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## Accessory Manual D-EIOOC00110-21\_05EN

**Air Cooled chiller/heat pump with scroll inverter compressors**

**EWYT~CZ / EWAT~CZ**

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## 1 MAIN OVERVIEW

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### 1.1 Introduction

This manual provides the information for the correct installation of each accessory for EWAT – EWYT CZ unit

### 1.2 Accessories list

In the table below are listed all the accessories.

1	Input / Output Expansion Pack	EKRSCIO
2	Connectivity KIT	EKRSCBMS
3	Differential Pressure Transducer for Variable Primary Flow Control	EKRSCDP
4	Temperature Sensor for Master Slave control function	EKRSTMS
5	Kit DoS router with antenna	EKRSCSM
6	Smart Grid Ready Box	EKSCSGW
7	Restricted Application Definer	EKDAGBL

## 2 GENERAL DESCRIPTION

### 2.1 Input / Output Expansion Pack

POL468.85/MCQ/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	Domestic Hot Water
2	Demand Limit
3	Variable Primary Flow
4	Setpoint Reset
5	Double Setpoint
6	Cooling / Heating digital output indication
7	Defrost digital output indication

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 report all the component

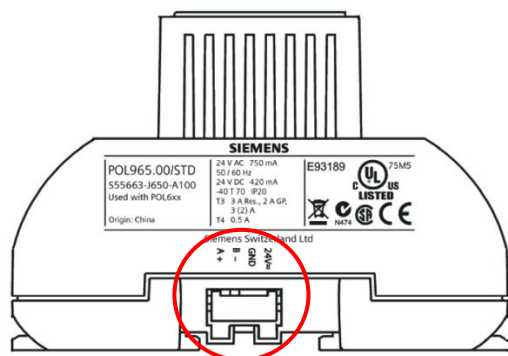
Item	Code	Quantity	Supplier	Description
1	POL965.00/MCQ	1	Siemens	Main Board
2	FKCT 2,5/ 8-ST x 2	2	Phoenix contact	Connectors for terminals T4 and T5
3	FKCT 2,5/ 7-ST	1	Phoenix contact	Connector for terminals T1
4	FKCT 2,5/ 3-ST	1	Phoenix contact	Connector for terminals T2
5	FKCT 2,5/ 2-ST	1	Phoenix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

### 2.2 Electrical Connection

The Input / Output expansion module needs to be electrical connected to:

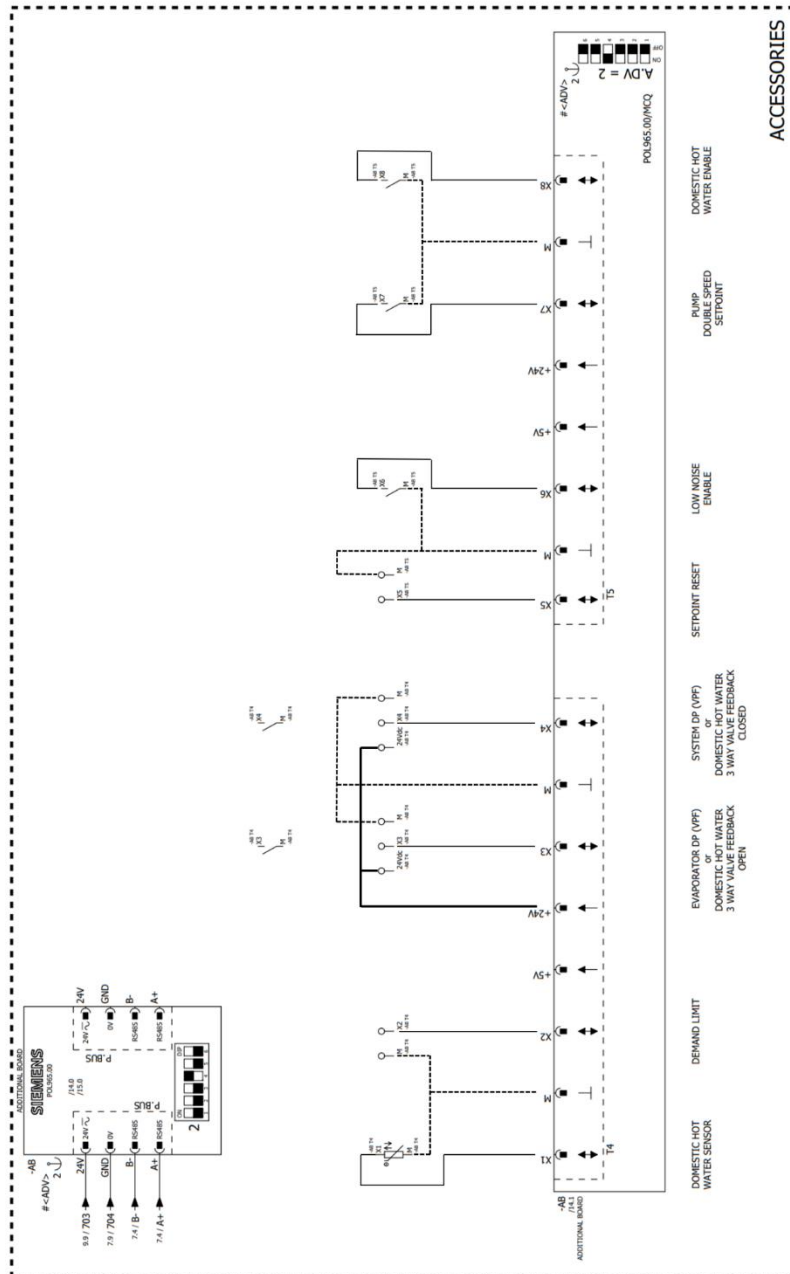
1. Power Supply
2. Serial communication with POL468.85/MCQ.

