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Commissioning Guide – EWAT-CZ/EWYT-CZ

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1 Technician Qualifications

Initial startup on Daikin chillers must be performed only by Daikin Service Technicians or Authorized Service Providers. The contents of this manual are not intended as a substitute for professional skills training, or knowledge and practice of industry standards. Additional literature will be required that is product and component specific, including: product Installation Manuals, Service Bulletins, selection data, system control and piping specifications, etc. (see List of References on *Paragraph 2* for a list of some supplemental items).



The following information is intended only as a guide for authorized personnel with a sound basic knowledge of HVAC equipment, mechanical systems, electrical wiring, controls, & microprocessors. Attempts by untrained or unauthorized persons to start, operate and service this equipment can result in equipment failure, personal injury, or death, as well as invalidation of product warranty. It is the responsibility of the technician to ensure proper safety equipment safe practices.

Be sure before starting any work, that Startup Service Technician has reviewed and is thoroughly familiar with all Daikin Factory Service Safety Policies and Procedures, and has reviewed any Service Bulletins or Rapid News regarding this product.

2 Required Tools and Supplies

In addition to standard tools needed on most service jobs, be sure to bring the following items to the jobsite for Startup:

- ☒ Personal Protective Equipment (Safety)
- ☒ Commissioning Checklist
- ☒ Chiller Technical Data, Selection Sheet, and Certified Submittal Drawings
- ☒ Manuals:

Note: Be sure that all manuals are the current revision appropriate for this unit.

- This document: Commissioning guide
- Installation, Operation and Maintenance Manual (D-EIMHP01405-21_00EN)
- Operating Manual: EWYT-CZ /EWAT-CZ (D-EOMHP01405-21_00EN)
- EWYT-CZ P&I Diagram (last revision)
- Wiring Diagram

- ☒ Other technical reference material as necessary
- ☒ Current operating software version downloaded and ready to install if needed:
 - PEGASO - latest software version

Note: Before to go on site, get the last software version from MyDaikin.eu portal or from DAE Software repository sharepoint (only for Daikin Affiliates)

- ☒ Miscellaneous gauges and hand tools, including:
 - Tool to find leaking (Soap and spray or Electronic leak detector)
 - Differential Pressure Gauge (*adequate for system pressures*)
 - Phase Rotation Meter
 - Refrigeration Gauge Manifold for R32 (*Range: 50bar, Accuracy: ±0.5% of Final Value, Resolution: 0.01bar/0.1psi/1kPa*)
 - Digital thermometer (*Range: -50°C/+150°C, Accuracy: ±0.1°C, Resolution: 0.1°C*)
 - Amprobe
 - Voltmeters
 - Recover refrigerant cylinder (for eventual presence of leakage)
 - Full refrigerant cylinder (for eventual charge adjustments)
 - Recovery pump (for eventual charge adjustments)
 - Water flow meter
 - HMI Service tool (Siemens POL 895)
 - Laptop + Scope Light + Service cable



Commissioning procedure can be completed totally with HMI Service tool (Siemens POL 895) and partially with EVCO HMI.

The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

In case the procedure is carried out without HMI Service tool (Siemens POL 895), some alarms could occurred due to missing checks and tests (example: Flow loss alarm due to pump settings not set/checked)

3 Collaboration and Responsibilities

Throughout the installation and startup process, members of the Daikin Service Department (Supervisor / Coordinator / Technician) must establish contact and meet regularly with the following persons and/or their designated representatives:

- Mechanical, Electrical, and Controls Contractors
- Installing Contractor
- Daikin Sales Department
- Customer/Owner
- Personnel to be trained in unit operation

It is the responsibility of the Daikin Service Representative to ensure that all items on the *Pre-Power On Check* (**Paragraph 6**) are complete and the system is ready for start-up. Upon arrival at the jobsite, the DAIKIN Service technician will verify that all items on the *Pre-Start Up Checklist* are complete.

The Chiller Start-up Technician must confirm that the unit installation conforms to Daikin specifications and requirements. This includes mounting and support, piping, electrical and control installations related to the unit. These items must, as a minimum, meet acceptable industry standards and Daikin published requirements. All factory supplied controls and valves must be set and, where required, calibrated. Electrical power and control wiring must be selected and sized as specified by Daikin and the applicable electrical code.

The various contractors associated with the installation have the responsibility to provide the following items (as noted on the Pre-Start Checklist), in accordance with the product Installation Operation and Maintenance Manual, applicable codes and acceptable practices for the trade involved. Note any discrepancies on Commissioning Sheet and notify Supervisor as appropriate. Ensure that access to appropriate systems is available for startup operations.

4 Before Arriving at Jobsite

- Review and Verify Installation Checklist received from the Installer/Customer Company/Contractor.
- Review Required Materials List on (refer to paragraph 2) and gather necessary items.
- Review Unit Design Specifications.
- Review Commissioning Guide and Commissioning Checklist.
- Review Installation Operation and Maintenance Manual.
- Review Operating Manual.
- Establish estimated timeline and milestones for Startup.

5 Upon Arrival at Jobsite

Meet with Mechanical, Electrical, and Control Contractors to discuss Startup Process and identify any potential issues that may interfere with a successful startup.

Be sure to meet with the Controls Contractor to discuss and clarify the chiller control sequence and settings for the chiller, pumps, BAS integration, etc...

6 Pre-Commissioning Checks

Initial Chiller Inspection has to be performed according to the **Pre-Commissioning Checklist** of the Commissioning Sheet by following the instruction below shown.



Verify that all the items are correct. If the system is not ready and/or items on the Pre-Commissioning Checklist are incomplete, the technician should immediately notify his supervisor and request direction on how to proceed. A separate work order authorization may be required.

6.1 Visual Inspection

- Inspect the chiller for shipping/installation damage;
- Verify that chiller is adequately located and level mounted as per the IOM (**Paragraph 4.3**) according to the minimum space requirements (**Paragraph 4.4**)
- Visually inspect for oil and refrigerant leaks.
- Record component model and serial numbers as appropriate on Commissioning Checklist.
- Clean the chiller and surrounding area, removing any debris from the area.

Note any issues in the Commissioning Form (**Pre-Startup Comments**)

6.2 Leak Test

Before to start with Leak Test, verify that during stock period (from Delivery Date), leak tests have been performed periodically as per local FGas Regulation. Collect all leak test reports for recording purpose.

Connect service gauges. Confirm pressure in the condenser and evaporator, to verify that charge was not leaked during storage/shipping. Using Electronic Leak Detector or soap and spray, leak check entire unit. Be sure to note any leaks found and repairs performed on the EWAT-CZ & EWYT-CZ Commissioning Checklist. Follow all applicable industry and regulatory authority standards. If refrigerant loss is catastrophic, startup may need to be postponed until appropriate warranty leak repairs are completed.

Note any issues in the Commissioning Form (**Pre-Startup Comments**)

6.3 Water Piping System Check

- Verify water piping as per Installation Operation and Maintenance Manual (**Paragraph 4.7**)
- Walk length of piping system (in equipment area). Ensure that connections are correctly installed, and piping is properly supported (i.e., not supported by the chiller). Flanges must not be stressed.
- Check evaporator piping for proper flow direction through vessels by consulting Dimensional Drawing. If flow is incorrect, notify Mechanical Contractor, Service Supervisor, and Sales Rep.
- Verify that water pressure gauges are installed at proper locations (if used)
- Confirm that all piping specialties (expansion tank, make-up, relief, vents, etc), water pumps are properly installed.

Note any issues in the EWAT-CZ & EWYT-CZ Commissioning Checklist (**Pre-Startup Comments**)

6.4 Electric Connections Check

- Verify the Electric connections, Cable requirements, Interconnection cables) according to wiring diagram
- Verify Field wiring correctness according to the unit wiring diagram

Field Wiring Connection

Type Signal description	Function	Page / column	Symbol	Type Signal description	Function	Page / column	Symbol
Digital input	UNIT ON/OFF SWITCH	9 6		Analog input	SETPOINT RESET 0 to 10V	14 5	
Digital input	EVAPORATOR FLOW SWITCH Obligatory	9 6		Digital input	LOW NOISE ENABLE	14 6	
Digital input	EXTERNAL ALARM/EMERGENCY STOP Remove wire jumper 741	9 7		Digital input	DOMESTIC HOT WATER ENABLE	14 8	
Digital input	COOL/HEAT SWITCH	9 8		Digital output	COOLING/HEATING STATE	15 1	
Analog input	SYSTEM TEMPERATURE PROBE NTC10K probe	8 3		Digital output	DEFROST STATE	15 2	
Digital output	UNIT ALARM Max Load 10mA-16Vdc	11 1		Digital output	BYPASS VALVE (VFP) Max Load 2A-230Vac	15 3	
Analog input	DOMESTIC HOT WATER SENSOR NTC10K probe	14 1		Digital output	DOMESTIC HOT WATER 3 WAY VALVE Max Load 2A-230Vac	15 4	
Analog input	DEMAND LIMIT or CURRENT LIMIT 0 to 10V	14 1		Digital input	DOUBLE SETPOINT	15 7	
Analog Input	EVAPORATOR DP (VPF) Output Signal 0...10Vdc	14 3		Analogic Output	PUMP SPEED 0 to 10V	10 4	
Analog Input	SYSTEM DP (VPF) Output Signal 0...10Vdc	14 4		Digital Output	ON-OFF CONTROL EVAPORATOR PUMP	10 9	
Digital input	DOMESTIC HOT WATER 3 WAY VALVE FEEDBACK OPEN	14 3					
Digital input	DOMESTIC HOT WATER 3 WAY VALVE FEEDBACK CLOSED	14 4					



Analog Inputs must be generated through external auxiliary voltage

Unit On/Off switch must be connected: to run the unit, it must be enabled both from physical switch (supplied by customer) and from User HMI/External HMI service tool

Evaporator Flow switch must be electrically connected

Note any issues in the EWAT-CZ & EWYT-CZ Commissioning Checklist (**Pre-Startup Comments**)

7 Pre-Startup Checks

Once the “Pre-Power On Checks” are completed, the technician can proceed with the Pre-Startup Checks by turning on the unit main switch.

Pre-Startup checks have to be performed according to the **Pre-Startup Checklist** of the EWAT-CZ & EWYT-CZ Commissioning Checklist by following the instruction below shown.



Verify that all the items are correct. If the system is not ready and/or items on the Pre-Startup Checklist are incomplete, the technician should immediately notify his supervisor and request direction on how to proceed. A separate work order authorization may be required.

7.1 Voltage Check

- Verify the electric Main voltage and frequency: check the phase to phase voltage and Phase unbalance as per IOM (**Paragraph 5.2**)
- Verify all on-board auxiliary transformer voltages
 - Unit with 1 circuit: U1
 - Unit with 2 circuits: U1 and U2

Note any issues in the EWAT-CZ & EWYT-CZ Commissioning Checklist (**Pre-Startup Comments**)

7.2 Control Settings

- Check all unit controller settings to verify they are optimized for application conditions.
- Verify that last software version is installed. If not, install it (refer to Small Inverter Chiller R32 Service Manual for software installation procedure). To verify software version on EVCO HMI, go to menu 24.00
- Verify settings of all safety and operating controls.

