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Accessory Manual
D-EIOOC03212-24_01EN

Modular Water Cooled chiller/heat pump with scroll compressors

EWWT~Q / EWHT~Q/EWLT~Q

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1 OVERVIEW

1.1 Introduction

This manual provides the information for the correct installation of each accessory for EWWT/EWLT/EWHT-Q units.

2 ACCESSORIES LIST

In the **Errore. L'origine riferimento non è stata trovata.** are listed all the accessories.

Table 1 – Accessories list

1	Daikin on Site Modem without M2M card	EKDOSMWO
2	Connectivity for external BMS communication	EKCBMS
3	Access Point for mobile App HMI	EKMDMAP
4	Control Extension pack	EKCTRLPACK
6	Temperature sensor for master/slave configuration	EKTSMS
7	Local/remote display HMI	EKRUPCS
8	Kit Water In/Out	EKWIO
9	Kit for Variable Primary Flow systems on one loop only (for multiple units)	EKVPFKIT
10	Stacked assembly kit	EKSTCK
11	Modular assembly kit	EKSBSM
12	Motor for throttle valve drive on collector	EKACTV
13	Single Power Supply Kit	EKSPELT2-EKSPELT3-EKSPELT4
14	iCM gateway (Multi Master Controller)	EKICMGTW
15	Pump module VFD high lift and low lift	EKPUMPLL1/2/3/4/5 EKPUMPHL1/2/3/4
16	Manifold module	EKMFKIT3 EKMFKIT5
17	Victaulic caps	EKCAPS3-EKCAPS5
18	Connection kit	EKWCONNKIT3-EKWCONNKIT5- EKHCONNKIT3-EKHCONNKIT5
19	Water filter	EKWTRFLTR3 - EKWTRFLTR5
20	Smart grid ready box	EKCMSGW
21	Anti vibration mounts for manifold	EKRUBAVMC - EKSPRAVMC
22	Anti vibration mounts for pump module	EKRUBAVMP - EKSPRAVMP
23	4x Rubber Pad 150x240	EKRUBPAD

3 DAIKIN ON SITE MODEM WITHOUT M2M CARD

Daikin On Site kit can be used to connect the unit to Daikin On Site cloud. Cloud connection offers the possibility to monitor and control the unit by remote. In order to enable Daikin On Site, refer to the instructions showed in the Operating Manual.

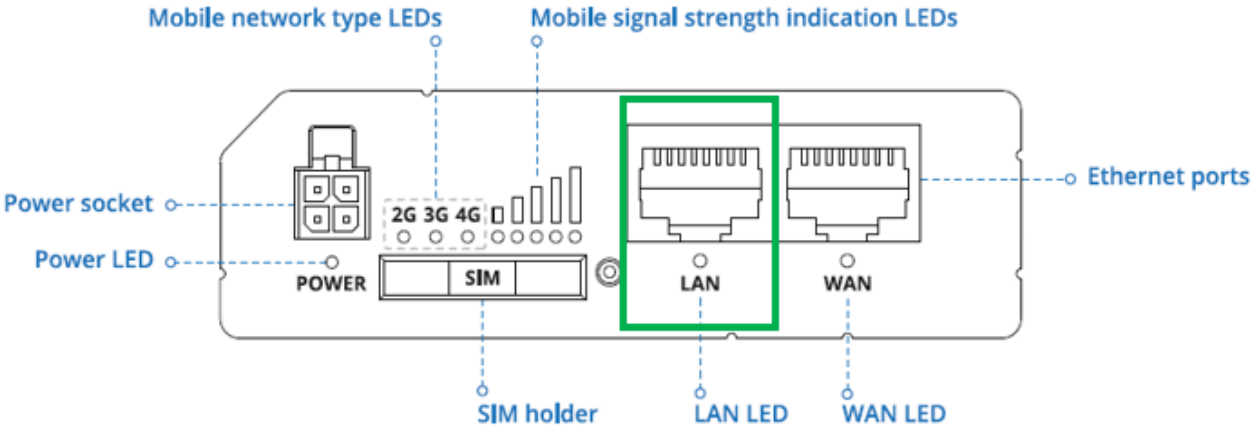
3.1 Modem Kit

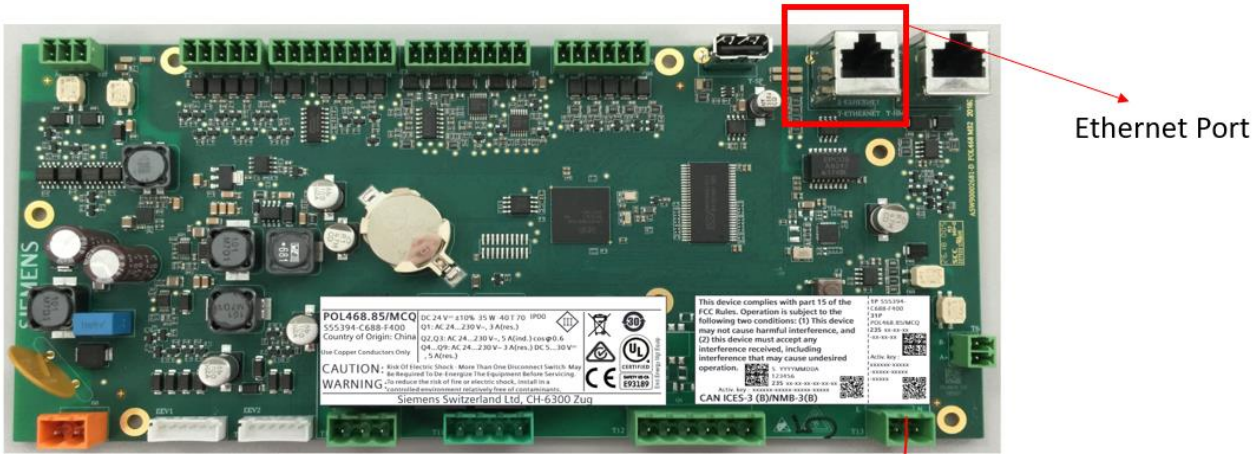
Modem Teltonika Kit is used to establish the connection to Daikin On Site. No SIM are provided within the Modem Kit.

1	Modem Teltonika RUT240
2	Ethernet Cable
3	Powe Supply Cable Tamiya 4 pols
4	Assembly adapter DIN + screws
5	Tool For SIM remove
6A	2x Antenna LTE
6B	Antenna WiFi
7	Guide
8	Kit Box RUT240
9	Magnetic base Antenna PANORAMA ANTENNAS MAR-7-21-2SP

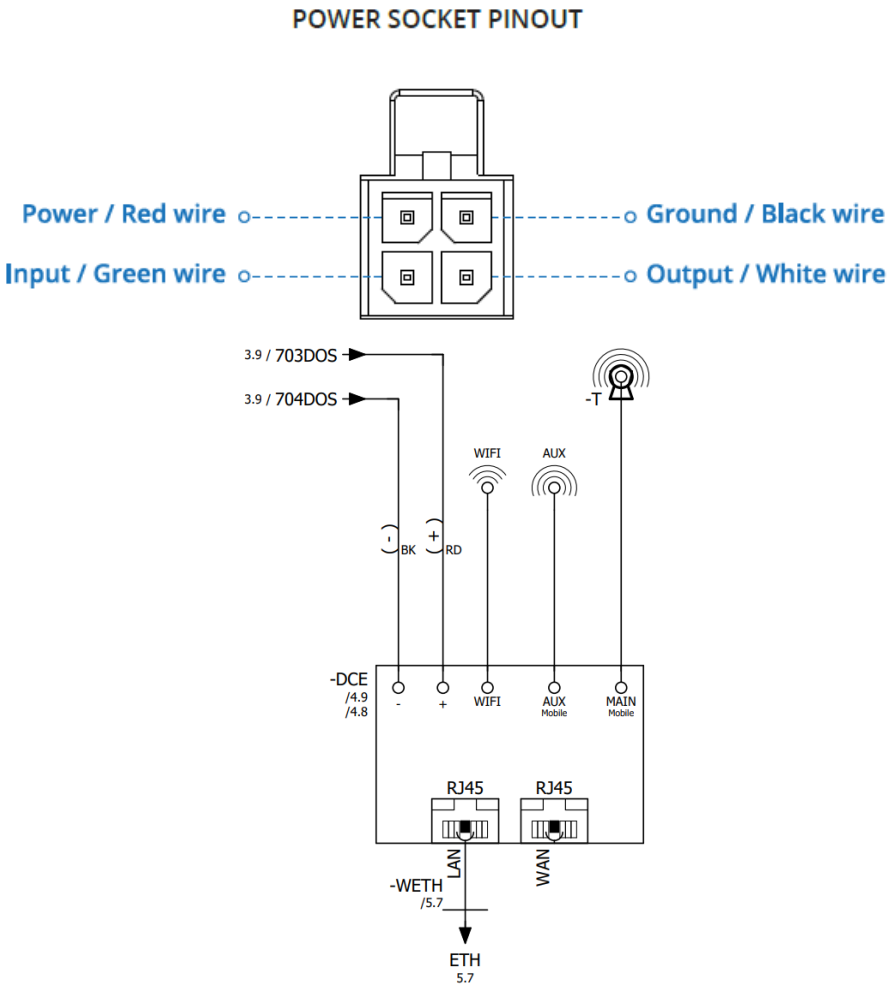
3.2 Electrical Connection

The data connection between Router and C400 will be made using a network patch cable of category 5S or higher (2) also included in the Teltonika kit. This connection to the Teltonika RUT240 Router side must be made by connecting the cable exclusively to the port indicated as "LAN".



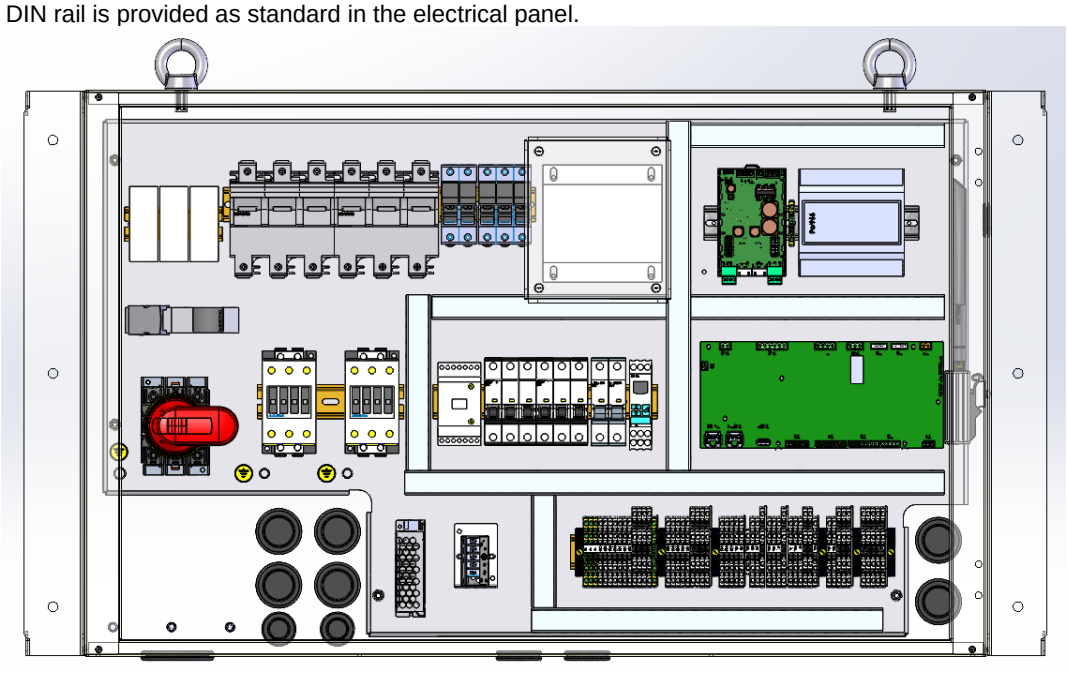


The power supply will be provided as indicated in the electrical scheme (PIN 703-PIN 704). It will be sufficient to connect only the red (+) and black (-) cable to the power supply, respecting the polarity, while the other two cables must be properly insulated (e.g. with heatshrink or on terminal board if the cable is originally equipped with it).



3.3 Mechanical Connection

Install the modem according to the picture below.
Note: The DIN rail is provided as standard in the electrical panel.



4 CONNECTIVITY FOR EXTERNAL BMS COMMUNICATION (MODBUS TCP, BACNET MSTP/IP) (MTO)

The connectivity kit it is used to enable the following features on the unit controller:

1. Modbus TCP-IP
2. BACNet MSTP
3. BACNet TCP-IP
4. Web Server – Web HMI

This kit consists of a Connectivity Card with an associated Activation ID.

Every connectivity card can be linked to only one POL468.85/MCQ. Link is not pre-defined; it means there is no relationship between connectivity card and the POL468.85/MCQ of the specific unit. Once the connectivity card is used to enable the previous function, its usage is no more valid for new boards

4.1 Procedure to enable the connectivity kit

Unlocking the connectivity kit requires three fundamental parts:

1. Physical access to POL468.85/MCQ board
2. Smartphone
3. Internet connection

As shown below, the procedure is entirely realized through an app and requires few minutes to be done.

4.1.1 Install controller label on connectivity card

POL468.85/MCQ is equipped with two labels as shown in the picture below.

Label2 is made of a fixed part and a removable part which is the only one necessary for connectivity kit enabling. The removable part needs to be detached from main POL468.85/MCQ and attached on the connectivity card to be scanned with your smartphone.

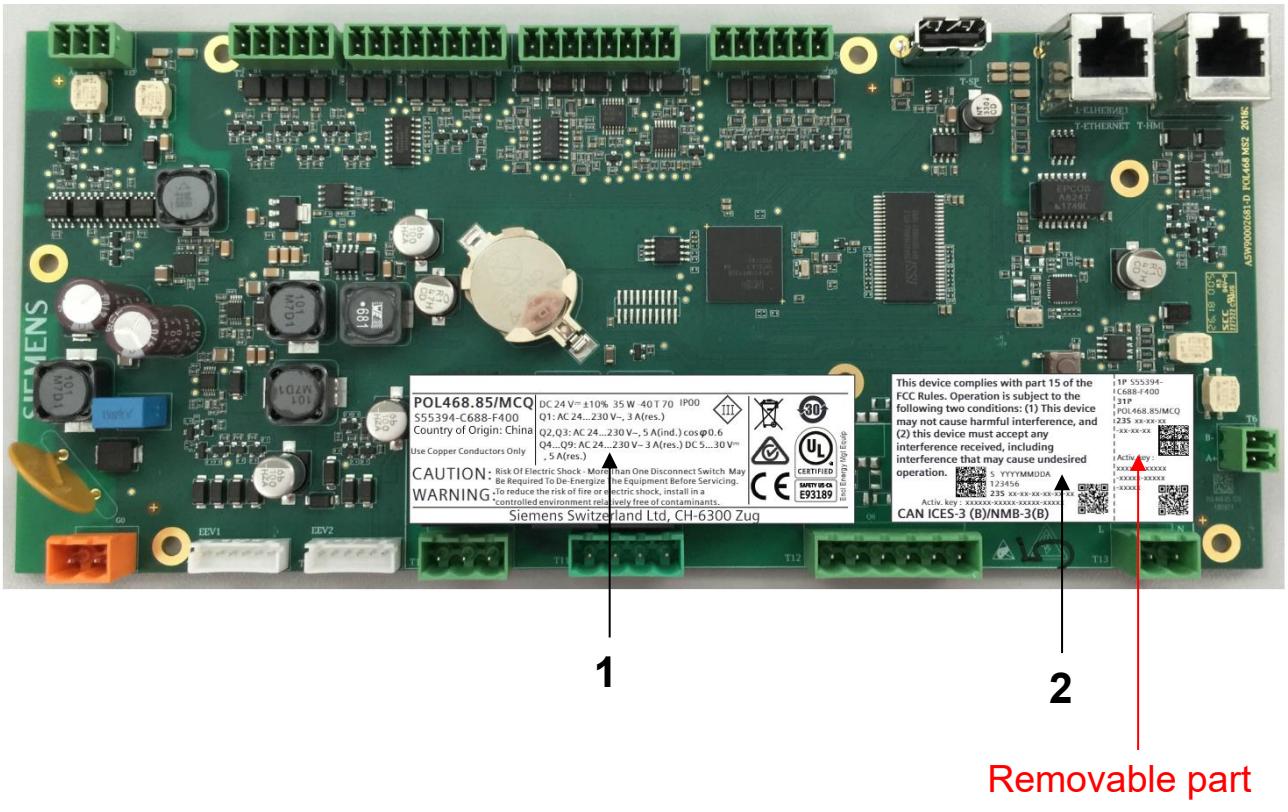


Fig. 1- Installion of the controller label on the Connectivity Card

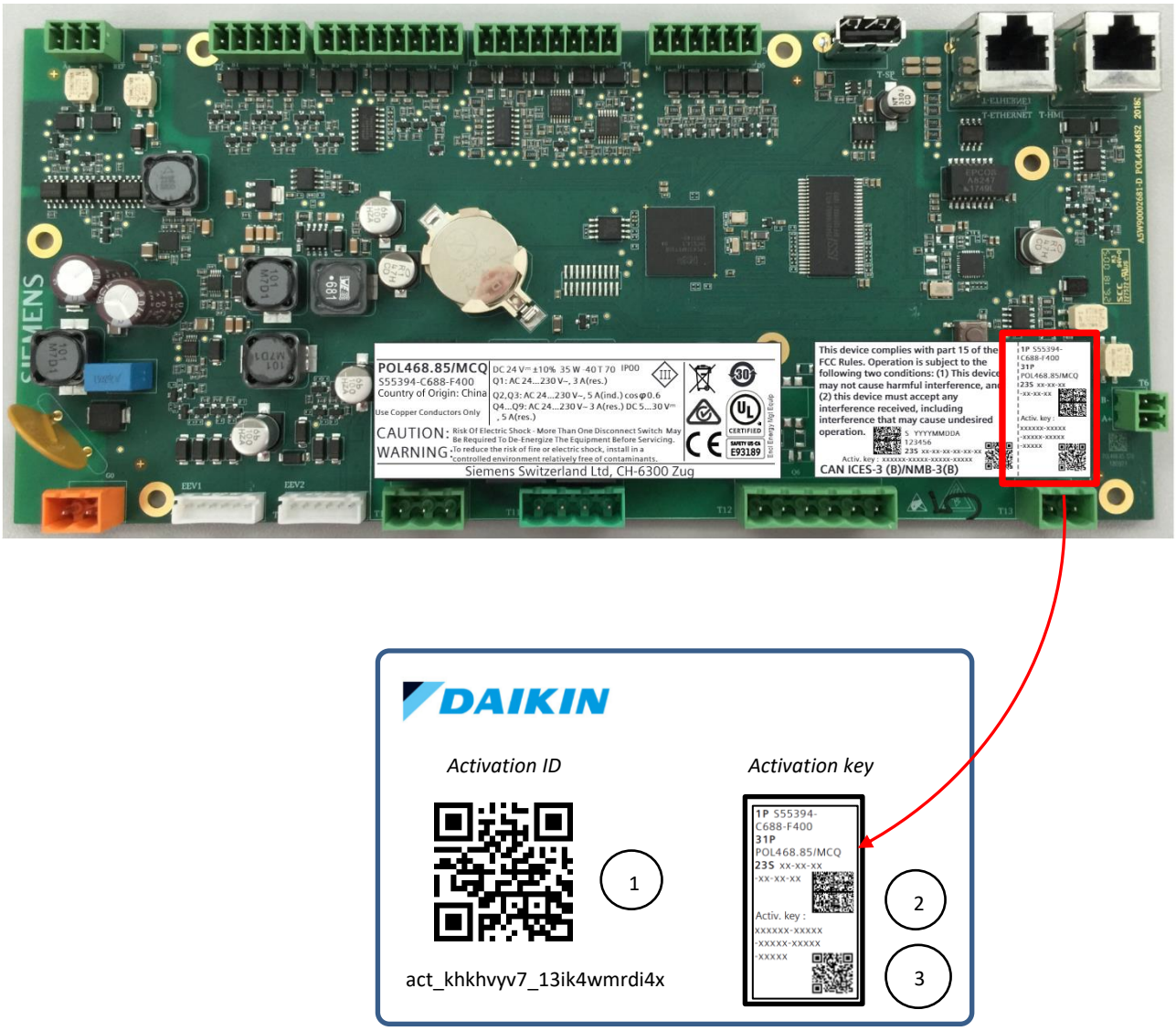


Fig. 2- Installion of the controller label on the Connectivity Card

4.1.2 Download “License Manager” Mobile APP

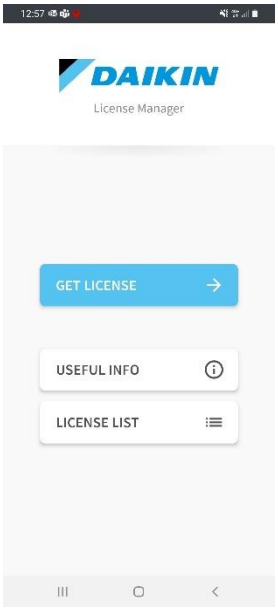
From your smartphone APP store (Apple Store or Play Store), search “License Manager APP.”, download and install it.

