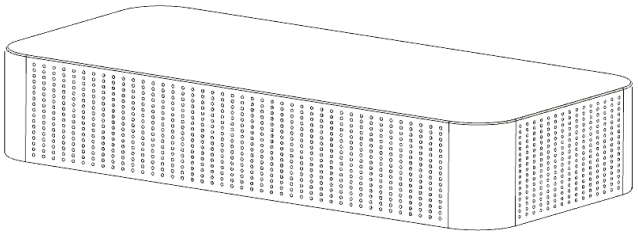
# ReiriOffice

## Installation Manual

### Model

DCPF01



ReiriOffice is high performance smart controller that provide versatile smart solution to office building, office space.  It offers full control of Daikin air-conditioning system & other connected smart devices in one screen through ReiriOffice mobile app.

DHOS-CS-IM-2107001

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# Part 1 – Hardware Setup

## 1. Hardware Installation

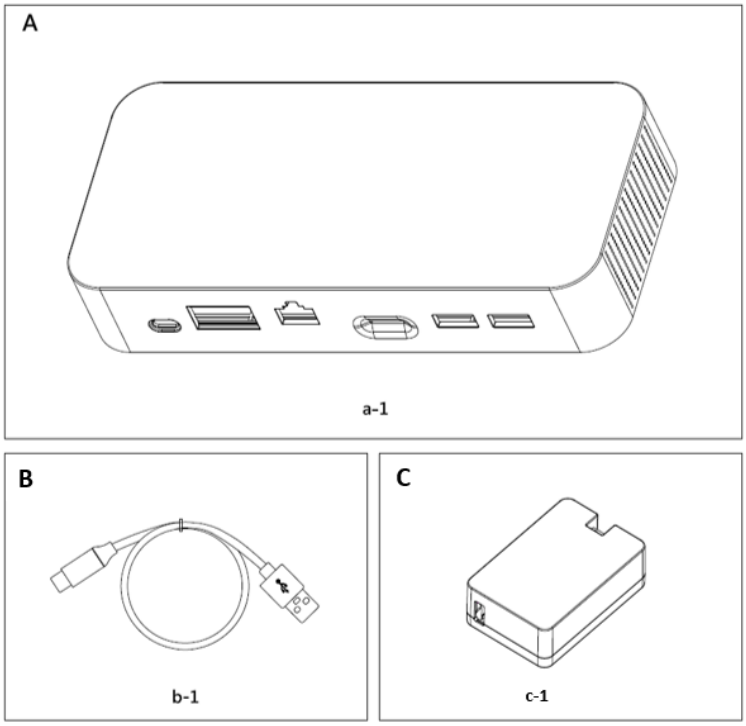
Before you start installing the ReiriOffice, complete the following preparation.

- Check that the ReiriOffice comes with all accessories.
- Confirm where the terminals and switches of the ReiriOffice are located.
- Check that an appropriate space for installing the ReiriOffice is available.

### 1.1 Checking that all accessories are included

Based on the following accessory list, check that all accessories for the ReiriOffice are included. Should there be any missing or defective parts, contact your dealer.

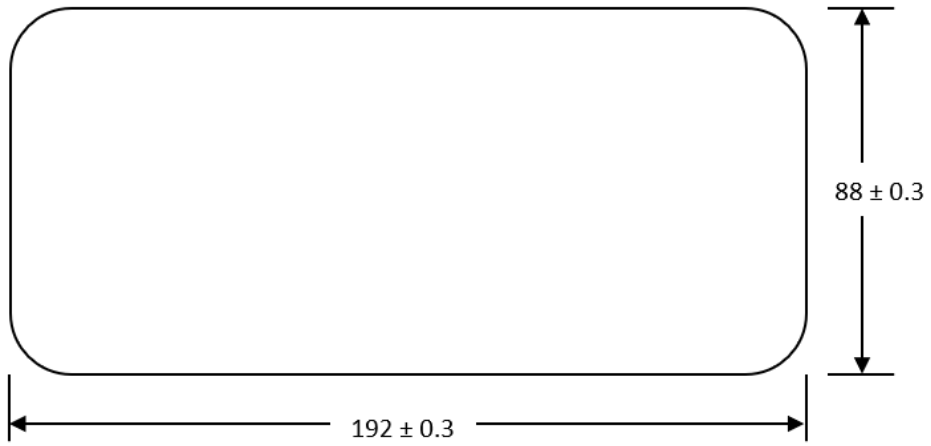
**<Accessories included with ReiriOffice>**