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



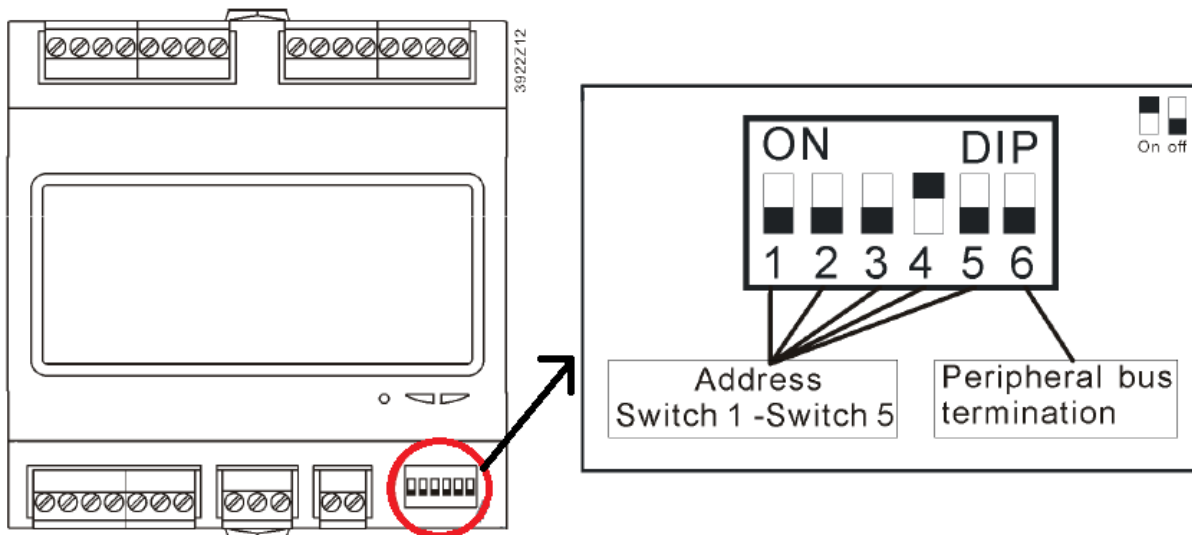
Refer to the following unit wiring diagram for detailed reference of wiring harness.

- Figure doesn't show Domestic Hot Water 3WV connection. Follow same configuration of other digital input.



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

DIP Switch Index	Position
1	off
2	off
3	off
4	on
5	off
6	off



### 2.2.1 Master Slave temperature sensor

For common leaving water temperature sensor positioning please refer to specific documentation.