7.2.1 Unit and Option Configuration



Procedure of this paragraph can be completed totally with HMI Service tool (Siemens POL 895) and partially with EVCO HMI
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

To activate the SIEMENS HMI:

- Insert Installer/technician password
- Go to menu 14.05 and set “Off”
- Go to menu 23.00 and set “On” (Application Save)
- Go to menu 23.01 and set “On” (Apply Changes: the controller reboots)
- Connect HMI Service tool (Siemens POL 895) to HMI port on controller



Unit is pre-configured from factory
Changing of parameters should not be required

Check unit and option configuration according to unit selection (refer to unit label)

On the HMI Service tool (Siemens POL 895), enter the “Installer/Technician Password” and go into Main Menu:

Commission Unit → Configuration → Unit menu and after, Option menu.

HMI Service tool (Siemens POL 895) Menu			User HMI (EVCO) Menu		Description
Setpoint	Default	Range	[XX.YY]	Range	
Type	EWYT	- EWAT EWYT	[14.00]	0 1 2	Set the model type of the unit according to the unit label
Size	90kW	16kW 21kW 25kW 32kW 40kW – Mono 40kW – Dual 50kW 60kW 90kW	[14.01]	0 1 2 3 4 5 6 7 8	Set the size of the unit according to the unit label
Circuits	2	1 2	Not available	Not available	Set the compressor model* Note*: this parameter is auto selected after the selection of the unit type
Compressor C1	JT27K	- JT17K JT27K	Not available	Not available	Set the compressor model* Note*: this parameter is auto selected after the selection of the unit Size
Compressor C2	JT27K	- JT17K JT27K	Not available	Not available	Set the compressor model* Note*: this parameter is auto selected after the selection of the unit Size
Fans C1	2	- 1 2	Not available	Not available	Set the number of the fans dedicated to the circuit #1 Note*: this parameter is auto selected after the selection of the unit Size
Fans C1	2	- 1 2	Not available	Not available	Set the number of the fans dedicated to the circuit #1 Note*: this parameter is auto selected after the selection of the unit Size
Fans Type	681mm (V6)	- 681 mm (V6)	Not available	Not available	Set the type of the fans Note*: this parameter is auto selected after the selection of the unit Size
FanMaxSpdCh	900 rpm	- 700rpm 800rpm 900rpm	Not available	Not available	Set the fan maximum speed in chiller mode Note*: this parameter is auto selected after the selection of the unit Size
FanMaxSpdHP	900 rpm	- 700rpm 800rpm 900rpm	Not available	Not available	Set the fan maximum speed in heat mode Note*: this parameter is auto selected after the selection of the unit Size
Pump Type	On-Off	Naked Low Lift High Lift	[14.02]	0 1 2	Set the type of the pump: EWxT- CZN → Naked EWxT – CZP → Low EWxT – CZH → High Lift
HighAmb – Elect Heat	-	- HighAmb EleHeat	[14.03]	0 1 2	No option selected → - EWxT-CZxAAx Option “A” → HighAmb EWxT-CZxBx Option “B” → EleHeat
Apply changes	No	Yes No	[23.01]	Off On	Use this command to reset the controller to confirm the configuration made



NOTE: the unit has default pump mode control as “On-Off”
In case of EWxT-CZP and EWxT-CZH units, pump will run fixed at minimum speed (25%)

Commission Unit → Configuration → Option menu

HMI Service tool (Siemens POL 895) Menu			User HMI (EVCO) Menu		Description
Setpoint	Default	Range	[XX.YY]	Range	
Apply changes	No	Yes No	[23.01]	Off On	Use this command to reset the controller to confirm the configuration made
Demand Limit	Off	Off No	[18.00]	0 1	Set "On" to enable this option* Note*: this parameter can be used only if accessory EKRSCIO Note: refer to Accessory Manual for further settings
Current Limit	150 A	From 0 A to 200 A	[18.01]	From 0 A to 200 A	Set an amperage value for Current limit logic option* Note*: this parameter can be used only if accessory EKRSCIO Note: refer to Accessory Manual for further settings
Ext Alarm	No	No Event Rapid Stop Pumpdown	[15.05]	0 1 2 3	Set as per customer choice
M/S Address	None	None Master Slave 1 Slave 2 Slave 3	[15.04]	0 1 2 3 4	Set according to unit role in case M/S function is enabled Note: refer to Master and Slave Operation Manual for further settings
M/S Num Of Units	2	2 3 4	[15.07]	0 1 2	Set the total number of units involved in the M/S function Note: refer to Master and Slave Operation Manual for further settings
Pump Mode	On-Off	On-Off Fixed Speed VPF DT	[15.03]	0 1 2 3	Set the pump mode control Note: refer to Pump Control Manual for further settings
Setpoint Reset	No	No 0-10 V DT OAT	[20.00]	0 1 2 3	Set which is the command for the setpoint reset function Note: refer to Accessory Manual for further settings
Display Units	Metric	Metric English	Not Available	Not Available	Unit of measure displayed
Costant heating	No	No Yes	[15.06]	0 1	Yes → Enable Constant Heating No → Disable Constant Heating
Unit Boost	Passive	Passive Active	[15.00]	0 1	Passive → Unit boost mode is not enabled Active → Unit boost mode is enabled
IO Ext Module	Passive	Passive Active	[15.02]	0 1	Set "Active" in case of EKRSCIO accessory
Fan Boost	No	No Yes	[15.01]	0 1	Set "On" to enable fan boost mode
Silent Fan Speed	650 rpm	From 500 rpm to 900 rpm	[15.08]	From 500 rpm to 900 rpm	Set Fan speed value for Fan Silent mode
Domestic Hot Water	Passive	Passive Active	[15.09]	0 1	Set Active to use Domestic hot water logic* Note*: this parameter can be used only if accessory EKRSCIO Note: refer to Accessory Manual for further settings

Apply changes	No	Yes No	[23.01]	On Off	Use this command to reset the controller to confirm the configuration made
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- **At the end of the Alarm limits settings, the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.**
Note: Application Save command in EVCO HMI is in menu [23.00]. Set “On” to apply the command.
- **At the end of the Alarm Limits setting a restart of the controller (“Apply Changes”) is required BEFORE to proceed with the startup of the unit.**
Note: Apply Changes command in EVCO HMI is in menu [23.01]. Set “On” to apply the command.

7.3 Alarm Limits



Procedure of this paragraph can be completed totally with HMI Service tool (Siemens POL 895) and partially with EVCO HMI
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

On the HMI Service tool (Siemens POL 895), enter the “Installer/Technician password” and set the alarm limits in the following menu:

Main Menu → Commission Unit → Alarm Limits

HMI Service tool (Siemens POL 895) Menu			User HMI (EVCO) Menu		Description
Setpoint	Default	Range	[XX.YY]	Range	
Evap Freeze	2.2 °C	Depends on unit mode	[09.06]	Depends on unit mode	Limit for antifreeze protection <i>Cool – Heat/Cool</i> From -18°C to 6°C <i>Cool with Glycol – Heat/Cool with glycol:</i> From 2°C to 6°C
Evap Flow Proof	15 s	From 5 s to 15 s	Not available	Not available	Limit for flow alarm protection
Evap Rec Timeout	3 min	From 1 min to 10 min	Not available	Not available	Limit for flow alarm protection
Low OAT Lockout	-18°C	From -20°C to 15°C	Not available	Not available	Limit for low OAT protection



- **High Pressure unload is dynamically calculated (not possible to modify it)**
- **Low pressure unload**
 - **For Cool – Heat/Cool mode application, the limit is dynamically calculated (not possible to modify it)**
 - **For Cool with glycol – Heat/Cool with glycol (Brine Application) refer to paragraph 7.3.1**

7.3.1 Brine application (ELWT setpoint < 4°C)

Set Low pressure unload threshold (for each circuit) and Evaporator freeze temperature according to the application

HMI Service tool (Siemens POL 895) Menu			User HMI (EVCO) Menu		Description
Setpoint	Default	Range	[XX.YY]	Range	
Low Prs Uld Glyc C1	650 kPa	Depends on unit mode	[09.07]	Depends on unit mode	Low Pressure Limit to unload compressor <i>Cool – Heat/Cool</i> From 600 kPa to 800 kPa <i>Cool with Glycol – Heat/Cool with glycol:</i> From 150 kPa to 600 kPa
Low Prs Uld Glyc C2	650 kPa	Depends on unit mode		Depends on unit mode	Low Pressure Limit to unload compressor <i>Cool – Heat/Cool</i> From 600 kPa to 800 kPa <i>Cool with Glycol – Heat/Cool with glycol:</i> From 150 kPa to 600 kPa



- **At the end of the Alarm limits settings, the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.**
Note: Application Save command in EVCO HMI is in menu [23.00]. Set “On” to apply the command.
- **At the end of the Alarm Limits setting a restart of the controller (“Apply Changes”) is required BEFORE to proceed with the startup of the unit.**
Note: Apply Changes command in EVCO HMI is in menu [23.01]. Set “On” to apply the command.

7.4 Water Flow

7.4.1 EWAT-CZP, EWYT-CZP, EWAT-CZH and EWYT-CZH (Fixed Speed control)



NOTE: Procedure of this paragraph can be completed totally with HMI Service tool (Siemens POL 895) and partially with EVCO HMI.

Test mode function can be used only with HMI Service tool (Siemens POL 895)

The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

Note: The following procedure is not necessary in case of DT and VPF control

Use Differential Pressure Gauge at the inlet/outlet nozzles of the unit connections to measure the pressure drop across the exchanger/exchangers.

Via the external HMI service tool (enter technician password), enable the pump in Test Mode:

Unit Mode > Test

Commission unit > Manual Control > Unit > Pumps

- Set *Pump 1 > On* to enable the pump 1
- Fine tune the % speed to get Pressure Drop specified on the Chiller Selection Sheet
- Disable the pump when the correct speed is found: *Pump 1 > Off*

Go back to main menu to set the fixed speed value for the pump in running condition:

View/Set Unit > Pumps > Fixed Speed #1/#2

HMI Service tool (Siemens POL 895) Menu			User HMI (EVCO) Menu		Description
Setpoint	Default	Range	[XX.YY]	Range	
Speed 1	25 %	From 0 % to	[08.05]	From 0 % to	Speed percentage value in Fixed Speed mode
Speed 2		100%	[08.06]	100%	



At the end of the water flow speed setting, the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.
Note: Application Save command in EVCO HMI is in menu [23.00]. Set “On” to apply the command.

7.4.2 EWAT-CZN and EWYT-CZN units and High Ambient kit opt (On-Off control)



NOTE: Procedure of this paragraph can be completed only with HMI Service tool (Siemens POL 895)
Test mode function can be used only with HMI Service tool (Siemens POL 895)
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

Use Differential Pressure Gauge at the inlet/outlet nozzles of the unit connections to measure the pressure drop across the exchanger/exchangers.

Via the external HMI service tool (enter technician password), enable the pump in Test Mode:

Unit Mode > Test

Commission unit > Manual Control > Unit > Pumps > Pump 1 > On

Compare current flow with Pressure Drop specified on the Chiller Selection Sheet. Verify that actual flow is in line with the selection data.

If flow is outside of acceptable margins, corrective action is required:

- If flow is too high, valves may be adjusted to trim flow.
- If flow is too low, notify Installing Contractor, and note on the Commissioning Form. If flow is different from the selection data, notify Service Supervisor and Sales Rep. Correction may be required prior to startup.

