigation steps done:	
Insert picture of the trouble.	
Current situation (solved, not solved,…):	
Countermeasures taken:	
Comments and proposals:	
Part available for return (if applicable):	

Application information
Application (house, apartment, office,…):
New project or reimbursement:
Heat emitters (radiators / under floor heating / fan coils /…):
Hydraulic layout (simple schematic):

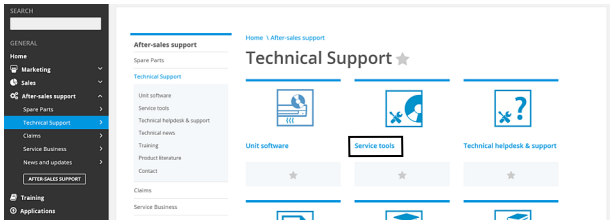
Unit / Installation information	
Model name:	Serial number:
Installation / commissioning date:	Software version hydro PCB A1P
	Software version hydro PCB A5P
Software version user interface:	Software version outdoor PCB:
Minimum water volume:	Maximum water volume:
Brine composition and mixture:	
Brine freeze up temperature:	
Space heating control (leaving water temperature, room thermostat, external room thermostat):	
Space heating setpoint:	
Domestic hot water control (reheat only, schedule only, reheat + schedule):	
Domestic hot water setpoint:	

Provide pictures of the field settings overview (viewable on the user interface).

6.6 Service tools

1 For an overview of the available service tools, check the Daikin Business Portal (authentication required).

2 Go to the tab After-sales support on the left navigation pane and select Technical support.



3 Click the button Service tools. An overview of the available service tools for the different products is shown. Also additional information on the service tools (instruction, latest software) can be found here.

6.7 Field settings

6.7.1 User interface parameters

The table below shows the complete user interface structure from the main menu to any single parameter including the screen saver pages.

Typically, the user interface is composed by pages, containing the parameters, accessible from the main menu. In some cases there is a two-level structure where a page contains sub-pages instead of parameters.

For more information about the parameters and how to set them, see the operating manual.

Menu	Parameter	Sub-parameter	Read/Write	Password level
[0] Password	[00.00] Enter PSW	N/A	W	0
[1] Unit	[01.00] UEN	N/A	W	1
	[01.01] C1EN	N/A	W	1
	[01.02] C2EN	N/A	W	1
[2] Mode	[02.00] Available Modes	N/A	W	2
	[02.01] Mode Source	N/A	W	0
	[02.02] UnitCoolHeatSw	N/A	W	0
[3] Capacity	[03.00] C1_Cap	N/A	R	0
	[03.01] C1_FanStg	N/A	R	0
	[03.02] C1_FanCap	N/A	R	0
	[03.03] C2_Cap	N/A	R	0
	[03.04] C2_FanStg	N/A	R	0
	[03.05] C2_FanCap	N/A	R	0
	[03.06] SumCurrent	N/A	R	0
[4] Net	[04.00] Sour	N/A	W	1
	[04.01] En	N/A	R	0
	[04.02] C.SP	N/A	R	0
	[04.03] H.SP	N/A	R	0
	[04.04] Mode	N/A	R	0
	[04.05] Capacity Limit	N/A	R	0
	[04.06] Current Limit	N/A	R	0
[5] Setp	[05.00] C1	N/A	W	0
	[05.01] C2	N/A	W	0
	[05.02] H1	N/A	W	0
	[05.03] H2	N/A	W	0