### 2.2.2 Variable Primary Flow

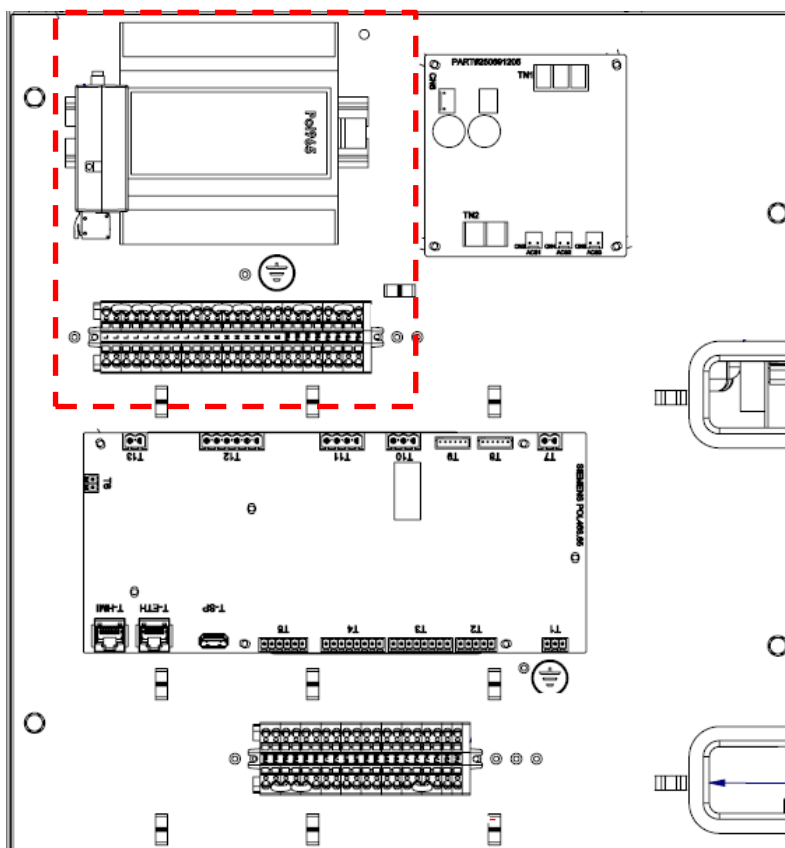
For unit differential pressure sensor positioning please refer to chapter 4.

### 2.2.3 Domestic Hot Water

For water tank temperature sensor positioning please refer to specific documentation.

## 2.3 Mechanical Connection

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



### 3 CONNECTIVITY KIT

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 POL468.85/MCQ of your specific unit. Once the connectivity card is used to enable the previous function, its usage is no more valid for new boards**

#### 3.1 Procedure to enable the connectivity kit

Unlocking the connectivity kit requires three fundamental parts:

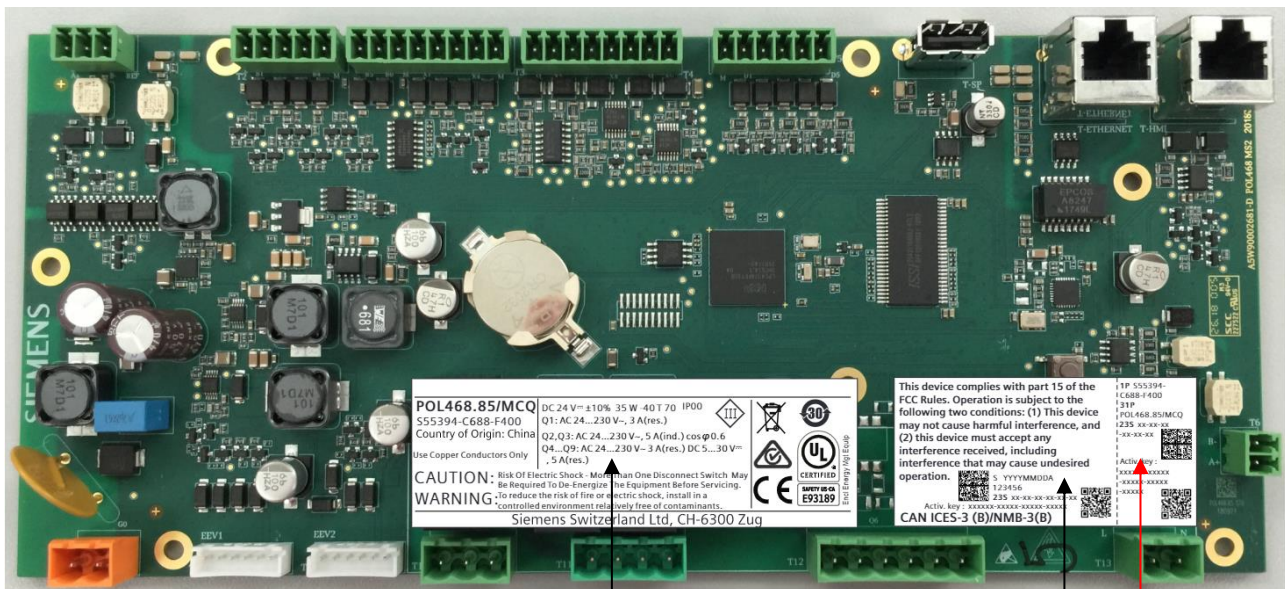
1. Physical access to POL468.85/MCQ board
2. Smartphone
3. Internet connection