Disable the pump when the correct speed is found: *Pump 1 > Off*

7.4.3 EWAT-CZP, EWYT-CZP, EWAT-CZH and EWYT-CZH (VPF and DT control control)



NOTE: Procedure of this paragraph can be completed only with HMI Service tool (Siemens POL 895)
Test mode function can be used only with HMI Service tool (Siemens POL 895)
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

Verify the Pump Mode settings in the menu

HMI Service tool (Siemens POL 895): View/Set unit > Pumps
User HMI (EVCO): Menu [08.xx]

Refer to Variable Primary Flow manual for more info and settings

7.5 Flow Switch



NOTE: Procedure of this paragraph can be completed only with HMI Service tool (Siemens POL 895)
Test mode function can be used only with HMI Service tool (Siemens POL 895)
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

- Check the water flow safety switch: verify that field-installed flow switch is installed correctly and is not damaged
- Verify flow switches operation:

Commission unit > Manual Control > Unit > Pumps > Pump 1 > On

Commission unit > Input/Output

- Verify that flow switch input is “Active”

Commission unit > Manual Control > Unit > Pumps > Pump 1 > Off

- Verify that flow switch input is “Passive”

Note any issues in the EWAT-CZ & EWYT-CZ Commissioning Checklist (**Pre-Startup Comments**)

7.6 Pre-Running Adjustments



NOTE: Procedure of this paragraph can be completed only with HMI Service tool (Siemens POL 895)
Test mode function can be used only with HMI Service tool (Siemens POL 895)
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)

Pre-Running Adjustments must be separately performed for each circuit



It is highly recommended to use a double sample sensor for the calibration of temperature sensors

7.6.1 Check and calibration of unit temperature sensors

Calibration of unit temperature sensors is a fundamental step for the correct operation of the unit.

There are three unit temperature sensors to be calibrated (for each circuit):

- Evaporator LWT
- Evaporator EWT
- OAT

Refer to **Annex A** for the complete overview of the components positioning.

7.6.1.1 Evaporator Leaving Water Temperature

- Place the sample and Evap LWT sensors in a container with ice
- Enter in *Commission Unit* → *Calibrate Sensors* → *Unit* menu and then compare the Evap LWT value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



**Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.**

7.6.1.2 Evaporator Entering Water Temperature

- Place the sample and Evap EWT sensors in a container with ice
- Enter in *Commission Unit* → *Calibrate Sensors* → *Unit* menu and then compare the Evap EWT value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



***Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.***

7.6.1.3 Outside Air Temperature

- Place the sample and suction temperature sensors in ambient temperature
- Enter in *Commission Unit* → *Calibrate Sensors* → *Unit* menu and then compare the OAT value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



Make sure to have a stable air conditions and wait until read unit and sample temperatures are stabilized respect to air ambient temperature before to proceed with the calibration.

7.6.2 Check and calibration of circuit temperature sensors

Calibration of circuit temperature sensors is a fundamental step for the correct operation of the unit.

There are two temperature sensors to be calibrated (for each circuit):

- The Suction temperature sensor (ST-1 & ST-2)
- The Discharge temperature sensor (DT-1 & DT-2)

Refer to **Annex A** for the complete overview of the components positioning.

7.6.2.1 Suction Temperature sensor

- Place the sample and suction temperature sensors in a container with ice
- Enter in *Commission Unit* → *Calibrate Sensors* → *Circuit #1/2* menu and then compare the *Suction Tmp* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Suction Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



***Make sure to have a good water/ice mix and wait for the water/ice system temperature to stabilize before to proceed with the calibration.
Place both sensors (sample and unit) in the middle of the container in order to not affect the readings.***



Suction temperature sensor is the most crucial of chiller's sensors as will guarantee the correct working of the EXV and consequent safe compressor running

7.6.2.2 Discharge temperature sensor

- Place the sample and discharge temperature sensors in ambient temperature
- Enter in *Commission Unit* → *Calibrate Sensors* → *Circuit #1/2* menu and then compare the *Discharge Tmp* value with that detected by the sample sensor
- If the temperature value measured by the unit sensor is different from the sample one, set the difference in the *Disch Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



Make sure to have a stable air conditions and wait until read unit and sample temperatures are stabilized respect to air ambient temperature before to proceed with the calibration.

To do that, follow these steps, referring to the "Circuit #X":

1. Enter the "Technician Password" on the controller
2. Go in Main Menu → Unit Mode → Mode and set Cool



In case of application with Set Point less than 4°C select the Unit Mode: Cool with Glycol

3. Go in Main Menu → Unit Enable
4. Set Circuit #1 → Enable, Circuit #2 → Disable
5. Set Unit → Enable
6. Set on: View/Set Unit → Network Control → Control source → Local

7.7 Dry Tests



- ***NOTE: Procedure of this paragraph can be completed totally with HMI Service tool (Siemens POL 895) and partially with EVCO HMI. Test mode function can be used only with HMI Service tool (Siemens POL 895) The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)***
 - ***Every time that a function is used, revert to default value.***
 - ***All the Manual Control functionalities must be disabled before to run the unit***
-

Perform the Dry Tests by setting the unit in "Test mode":

1. Enter the "Technician Password" on the controller
2. Go in Main Menu → Unit Mode → Mode
3. Set Test

All the dry tests are performable through the following menu:

Main Menu → Commission Unit → Manual Control

7.7.1 Unit Alarm

Check the correct activation of the software general alarm:

Main Menu → Commission Unit → Manual Control → Unit → Unit Alarm



After this dry test revert command to default value: Off

If the test has positive result, proceed with next step

7.7.2 Fan

Check the correct functionality of the fans:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Fan Out #1#2

- before to turn "On" the fan, it's needed to set the Fan Speed

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Fan speed

- Turn "On" Fan 1
- Turn "On" Fan 2 (if there is)

In this menu is possible to check the fans functionality. To do this, you must set also the Fan Speed on the following menu.: "Fan Out #1 #2"

7.7.3 Fan Speed

Check the correct functionality of the fans:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Fan speed

In this menu is possible choose the capacity of the fan. Moreover, during this phase check the rotation sense of the fans, if it is right the force of the air must be from the floor to the top.



After this dry test revert command to default value: 0 rpm

7.7.4 4-Way Valve

Verify the correct operation of the EXV valves:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → 4-Way Valve



After this dry test revert command to default value: Off

7.7.5 Compressor Heaters

Check the correct activation of compressor oil resistances:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Crankcase Heater



In order to test this function unit has to be enabled



***After this dry test revert command to default value: Off
Disable unit***

When test is complete set revert command in Off condition

7.7.6 Expansion Valve

Verify the correct operation of the EXV valves:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → EXV Position

And set the opening percentage, is possible verify the movement of the piston inside the expansion valve through the glass post on it.



After this dry test revert command to default value: 0%

7.7.7 Compressor

To verify the correct operation of the compressors some operations are needed:



If two compressors are in the unit, carry out the procedure separately

Connect pressure gauges on high and low pressure side to check the pressure
Turn on the water pump to guarantee the correct flow rate trough the evaporator

Main Menu → Commission Unit → Manual Control → Unit → Pump#1

Open manually electronic expansion valve

Manual Control → Circuit 1 or 2 → Exv Position → 20%



Verify to carry out all the activity reported upon before proceeding with the compressor test

Now is possible verify the correct operation of each compressor:

Main Menu → Commission Unit → Manual Control → Circuit #1/2 → Compressor 1 → Set ManSpeed

Set the manual speed to 1800 rpm

After the start of the compressor check on the gauges the pressure lift



If the compressor doesn't make a lift in pressure, it is not running. Verify electrical connection according to wiring diagram



During this check pay attention to the evaporating pressure: if it drops below the pump down setpoint, open in a controlled way the expansion valve in order to reestablish the pressure inside the evaporator

To disable compressor running, set the manual step to 0 rpm



After this dry test revert command to default values:

- ***Auto Control***
 - ***0 rpm (or 0% capacity)***
-

7.7.8 High Pressure Switches Test

Test the high-pressure switches by using the MHP Test function

Main Menu → Commission Unit → Alarm Limits → MHP Test → Circuit #1/2 → On



- ***Reset High Pressure by switch button***
 - ***Reset Alarm by controller***
 - ***Revert the MHP test function to Off***
-

8 Start-Up



Before to proceed with start-up, ensure that all the commands in manual mode have been reverted to default values, unit mode is not set on "Test" and application save command has been used

8.1 Running Adjustments



**NOTE: Procedure of this paragraph can be completed only with HMI Service tool (Siemens POL 895)
Test mode function can be used only with HMI Service tool (Siemens POL 895)
The procedure is advised to be carried out with HMI Service tool (Siemens POL 895)**

Running Adjustments must be separately performed for each circuit while it is running near the rating conditions.



For EWAT-CZN and EWYT-CZN unit: Make sure that the pump is running

1. Enter the "Installer/Technician Password"
2. Go in Main Menu → Unit Mode → Mode and set Cool (or Heat/Cool)



In case of application with Set Point less than 4°C select the Unit Mode: Cool with Glycol

3. Go in Main Menu → Unit Enable
4. Set Unit → Enable
5. Set View/Set Unit → Network Control → Control source → Local

The circuit is now ready for the Running Adjustment (paragraph 8.1)



Make sure that Unit/Off switch is closed



Make sure that pump is running

Connect the pressure gauges to the high pressure port and low pressure port.

Note: EWAT-CZ units have not high pressure port with Schrader valve. Service port for recovery must be used for pressure measurement.

Enable the circuit by setting

Unit Enable → Circuit #1 → Enable, Circuit #2 → Disable

8.1.1 Check and calibration of pressure transducers

Calibration of pressure transducers is a fundamental step for the correct operation of the unit.

There are two pressure sensors to be calibrated (for each circuit):

- The low pressure transducer
- The high pressure transducer



Make sure that the circuit is working in stable conditions at 100% capacity to don't affect the following operations result



Make sure that the circuit status is "Run: Normal" before to proceed with the Running Adjustments

8.1.1.1 Evaporator Pressure (Low pressure transducer)

- Enter the *Commission Unit* → *Calibrate Sensors* → *Circuit #1/2* menu and then compare the *Evap Pressure* value with that detected by sample transducer or pressure gauge. If the pressure value measured by the unit transducer is different from the sample one, set the difference in the *Evap Pr Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



If this difference is greater than ± 100 kPa replace the transducer and repeat the operation.



Evaporator pressure transducer is the most crucial of chiller's transducer as will guarantee the correct working of the EXV with consequent safe compressor running and since all low pressure safeties are based on its readings.

8.1.1.2 Condenser Pressure

- Enter *Commission Unit* → *Calibrate Sensors* → *Circuit #1/2* menu and then compare the *Cond Pressure* value with the one detected by the sample transducer/pressure gauge. If the value of the pressure measured by the unit transducer is different from the sample one, set the difference in the *Cond Pr Offset* parameter.



At the end of the Calibrate Sensor setting the saving of the modified parameter (Main Menu > Application Save > Yes) is required BEFORE to proceed with the startup of the unit.



If this difference is greater than ± 100 kPa replace the transducer and repeat the operation.