Note!: Check internet connection and memory available on the smartphone before downloading the app.

4.1.3 >zOpen License Manager APP

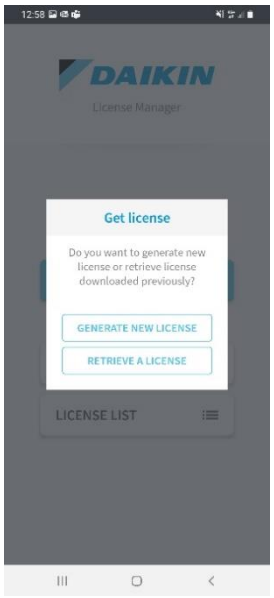
The last step is completely managed by the app but requires access to the connectivity card. Procedure inside the app includes three steps:

Step 1. Open Mobile App



Click on “Get License”, two options will be displayed:

a. Generate New License
b. Retrieve A License



Step 2. License generation/retrieving

To choose the proper button consider that:

a. If it is the first attempt to generate a license with a specific Activation ID click on “New License”.
b. If the Activation ID has already been used for License generation but it’s necessary to use it again (for example after a failure of step 3. or 4) click on “Retrieve A License”

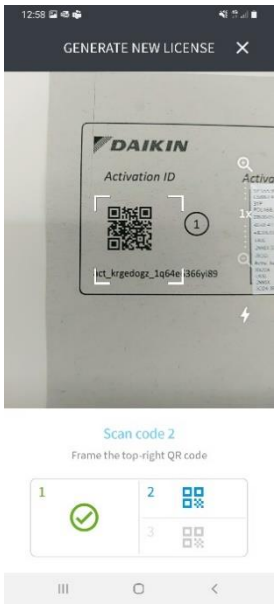
Note! Before starting License generation and for all procedure time, make sure your smartphone or tablet has a stable internet connection

Step 3. Connectivity card scan

After the selection of the license management on mobile app, it will be represented a virtual activation card divided in three parts associated respectively to the three QR codes of the physical card:

1 License code
2 PLC Data Matrix
3 PLC Activation Key

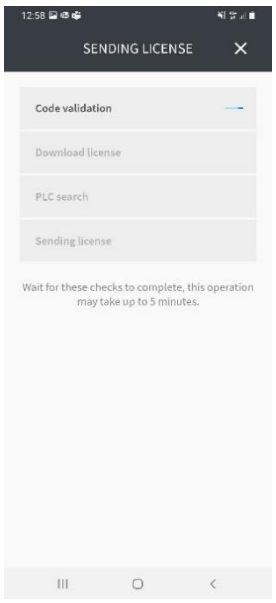
Starting from the License Code, scan all three QR codes until three green ticks appears on mobile app.



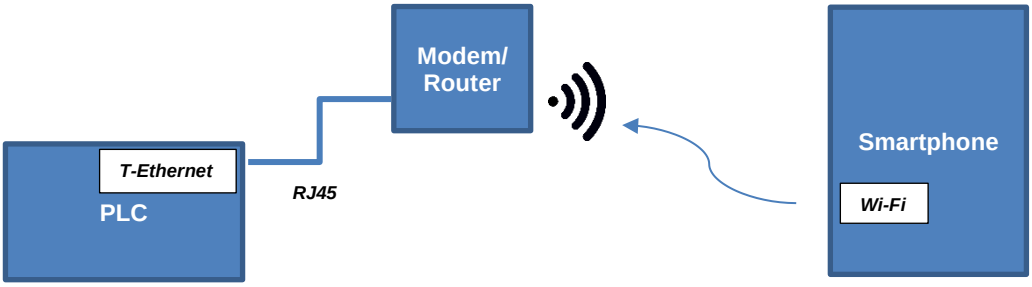
Note! If your Smartphone cannot scan properly the code 2. and 3. use camera zoom to allow the scanning process

Step 4. Correct procedure end

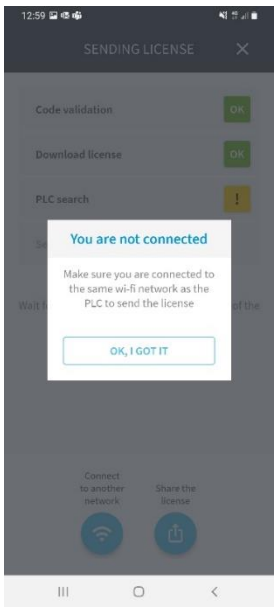
In this step no more actions are needed. When the card is correctly scanned, the system generates your License file and will download it on the PLC. This step starts with the “Code Validation” procedure and can require few minutes. It is important to have internet connection for the entire procedure duration.



After license generation the mobile app tries to send it directly to the PLC with the associated activation key. To properly execute the “PLC Search” and “Sending License” App’s steps, PLC and smartphone must be connected to the **same TCP/IP network** (please refer to the layout below).

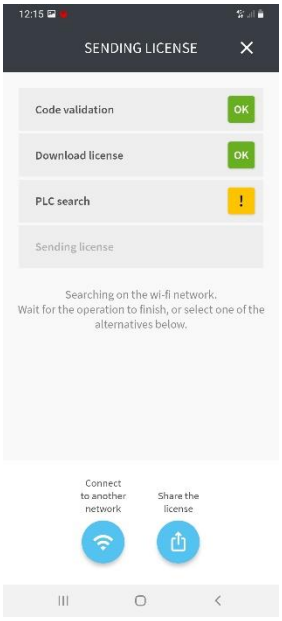


Otherwise, an error will occur, and a retrieving procedure will be needed.

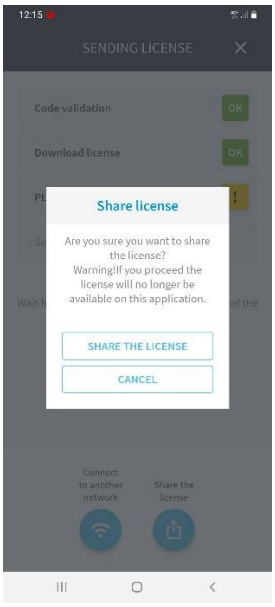


Step 5. License Sharing

This is an alternative step available in case of impossibility to properly execute Step 3 and/or Step 4.



Clicking on button “Share The License” the following popup will appear:



Confirm the selecyion of “Share the license”, a smartphone system sharing menu will open and it will be possible to select different sharing platforms (mail, cloud, etc.).

Note! Opening the system menu for license sharing, automatically removes the license from the “pending licences” list regardless of the outcome of the sharing. If needed, execute a license retrieve to recover it.

Once shared the license file (named for example “license_JRX2OA-L4IJG-2NNSX-5CID4-3RQGI.ucf”), it is necessary to follow these steps:

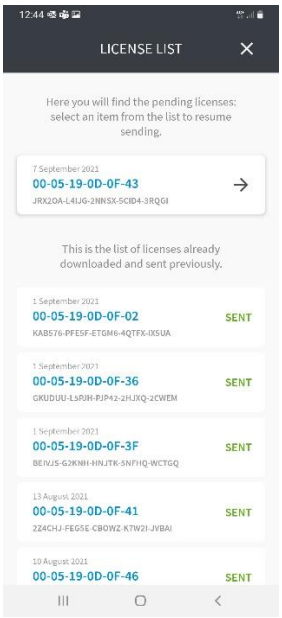
1. Download the license file on an empty USB.
2. Connect the USB to PLC
3. Turn off PLC power supply and wait 5 seconds
4. Turn on PLC power supply and wait for the LED to become solid green before removing the USB

At this point the EVCO HMI parameter [22.12] value should be “On” and license file should be automatically deleted from USB.

Note! If license download is still not ok, please contact your local service.

4.1.3.1 License list

The mobile app provides a list of all licenses generated and downloaded on a PLC. This list is available on the main menu through the “License List” button.



As shown in the picture the list is divided into two groups:

a. Pending licenses
   On the top there are the licenses generated but still not downloaded on PLC. Clicking on the arrow on the right corner of a pending license it is possible to resume the procedure from the “PLC Search” in step 4.

b. Already downloaded licenses
   At the bottom there are the licenses already downloaded and sent.

5 ACCESS POINT FOR MOBILE APP HMI

5.1 App installation

Daikin mAP can be downloaded from the App Store for iOS and Play Store for Android devices.

iOS

Android

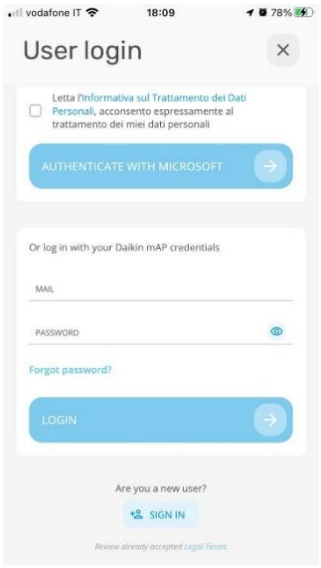
5.2 App configuration

5.2.1 First usage

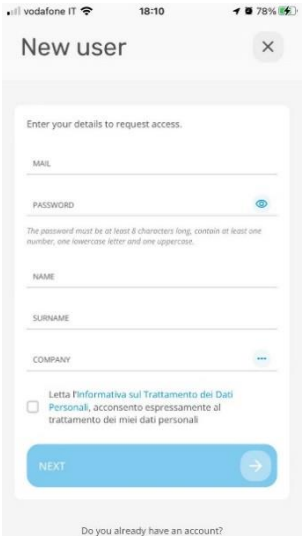
To allow mAP to recognize the customer units, make sure to have an internet connection and open mAP to download machines' configurations. This is necessary only the first time, then internet connection will not be necessary.

5.2.2 Create an account for technician

For a technician, it is possible create an account clicking on *Sign In* button on the bottom:



You must compile the form to register as new user. It will be necessary that your Company manager will enable your account.



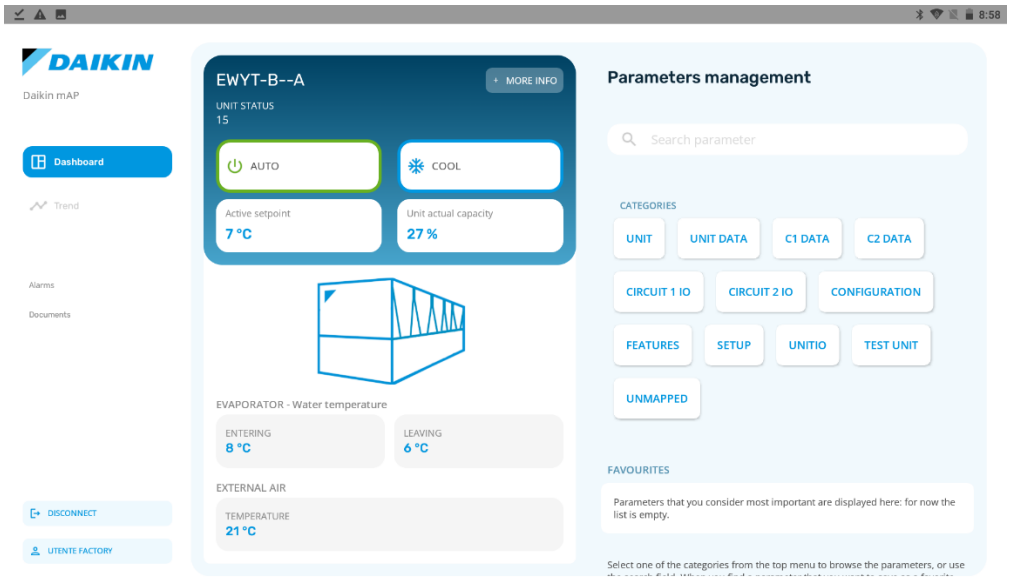
5.2.3 Connect to customer unit

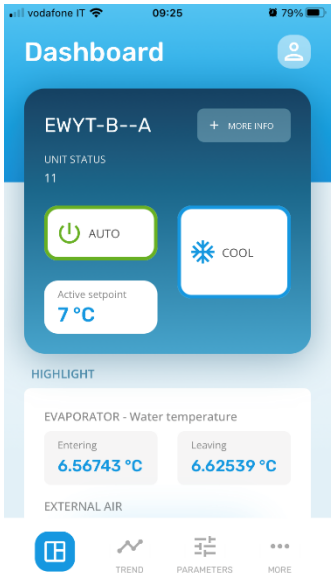
To allow mAP to communicate with the unit, make sure you are connected to its Wi-Fi network: open the Wi-Fi settings on your device and select the unit network with the Daikin prefix (*Daikin – XXXX*, where *XXXX* is the unit serial number), then come back to mAP and click to *connect to machine*. If the customer unit has not a default configuration, mAP will ask to insert manually its IP address.

5.3 App usage

5.3.1 Main page

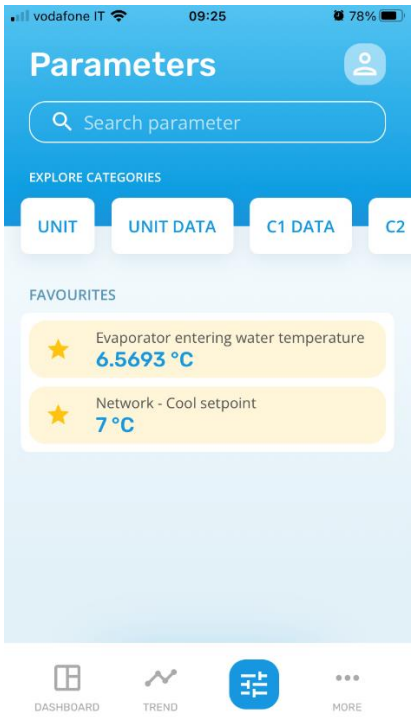
In the main page it is possible to see the principal information about the unit.





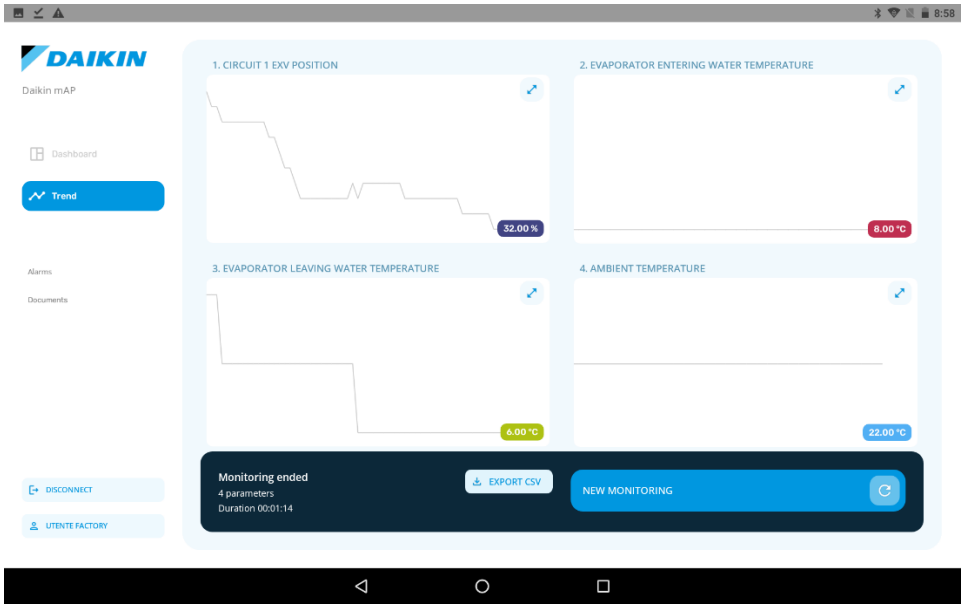
5.3.2 Parameters

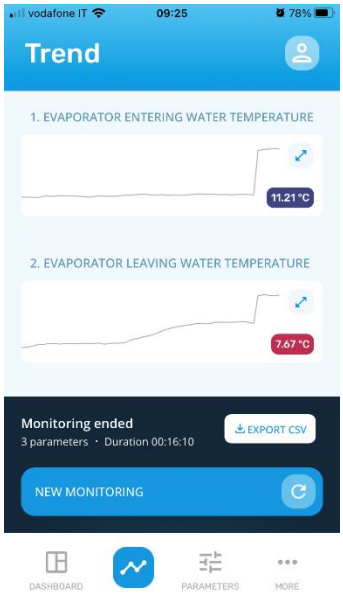
In this section it is possible to navigate datapoints and add your favorites.



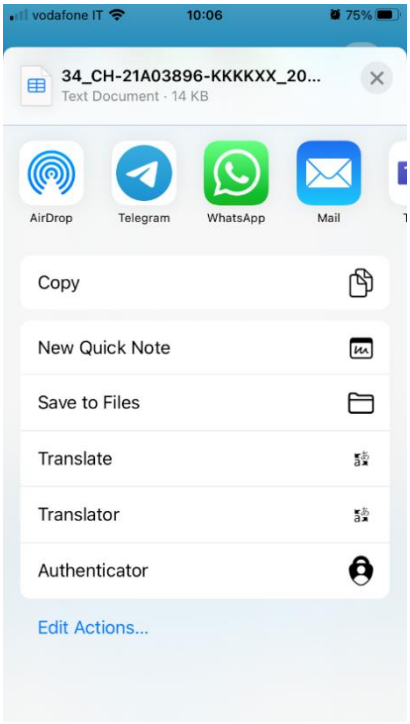
5.3.3 Trend

It is possible to trend multiple datapoints and use the device while mAP will keep monitoring data in background.



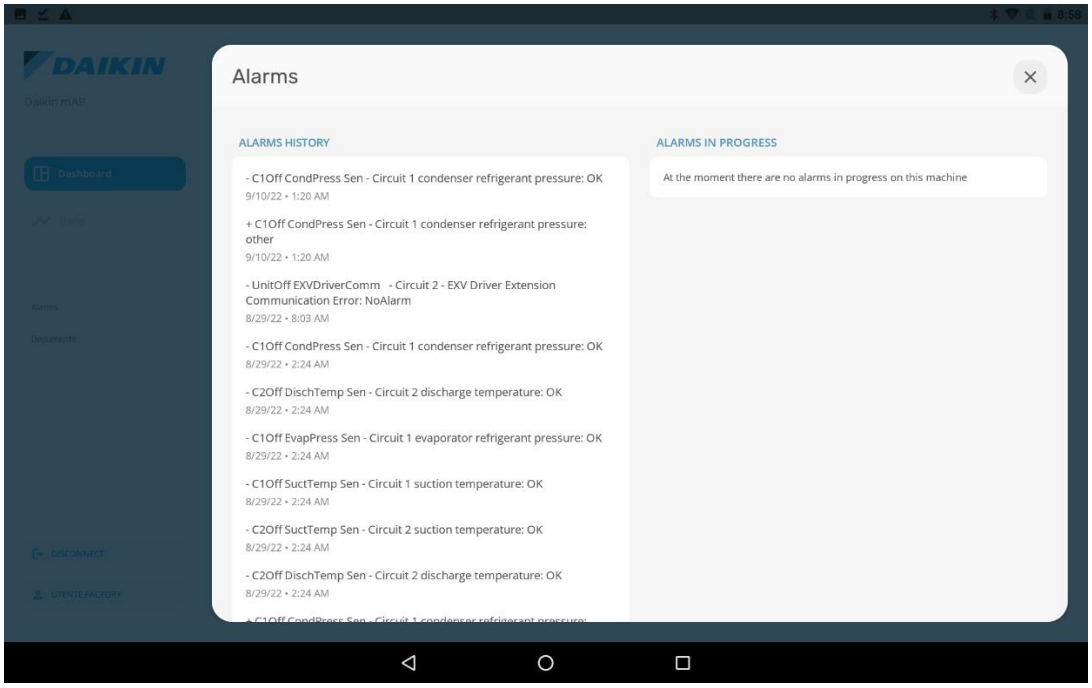


It is possible to export the trend in CSV and send it with the device share menu.