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

##### 3.1.1 Install controller label on connectivity card

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

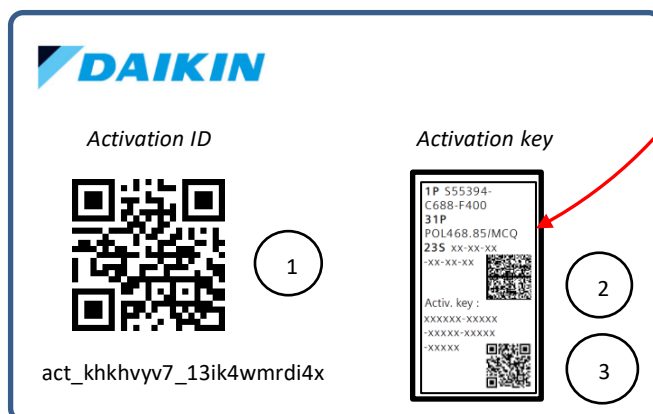
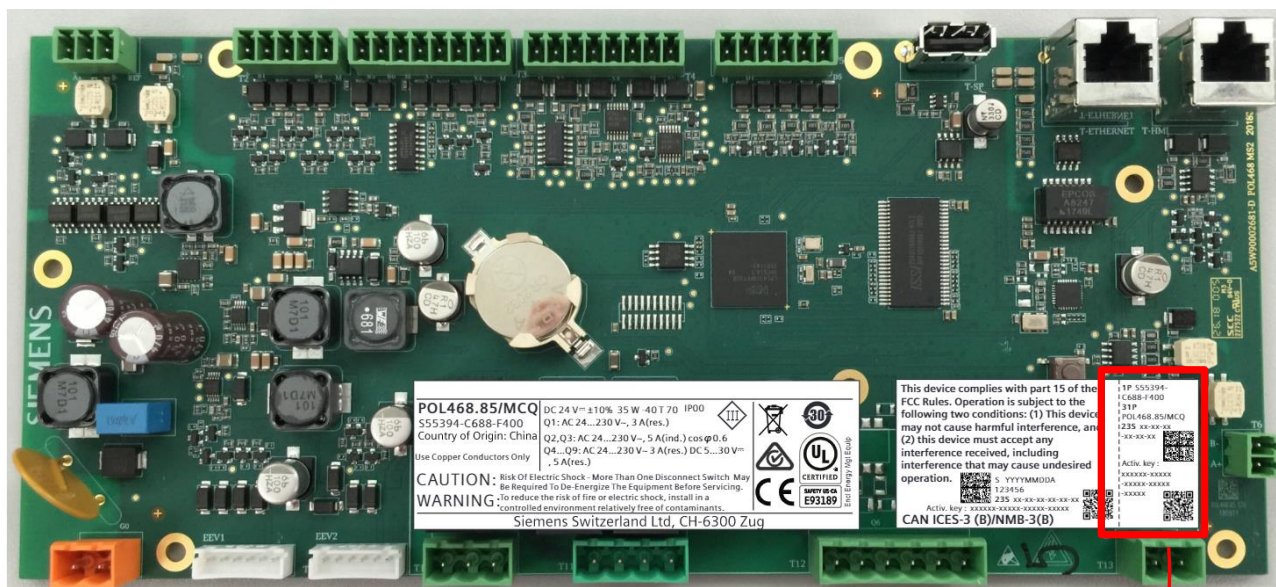
Label2 is made of a fixed part and a removable part which is the only one necessary for connectivity kit enabling. The removable part needs to be detached from main POL468.85/MCQ and attached on the connectivity card to be scanned with your smartphone in next steps.



1

2

Removable part



### 3.1.2 Download "License Manager" Mobile APP

From your smartphone APP store (Apple Store in iOS system and Play Store in Android ones), search for "License Manager APP.", download and install it.

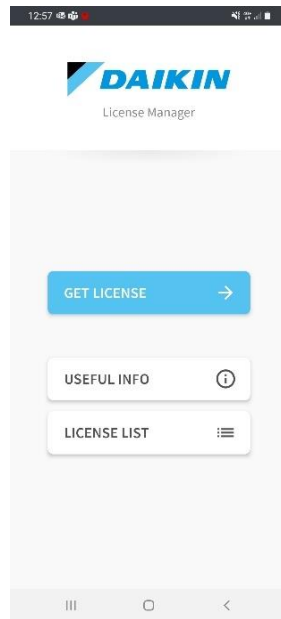
- Check internet connection and memory available on smartphone before app download

### 3.1.3 Open License Manager APP

Last step is completely managed by the app but requires access to the connectivity card realized in step 3.2.1. Procedure inside the app includes three steps:

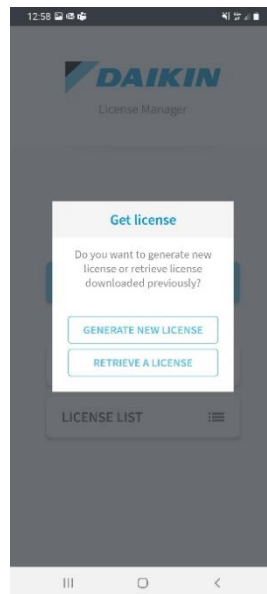


### Step 1. Open Mobile App



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

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

### Step 3. Connectivity card scan

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

- 1 License code

- 2 PLC Data Matrix
- 3 PLC Activation Key



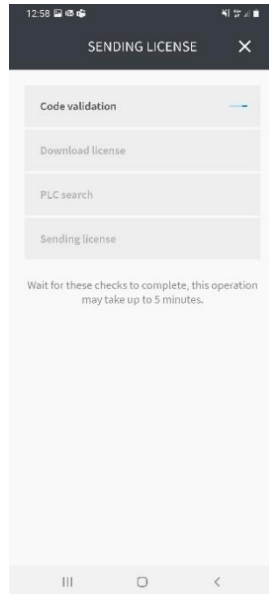
Starting from the License Code, scan all three QR codes until three green ticks appears on mobile app.



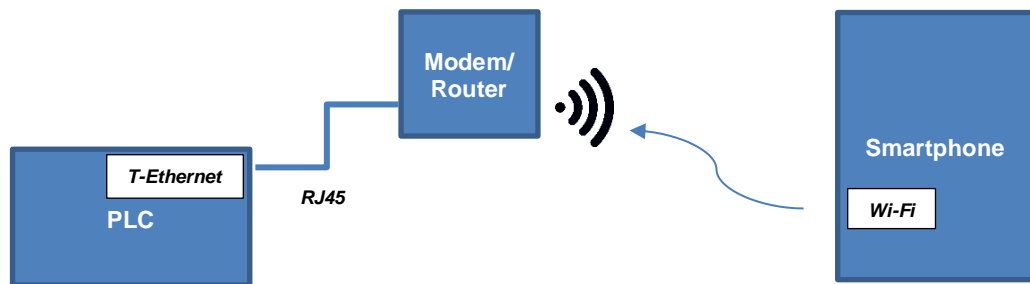
**Note!** If your Smartphone cannot scan properly the code 2. and 3. use camera zoom in to allow the scanning process

#### Step 4. Correct procedure end

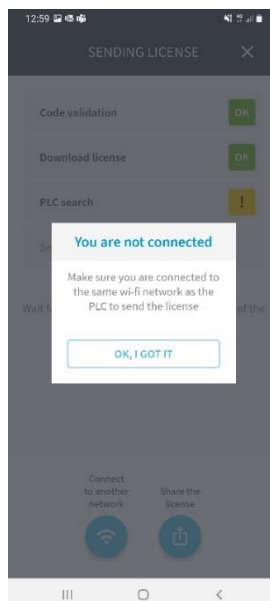
In this step no more action needed. When the card is correctly scanned, system generates your License file and will download it on the PLC. This step starts with "Code Validation" procedure and can require few minutes. It is important to have internet connection for the entire procedure duration.



After license generation the mobile app tries to send it directly to the PLC with 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 scheme layout below).

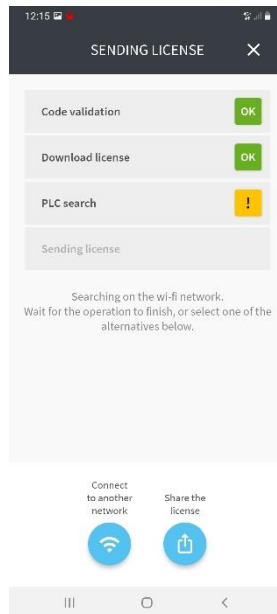


Otherwise, an error will occur and a retrieving procedure will be needed.

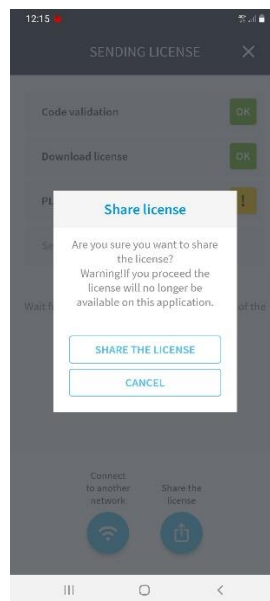


### Step 5. License Sharing

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:



Confirming the selection of “Share the license” a smartphone system sharing menu will open and will be possible to select different sharing platform (mail, cloud, etc.).