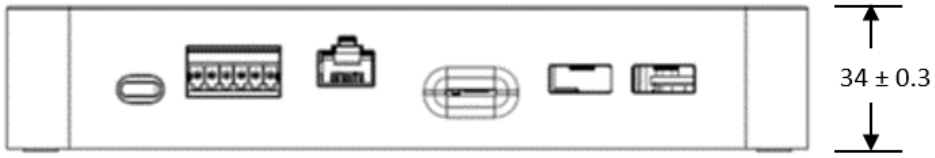

**A (a-1)** ReiriOffice body (1 pc.)
**B (b-1)** USB A-USB C cable
**C (c-1)** AC-DC Power adaptor + plugs

## 1.2 Understanding external dimensions

- ReiriOffice Top face




- Rear face of ReiriOffice

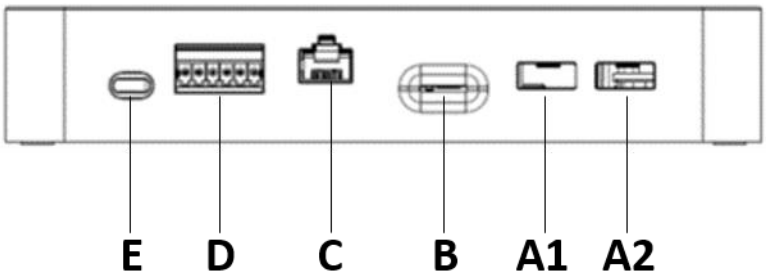


## 1.3 Understanding where terminal and switches are located

Understand the arrangement of terminals and the location of openings on the unit and plan how to route the cable and in which order to connect its wires to facilitate the installation procedure. For connection details including the cable type and terminal size, refer to "Chapter 2. 2. **Connection**".

### 1.3.1 Rear face

**<Rear face of ReiriOffice>**




**A1 [USB 2.0]** 1st priority USB 2.0 Type A port.
**A2 [USB 2.0]** 2nd priority USB 2.0 Type A port.
**B [SD Card]** 1 Micro SD card port.
**C [LAN]** 1 GbE speed LAN
**D [RS485]** 2 x RS485, 6 pin terminal block connectors.
**E [Type C]** USB Type C power connector, 5V DC power input.

**NOTE: Please connect all the necessary devices into the USB port **before** powering on ReiriOffice controller*

## 1.4 Determining installation place

Be sure to install the ReiriOffice in a place that meets the condition described in 1.4.1 through 1.4.2 below.

### 1.4.1 Installation place and mounting direction

Below are the description of the installation place and mounting direction. Be sure to confirm.

- Installation place: Indoor, free from dust and water splashes
- Mounting direction: Horizontal

### 1.4.2 Environmental conditions

Make sure that the installation environment meets the following conditions:

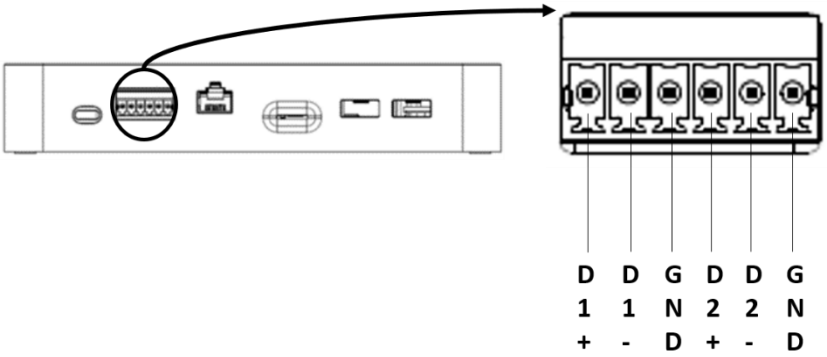
- The ambient temperature must be 0 to 40°C.
- The ambient humidity must be 85% RH or less (without condensation).
- There must be no electromagnetic disturbance.