5.3.4 Alarms

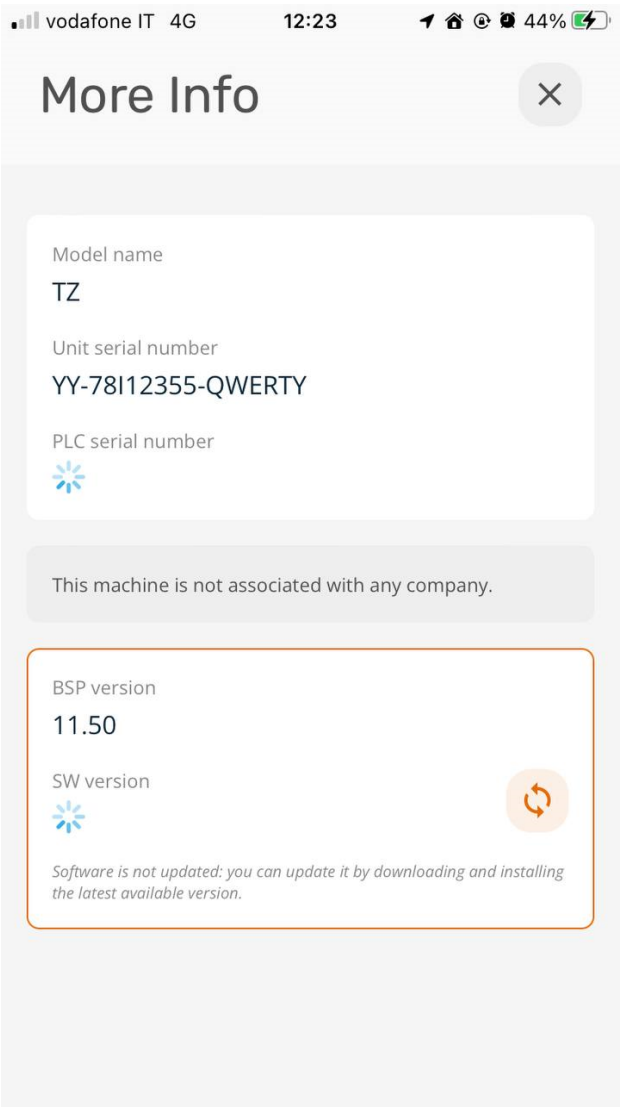
In this section it is possible to visualize unit alarms and reset them.



6 DOCUMENTS

6.1 Unit update

Tapping on *more info* in the dashboard in main page it is possible to check if an update software unit is available.



7 CONTROL EXTENSION PACK

7.1 General Description

POL468.85/MCQ can be connected to an input/output extension module to increase the amount of customer functions. The control functions that are managed with the input/output extension module are the following:

1	Evaporator water pump #2
2	Condenser water pump #2
3	Evaporator antifreeze heater
4	Condenser antifreeze heater
5	Double Setpoint
6	Cooling tower VFD
7	External alarm
8	Unit PVM
9	Liquid Temperature
10	Evaporator pressure differential transducer
11	Condenser pressure differential transducer
12	Evaporator Shut-off Valve - Open State
13	Condenser Shut-off Valve - Open State

The Input / Output Expansion Pack is not compatible with the following function:

1	BACNet MSTP
2	Modbus RTU
3	PLC configured as Slave unit for the Master Slave function

The following table reports all components:

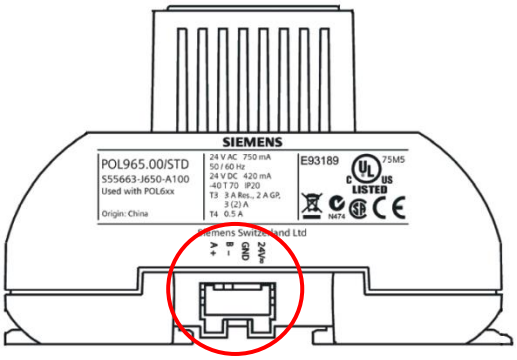
Item	Code	Quantity	Description
1	POL965.00/MCQ	1	Extension board
2	FKCT 2,5/ 8-ST x 2	2	Connectors for terminals T4 and T5
3	FKCT 2,5/ 7-ST	1	Connector for terminals T1
4	FKCT 2,5/ 3-ST	1	Connector for terminals T2
5	FKCT 2,5/ 2-ST	1	Connector for terminals T3
6	ZEC 1,0 / 4-ST-3,5 GY35AUC1R1,4	1	Side connector for power supply and serial communication with POL468.85/MCQ 24V/GND à Power Supply B-/A+ à Serial communication with POL468.85/MCQ
7	ZEC 1,0 / 4-LPV-3,5 GY35AUC2CI1	1	Not used

7.2 Electrical Connection

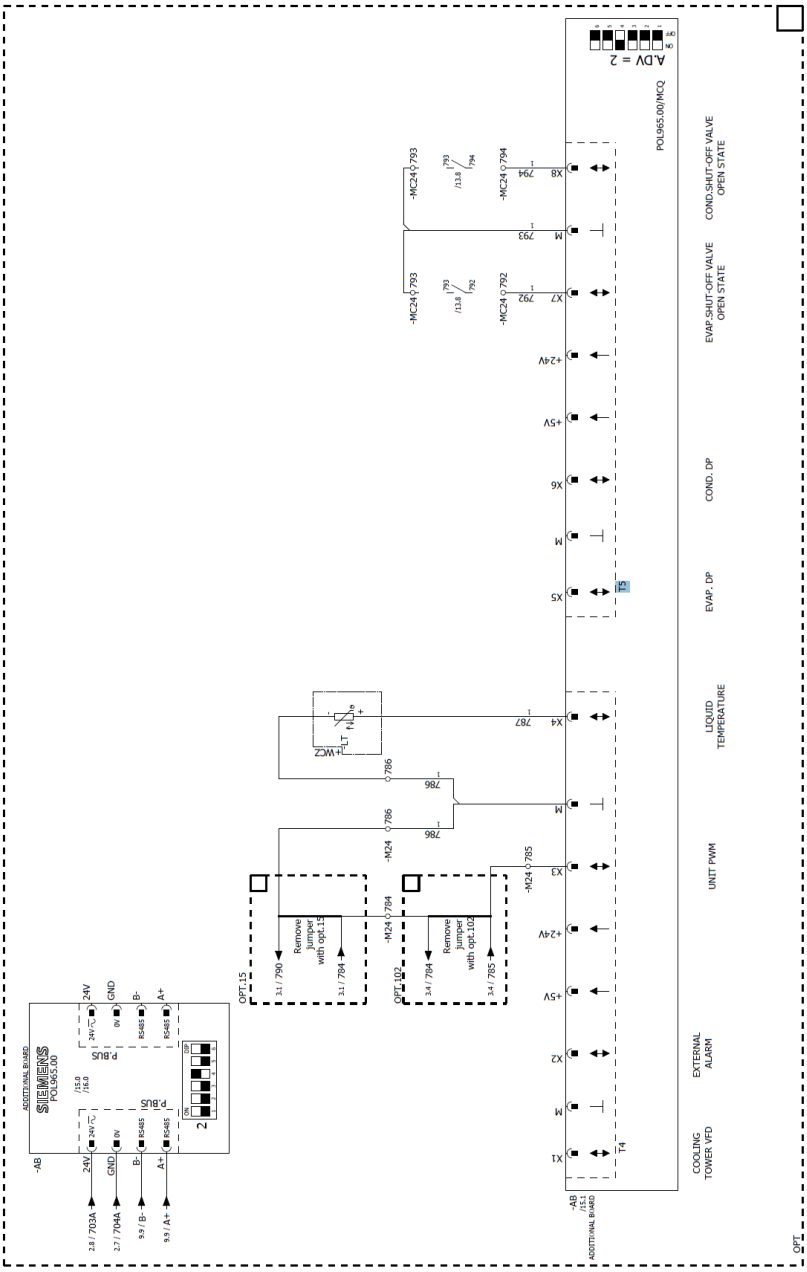
The Input / Output extension module needs to be electrically connected to:

1. Power Supply
2. Serial communication with POL468.85/MCQ.

Both, power supply and serial communication, can be connected through item 6 of the previous table, using the lateral port on module right side. Refer to the picture below.

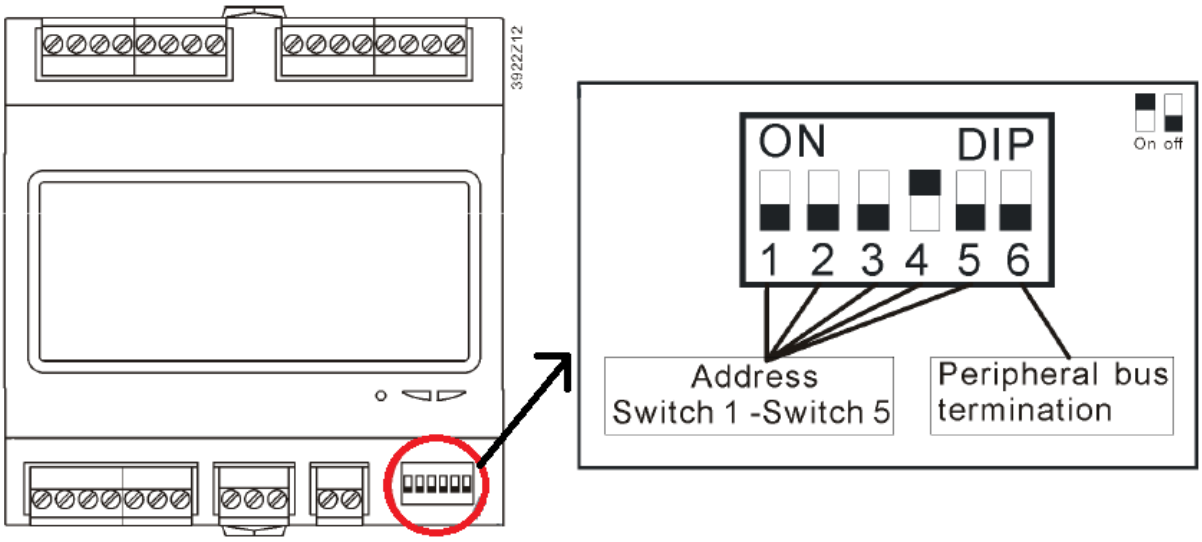


Refer to the following unit wiring diagram for detailed references of wiring harness.



Remember to set all DIP Switches of the module as shown below to configure the proper Board Address

DIP Switch Index	Position
1	On
2	Off
3	On
4	Off
5	Off
6	Off



7.2.1 Evaporator water pump #2

This contact controls the start/stop of a second evaporator water pump on the unit.

7.2.2 Condenser water pump #2

This contact controls the start/stop of a second condenser water pump on the unit.

7.2.3 Evaporator Antifreeze Heater

The evaporator antifreeze heater could be equipped whit the unit when evaporator water temperatures are very low (<4°C).

7.2.4 Condenser Antifreeze Heater

The evaporator antifreeze heater could be equipped whit the unit when condenser water temperatures are very low (<4°C).

7.2.5 Double Setpoint

With this contact it is possible to select the secondary cooling/heating setpoint.

7.2.6 Cooling Tower VFD

With this contact it is possible to send a reference speed to the VFD to manage the water supply from cooling tower.

7.2.7 External alarm

The External Alarm is a digital contact that can be used to communicate to the UC an abnormal condition, coming from an external device connected to the unit. This contact is in the customer terminal box and depending on the configuration can cause a simple event in the alarm log or also the unit stop. The alarm logic associated to the contact is the following:

Contact state	Alarm State	Note
Opened	Alarm	The alarm is generated if the contact remains opened for at least 5 seconds.
Closed	No Alarm	The alarm is reset just the contact is closed.

7.2.8 Unit PVM

This contact enables Phase Voltage Monitor Alarm contact.

7.2.9 Liquid Temperature

From this contact it is possible to read an additional temperature probe used to measure the liquid temperature. The customer can require this optional temperature probe to monitor more thermodynamic parameters.

7.2.10 Evaporator pressure differential transducer

Refer to chapter “Stacked units connection kit”.

7.2.11 Condenser pressure differential transducer

Refer to chapter “Stacked units connection kit”.

7.2.12 Evaporator Shut-off Valve - Open State

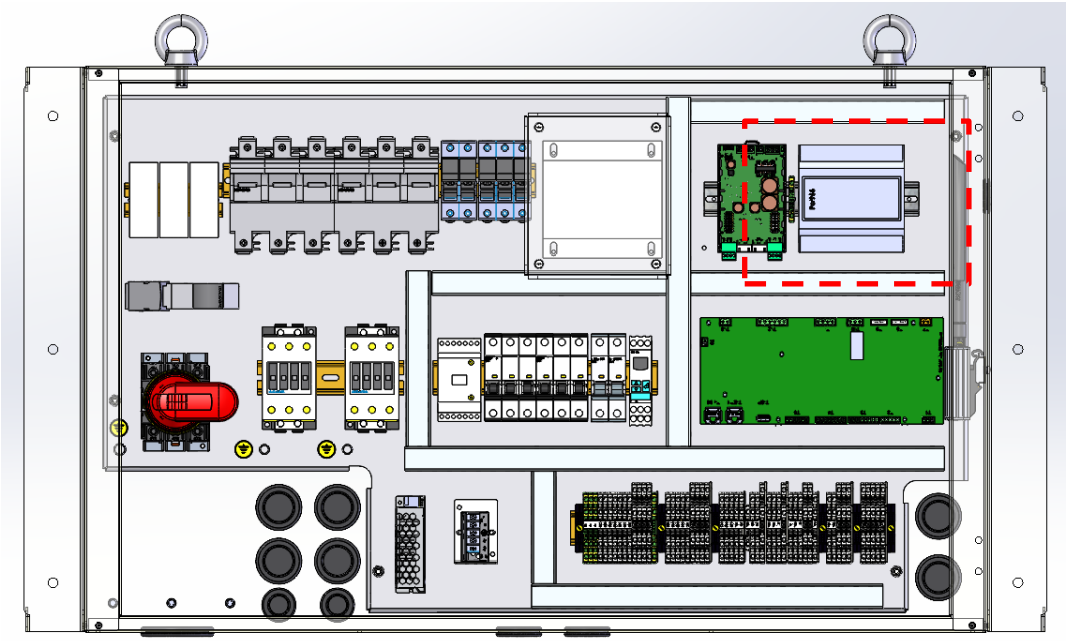
This contact provides feedback on the opening condition of the evaporator shut off valve.

7.2.13 Condenser Shut-off Valve - Open State

This contact provides feedback on the opening condition of the evaporator shut off valve.

7.3 Mechanical Connection

The Input / Output extension module can be installed on the unit switch box, control plate, using the DIN rail on the left top corner.



8 TEMPERATURE SENSOR FOR MASTER/SLAVE CONFIGURATION

The Unit Controller can have a maximum of 3 slaves.

8.1 Electrical Connection:

For information on MUSE regarding electrical connection, please refer to specific documentation **(IOM)**

8.1.1 Probes connection

		End1	End2
EWWT-Q EWHT-Q	System temperature (Master Slave) Cold Loop	B5	M
	System temperature (Master Slave) hot Loop	B6	M
EWLT-Q	System temperature (Master Slave) Cold Loop	B5	M

Common leaving water temperature sensor must be connected to the chiller Master using the customer terminal block (MUSE Temperature Sensor). Refer to the unit wiring diagram for terminals enumeration.

8.2 Mechanical installation

For common leaving water temperature sensor positioning please refer to specific documentation **(IOM)**.

8.3 Software configuration

For software configuration refer to specific documentation **(OM).**

9 LOCAL/REMOTE DISPLAY HMI

The following chapters will be divided in two parts:
1) the first part to move from EvCO to Siemens.
2) the second part to move from Siemens to EvCO.

9.1 Software Configuration

1) To exchange the EvCO interface with a Siemens interface, perform the following steps:

Step 1:

- Go to EvCO menu 15.00 and select page 15.03, changing the value from 0 to 1.

Menu	Parameter	Range	Default	Description	R/W
15 "Service Configuration"	15.03 (**HMI Sel**)	0=Siemens 1= EvCO	1=EvCO	Use to swap interface for another one.	R/W

Step 2:

- Go in menu 20, scroll to page 20.01 and select On

Menu	Parameter	Range	Default	R/W
20 "PLC"	20.01 (**Apply Changes**)	Off-On	Off	W

The controller will restart, and it will no longer be possible to use the EvCO HMI.

2) To exchange the Siemens interface with a EvCO, perform the following steps:

Step 1:

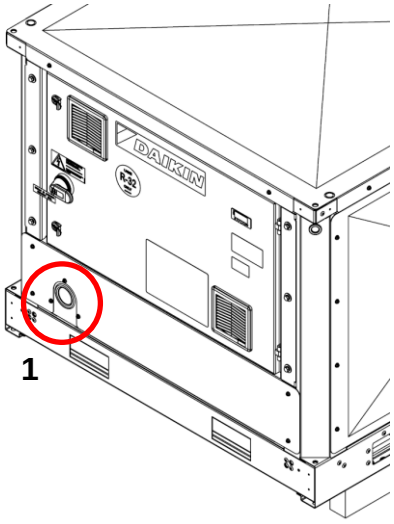
- Go to *Commission Unit* → *Configuration* → *Options* → *HMI Selection* and select *EvCO*.

Step 2:

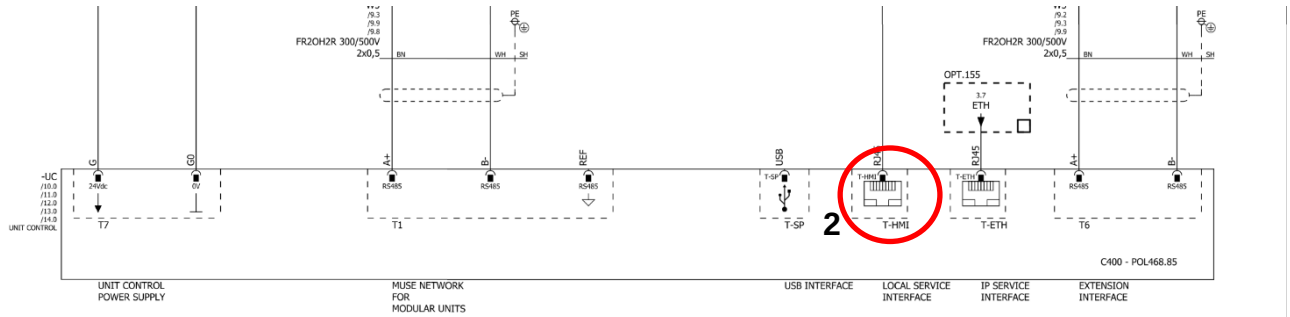
- In the same page (*Commission Unit* → *Configuration* → *Options*) Scroll up or down for found *Apply Changes* select it and press *On.* The PLC will reboot to enable the changes.

9.2 Electrical Connection

1)For the electrical connection in case of **EvCO→Slemens** perform following steps:



Slot (1) for accessories



Step 0:
Remove electrical power supply from the unit. Turn to 0 position the main switch handle
Step 1:
Remove the Metal Panel and access the controller.
Step 2:
Disconnect the RJ-45 cable of EvCO HMI to the ***T-HMI port (2)*** of the controller
Step 3:
Guide the external HMI cable through the ***slot (1)*** at the mid right side of the electrical panel.
Step 4:
Connect the RJ-45 cable of Siemens HMI to the ***T-HMI port (2)*** of the controller.
Step 5:
Assemble the metal panel of the electrical cabinet.