**Opening the system menu for license sharing automatically remove the license from the “pending licences” list (refer to chapter 3.2.4) regardless of the outcome of the sharing. If needed, execute a license retrieve to recovery it.**

Once shared the license file (named for example “license\_JRX20A-L4IJG-2NNSX-5CID4-3RQGI.ucf”), it's necessary to follow few steps:

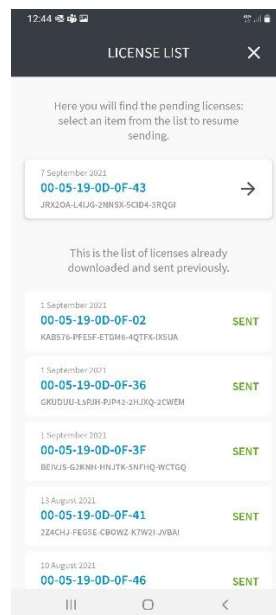
1. Download the license file on an empty USB.
2. Connect USB to PLC
3. Turn off PLC power supply and wait 5 seconds
4. Turn on PLC power supply and wait LED solid green before removing USB

At this point the EVCO HMI parameter [22.12]'s 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.

### 3.1.4 License list

The mobile app provides a list of all licenses generated and downloaded on a PLC via itself. 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:

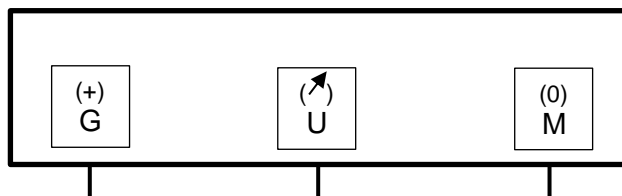
- a. Pending licenses  
On the top there are the licenses generated but still not downloaded on PLC. Clicking on the arrow in the right corner of a pending license it's possible to resume the procedure from the “PLC Search” of step 4.
- b. Already downloaded licenses  
On the bottom there are the licenses already downloaded and sent. No actions are allowed for these licenses.

## 4 DIFFERENTIAL PRESSURE TRANSDUCER

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

### 4.1 Electrical Connection

To connect the transducer to the PLC it is necessary to follow the diagram in chapter 2.2 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



**Note: the symbols in parenthesis correspond to the terminal marking on the terminal block**

### 4.2 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

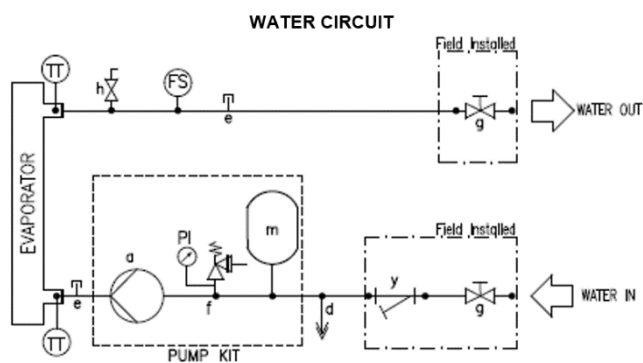
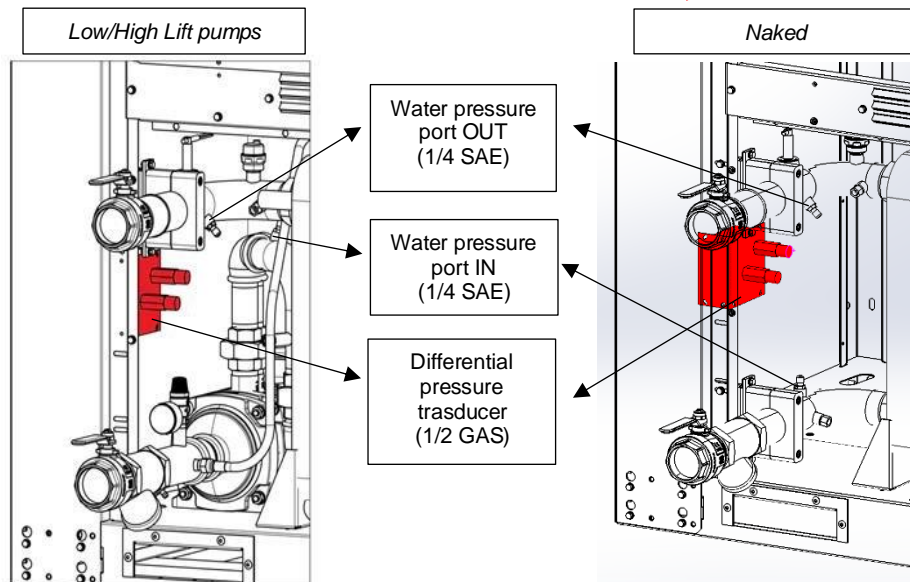
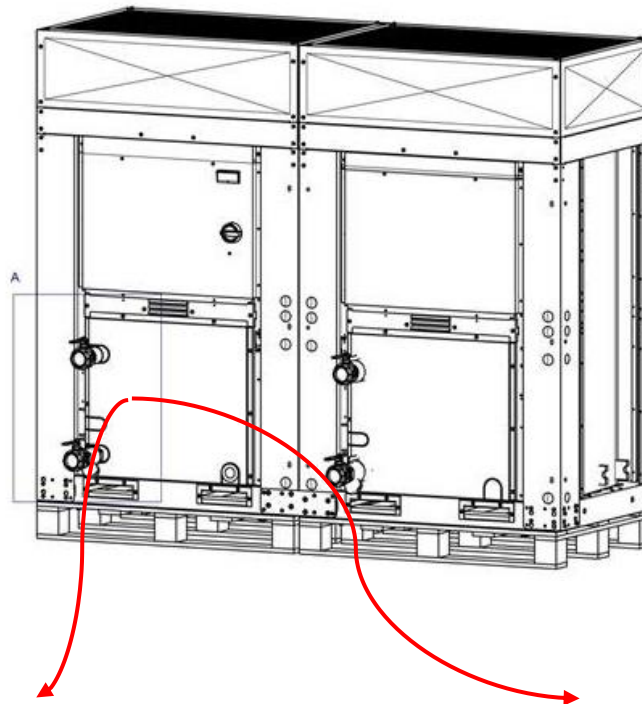