# 2. Connection

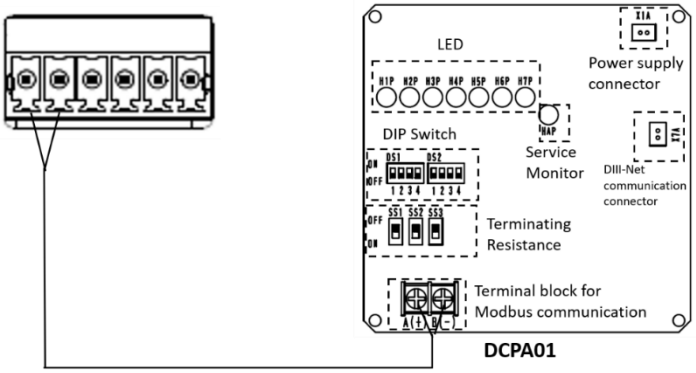
## 2.1 Connecting to DCPA01 through RS485

### 2.1.1 Terminals Location and Conceptual Diagram

To connect to DCPA01 through RS485, the D1+ & D1- (1st priority) and/or D2+ & D2- (2nd priority) ports are used.




Connect a pair of RS485 cable from the port to DCPA01 (Reiri Adaptor).




For more detailed description on DCPA01, please refer to “Chapter 4. DCPA01 Installation (to ODU/IDU).”

### 2.1.2 Requirements that must be met

Cable type: Twisted pair cables

- Core thickness: AWG 24 (0.25 $mm^2$) to AWG 18 (0.75$mm^2$)
- When using a shielded cable, connect only one end of each shield wire to the ground
- The maximum wire distance must be kept to 200m

## 2.2 Connecting a LAN cable

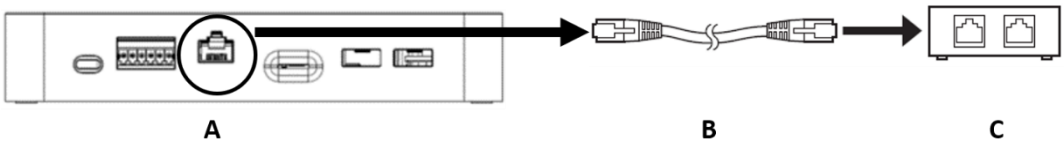
Connecting ReiriOffice controller to router with LAN cable enables the user to:

1. Use the controller via ReiriOffice app
2. Set up the controller via Reiri Setup Tool
3. Control WAGO devices

### 2.2.1 Terminal Location and Conceptual Connection Diagram

Using a LAN cable, connect the LAN socket to the router.

(**NOTE: WiFi connection is also possible*)




**A** LAN socket
**B** LAN cable
**C** Router

### 2.2.2 Requirements that must be met

- Applicable cable standard: CAT 5/5e/6
- Connector standard: RJ-45

## 2.3 Connecting to Modbus devices

### 2.3.1 Direct RS485 Port

ReiriOffice comes with 2 sets of direct RS485 ports for connecting to Modbus devices. The 2 direct RS485 ports have polarity (+ and -) and needs to be connected in the correct order. Please refer to section 2.1.1 for the polarity of the RS485 ports.

### 2.3.2 USB Ports

ReiriOffice comes with 2 USB ports for connection of up to 2 RS485/USB Converter (port A1 and A2) should the direct RS485 ports be fully utilized.