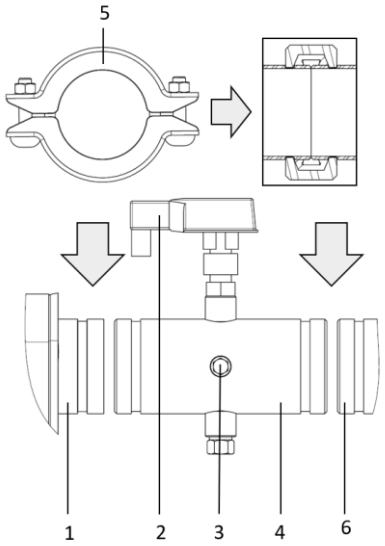
The external interface can now be available.

2)For the electrical connection in case of **Siemens→EvCO** perform following steps:

Step 0:
Remove electrical power supply from the unit. Turn to 0 position the main switch handle
Step 1:
Remove the Metal Panel and access the controller.
Step 2:
Disconnect the RJ-45 cable of Siemens HMI to the ***T-HMI port (2)*** of the controller and pull it out of the ***slot (1)***.
Step 3:
Taking care not to over-pull the contacts, plug the RJ-45 cable from the EvCO HMI into the ***T-HMI port (2)*** on the controller.
Step 4:
Assemble the metal panel of the electrical cabinet.

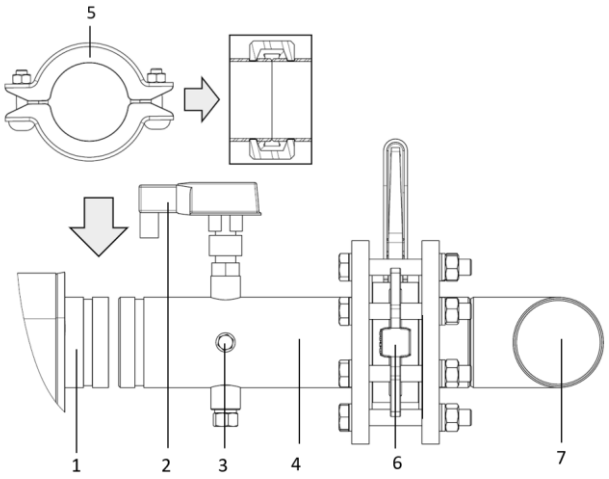
10 KIT WATER IN/OUT

10.1 Water IN/OUT accessory kit for standalone units



1	Evaporator water in
2	Flow Switch
3	Water entry sensor
4	Water entry pipe with flow switch and temperature sensor of the entering water
5	Joint
6	In situ water pipe circuit

10.2 Manifold accessory for modular installation



1	Evaporator water entry
2	Flow Switch
3	Water in sensor
4	Water entry pipe with flow switch and temperature sensor of the entering water
5	Joint
6	Butterfly valve
7	Manifold pipe

To avoid damages to the unit during transport, the water inlet pipe, the flow switch, the water inlet temperature sensor, and the water outlet pipe with the outlet water temperature sensor, are not factory mounted.

10.3 Connecting the water inlet pipe containing the flow switch.

The water inlet pipe containing the flow switch is mounted on the side of the water inlet of the evaporator (condenser in case of EWHT-Q series) and is pre-insulated. Cut the tie wraps and fix the pipe with the supplied Victaulic® couplings to the evaporator/condenser inlet.

10.3.1 Electrical connection of flow switch

The cables routing of evaporator and condenser flow switch are showed in the figures below.

Figure 1– Evaporator and condenser flow switch positions

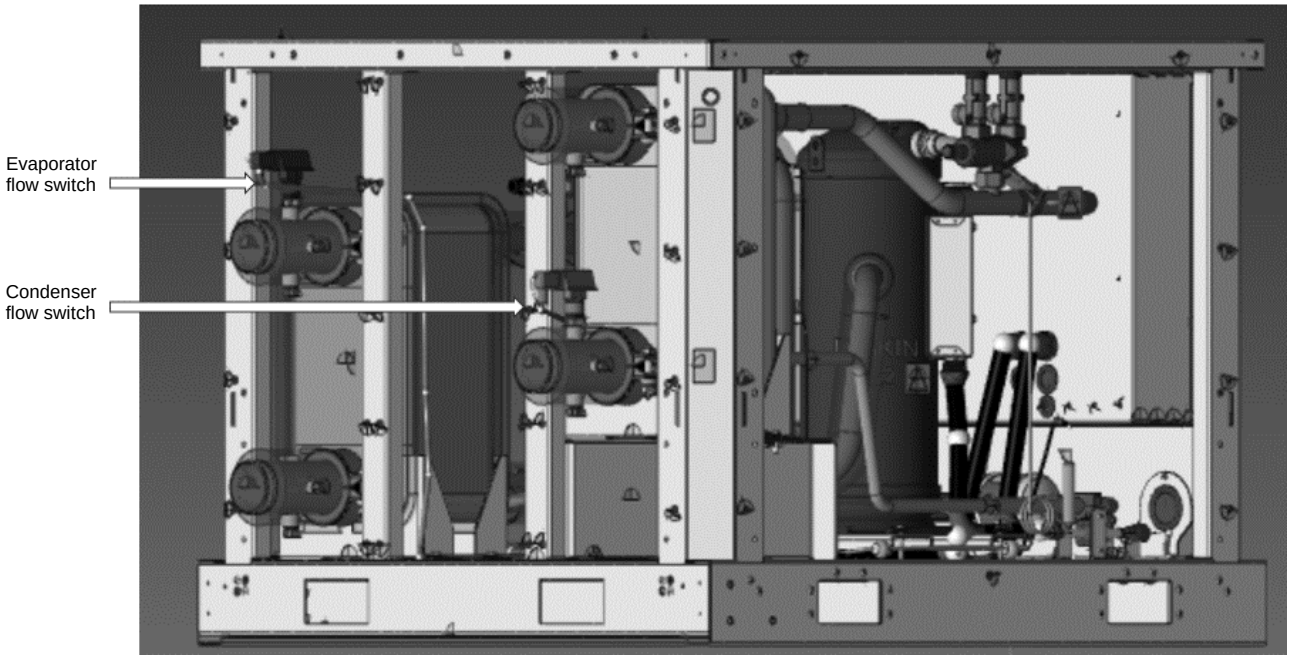


Fig. 3– Cables routing of evaporator flow switch

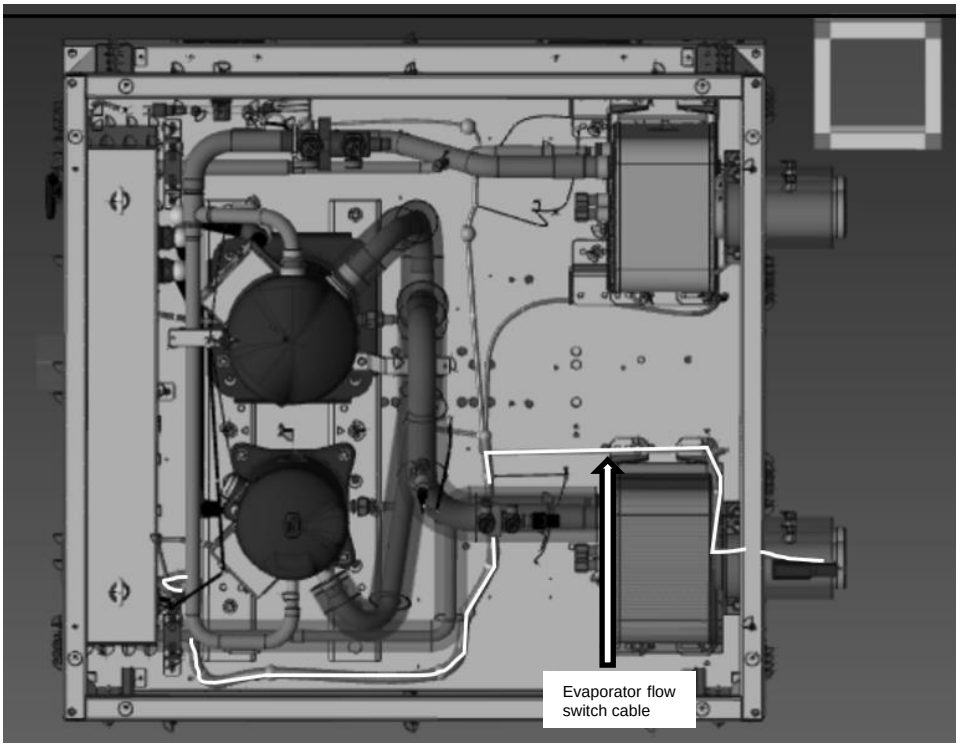


Fig. 4 – Cables routing of evaporator flow switch

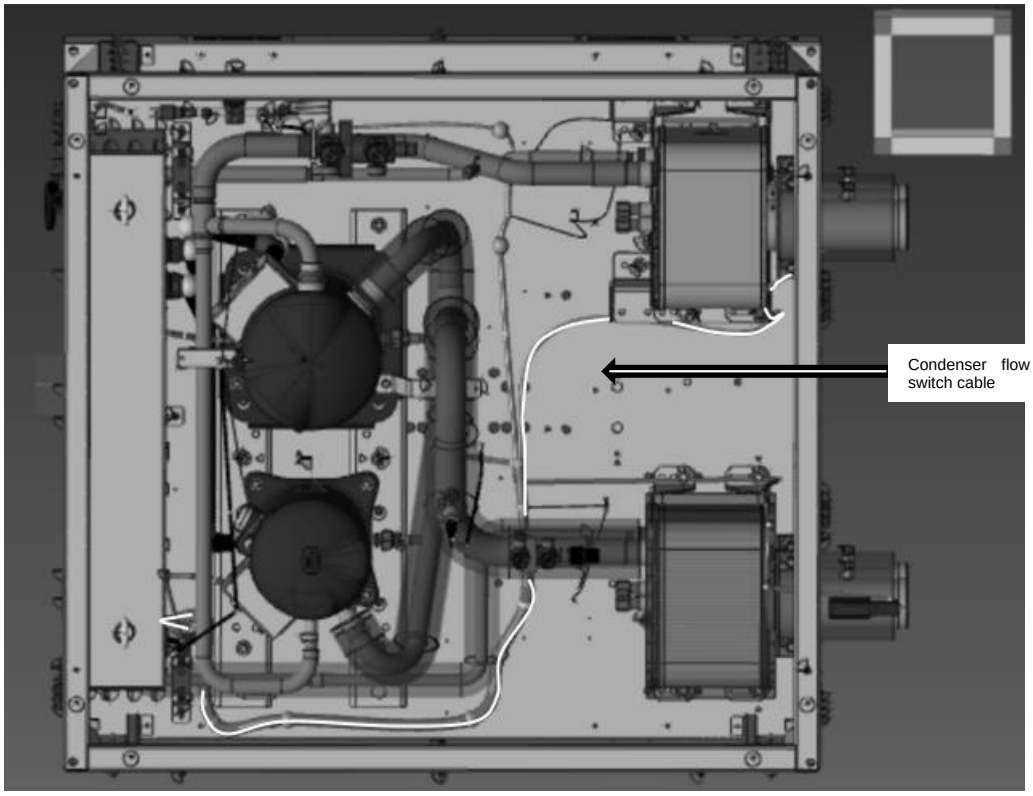
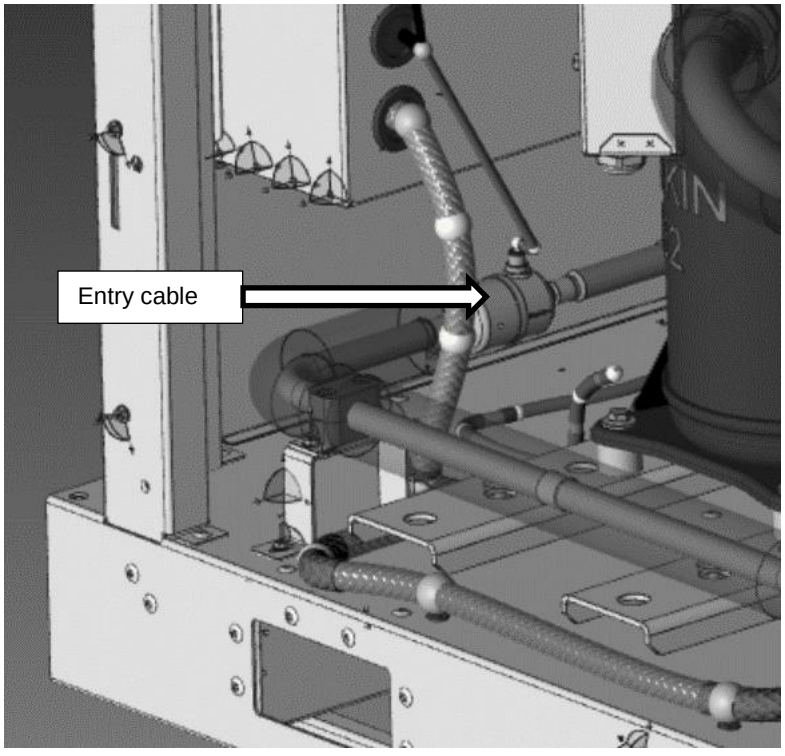


Fig. 5 – Electrical panel entry point for evaporator and condenser flow switch cables

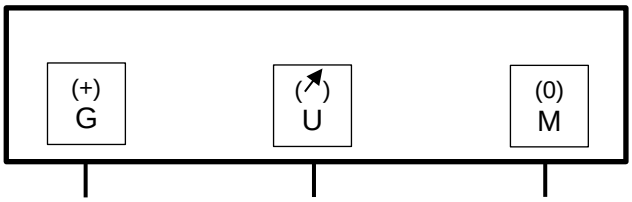


11 KIT FOR VARIABLE PRIMARY FLOW SYSTEMS ON ONE LOOP ONLY (FOR MULTIPLE UNITS)

The differential pressure transducer is used in the VPF function and returns a 0-10V output voltage depending on the measured water pressure delta.

11.1 Electrical Connection

To connect the transducer to the PLC it is necessary to follow the diagram in chapter 5.2 bearing in mind the following diagram:



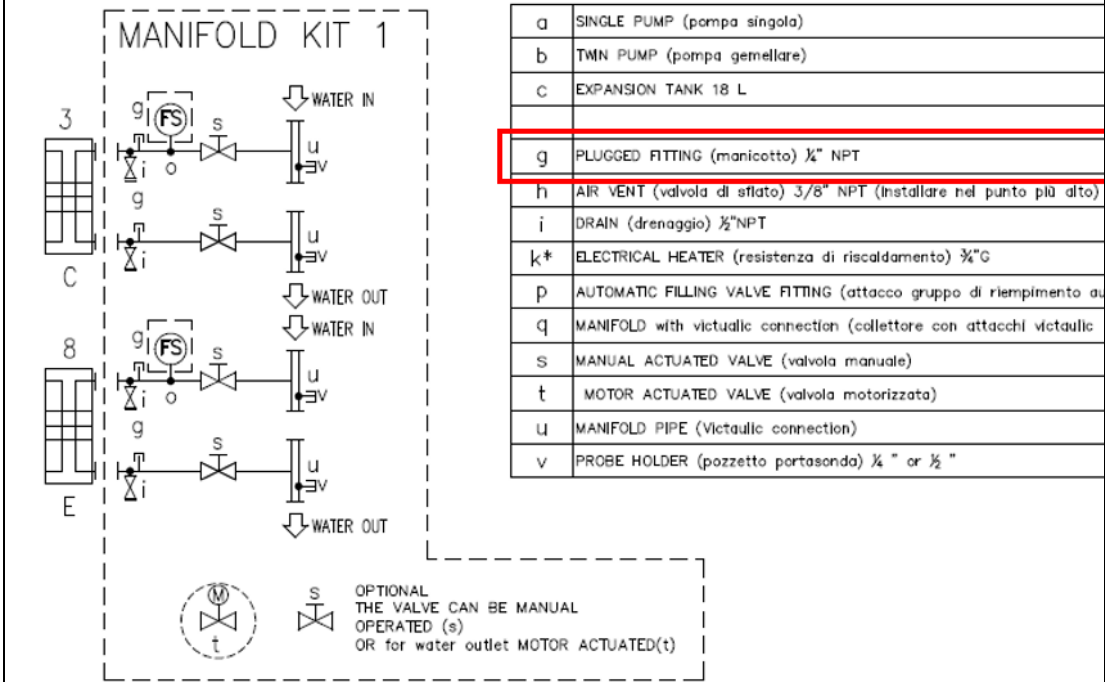
Symbols legend:

G (+)	Power supply AC 24 V or DC 18..33 V
U (↗)	Measured signal output DC 0..10 V
M (0)	G0/G-, measuring

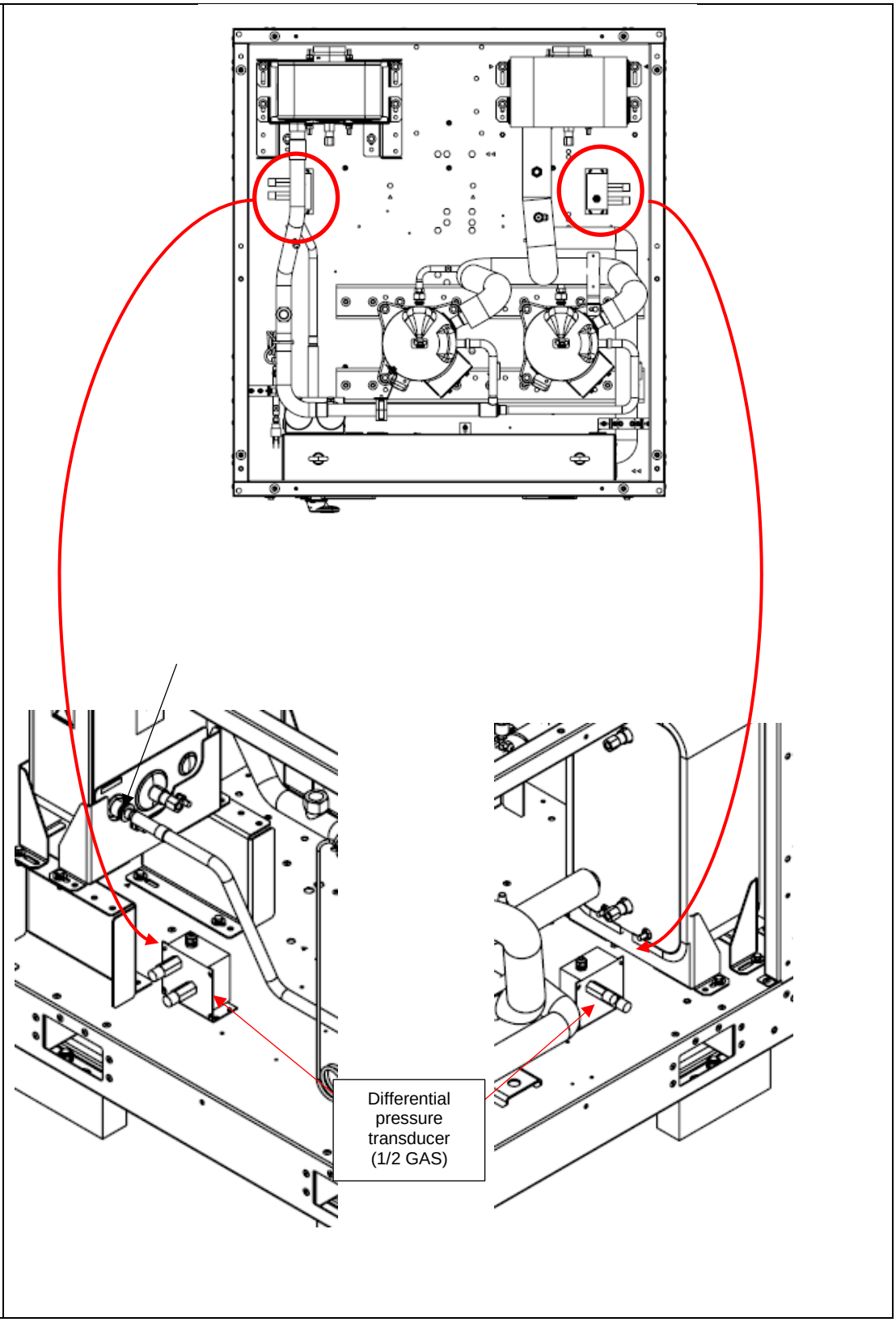
The symbols in parenthesis correspond to the terminal marking on the terminal block