Figure 8 – Hydraulic diagram

N.B. The Pump kit is optional

#### WATER CIRCUIT EQUIPMENT

a	PUMP	m	EXPANSION VESSEL
d	DRAIN	y	WATER FILTER
e	PLUGGED FITTING	TT	TEMPERATURE SENSOR
f	SAFETY VALVE 3BAR 1/2"	PI	PRESSURE GAUGE
g	SHUT OFF VALVE	FS	FLOWSWITCH
h	AIR VENT		



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

EKRSCDP (shipped loose)	This accessory includes only the differential pressure trasducer. EKRSCDP doesn't include the installation cabling and capillaries*.
*	*The installation of the capillaries should be done using a mechanical reductor ¼ SAE -> ½ GAS



**Note:**

- **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**
-



**5     DAIKIN ON SITE MODEM**

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 instructions showed in the Operating Manual.

**5.1     Modem Kit**

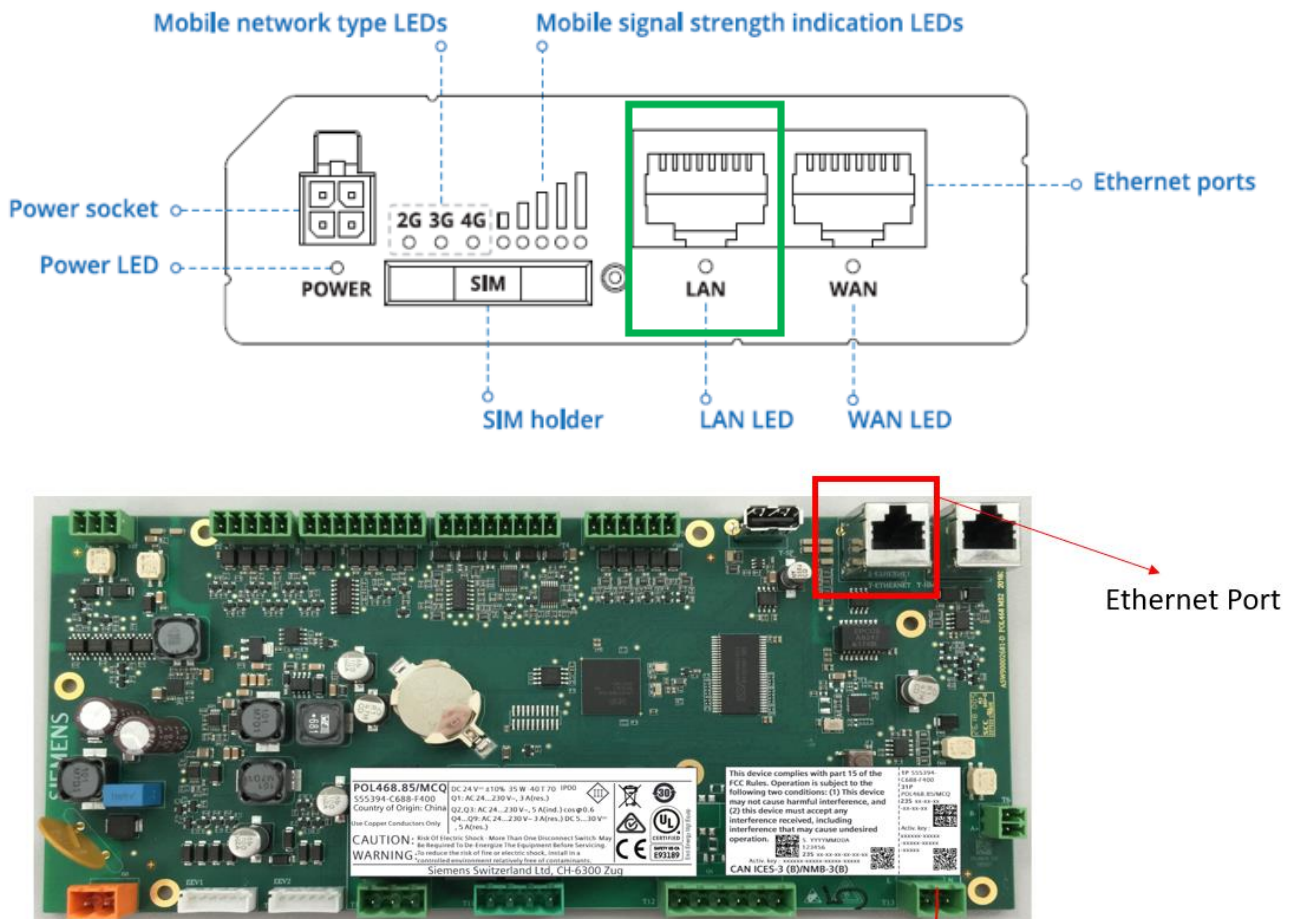
Modem Teltonika Kit is used to establish the connection to Daikin On Site. No SIM are provided within the Modem Kit.