8.2 Data acquisition



Make sure that the circuit is working in stable conditions to don't affect the Data Acquisition

- Data acquisition must be performed according the **Start up Refrigerant system data** section of the EWAT-CZ & EWYT-CZ Commissioning Checklist
- Data acquisition must be separately performed for each circuit in cool mode.
To select the circuit working mode refer to the following setting:

Main Menu → Unit Mode → Cool



In case of application with Set Point less than 4°C select the Unit Mode: Cool with Glycol

- Then the selection of the circuit to be tested:
Main Menu → Unit Enable → Circuit #1 (or #2) → set to Enable



- It is recommended to let the circuit reach the 100% of capacity before to proceed with the data acquisition (according to the plant load conditions).***
- It is recommended to let the circuit reach stable operating conditions before to proceed with the data acquisition.***
To evaluate the stable operation of the unit check, following conditions must be satisfied:
 - Circuit Status equal to "Run=Normal"*
 - ELWT is as near as possible to the setpoint*
 - Pressure is equal to the Pressure target for 5 minutes continuously:*

Main Menu → View/Set Circuit → Circuit# → EXV → Pressure Target

8.2.1 Only for EWYT-CZx units (Heat Pump)

- After the test in Cool mode, if some load on the plant side is present, is possible test the unit in Heating mode. To select the Heating mode, refer to the following setting:

Main Menu → Unit Mode → Heat/Cool

The setpoint automatically switch to heat setpoint.



To effectively switch to Heat control verify the CH_HP Source setting. Only one source setting can be used.

- **Software → UCoolHeatSw set “On” to pass in Heat mode**
 - **ContactDI → close the physical Heat/Cool switch (install as per wiring diagram: Field wiring connections)**
-

- Then the selection of the circuit to be tested:

Main Menu → Unit Enable → Circuit #1 (or #2) → set to Enable



- **It is recommended to let the circuit reach the 100% of capacity before to proceed with the data acquisition (according to the plant load conditions).**
- **It is recommended to let the circuit reach stable operating conditions before to proceed with the data acquisition.**

To evaluate the stable operation of the unit check, following conditions must be satisfied:

- **Circuit Status equal to “Run=Normal”**
- **ELWT is as near as possible to the setpoint**
- **Pressure is equal to the Pressure target for 5 minutes continuously:**

Main Menu → View/Set Circuit → Circuit# → EXV → Pressure Target

8.3 User HMI (EVCO) restoring

User HMI must be restored

To activate the User HMI:

- Insert Installer/technician password
- Set EVCO HMI in menu:
Commission Unit → Configuration → HMI Selection → EvCO
- Reboot the controller with Apply Changes command:
Commission Unit → Options → Apply Changes → Yes
- Controller is rebooted and the unit is ready to be run



CLIMATIX Scope Light data recording during commissioning is strongly suggested.

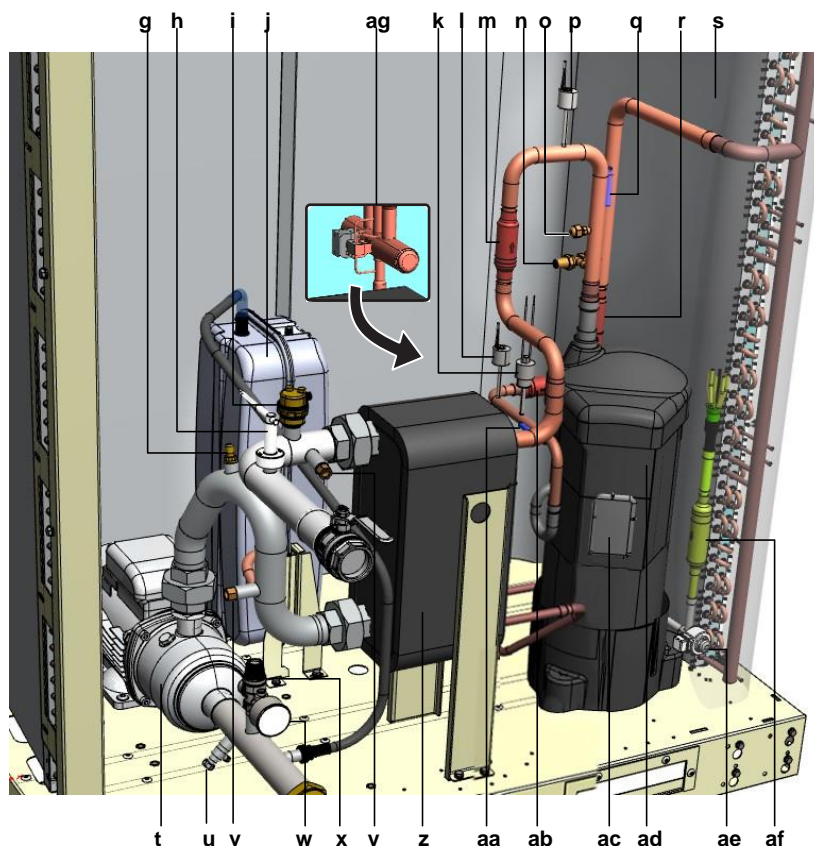
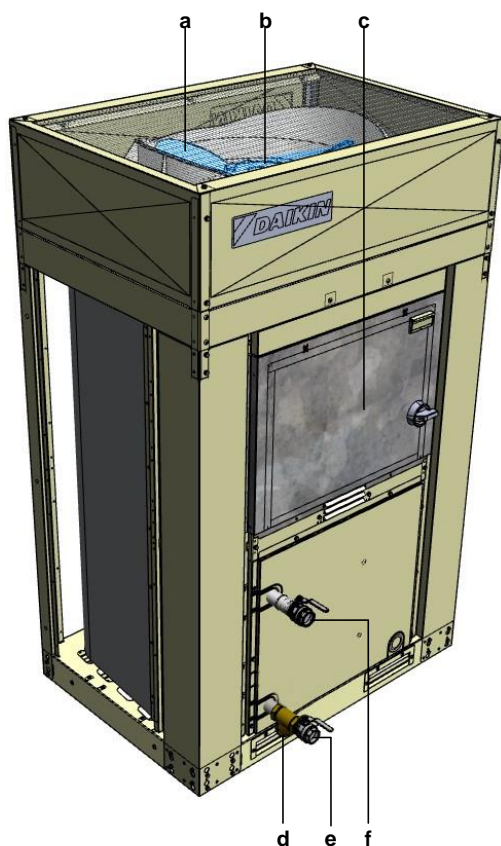
For all material required for the recording and remote support get in contact with

FQS.TECHNICALSERVICES@DAIKINEUROPE.COM (DENV Affiliates) or

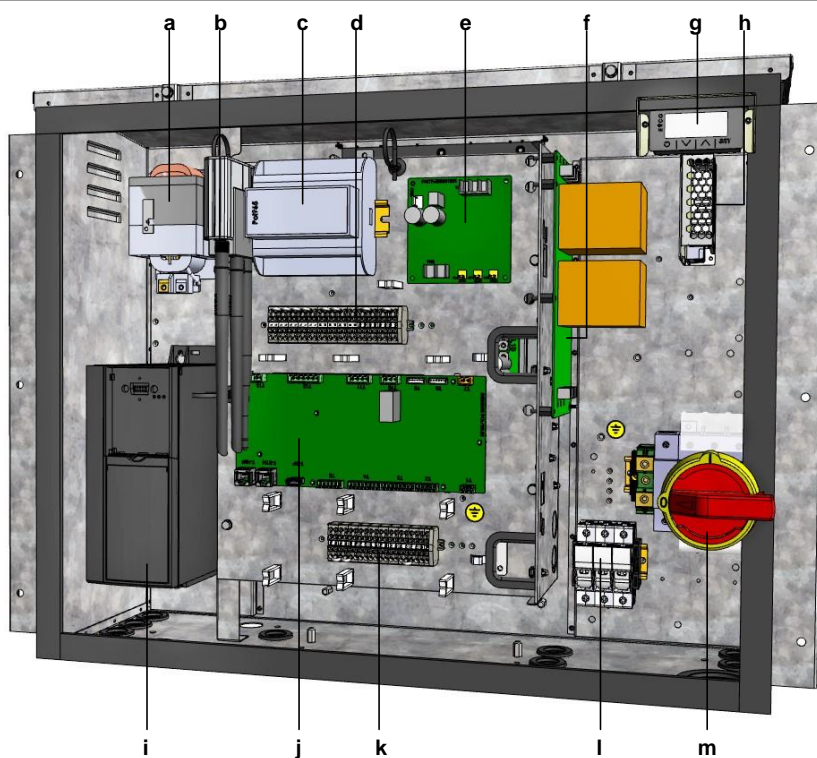
servicesupport@daikinapplied.eu (DAE affiliates)

Annex: Unit layout

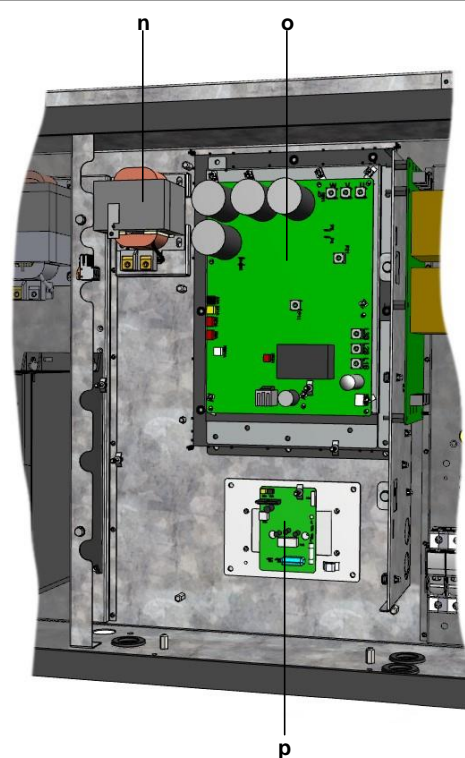
9.1. EWAT/EWYT016~025CZ



- | | | | |
|---|---------------------------------------|----|--|
| a | Fan | r | Check valve |
| b | Fan motor M1F | s | Heat exchanger |
| c | Switch box | t | Water pump |
| d | Water filter | u | Drain |
| e | Water inlet | v | Inlet water thermistor EEWT |
| f | Water outlet | w | Pressure gauge |
| g | Plugged fitting | x | Safety valve |
| h | Flow switch | y | Outlet water thermistor ELWT |
| i | Air purge valve | z | Plate type heat exchanger |
| j | Expansion vessel | aa | Discharge pipe thermistor DT1 |
| k | High pressure switch F131 | ab | Filter |
| l | Refrigerant high pressure sensor CNP1 | ac | Electrical connection box |
| m | Filter | ad | Compressor M1C |
| n | Receiver valve | ae | Expansion valve EEXV1 |
| o | Access fitting | af | Biflux filter |
| p | Refrigerant low pressure sensor EVP1 | ag | 4-way valve (only for heating+cooling units) |
| q | Suction thermistor ST1 | | |