Menu	Parameter	Sub-parameter	Read/Write	Password level
[6] Tmps	[06.00] In	N/A	R	0
	[06.01] Out	N/A	R	0
	[06.02] OAT	N/A	R	0
	[06.03] DT	N/A	R	0
	[06.04] Syst	N/A	R	0
[7] Alms	[07.00] Alarm List	N/A	R	0
	[07.01] Alarm Clear	N/A	W	1
[8] Pump	[08.00] RecT	N/A	W	1
	[08.01] Standby Speed	N/A	W	1
	[08.02] Speed	N/A	R	1
	[08.03] Max Speed	N/A	W	1
	[08.04] Min Speed	N/A	W	1
	[08.05] Speed 1	N/A	W	1
	[08.06] Speed 2	N/A	W	1
	[08.07] LoadPressDropSp	N/A	W	1
	[08.08] EvapPressDropSp	N/A	W	1
	[08.09] BypassValve state	N/A	R	1
	[08.10] LoadPD	N/A	R	1
	[08.11] EvapPD	N/A	R	1
	[08.12] Parameter Ti	N/A	W	1
	[08.13] Setpoint DT	N/A	W	1
	[08.14] Alarm Code	N/A	R	1
[9] Thermostatic control	[9.00] Startup	N/A	W	1
	[9.01] Shutdown	N/A	W	1
	[9.02] Stage up	N/A	W	1
	[9.03] Stage down	N/A	W	1
	[9.04] Stage up delay	N/A	W	1
	[9.05] Stage dn delay	N/A	W	1
	[9.06] Evap Freeze	N/A	W	2
	[9.07] Low Press Unld	N/A	W	2
[10] Date	[10.00] Day	N/A	W	0
	[10.01] Month	N/A	W	0
	[10.02] Year	N/A	W	0
[11] Time	[11.0] Hour	N/A	W	0
	[11.1] Minute	N/A	W	0
[12] DoS	[12.00] Enable	N/A	W	0
	[12.01] State	N/A	R	0

Menu	Parameter	Sub-parameter	Read/Write	Password level
[13] IPst	[13.00] DHCP	N/A	W	0
	[13.01] Actual IP	N/A	R	0
	[13.02] Actual Mask	N/A	R	0
	[13.03] Manual IP		R	0
		[13.03.0] IP#1	W	0
		[13.03.1] IP#2	W	0
		[13.03.2] IP#3	W	0
		[13.03.3] IP#4	W	0
	[13.04] Manual Mask		W	0
		[13.04.0] Msk#1	W	0
		[13.04.1] Msk#2	W	0
		[13.04.2] Msk#3	W	0
		[13.04.3] Msk#4	W	0
[14] Service Configuration	[14.00] Unit Type	N/A	W	2
	[14.01] Size	N/A	W	2
	[14.02] Pump Type	N/A	W	2
	[14.03] Option	N/A	W	2
	[14.04] OnlyHP	N/A	W	2
	[14.05] HMI Type	N/A	W	2
	[14.06] Parameter Save	N/A	W	2
	[14.07] Parameter Restore	N/A	W	2
[15] Customer Configuration	[15.00] Unit Boost	N/A	W	1
	[15.01] Fan Boost	N/A	W	1
	[15.02] IO Ext Module	N/A	W	1
	[15.03] Pump Ctrl Type	N/A	W	1
	[15.04] Address	N/A	W	1
	[15.05] Ext Alm	N/A	W	1
	[15.06] Cost. Heating	N/A	W	1
	[15.07] SCM Number of Units	N/A	W	1
	[15.08] FanSilentSpd	N/A	W	1
	[15.09] DHW Enable	N/A	W	1

Menu	Parameter	Sub-parameter	Read/Write	Password level
[16] Master/Slave (Available only for Master unit))	[16.00] Start Up Limit	N/A	W	1
	[16.01] Shut Dn Limit	N/A	W	1
	[16.02] Stage Up Time	N/A	W	1
	[16.03] Stage Dn Time	N/A	W	1
	[16.04] Threshold	N/A	W	1
	[16.05] PrioSlave#1	N/A	W	1
	[16.06] PrioSlave#2	N/A	W	1
	[16.07] PrioSlave#3	N/A	W	1
	[16.08] MasterPriority	N/A	W	1
	[16.09] Master Enable	N/A	W	1
	[16.10] Standby Chiller	N/A	W	1
	[16.11] Cycling Type	N/A	W	1
	[16.12] Interval Time	N/A	W	1
	[16.13] Switch Time	N/A	W	1
	[16.14] Temp Compensation	N/A	W	1
	[16.15] Tmp Cmp Time	N/A	W	1
	[16.16] M/S Alarm Code	N/A	R	1