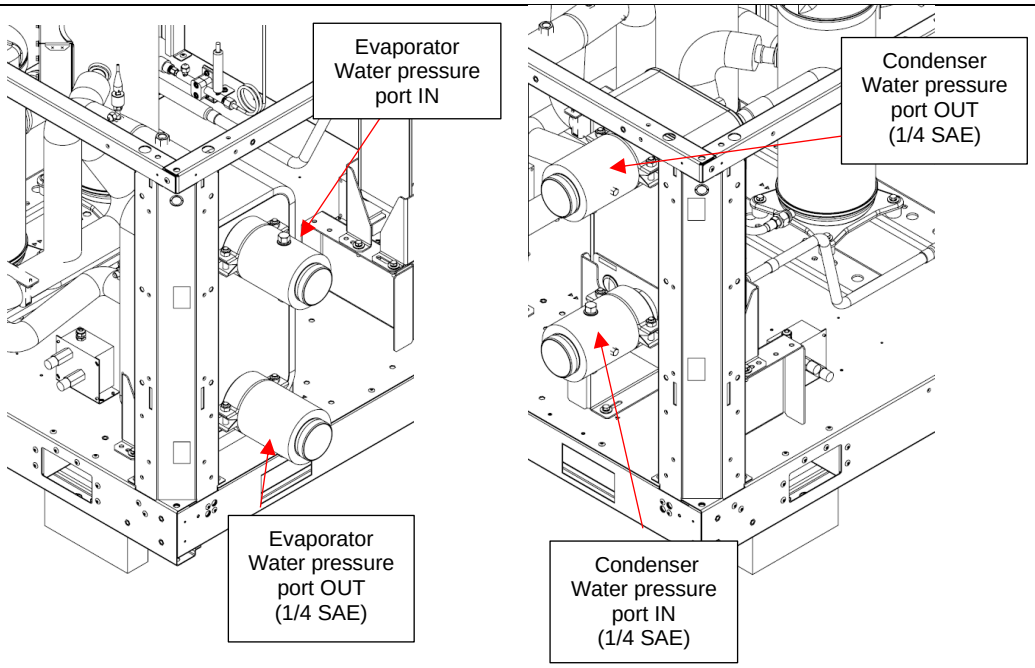
11.2 Mechanical connection

For a proper installation of the transducer inside the unite and a correct acquisition of the differential pressure in liquids please follow the table below:

Mounting position	

a	SINGLE PUMP (pompa singola)
b	TWIN PUMP (pompa gemellare)
c	EXPANSION TANK 18 L
g	PLUGGED FITTING (manicotto) ¼" NPT
h	AIR VENT (valvola di sfiato) 3/8" NPT (installare nel punto più alto)
i	DRAIN (drenaggio) ½"NPT
k*	ELECTRICAL HEATER (resistenza di riscaldamento) ¾"G
p	AUTOMATIC FILLING VALVE FITTING (attacco gruppo di riempimento au
q	MANIFOLD with victaulic connection (collettore con attacchi victaulic
s	MANUAL ACTUATED VALVE (valvola manuale)
t	MOTOR ACTUATED VALVE (valvola motorizzata)
u	MANIFOLD PIPE (Victaulic connection)
v	PROBE HOLDER (pozzetto portasonda) ¼ " or ½ "


Differential
pressure
transducer
(1/2 GAS)

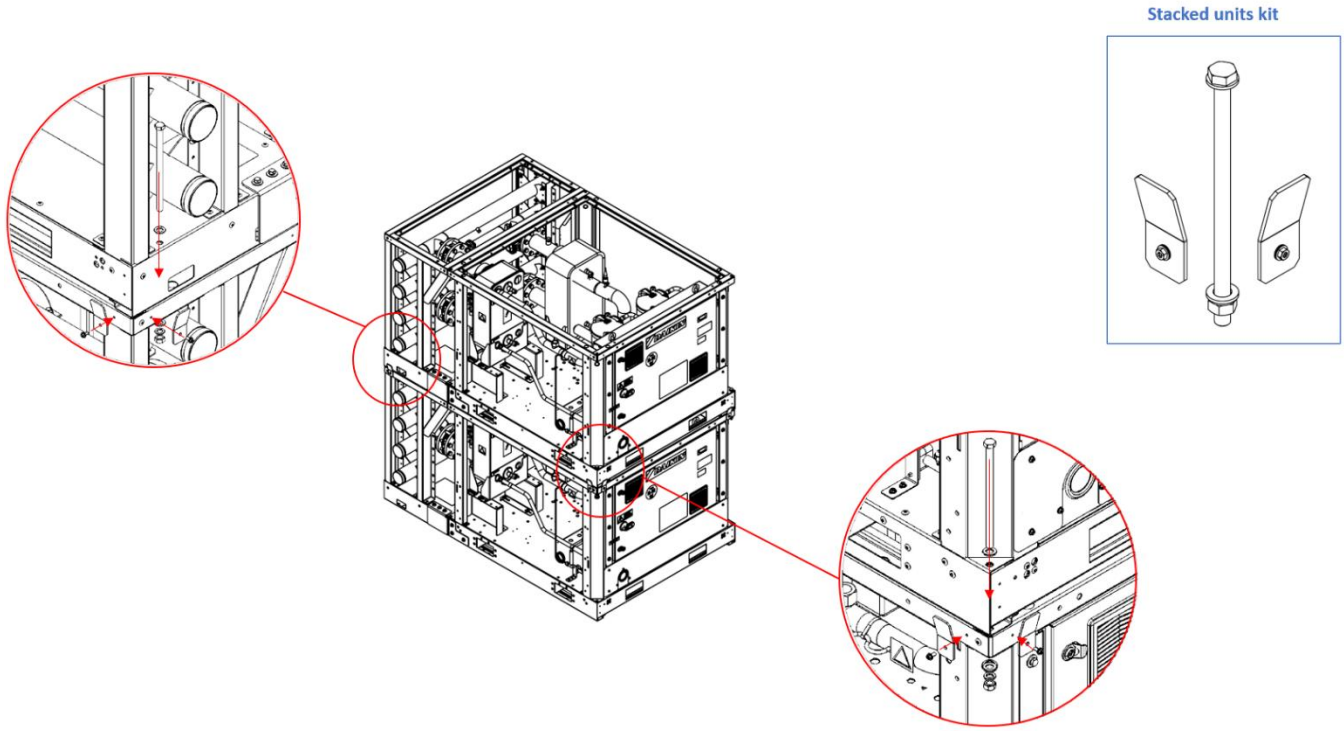
	
Medium temperatures	Above 80 °C (steam) or below −15 °C are necessary to install a water trap pipe between piping and sensor
Connection "+"	higher pressure/smaller vacuum.
Connection "–"	lower pressure/higher vacuum
133010145 (shipped loose)	This accessory includes only the differential pressure transducer and the capillaries*.
*	*The installation of the capillaries should be done using a mechanical reductor ¼ SAE -> ½ GAS. Mounting screws are not included in the kit. Use four self-tapping screws M4. Electrical cable is not included in the kit. Use cable FROR16 3x0.75.

- ***Mount the sensor below the level of pressure measurement on a vibration-free surface***
- ***Device water connections have to be protected against freezing by user***
- ***Remove all remaining air from capillaries before hydronic connection with differential pressure sensor***

12 STACKED UNITS CONNECTION KIT

The connection of stacked units is possible thanks to “Stacked unit kit” accessory (see figure below). This accessory is mandatory for this modules configuration.

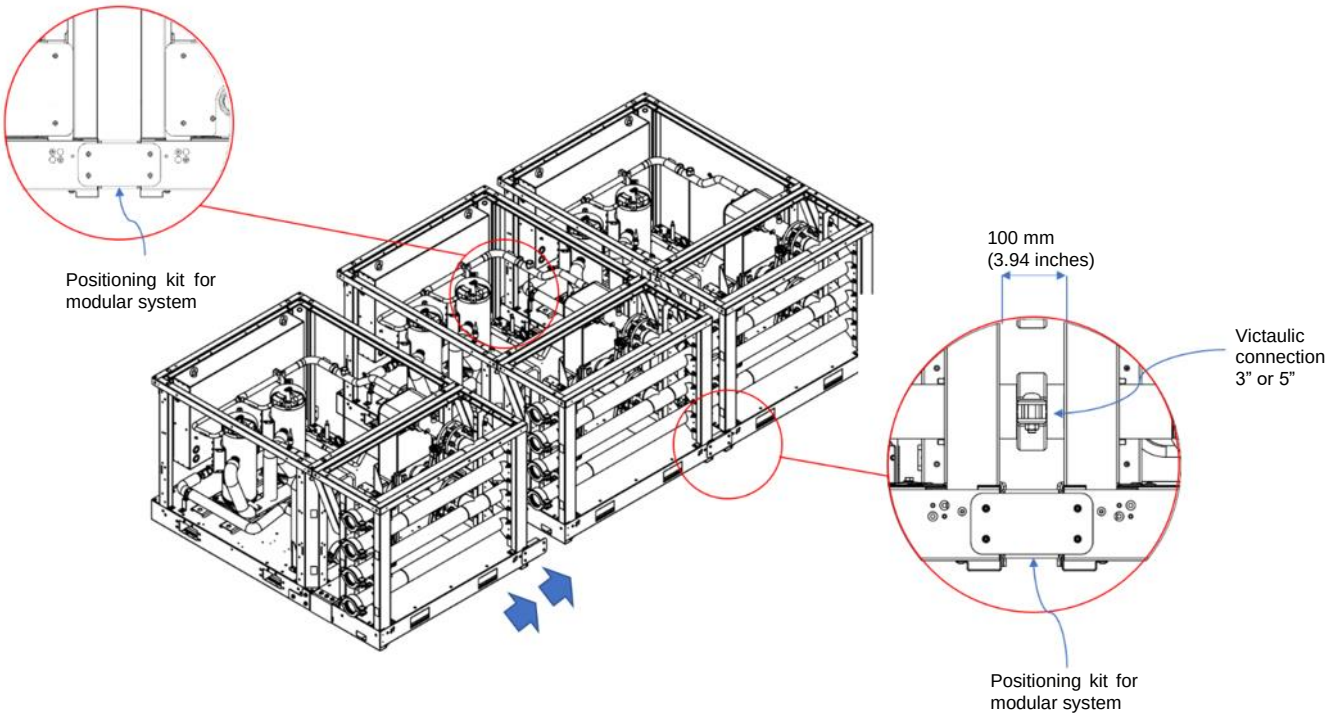
Fig. 6 – Mounting instructions for stacked units



13 MODULAR UNITS CONNECTION KIT

The mechanical connection of more modular systems together is possible thanks to a positioning kit.
The positioning kit allows to align perfectly the two systems for a proper connection.

Fig. 7 – Modular systems connection



14 VICTAULIC CAPS

Manifold modules can be provided with Victaulic caps kit.

Each kit contains:

- Victaulic caps (4 pcs)
- Victaulic joint (4 pcs)

The aim of this kit is to close the ends of the last manifold module of the connected units.

15 MOTORIZED VALVE ACTUATOR

15.1 Motor for Plate Heat Exchanger Shut-Off Valve

The manifold module is equipped with a butterfly valve in each pipe.
These shut-off valves are manual in case of standard unit, but it can be provided an actuator kit as unit accessory.
While with the manual shut-off valves the water flow rate for each exchanger is constrained on the base of the pressure drop, the motorized valves allow to manage each plate heat exchanger's flow rate and pressure drop.

The usage of the electric actuator allows to avoid water circulation in the plate heat exchanger of unit currently not currently operating.

15.1.1 Motor mechanical installation

In this chapter are reported the instructions to install the electric actuator on the shut-off valve.
The motor kit consists of two main components:

1. Motor
2. Limit switches related to valve full opening/closing position indication.

Fig. 8 – Mounting instructions for valve actuator

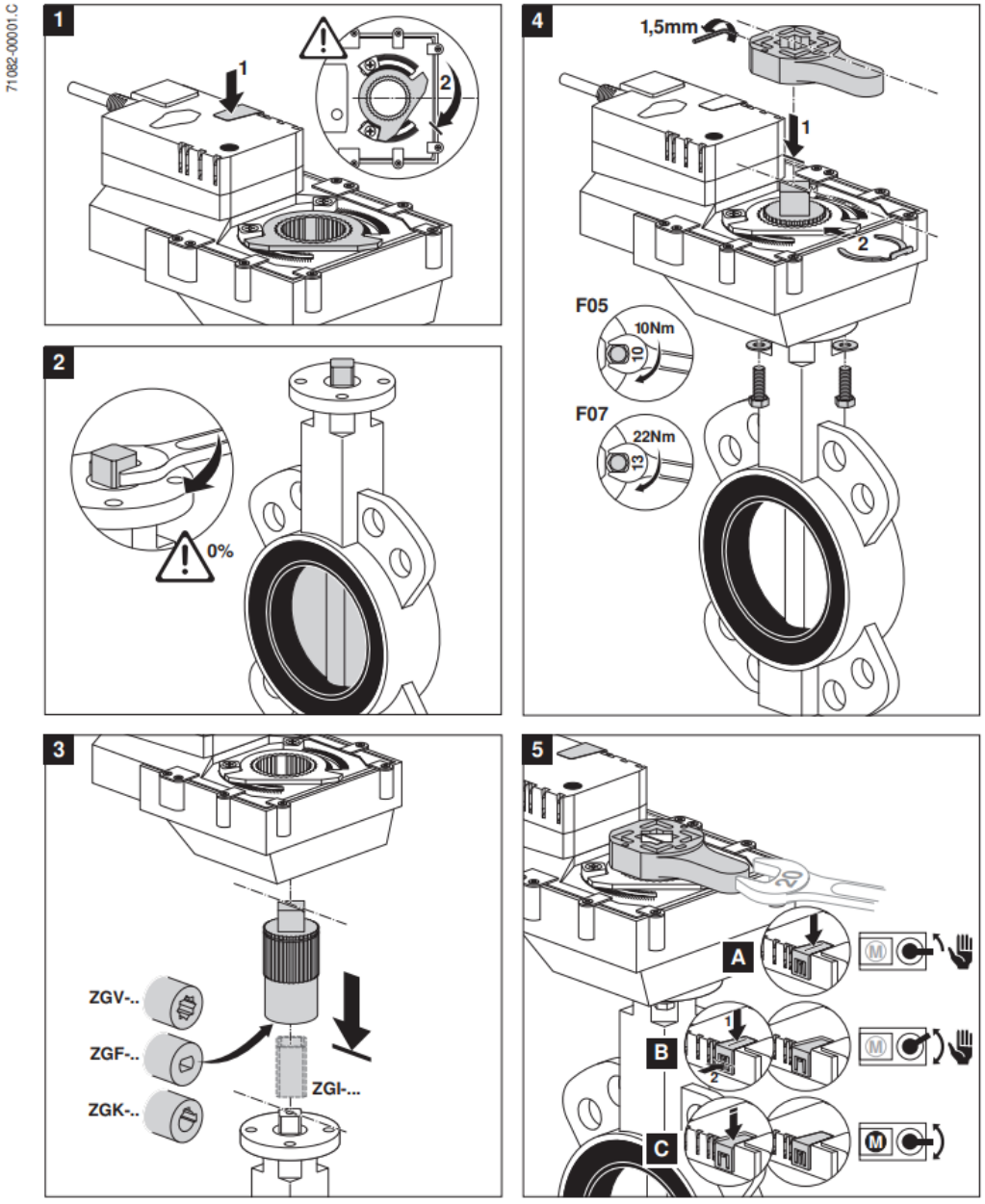
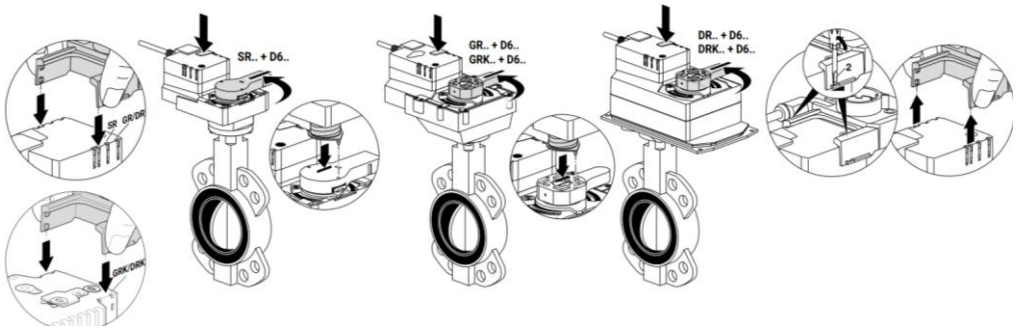
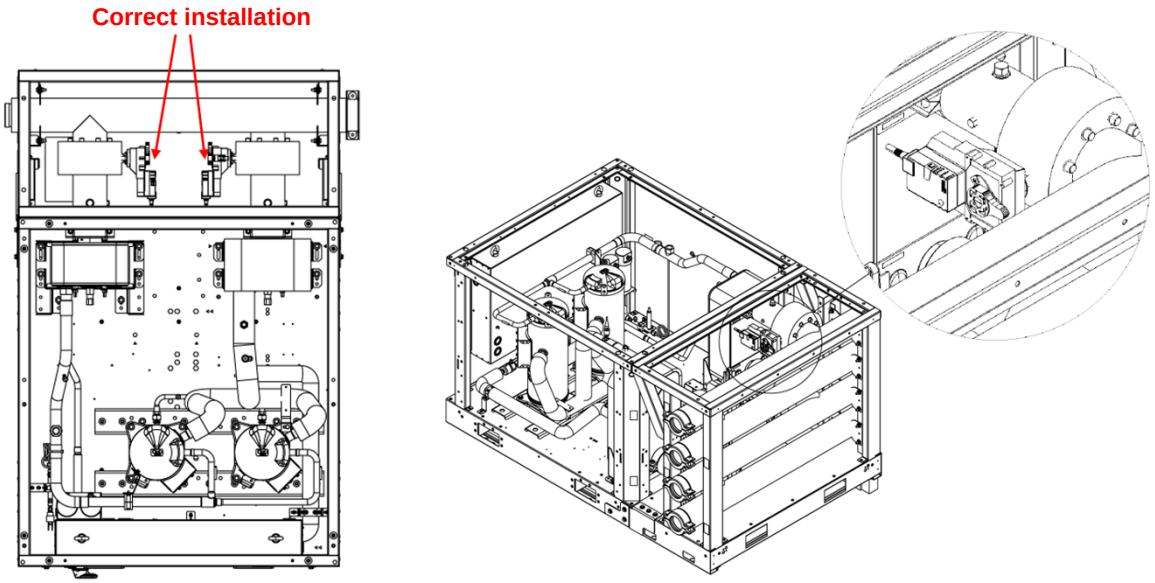


Fig. 9 – Mounting instructions for actuator limit switches



The valve shall be mounted on the unit following the indications in figure below.

Fig. 10 – Mounting indications for valve actuator



15.1.2 Valve actuator and Limit Switch electrical installation

The installation of an expansion module in the electrical panel is mandatory for the electrical connection of the valve actuator.