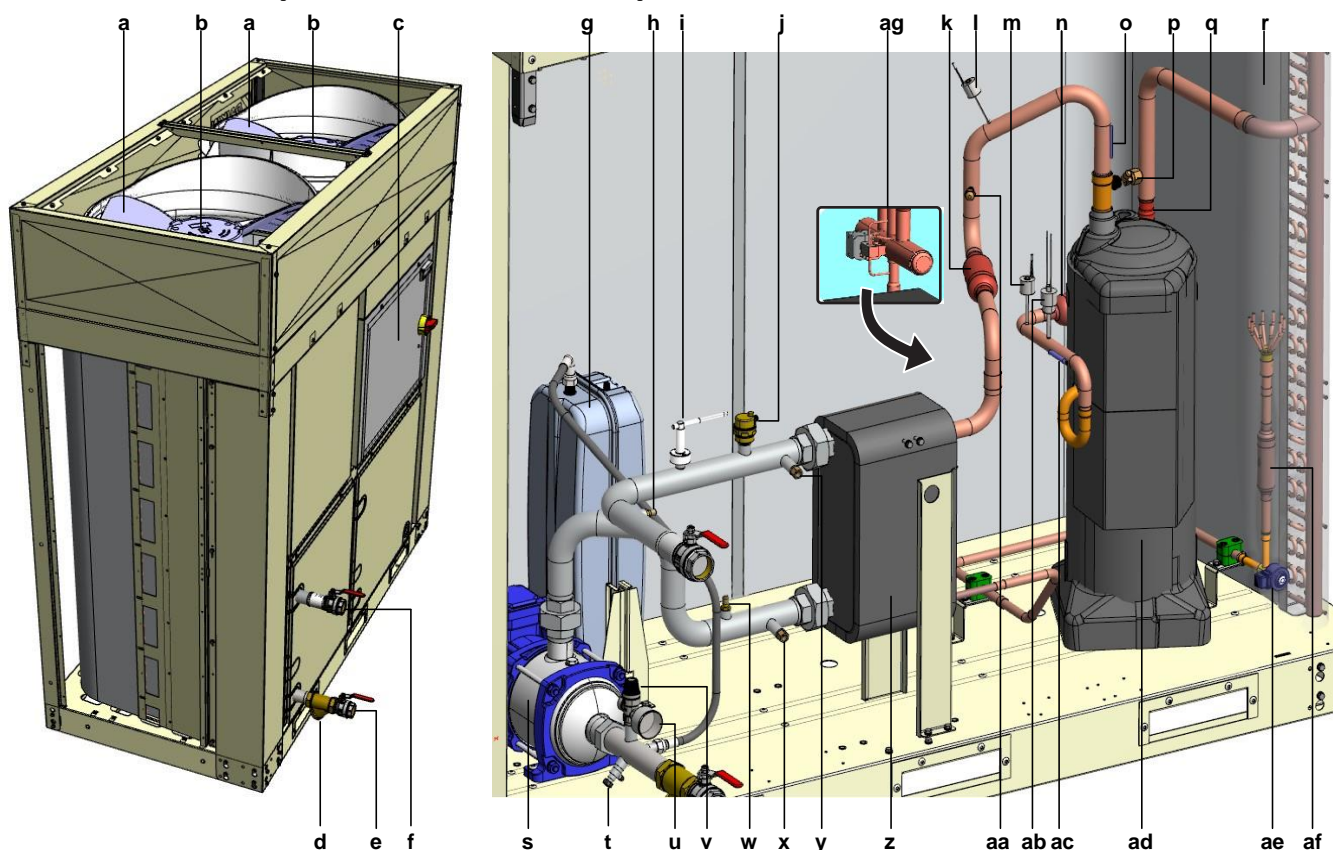


- a Reactor
- b Daikin on site modem
- c Additional board (option PCB)
- d Terminal block XU
- e ACS digital I/O PCB A301P
- f Noise filter PCB type 5039853
- g Interface display
- h 24 V DC auxiliary power supply U1

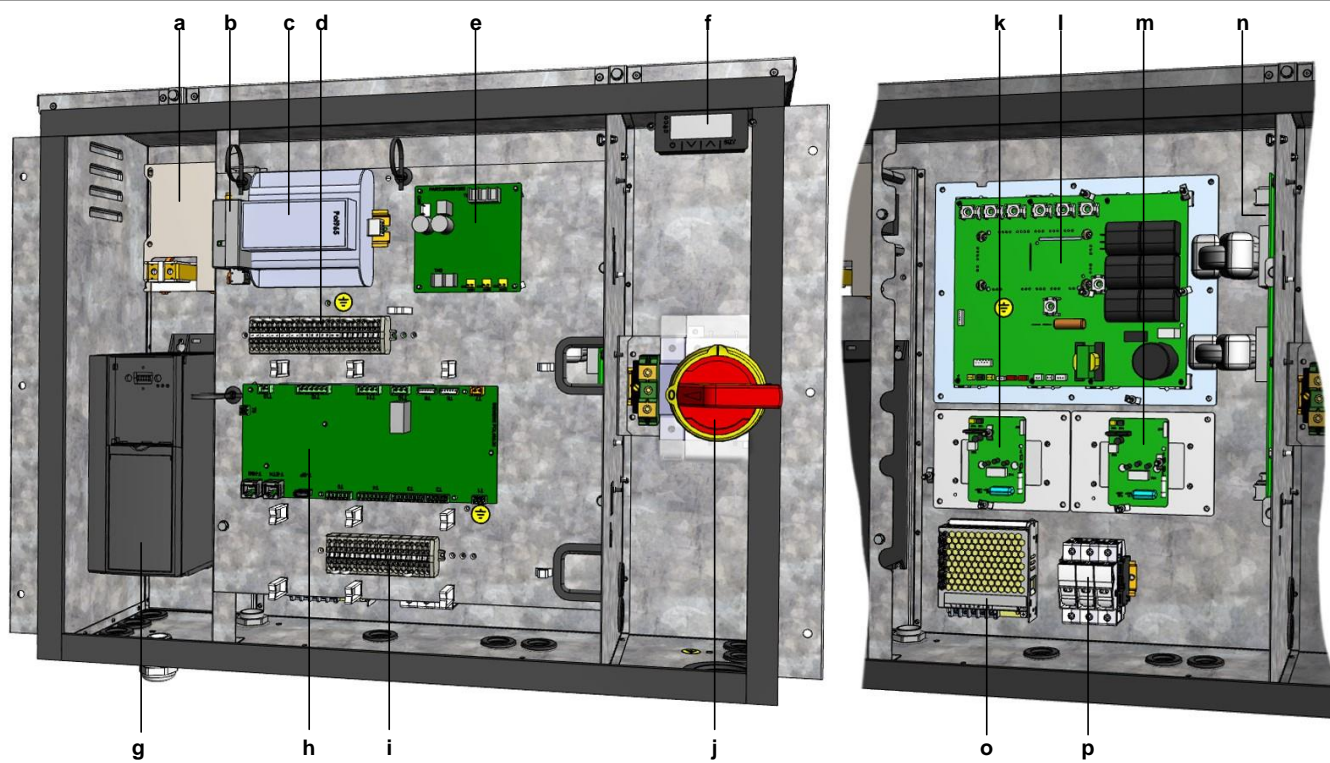


- i Pump inverter
- j Main PCB
- k Terminal block XD
- l Circuit breaker
- m Main switch Q10
- n Reactor
- o Inverter PCB type 17
- p Fan inverter PCB A4P11

9.2. EWAT/EWYT032CZ+EWAT/EWYT040CZ-A1



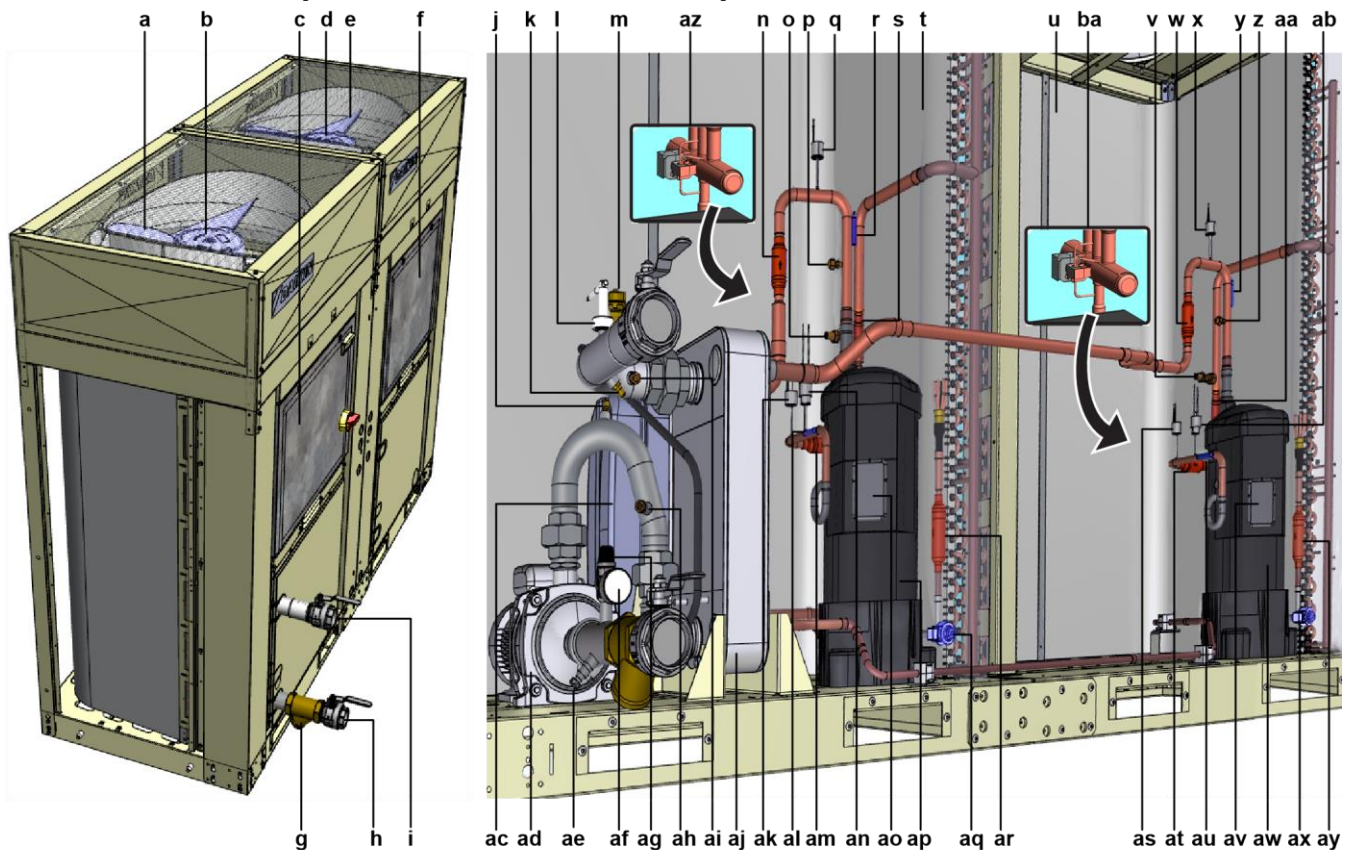
- | | | | |
|---|---------------------------------------|----|---|
| a | Fan | r | Heat exchanger |
| b | Fan motor M1F | s | Water pump |
| c | Switch box | t | Drain |
| d | Water filter | u | Pressure gauge |
| e | Water inlet | v | Safety valve |
| f | Water outlet | w | Plugged fitting |
| g | Expansion vessel | x | Inlet water thermistor EEWT |
| h | Plugged fitting | y | Outlet water thermistor ELWT |
| i | Flow switch | z | Plate type heat exchanger |
| j | Air purge valve | aa | Access fitting |
| k | Filter | ab | High pressure switch F131 |
| l | Refrigerant low pressure sensor EVP1 | ac | Discharge pipe thermistor DT1 |
| m | Refrigerant high pressure sensor CNP1 | ad | Compressor M1C |
| n | Filter | ae | Expansion valve EEXV1 |
| o | Suction thermistor ST1 | af | Biflux filter |
| p | Receiver valve | ag | 4-way valve (only for heating+cooling units) Y4W1 |
| q | Check valve | | |