Menu	Parameter	Sub-parameter	Read/Write	Password level
[17] Scheduler	[17.00] Monday		W	1
		[17.00.0] Time 1	W	1
		[17.00.1] Value 1	W	1
		[17.00.2] Time 2	W	1
		[17.00.3] Value 2	W	1
		[17.00.4] Time 3	W	1
		[17.00.5] Value 3	W	1
		[17.00.6] Time 4	W	1
		[17.00.7] Value 4	W	1
	[17.01] Tuesday		W	1
		[17.01.0] Time 1	W	1
		[17.01.1] Value 1	W	1
		[17.01.2] Time 2	W	1
		[17.01.3] Value 2	W	1
		[17.01.4] Time 3	W	1
		[17.01.5] Value 3	W	1
		[17.01.6] Time 4	W	1
		[17.01.7] Value 4	W	1
	...	...	...	...
	[17.06] Sunday		W	1
		[17.06.0] Time 1	W	1
		[17.06.1] Value 1	W	1
		[17.06.2] Time 2	W	1
		[17.06.3] Value 2	W	1
		[17.06.4] Time 3	W	1
		[17.06.5] Value 3	W	1
		[17.06.6] Time 4	W	1
		[17.06.7] Value 4	W	1
[18] Power Conservation	[18.00] Dem Lim EN	N/A	W	1
	[18.01] Current Lim Sp	N/A	W	1

Menu	Parameter	Sub-parameter	Read/Write	Password level
[19] DHW	[19.00] Setpoint	N/A	W	1
	[19.01] Start Db	N/A	W	1
	[19.02] Delay	N/A	W	1
	[19.03] Temperature	N/A	R	1
	[19.04] 3WV State	N/A	R	1
	[19.05] DHW Alarm Code	N/A	R	1
	[19.06] 3WV Type	N/A	W	1
	[19.07] 3WV Switch Time	N/A	W	1
[20] Setpoint reset	[20.00] Reset Type	N/A	W	1
	[20.01] Max Reset DT	N/A	W	1
	[20.02] Start Reset DT	N/A	W	1
	[20.03] Max Reset CH	N/A	W	1
	[20.04] Start Reset CH	N/A	W	1
	[20.05] Max Reset HP	N/A	W	1
	[20.06] Start Reset HP	N/A	W	1
[21] Inverter Alarms	[21.00] InvCmpC1 Alarm Code	N/A	W	1
	[21.01] InvCmpC2 Alarm Code	N/A	W	1
	[21.02] InvFan1C1 Alarm Code	N/A	W	1
	[21.03] InvFan2C1 Alarm Code	N/A	W	1
	[21.04] InvFan1C2 Alarm Code	N/A	W	1
	[21.05] InvFan2C2 Alarm Code	N/A	W	1
	[21.06] Pump Alarm Digits 0-3	N/A	W	1
	[21.07] Pump Alarm Digits 4-7	N/A	W	1
	[21.08] Pump Alarm Digits 8-11	N/A	W	1
	[21.09] Pump Alarm Digits 12-15	N/A	W	1
	[21.10] Pump Alarm Digits 16-19	N/A	W	1
	[21.11] Pump Alarm Digits 20-23	N/A	W	1
	[21.12] Pump Alarm Digits 24-27	N/A	W	1
	[21.13] Pump Alarm Digits 28-31	N/A	W	1

Menu	Parameter	Sub-parameter	Read/Write	Password level
[22] Protocol Communication	[22.00] Mb Address	N/A	W	1
	[22.01] Mb BAUD	N/A	W	1
	[22.02] Mb Parity	N/A	W	1
	[22.03] Mb 2StopBit	N/A	W	1
	[22.04] Mb Timeout	N/A	W	1
	[22.05] BN Address	N/A	W	1
	[22.06] BN BAUD	N/A	W	1
	[22.07] BN Device ID (X.XXX.---)	N/A	W	1
	[22.08] BN Device ID (-.---.XXX)	N/A	W	1
	[22.9] BN Port (X-.---)	N/A	W	1
	[22.10] BN Port(-X.XXX)	N/A	W	1
	[22.11] BN Timeout	N/A	W	1
	[22.12] Licence Mngr	N/A	R	1
	[22.13] BacNETOverRS	N/A	W	1
	[22.14] BacNET-IP	N/A	W	1
	[22.15] BasProtocol	N/A	W	1
	[22.16] BusPolarization	N/A	W	1
[23] PLC	[23.00] AppSave	N/A	W	1
	[23.01] Apply Changes	N/A	W	1
[24] About	[24.00] App Vers	N/A	R	0
	[24.01] BSP	N/A	R	0
[25] Screen Saver	- LWT (String Up) - Setpoint Act (String Dn)	- Unit Cap (String Up) - Actual Mode (String Dn)	R	0

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