Fig. 11 – Wiring diagram for motor (left figure) and limit switches (right figure)

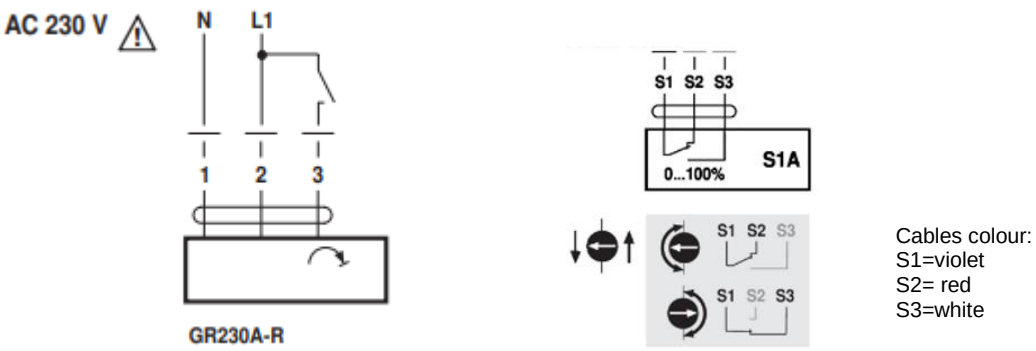


Fig. 12 – Cable adapters for evaporator shut off valve actuator and limit switches

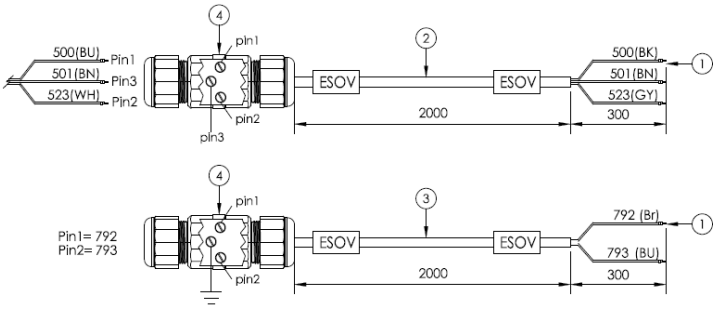


Fig. 13 – Cable adapters for condenser shut off valve actuator and limit switches

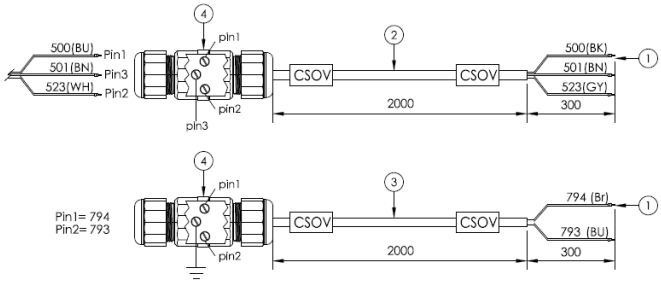
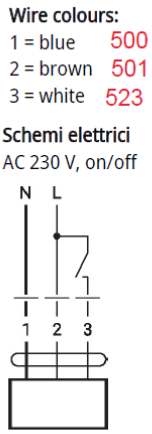


Fig. 14 – Shut off valve actuator wiring diagram



The electrical connection between the shut-off valve components and the junction cables is set out in table below.

Cable from Motor	Junction Cable	Cable from electrical cabinet
(Pin1) blue	500	(Pin1) black
(Pin2) brown	501	(Pin2) brown
(Pin3) white	523	(Pin3) grey

Cable from Limit Switches	Junction Cable	Cable from electrical cabinet
S1 (Violet)	(Pin1) 792	(Pin1) brown
S3 (White)	(Pin2) 793	(Pin2) blue

In figures below is shown the cables routing of valve actuator.

Fig. 15 – Evaporator shut off valve actuator cable routing

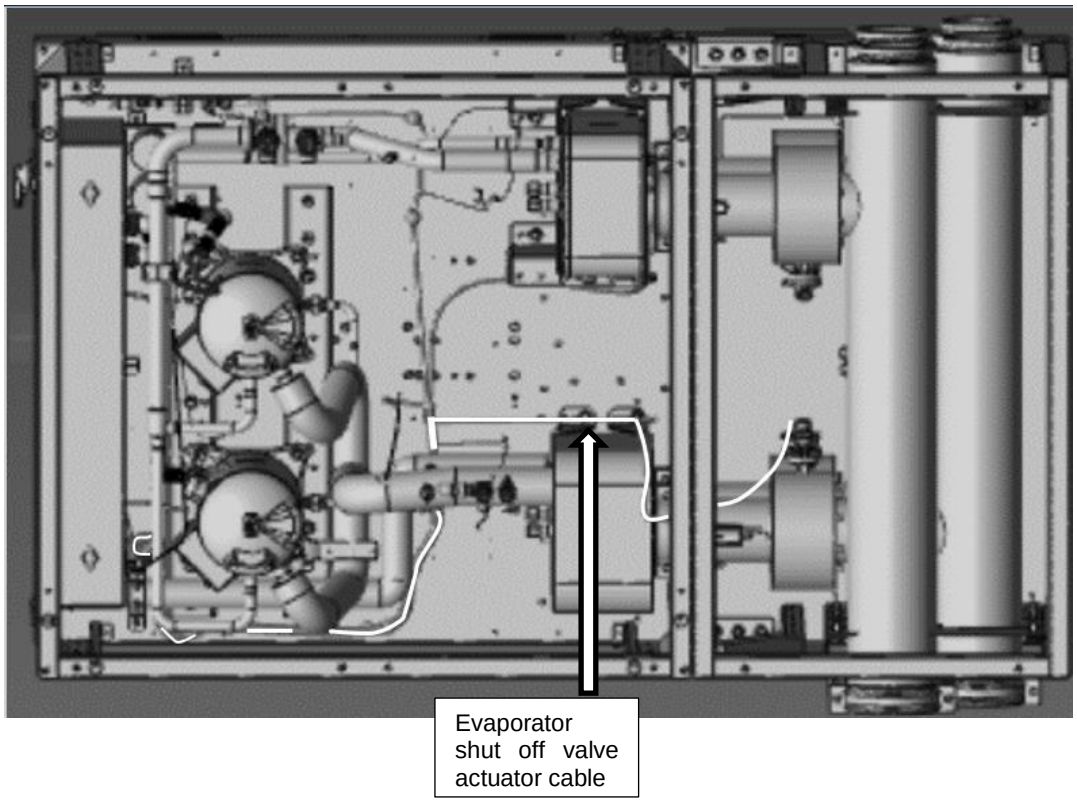


Fig. 16 – Condenser shut off valve actuator cable routing

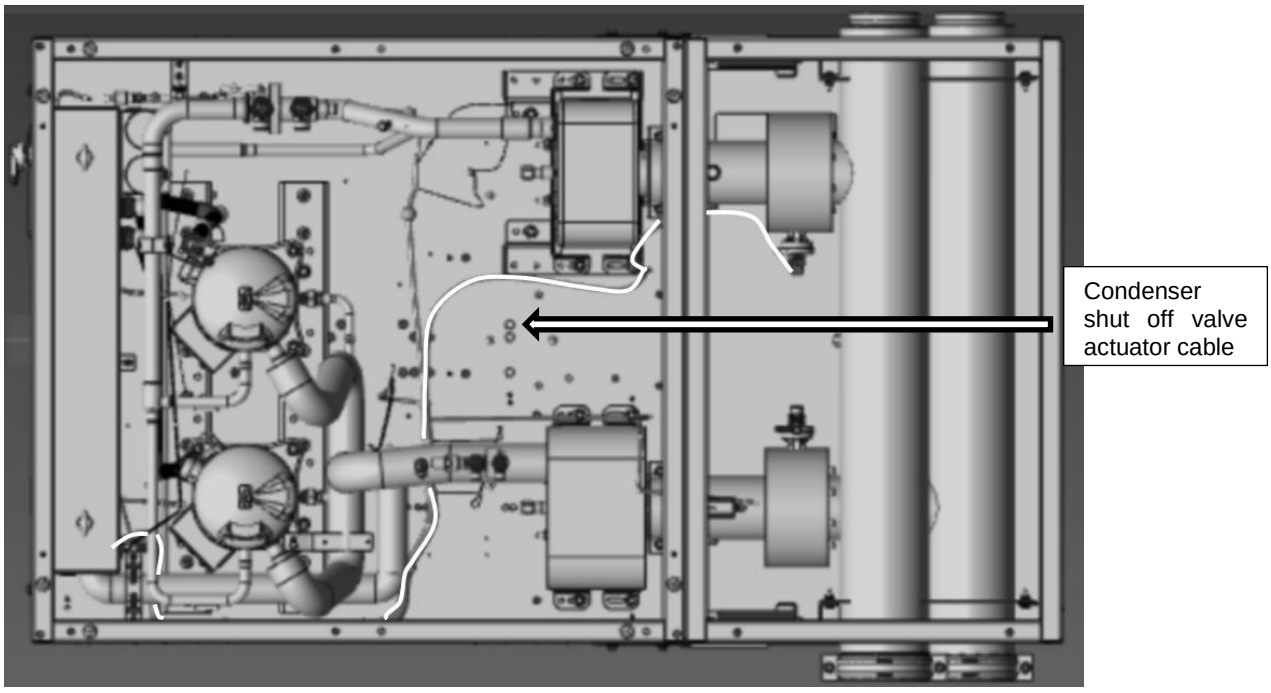
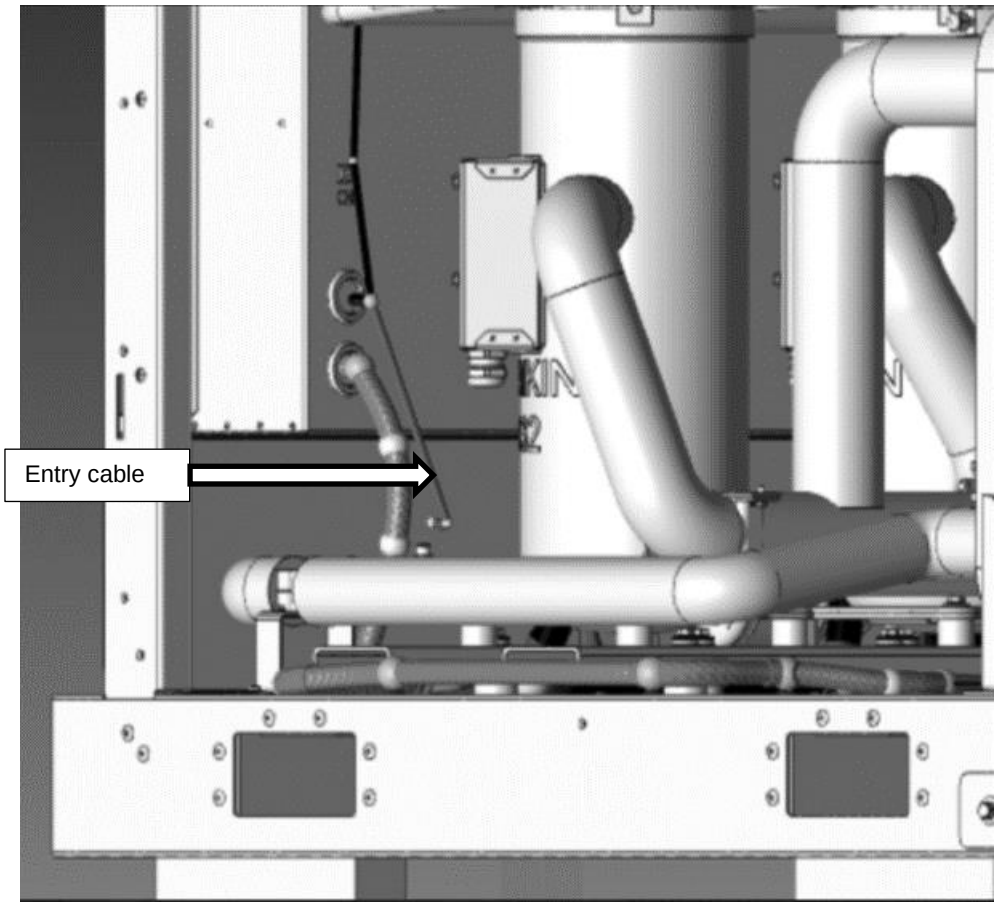


Fig. 17 – Electrical panel entry for evaporator and condenser shut off valve actuator cables

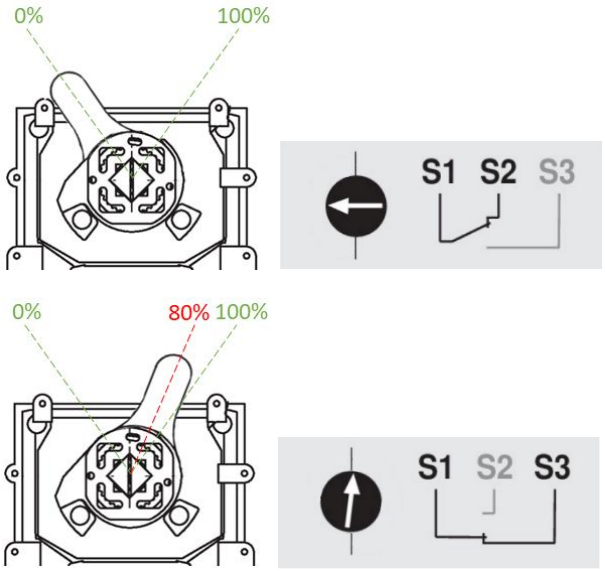


15.1.3 Setting of Limit Switches trigger

The procedure to set the trigger of the feedback switches of the valve is detailed below:

- Set the **Unit Mode = Test.**
- In **Unit Manual Control** drive the valve in the closed position 0%, wait for the closed feedback state.
    - While opening the valve handle rotates from 0% to 100%, in the meanwhile the arrow opening indicator also rotates.
    - When the valve handle is around the 80% position, the arrow indicator must be rotated with a screwdriver in the closed switch position as showed below.

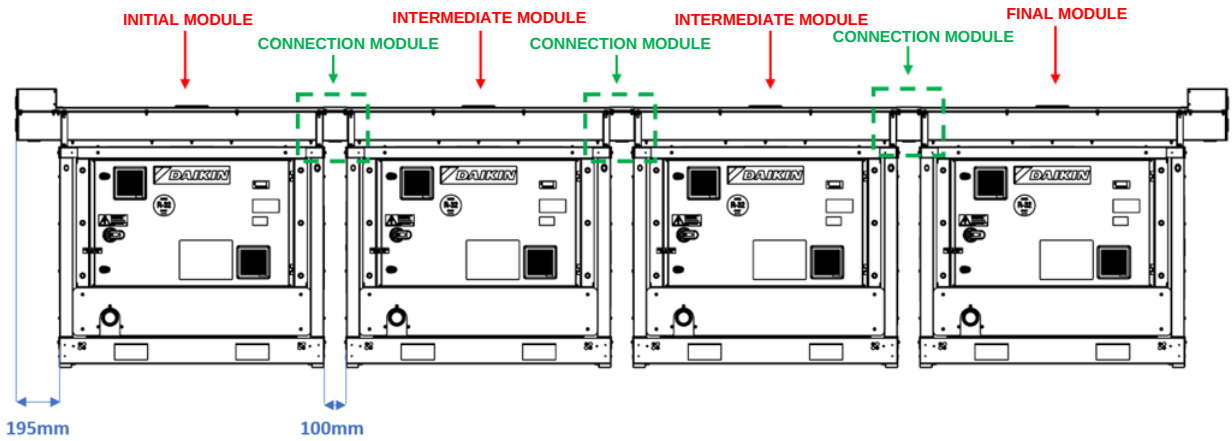
Fig. 18 – Setting of limit switches trigger



16 SINGLE POWER SUPPLY KIT

Unit modules can be electrically connected together through a power bar system. Each unit module is equipped with a power bar module with fuses inside and the power bar modules are connected together with connection modules.
A box is present on both sides of the power bar system in order to permit the cables routing.

Fig. 19 – Power bar system



In figure 38 is shown the supply cable routing from the bar system to the single unit.

Fig. 20 – Cables routing between bar system and unit

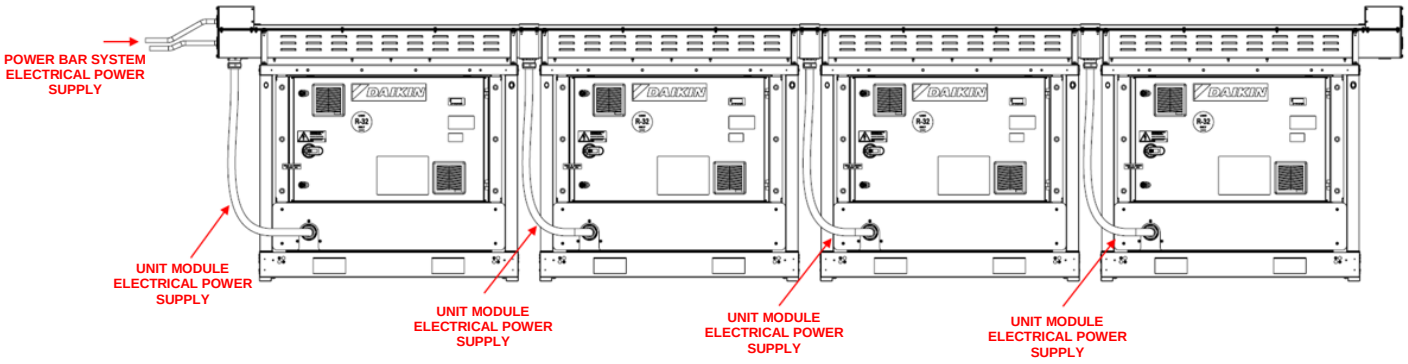
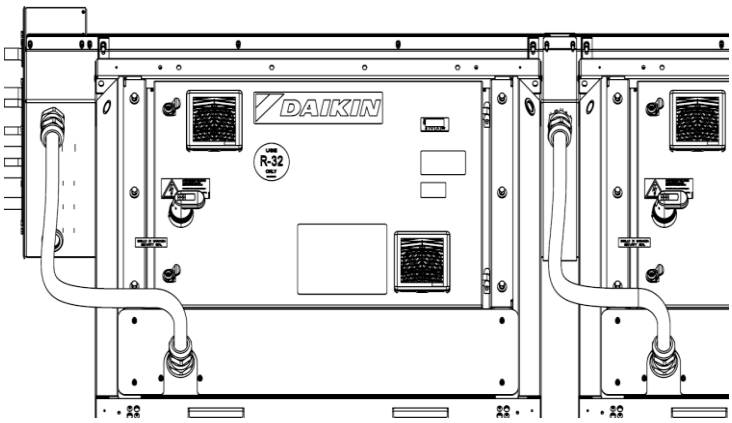