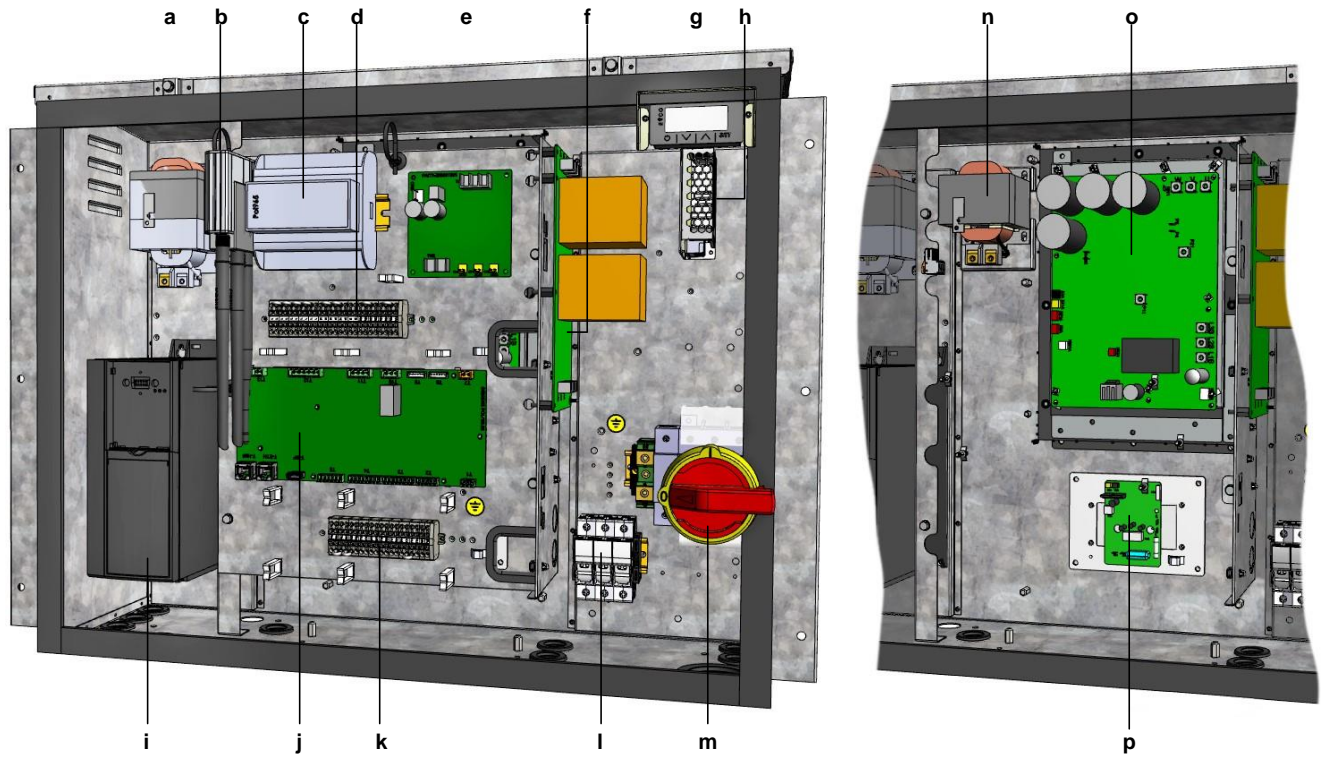
- a Reactor
- b Daikin on site modem
- c Additional board (option PCB)
- d Terminal block XU
- e ACS digital I/O PCB A301P
- f Interface display
- g Pump inverter
- h Main PCB

- 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

9.3. EWAT/EWYT040CZ-A2+EWAT/EWYT050CZ



- | | |
|---|---|
| a Fan | ab High pressure switch F132 |
| b Fan motor M1F | ac Expansion vessel |
| c Main switch box | ad Water pump |
| d Fan motor M2F | ae Drain |
| e Fan | af Pressure gauge |
| f Secondary switch box | ag Safety valve |
| g Water filter | ah Inlet water thermistor EEWT |
| h Water inlet | ai Outlet water thermistor ELWT |
| i Water outlet | aj Plate type heat exchanger |
| j Plugged fitting | ak Refrigerant high pressure sensor CNP1 |
| k Plugged fitting | al Discharge pipe thermistor DT1 |
| l Flow switch | am Filter |
| m Air purge valve | an High pressure switch F131 |
| n Filter | ao Electrical connection box |
| o Receiver valve | ap Compressor M1C |
| p Acces fitting | aq Expansion valve EEXV1 |
| q Refrigerant low pressure sensor EVP1 | ar Biflux filter |
| r Suction thermistor ST1 | as Refrigerant high pressure sensor CNP2 |
| s Check valve | at Filter |
| t Heat exchanger | au Discharge pipe thermistor DT2 |
| u Heat exchanger | av Electrical connection box |
| v Receiver valve | aw Compressor M2C |
| w Filter | ax Expansion valve EEXV2 |
| x Refrigerant low pressure sensor EVP2 | ay Biflux filter |
| y Suction thermistor ST2 | az 4-way valve (only for heating+cooling units) Y4W1 |
| z Acces fitting | ba 4-way valve (only for heating+cooling units) Y4W2 |
| aa Check valve | |

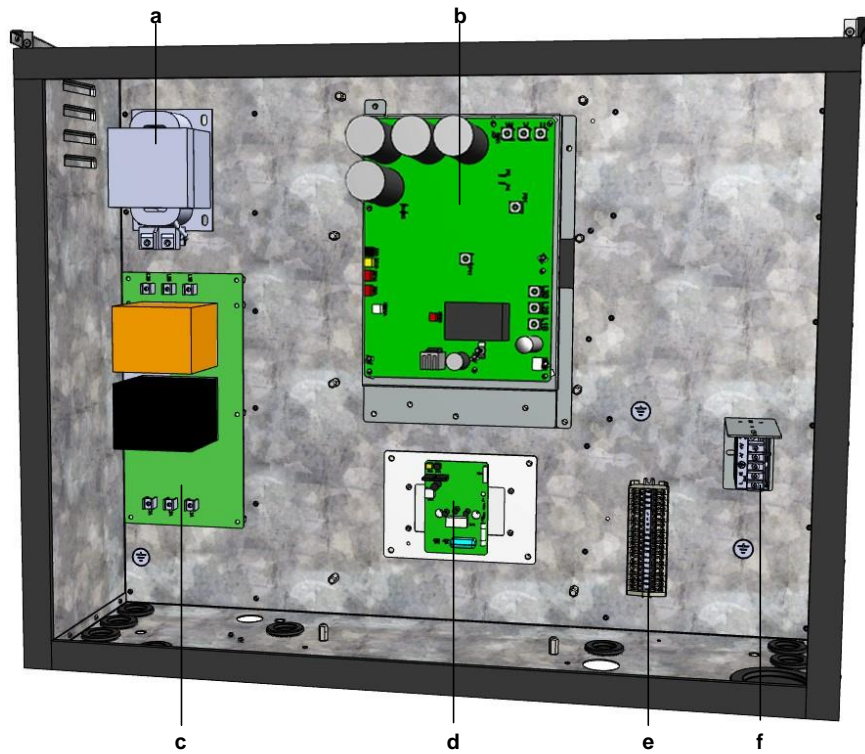


- a Reactor
- b Daikin on site modem
- c Additional board (option PCB)
- d Terminal block XU
- e ACS digital I/O PCB A301P
- f Noise filter PCB type 5039853
- g Interface display
- h 24 V DC auxiliary power supply U1

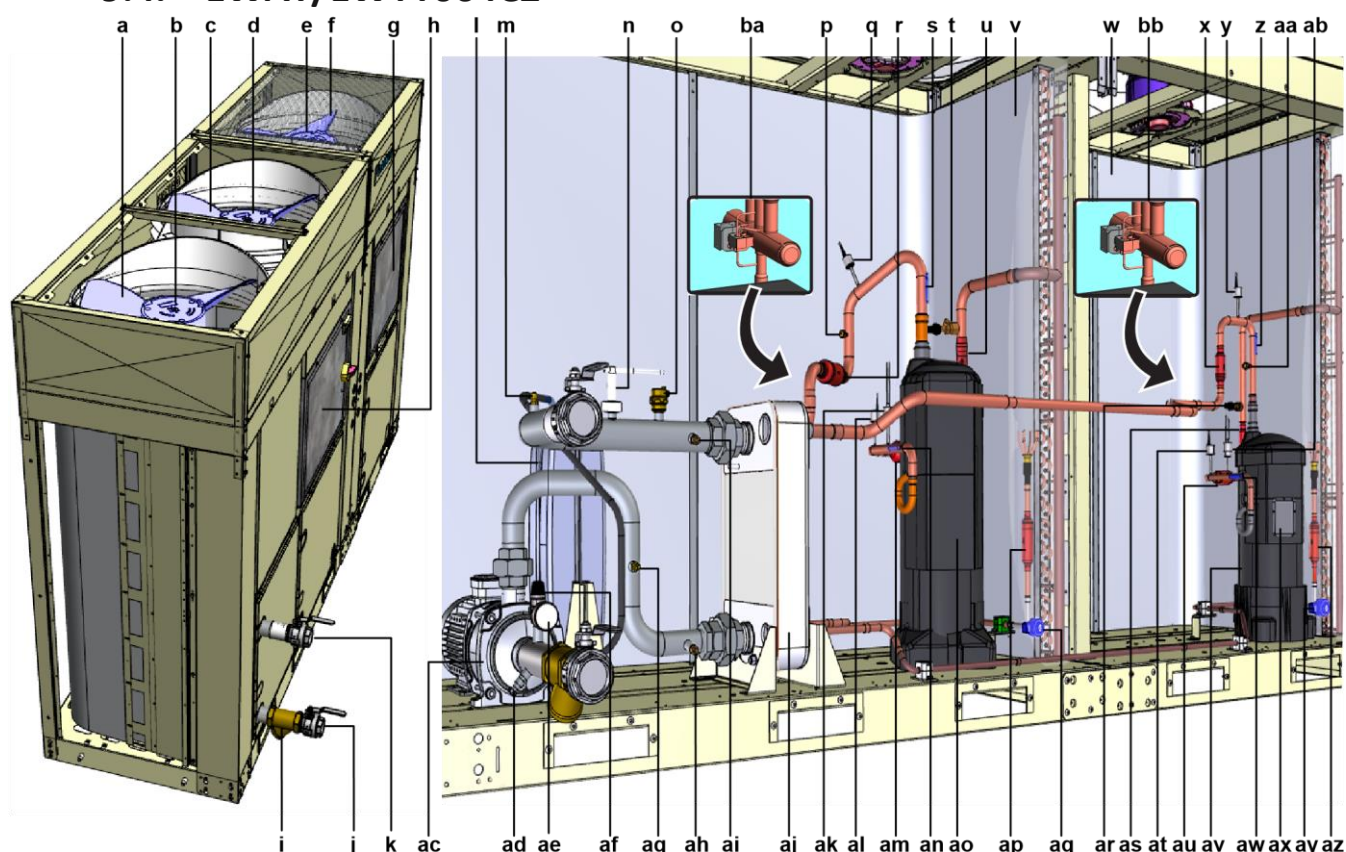
- i Pump inverter
- j Main PCB
- k Terminal block XD
- l Circuit breaker
- m Main switch Q10
- n Reactor
- o Inverter PCB type 17
- p Fan inverter PCB A4P11