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

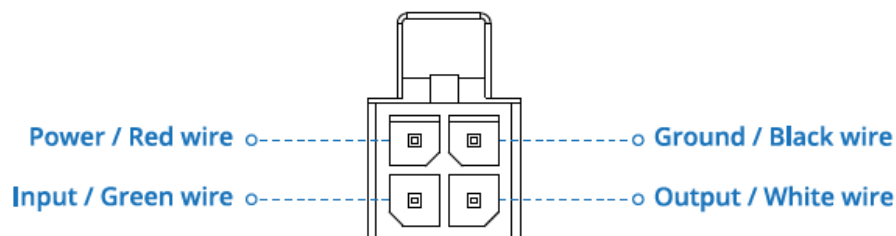
## 5.2 Electrical Connection

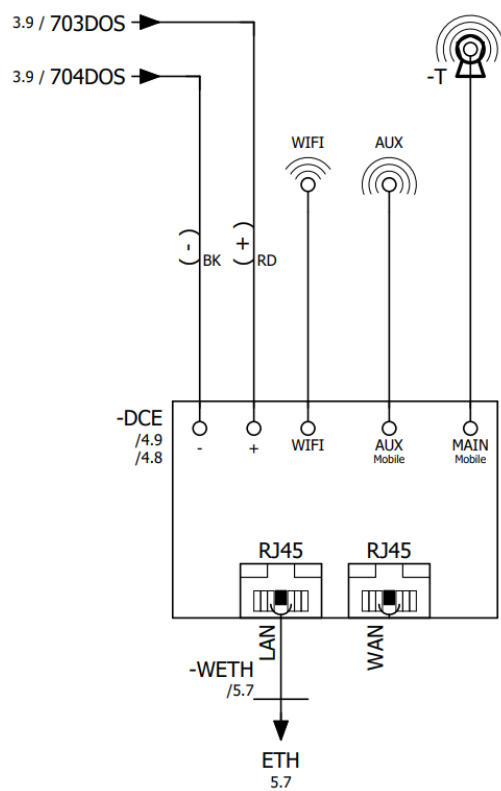
The data connection between Router and Microtech will be made using a network patch cable of category 5S or higher (2) also included in the Teltonika kit. Evaluate whether it is of sufficient length or replace it with a suitable one. This connection on the Teltonika RUT240 Router side must be made by connecting the cable exclusively to the port indicated as "LAN".



The power supply will be provided by the electrical cabinet and brought to the Router through the connection using the special 4-pole Tamiya connector (3) included in the kit. 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).

### POWER SOCKET PINOUT





### 5.3 Mechanical Connection

No Mechanical connection is required.

## 6 SMART GRID READY BOX

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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***

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

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## 7 RESTRICTED APPLICATION DEFINER

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By activating EKDAGBL software option, the unit envelope keeps following compliancy to Ecodesign regulation No. 813/2013 and the standard EN14825:2018, accordingly the unit falls within the definition of Low Temperature Heat Pump. Please refer to the dedicated Envelope.



*For EKDAGBL activation please refer to “Daikin License Manager” manual*

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