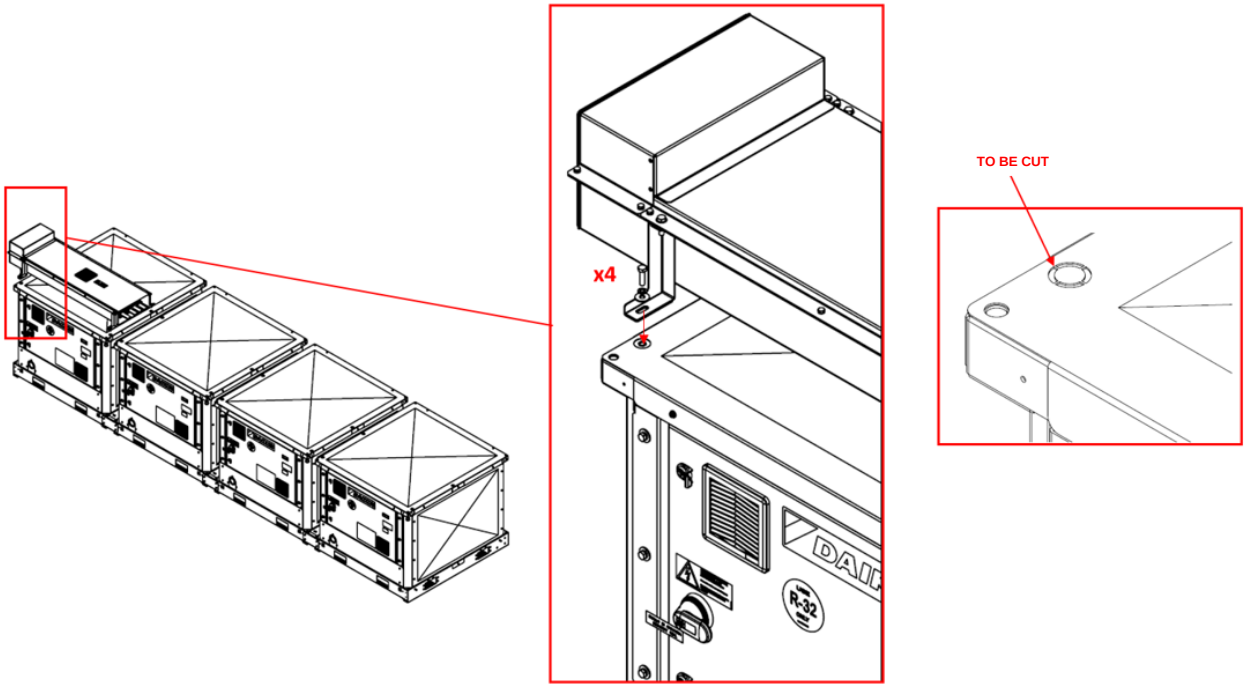
Fig. 21 – Details of cables routing



16.1 Power bar system mechanical installation

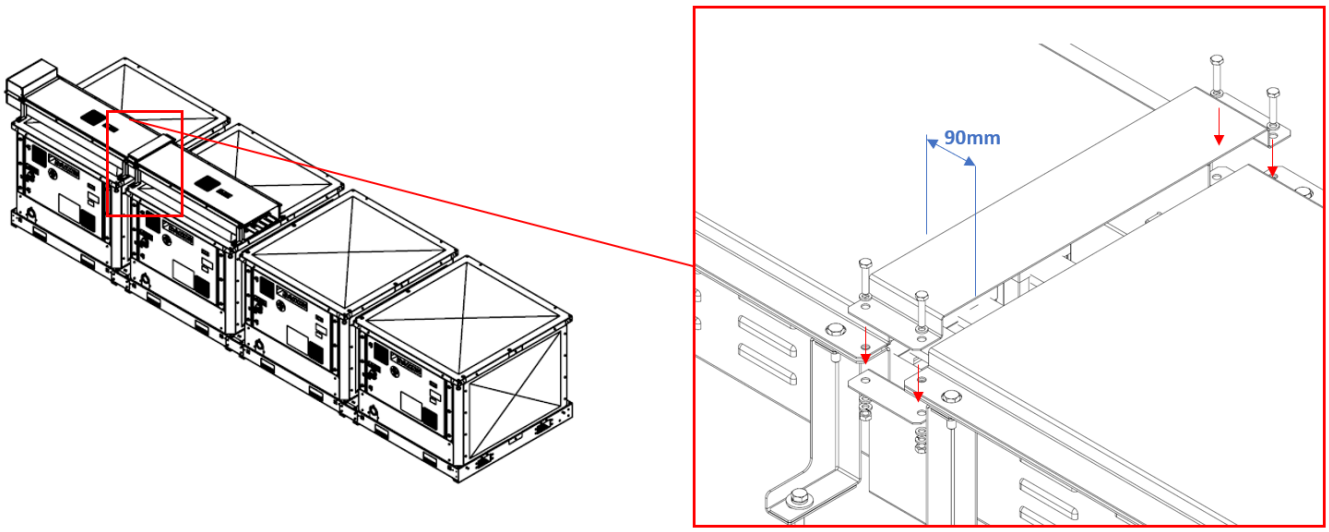
For a correct mechanical installation each power bar module has to be put on top of the proper unit module and fixed with 4 screws using the hexsert mounted on the lateral crossbeams (2 on each side). When the top panel of the cabinet is present (XR unit version), a part of the sheet needs to be cut to allow the fastening of the screws.
The first and the last unit module have a proper power bar module with a box that allow the installation of the power cables, the other units have a specific power bar module without the box.

Fig. 22 – Fixing of the power bar system to the unit



Two consecutive modules have to be connected by a connection module. This module includes 4 busbar connecting terminal in order to guarantee the electric continuity through the power bar modules.

Fig. 23 – Connection of the power bar modules together



16.2 Power bar system electrical connection

The electrical connection of more modules of the power bar system is possible thanks to specific connection clamps. These clamps allow the connection of the bars of each module.

Fig. 24 – Details of connection of the power bar modules together

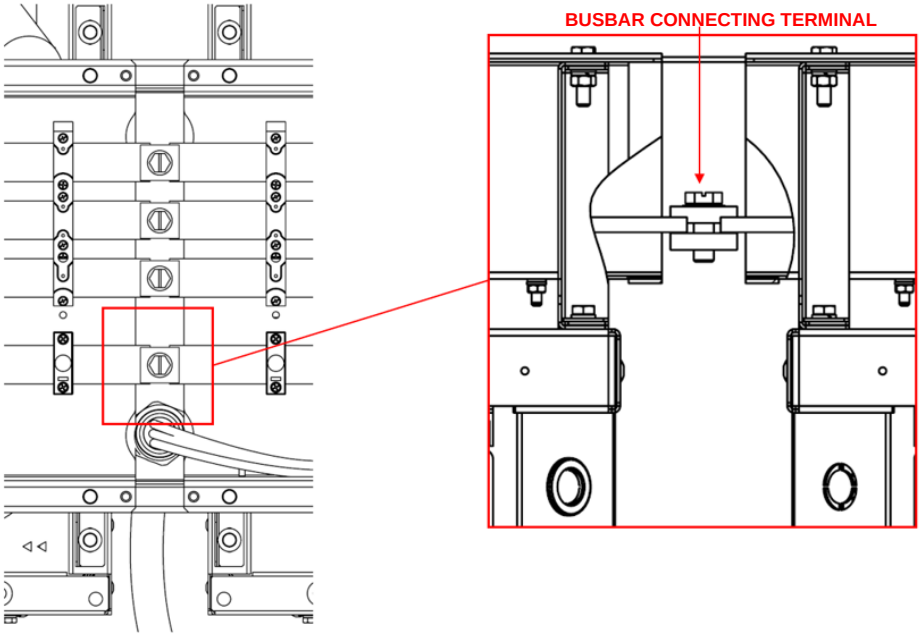
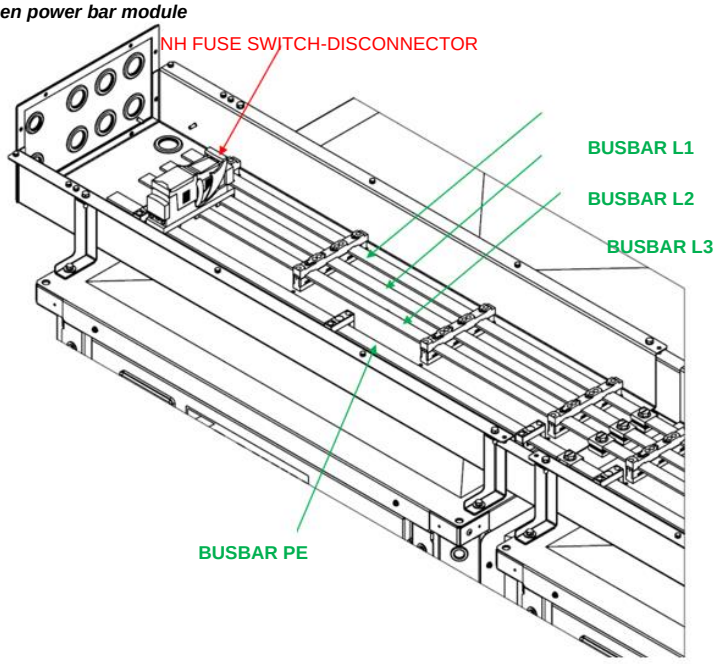


Fig. 25 – Detail of the fuses and of the box for cables routing of the power bar module

Top view of the open power bar module



The electrical connection of the units to the power bar system is done through a multipolar cable, 3 phases with ground. The three phases shall be connected to the fuse holder, equipped with each module, and the ground (PE) shall be connected to the ground bar (Busbar PE).

Fig. 26 – Detail of electrical connection for the initial unit module

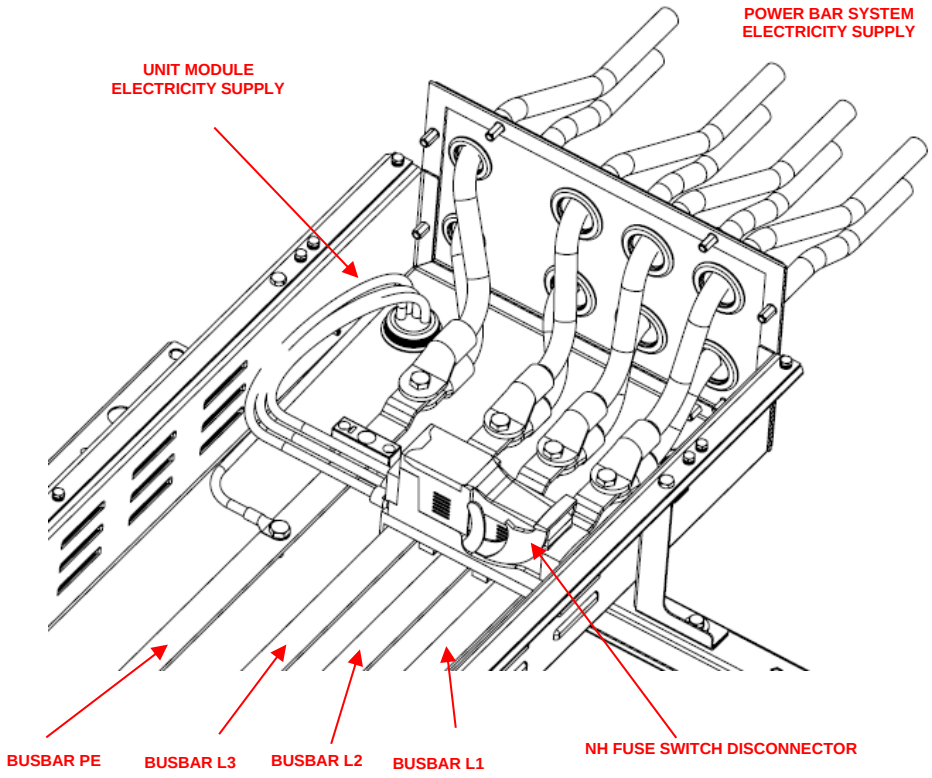
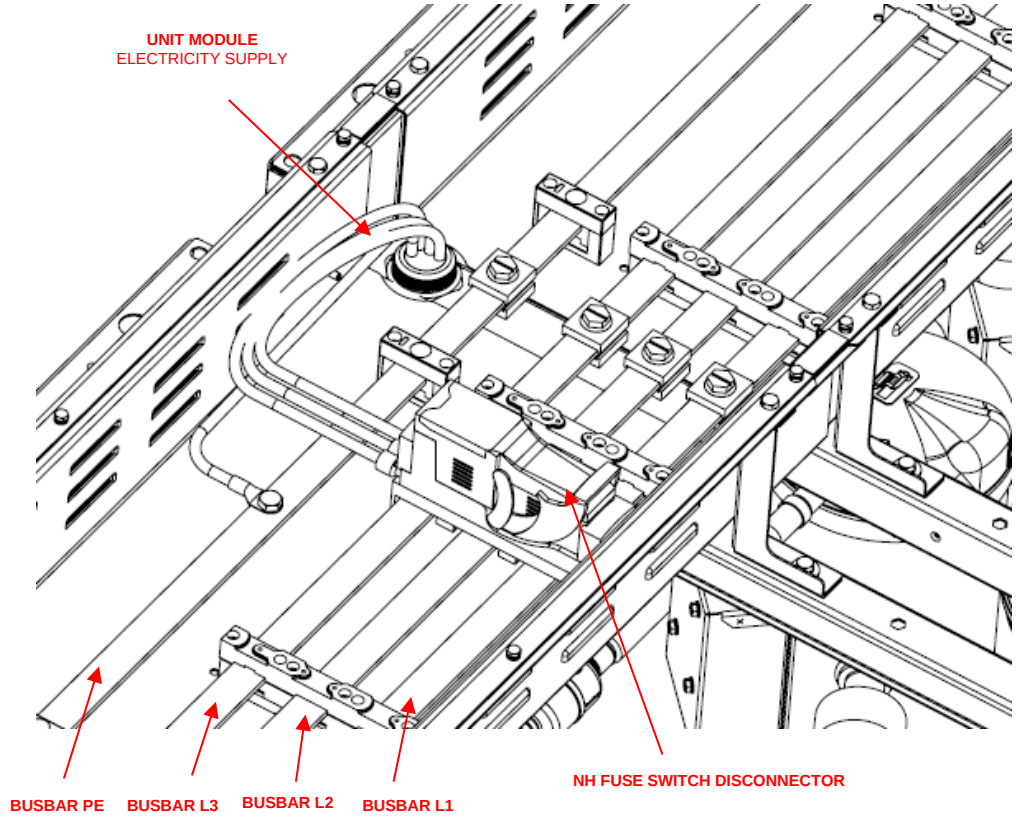


Fig. 27 – Detail of electrical connection for any other unit module



Refer to the specific wiring diagram for the unit purchased. The wiring diagram may not be on the unit or it could be lost, in that case please contact your manufacturer representative, who will send you a copy.
In case of discrepancy between wiring diagram and electrical panel/cables, please contact the manufacturer representative.

This unit includes non-linear loads such as inverters, which have a natural current leakage to earth. If an Earth Leakage Detector is installed upstream the unit, a type B device with a minimum threshold of 300 mA must be used.

Electrical equipment can operate correctly in the intended ambient air temperature. For very hot environments and for cold environments, additional measures are recommended (contact the manufacturer representative).
The electrical equipment can operate correctly when the relative humidity does not exceed 50 % at a maximum temperature of +40 °C. Higher relative humidities are permitted at lower temperatures (for example 90% at 20 °C).
Harmful effects of occasional condensation shall be avoided by design of the equipment or, where necessary, by additional measures (contact the manufacturer representative).

This product complies with EMC standards for industrial environments. Therefore, it is not intended for use in residential areas, e.g. installations where the product is connected to a low voltage public distribution system. This product needs to be connected to a low voltage public distribution system, specific additional measures will have to be taken to avoid interference with other sensitive equipment.

The units must be connected to a TN power supply system.
If the units need to be connected to a different type of power system, for example the IT system, please contact the factory.

ALL THE ELECTRICAL CONNECTIONS TO THE UNIT MUST BE CARRIED OUT IN COMPLIANCE WITH NATIONAL LAWS AND EUROPEAN DIRECTIVE AND REGULATIONS IN FORCE.
THE CONNECTIONS TO THE TERMINALS MUST BE MADE WITH COPPER TERMINALS AND CABLES, OTHERWISE OVERHEATING OR CORROSION MAY OCCUR AT THE CONNECTION POINTS WITH THE RISK OF DAMAGING THE UNIT. THE ELECTRICAL CONNECTION MUST BE CARRIED OUT BY QUALIFIED PERSONNEL, IN COMPLIANCE WITH THE LAWS IN FORCE. THERE IS A RISK OF ELECTRIC SHOCK.

FAILURE TO DISCONNECT POWER BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.
DISCONNECT ALL ELECTRIC POWER, INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FOLLOW PROPER LOCKOUT/ TAGOUT PROCEDURES TO ENSURE THE POWER CAN NOT BE INADVERTENTLY ENERGIZED. VERIFY THAT NO POWER IS PRESENT WITH A VOLTMETER.

BEFORE ANY INSTALLATION AND CONNECTION WORKS, THE UNIT MUST BE SWITCHED OFF AND SECURED. SINCE THIS UNIT INCLUDES INVERTERS, THE INTERMEDIATE CIRCUIT OF THE CAPACITORS REMAINS CHARGED WITH HIGH VOLTAGE FOR A SHORT PERIOD OF TIME AFTER BEING SWITCHED OFF.
DO NOT OPERATE TO THE UNIT BEFORE 20 MINUTES AFTER THE UNIT HAS BEEN SWITCHED OFF.

17 ICM GATEWAY (MULTI MASTER CONTROLLER)

For ICM Gateay accessory, refer to the following documents:

- D-EOMOC01203-24EN_ICMGTW
- D-EIGOC00203-24EN_iCMGTW
- D-EIGOC00103-24EN_iCMGTW

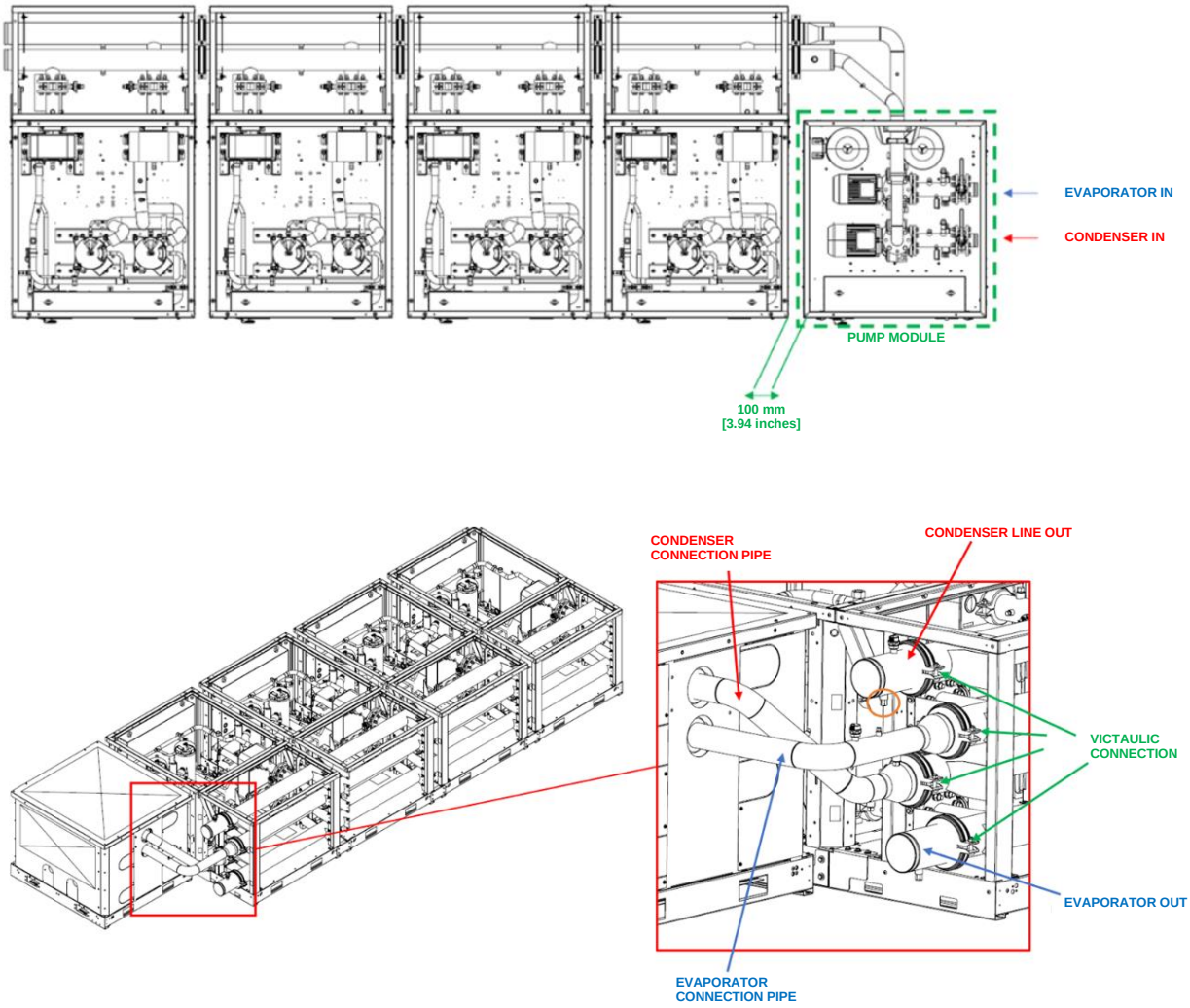
18 PUMP MODULE

The pump module is selected on the base of the water flow rate requested at the operating point of the unit.

18.1 Mechanical installation

If pump module is installed, it is advisable to install the master module near to the pump module.
Pump module shall be installed indoors.