Secondary circuit switch box

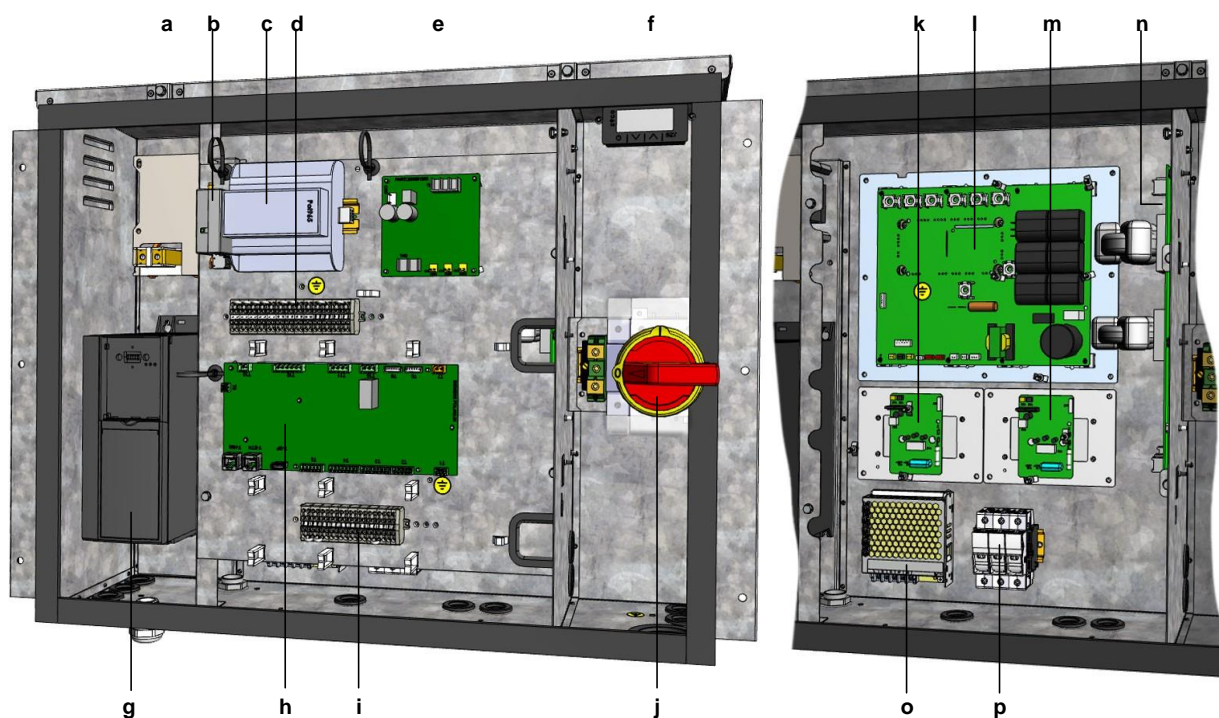
- | | |
|--|---------------------------------|
| a Reactor | d Fan inverter PCB A4P12 |
| b Inverter PCB type 17 | e Terminal block |
| c Noise filter PCB type 5039853 | f Auxiliary power supply |



9.4. EWAT/EWYT064CZ



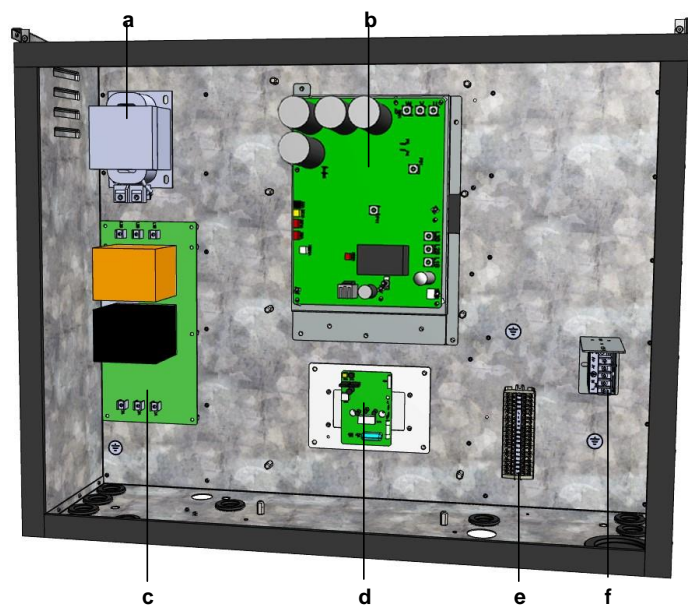
- | | |
|---|---|
| a Fan | ab High pressure switch F132 |
| b Fan motor M11F | ac Water pump |
| c Fan | ad Drain |
| d Fan motor M21F | ae Pressure gauge |
| e Fan motor M12F | af Safety valve |
| f Fan | ag Plugged fitting |
| g Secondary switch box | ah Inlet water thermistor EEWT |
| h Main switch box | ai Outlet water thermistor ELWT |
| i Water filter | aj Plate type heat exchanger |
| j Water inlet | ak High pressure switch F131 |
| k Water outlet | al Refrigerant high pressure sensor CNP1 |
| l Expansion vessel | am Filter |
| m Plugged fitting | an Discharge pipe thermistor DT1 |
| n Flow switch | ao Compressor M1C |
| o Air purge valve | ap Biflux filter |
| p Acces fitting | aq Expansion valve EEXV1 |
| q Refrigerant low pressure sensor EVP1 | ar Receiver valve |
| r Filter | as Check valve |
| s Suction thermistor ST1 | at Refrigerant high pressure sensor CNP2 |
| t Receiver valve | au Filter |
| u Check valve | av Compressor M2C |
| v Heat exchanger | aw Discharge pipe thermistor DT2 |
| w Heat exchanger | ax Electrical connection box |
| x Filter | ay Expansion valve EEXV2 |
| y Refrigerant low pressure sensor EVP2 | az Biflux filter |
| z Suction thermistor ST2 | ba 4-way valve (only for heating+cooling units) Y4W1 |
| aa Acces fitting | bb 4-way valve (only for heating+cooling units) Y4W2 |



- 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

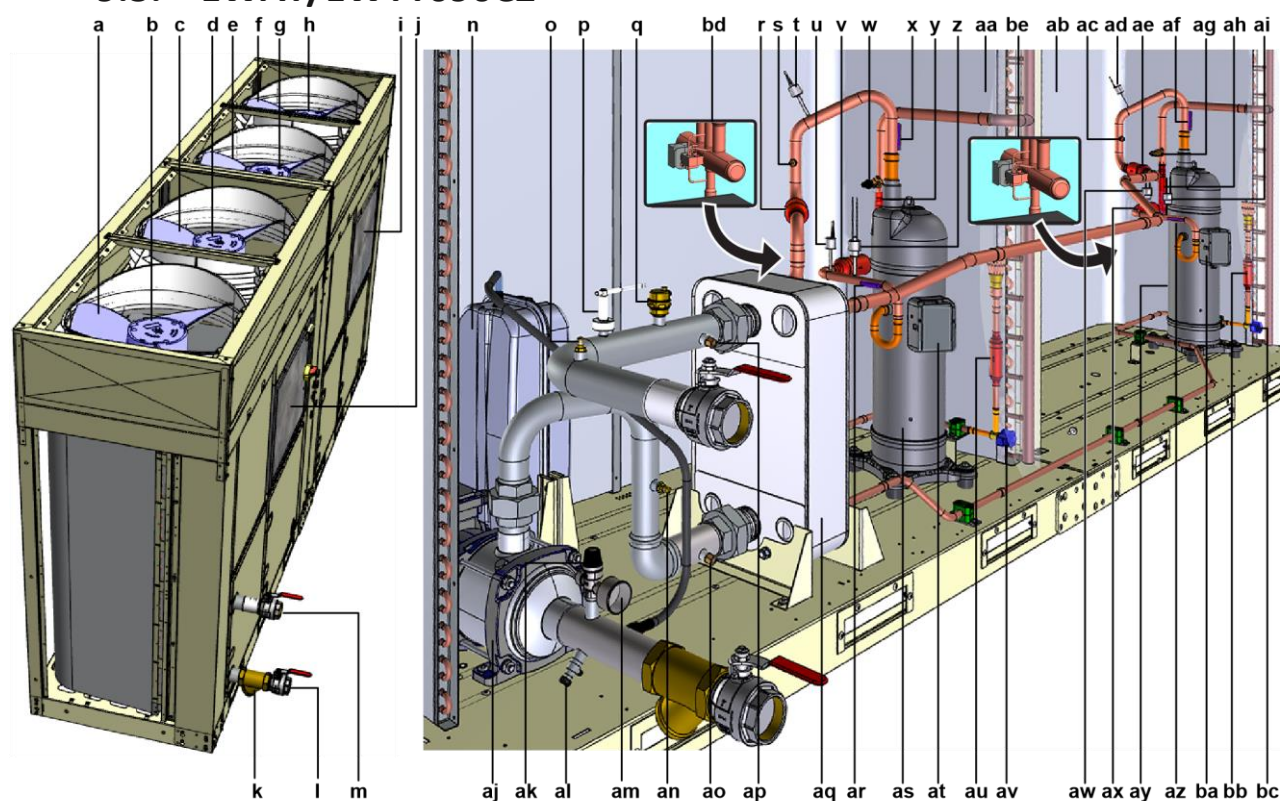
Secondary circuit Switchbox:



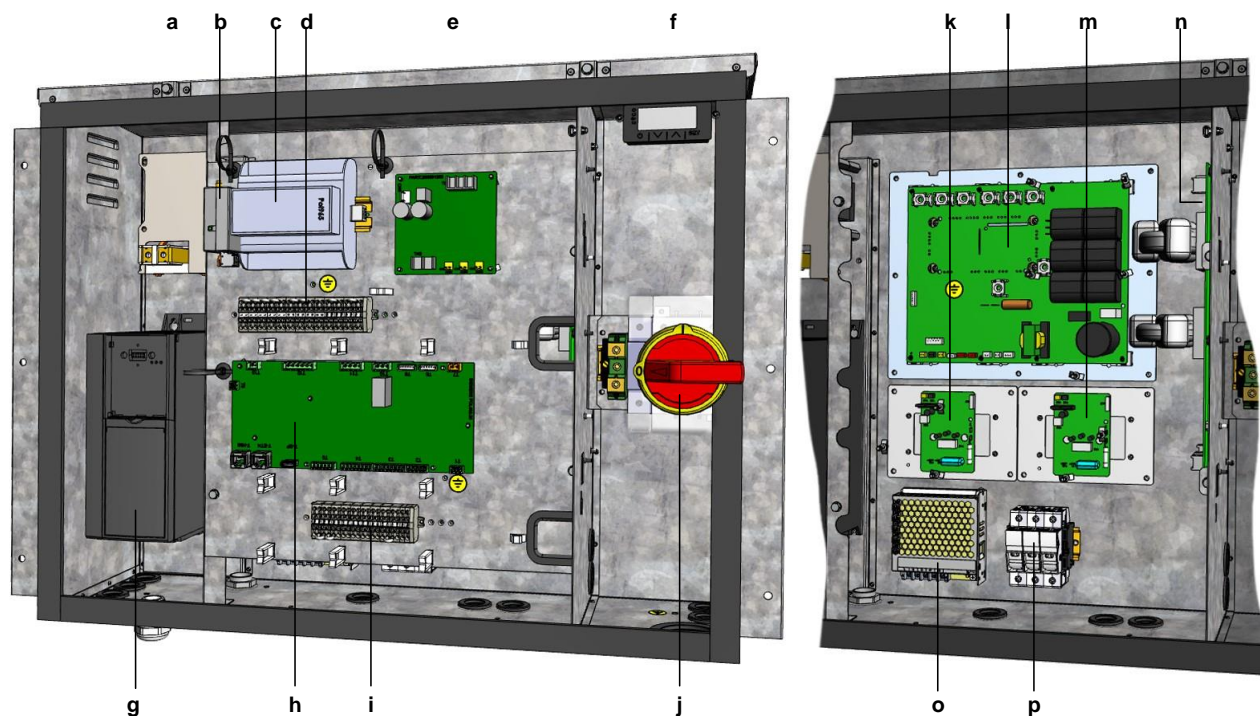
- a Reactor
- b Inverter PCB type 17
- c Noise filter PCB type 5039853

- d Fan inverter PCB A4P12
- e Terminal Block
- f Auxiliary power supply

9.5. EWAT/EWYT090CZ

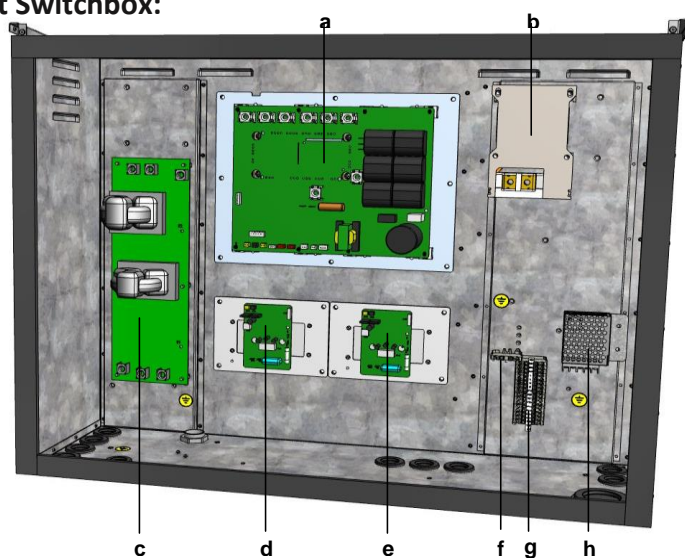


- | | |
|--|---|
| a Fan | ad Refrigerant low pressure sensor EVP2 |
| b Fan motor M11F | ae Filter |
| c Fan | af Suction thermistor ST2 |
| d Fan motor M21F | ag Receiver valve |
| e Fan | ah Check valve |
| f Fan | ai High pressure switch F132 |
| g Fan motor M12F | aj Water pump |
| h Fan motor M22F | ak Safety valve |
| i Secondary switch box | al Drain |
| j Main switch box | am Pressure gauge |
| k Water filter | an Plugged fitting |
| l Water inlet | ao Inlet water thermistor EEW |
| m Water outlet | ap Outlet water thermistor ELWT |
| n Expansion vessel | aq Plate type heat exchanger |
| o Plugged fitting | ar Discharge pipe thermistor DT1 |
| p Flow switch | as Compressor M1C |
| q Air purge valve | at Electrical connection box |
| r Filter | au Biflux filter |
| s Access fitting | av Expansion valve EEXV1 |
| t Refrigerant low pressure sensor EVP1 | aw Refrigerant high pressure sensor CNP2 |
| u Refrigerant high pressure sensor CNP1 | ax Filter |
| v Filter | ay Compressor M2C |
| w Receiver valve | az Discharge pipe thermistor DT2 |
| x Suction thermistor ST1 | ba Electrical connection box |
| y Check valve | bb Biflux filter |
| z High pressure switch F131 | bc Expansion valve EEXV2 |
| aa Heat exchanger | bd 4-way valve (only for heating+cooling units) Y4W1 |
| ab Heat exchanger | be 4-way valve (only for heating+cooling units) Y4W2 |
| ac Access fitting | |



- | | | | |
|---|-------------------------------|---|-----------------------------------|
| a | Reactor | i | Terminal block XD |
| b | Daikin on site modem | j | Main switch Q10 |
| c | Additional board (option PCB) | k | Fan inverter PCB A4P11 |
| d | Terminal block XU | l | Inverter PCB type 27 |
| e | ACS digital I/O PCB A301P | m | Fan inverter PCB A4P12 |
| f | Interface display | n | Noise filter PCB type 5039863 |
| g | Pump inverter | o | 24 V DC auxiliary power supply U1 |
| h | Main PCB | p | Circuit breaker |

Secondary circuit Switchbox:



- | | | | |
|---|-------------------------------|---|----------------------------------|
| a | Inverter PCB type 27 | e | Fan inverter PCB A5P22 |
| b | Reactor | f | Terminal block (PE) X1 |
| c | Noise filter PCB type 5039863 | g | Terminal block X2 |
| d | Fan inverter PCB A5P21 | h | 5 V DC auxiliary power supply U2 |

Installer	
Company name	
Contact person	
Telephone N°	
Email address	
Date	

Performed by	
Company	
Name	
Telephone N°	
Email address	
Date	
Certificate	

End customer	
Name	
Street – N°	
Zip code – City	
Country	
Telephone N°	
Email address	

Maintenance by	
Company	
Name	
Telephone N°	
Email address	
Date	

Installation					
Model name		Refrigerant type	R32	Circuit 1 weight	kg
Serial number				Circuit 2 weight	kg
Serial number applied units					
Software version				Total weight	kg
Manufacturing date					
Reference installation					

Safety / last minute risk analysis

Note: Before continuing, make sure all required safety measures are taken. If not, do NOT start commissioning. Perform a last minute risk analysis on the following items. For more details, see the installer reference guide of the unit.

Safe access to the installation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	General check on possible safety hazards	<input type="checkbox"/> Done	<input type="checkbox"/> Not done
Enclosed workplace	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Emergency exits	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
Working at heights	<input type="checkbox"/> No	<input type="checkbox"/> Yes	Presence of necessary personal protection equipment	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
Electrical hazards	<input type="checkbox"/> No	<input type="checkbox"/> Yes			

Precommissioning					
Note: Full installation has to be done in line with the installation manual. If NOT, do NOT commission and solve all open issues first.					
Installation checklist available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Installation checklist filled	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Unit installed according to Daikin Manuals?	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK			

Visual inspection					
Shipping damages	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sales selection data available	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Unit grounded	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Logbook available and complete?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Correct unit foundation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Vibrations/frictions	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Presence of installation mistakes	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Noise	<input type="checkbox"/> Yes	<input type="checkbox"/> No

	Compressor 1	Compressor 2
Model		
Serial number		
Unit setpoint	°C	
What BMS system		

Refrigerant piping check

Pressure within Refrigerant circuit	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Leak test performed	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Leak found	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If found, leak fixed	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Water piping check

Valves installed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Correct water direction	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Filters installed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Piping/water according to specifications	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Plant piping visually revised	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Safe installation	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Plant piping according to Installation drawing	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

Electrical check

Filed wiring according to Wiring diagram	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Oil Heaters were on before start up	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are electrical connections correct	<input type="checkbox"/> Yes	<input type="checkbox"/> No	National electrical laws and local laws respected	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Circuit Breaker installed	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

Pre-start up

Water flow is ok	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Water Volume within specifications	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Air purged	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Flow switch functional	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Main voltage	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Phase voltage	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK

	L1-L2	L2-L3	L1-L3		
Main voltage	<input type="text"/> V	<input type="text"/> V	<input type="text"/> V		
Phase unbalance	<input type="text"/> %			Unbalance checked as specified in IOM	<input type="checkbox"/> Yes <input type="checkbox"/> No
Auxiliary transformer voltage U1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK		Electrical insulation Compressor 1	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Auxiliary transformer voltage U2 (if 2 circuits)	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK		Electrical insulation Compressor 2	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Electrical connections	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK			
Software updated	<input type="checkbox"/> Yes	<input type="checkbox"/> No		Brine options corrected	<input type="checkbox"/> Yes <input type="checkbox"/> No
Alarm limits revised	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

Changed settings

Note: Add all changed settings and their current value.

Setting	Description	Default value	New value	Setting	Description	Default value	New value

Protections

Anti-freeze protection	°C	<input type="text"/>	Low pressure unload (only with glycol)	bar	<input type="text"/>
Low outdoor air thermistor lockout	bar	<input type="text"/>			

Calibration

			Offset if calibrated
Evaporator leaving water temperature sensor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="text"/>
Evaporator entering water temperature sensor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="text"/>
Outside air temperature sensor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="text"/>
Suction temperature sensor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="text"/>
Discharge temperature sensor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="text"/>
calibration performed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Dry tests

General alarm operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Compressor heaters operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
Fan operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Expansion valve operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
Fan speed operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	High pressure switch	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
4-way valve operational	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Compressor	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK

Pre-start up comments:

Start-up running adjustments

Pressure transducers	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Pressures transducers calibration	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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Start-up refrigerant system data

Number of running compressors			Suction superheat	K	
Unit capacity	%		Discharge pressure	bar	
Compressor capacity	%		Condensation temperature	°C	
Suction pressure	bar		Discharge temperature	°C	
Evaporating temperature	°C		Discharge superheat	K	
Expansion valve position	pulse		Liquid temperature	°C	
Suction temperature	°C				

	Capacity (%)	L1 (A)	L2 (A)	L3 (A)	Full load amperage
Compressor 1					
Compressor 2					

Battery resistance electronic expansion valve Ω

Oil heater compressor 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Oil heater compressor 2	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
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Cooling operation data from evaporator

Inlet water temperature	°C		Approach temperature	K	
Outlet water temperature	°C		Pressure drop evaporator	bar	

	L1 (A)	L2 (A)	L3 (A)	Full load amperage
Pump 1 evaporator				

Check leaving water temperature sensors	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Check flow switch	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
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Heating operation data from condenser

Inlet water temperature	°C		Approach temperature	K	
Outlet water temperature	°C		Pressure drop evaporator	bar	

	L1 (A)	L2 (A)	L3 (A)	Full load amperage
Pump 1 condenser				

Check leaving water temperature sensors	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Check flow switch	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
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Analysis report

Water analysis sample (on demand)

☐ Yes☐ No

Glycol analysis sample (on demand)

☐ Yes☐ No

Overall result

The installation is working:

☐ Good☐ Not good

Follow-up site visit needed?

☐ Yes☐ No☐ Safe☐ Not safe

Shortcomings and measures to be taken

General remarks:

Shortcomings that were not fixed during the commissioning:

Measures to be taken in order to resolve the remaining shortcomings:

Signature certified technician