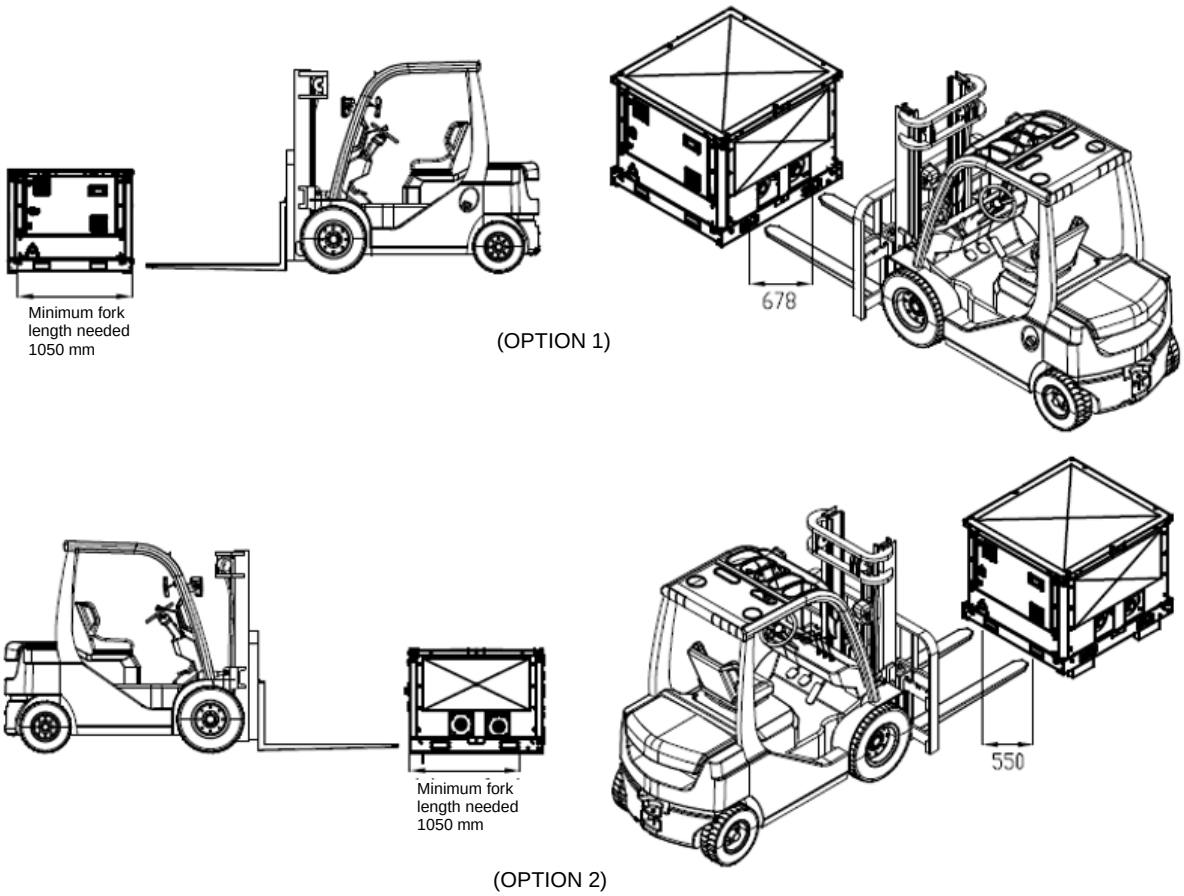
Fig. 28 – Pump module installation



The pump module can be installed only on one side of the unit- manifold system.
The water inlet installation is constrained to the pump suction.

18.2 Handling of pump module

Fig. 29 – Handling of pump module

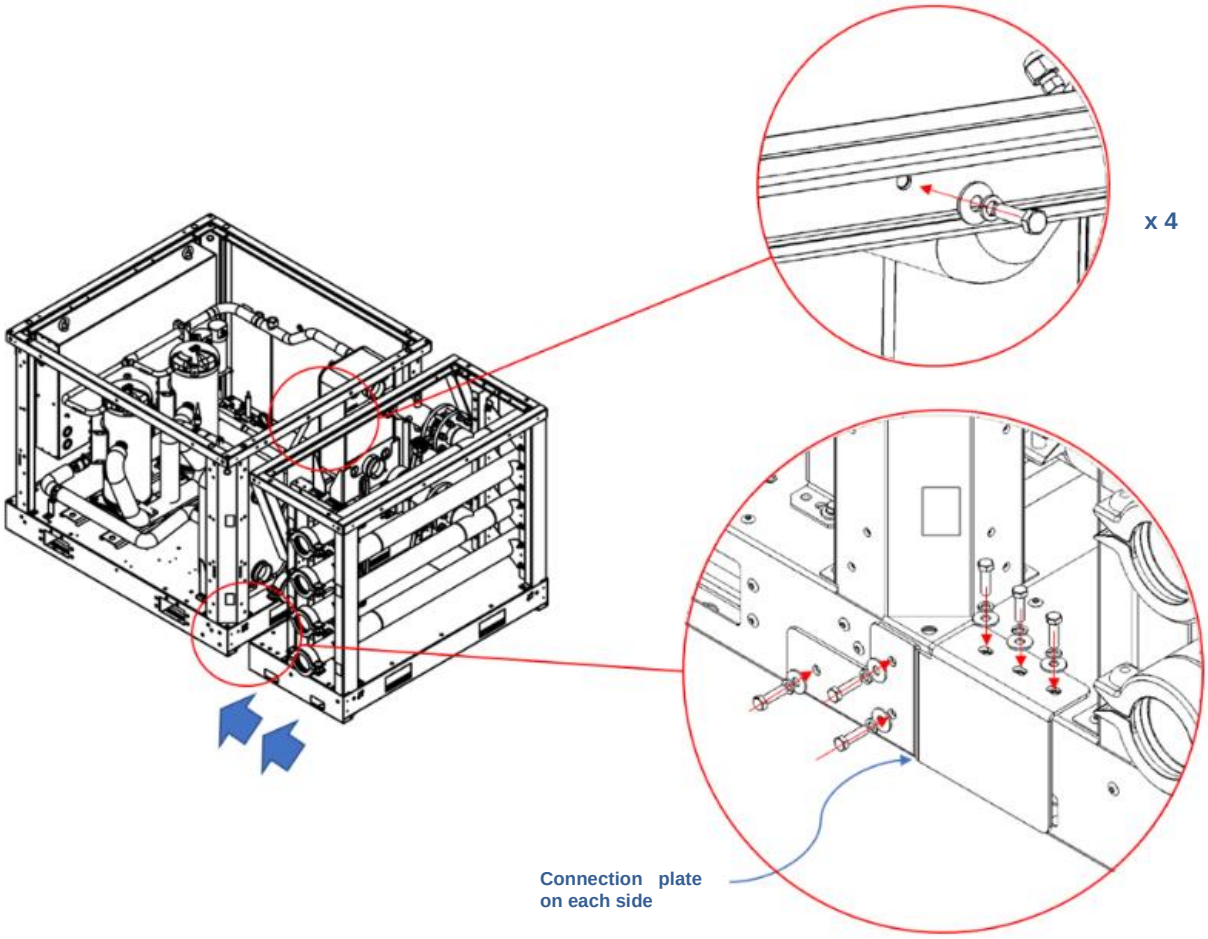


19 MANIFOLD MODULE

19.1 Connection between manifold module and chiller unit

In case of modular application, the units shall be connected on the water side through manifold modules. The manifold allows the connection between the unit heat exchangers and the customer plant.

Fig. 30 – Connection instructions between chiller and manifold modules



After installation of manifold module and before connection to the chiller module, it is important to clean and remove welding oxides and other contamination products deriving during production of the water piping.
The cleaning steps are the following:

1. Flush the pipes with a solution of hot water and a mild detergent.
2. Flush with a dilute solution of phosphoric acid
3. Stop the cleaning when no more debris are visible
4. After the cleaning, flush the pipes for one hour with cold water to remove any residue

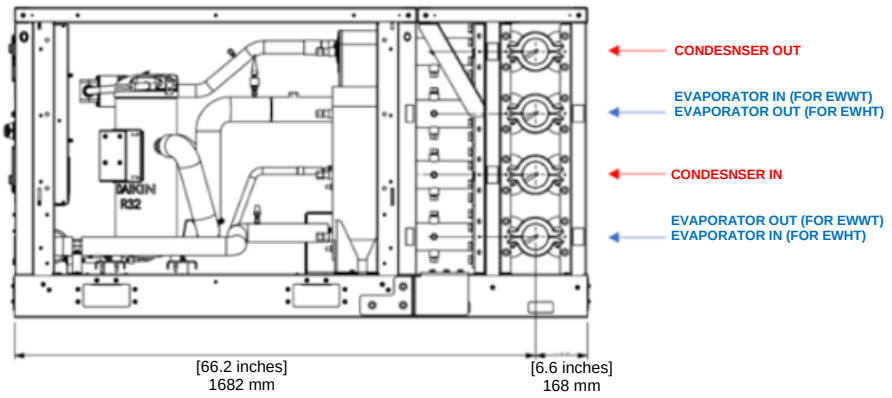
All the cleaning liquids, acids, and detergents must be compatible with stainless steel, copper, and carbon steel. Consult a professional water treatment specialist when in doubt.

The manifold module is equipped with a butterfly valve in each pipe.

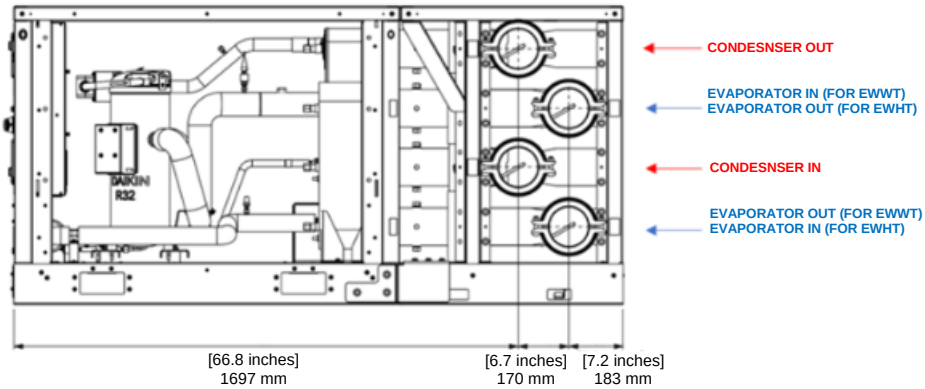
19.2 Connection of manifold module to plant water piping

Fig. 31 – Water manifold sizes

MANIFOLD 3”

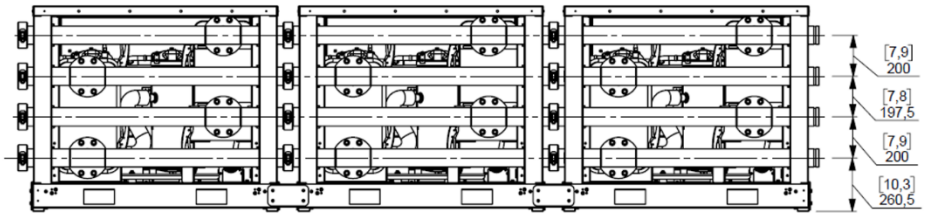


MANIFOLD 5”



EWWT-Q and EWLT-Q series are equipped with heat exchangers that need to work all counter-current. In these cases, the water inlet for evaporator is on the top pipe and the water inlet for condenser is on the bottom pipe.
The EWHT-Q series works with co-current evaporator and counter-current condenser. Thus, for EWHT-Q series, the water inlets for evaporator and condenser are both on the bottom pipes.

Fig. 32 – Water connection to modules

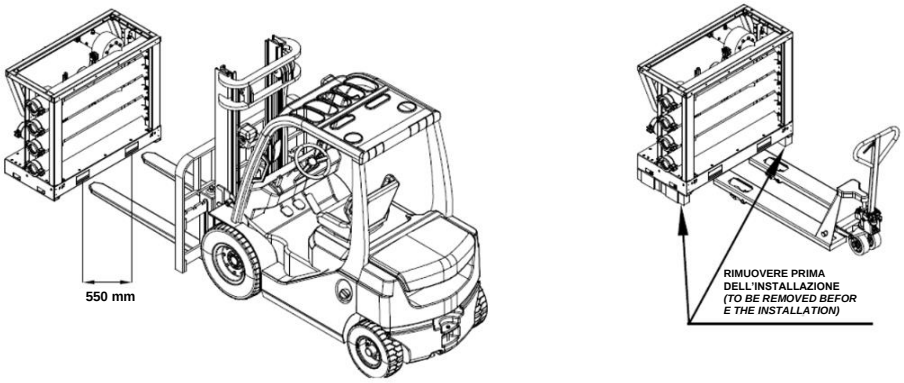


As reported in the previous picture, the water connection can be done from each side, there are no indication about constrain on right / left side. Also, the two connections related to same water loop (cold loop or hot loop) can be done on the same side or opposite side.
The only constrain to be respected in the water connection is the pipe where the water need to enter / leave the system (as in case of pump module).

19.3 Handling of manifold module

The manifold can be handled by forklift using the holes in the base frame, or by pallet truck if wooden spacers are present.

Fig. 33 – Handling of manifold module



The module consists of the unit and the manifold connected together; it can be lifted by forklift. Only the base frame holes must be used to lift the module.

Fig. 34 – Handling of unit and manifold modules (1)

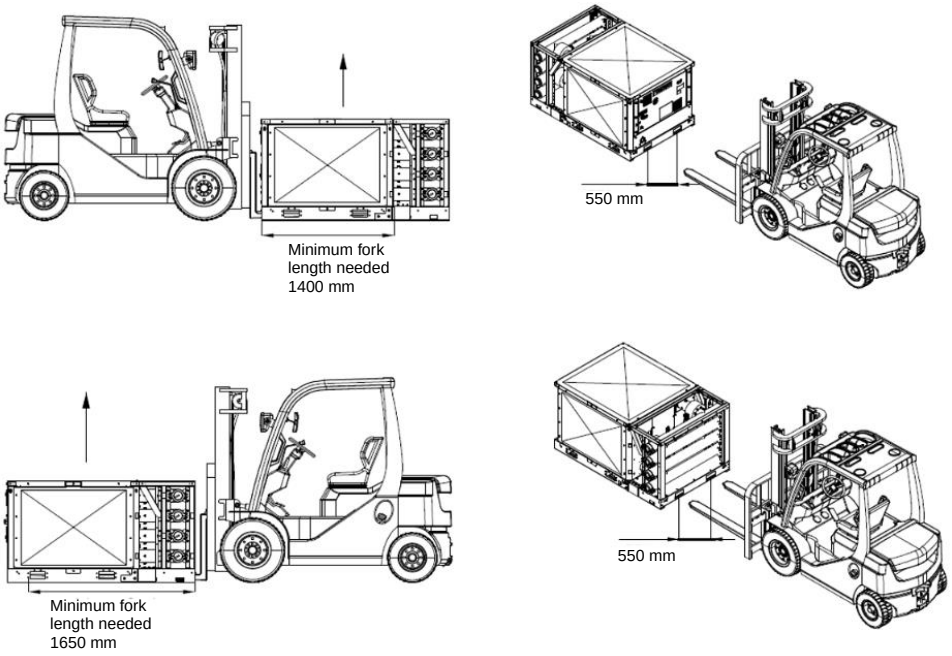
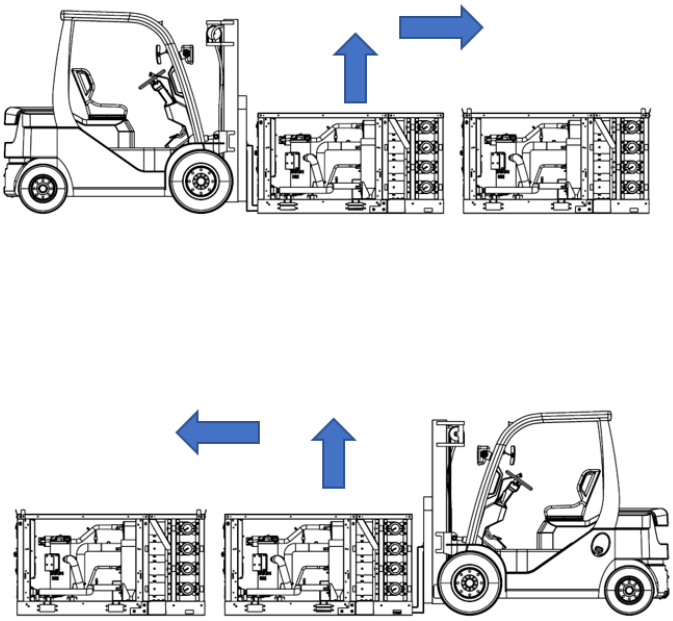


Fig. 35 – Handling of unit and manifold modules (2)



20 CONNECTION KIT

The mechanical installation of the pump module to the manifold module needs a specific connection kit.
The connection kit depends by the lift of the pump module and by the type of unit (cooling only/heat pump) as shown in Table 2.

Table 2 Selection table for connection kit

PUMP MODULE (LOW LIFT)		EKPUMPLL1	EKPUMPLL2	EKPUMPLL3	EKPUMPLL4	EKPUMPLL5
MANIFOLD MODULE		EKMFKIT3	EKMFKIT3	EKMFKIT5	EKMFKIT5	EKMFKIT5
CONNECTION KIT	**COOLING ONLY**	EKWCONNKIT3	EKWCONNKIT3	EKWCONNKIT5	EKWCONNKIT5	EKWCONNKIT5
	HEAT PUMP	EKHCONNKIT3	EKHCONNKIT3	EKHCONNKIT5	EKHCONNKIT5	EKHCONNKIT5

PUMP MODULE (HIGH LIFT)		EKPUMPHL1	EKPUMPHL2	EKPUMPHL3	EKPUMPHL4	
MANIFOLD MODULE		EKMFKIT3	EKMFKIT3	EKMFKIT5	EKMFKIT5	
CONNECTION KIT	**COOLING ONLY**	EKWCONNKIT3	EKWCONNKIT3	EKWCONNKIT5	EKWCONNKIT5	
	HEAT PUMP	EKHCONNKIT3	EKHCONNKIT3	EKHCONNKIT5	EKHCONNKIT5	

In each kit will be included:

- 2 x conic plugs
- 2 x Automatic air purge valve
- 2 x Temperature probe well, threaded ½”

NOTE: these components shall be mounted on field by the customer

21 WATER FILTER

A water filter or a device that can remove particles from the liquid and is mandatory at the entry of the evaporator/condenser. When the manifold module is equipped, the water filter shall be mounted upstream the manifold module.
This filter can be supplied as accessory with the unit by DAE.
The use of a filter extends the life of the BPHE and pump and helps to keep the water system in a better condition. The water filter must be installed as close as possible to the unit. If the water filter is installed in another part of the water system, the Installer must guarantee the cleaning of the water pipes between the water filter and the BPHE.
The filter can be installed at the entrance of the pump when it is placed on the input pipe of the water of the evaporator/condenser, only if the cleanliness of the water installation between the pump and the evaporator is guaranteed.
Two kind of water filters can be supplied by DAE:

- 3” water filter
- 5” water filter

The size of the water filter depends on the diameter of the water pipe/manifold.

22 SMART GRID READY BOX

The gateway box is an accessory needed to allow the proper communication between units and an Interface-compatible system components in accordance with Smart Grid applications.

In order to enable Smart Grid functionalities please refer to instructions showed in the unit's Operating Manual.

Specific mechanical and electrical installation notes can be found in Smart Grid Ready Box Installation & Operating Manual D–EIOCP00301-23.

23 ANTI VIBRATION MOUNTS FOR MANIFOLD

Anti-vibration mounts are already available for EWWT/EWLT/EWHT-Q series as a standard kit.
Rubber or spring anti vibration mounts are available also for manifold module as accessory.

24 ANTI VIBRATION MOUNTS FOR PUMP MODULE

Anti-vibration mounts are already available for EWWT/EWLT/EWHT-Q series as a standard kit.
Rubber or spring anti vibration mounts are available also for pump module module as accessory.

25 RUBBER PADS

Rubber pads are an alternative to standard anti-vibration mounts available for EWWT/EWLT/EWHT-Q, for pump module and for manifold module.

This kit contains the following components:

- 4 pcs. Rubber pad 150 x 240 mm

Below is reported the number of kits to request for each equipment supplied:

- Unit (EWWT/EWLT/EWHT-Q) → 1 pc. Rubber pad kit
- Manifold module → 1 pc. Rubber pad kit
- Pump module → 1 pc. Rubber pad kit

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