**<How to use RS485/USB ports>**
Step 1: Connect RS485 cable from Modbus device to a RS485/USB converter

Step 2: Insert RS485/USB converter (CH341-S*) to USB port A1 (1st priority) of ReiriOffice (Refer to section 1.3.1 to understand the USB ports' priorities)

Step 3: If necessary, connect the second USB/RS485 converter into USB port A2 (2nd priority) of ReiriOffice

**NOTE: DHOS will offer USB/RS485 converter CH341-S as an optional accessory.*
*Affiliates may purchase this converter from DHOS or source locally.*

# Part 2 – Reiri Controller Setup

## 3. Reiri Controller Setup

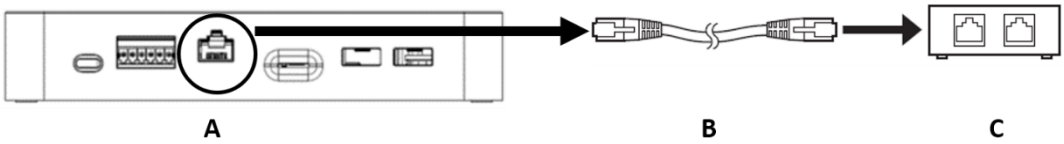
Reiri controller will need to be activated and configured before user can utilize the application. The controller setup will be performed in the following steps.

1) Hardware preparation for the controller – Chapter 3.1
2) Set up and activate controller using Reiri Setup Tool app – Chapter 3.2
3) Connection settings for compatible devices. – Chapter 3.3
   Perform hardware settings on devices and settings to connect the devices to Reiri controller.
4) Customise the point attributes for the projects. – Chapter 3.4

### 3.1 Hardware Preparation

Reiri controller will require connection to router with internet access for activation.

Connect Reiri controller to router as shown below:




Connect the one end of LAN cable to LAN port, the other end to the router.

**A** - RJ45 LAN Port
**B** - CAT 5/5e/6 LAN cable
**C** – Router (connecting to the internet)

Connect the provided USB A to the USB-C power cable to the power adaptor and switch on the power.

## 3.2 Controller Setup

Setting up of controller requires the Reiri Setup Tool app. Download Reiri Setup Tool from Google Play Store or Apple Store. Use the app to activate and setup the controller (user accounts, name of controller, network access, date, and time).

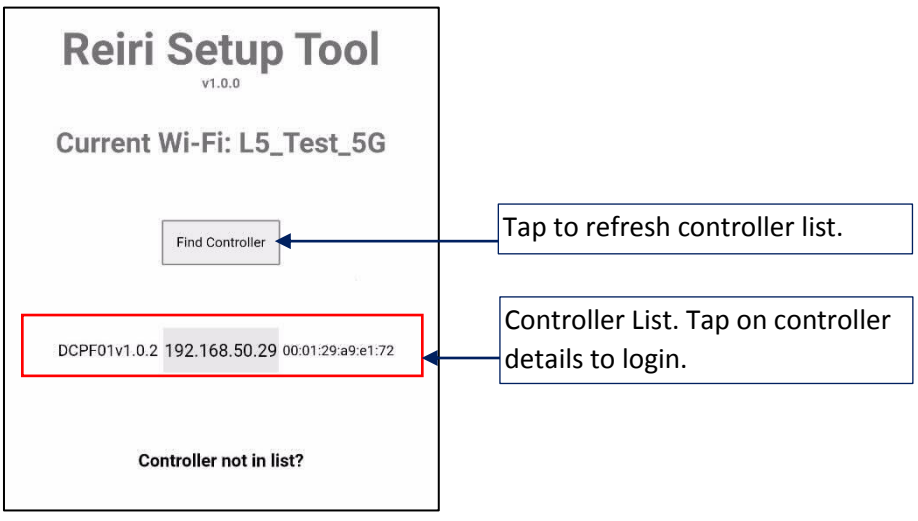
QR code link to download app:

GET IT ON Google Play

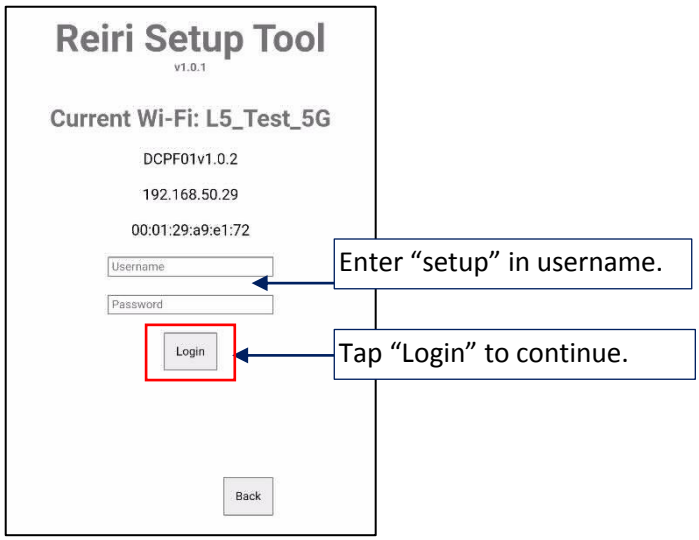
Available on the App Store

a) Connect the smartphone by WiFi to the router with internet access.
b) Launch the app.
c) Reiri Setup Tool start up page will show up. Tap on target controller to login. If the controller is not shown, check the following:
   - Wait for controller to fully boot up (approximately 2 minutes)
   - Ensure router and network are working
   - Ensure Smartphone is connected to the correct WiFi network

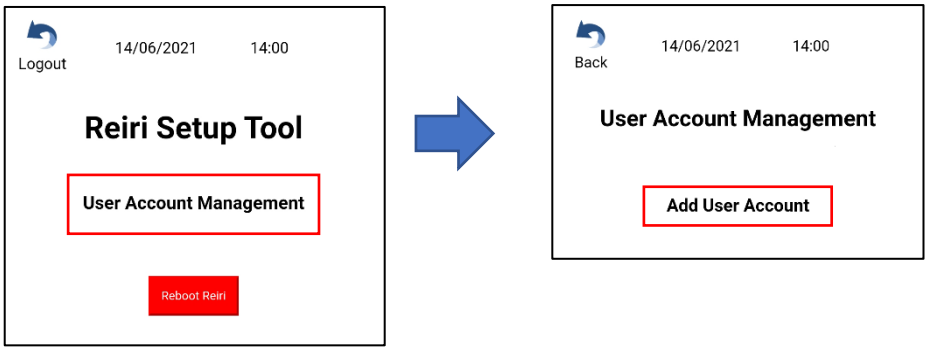
   Tap “Find Controller” after checks are done to refresh the controller list.



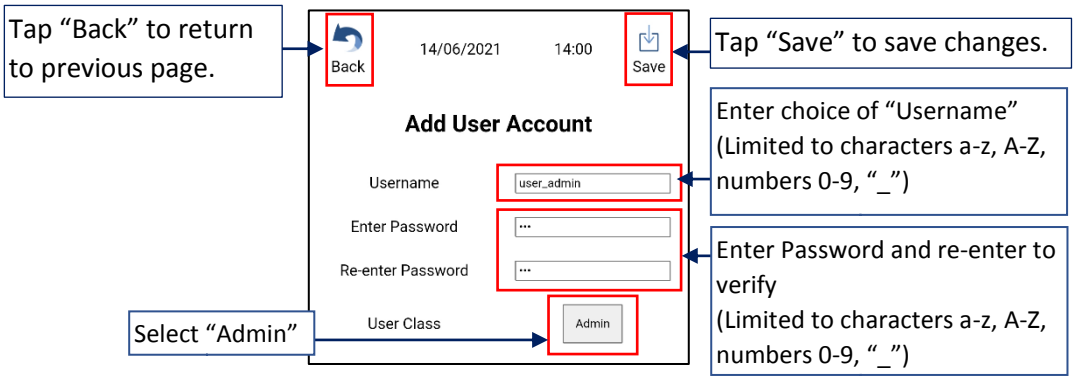
d) Login to the Reiri controller with username and password. For first time login, use “setup” as username and no password. This special account will disappear once a user account is created.




e) Tap “User Account Management” then “Add User Account” to create first admin account.

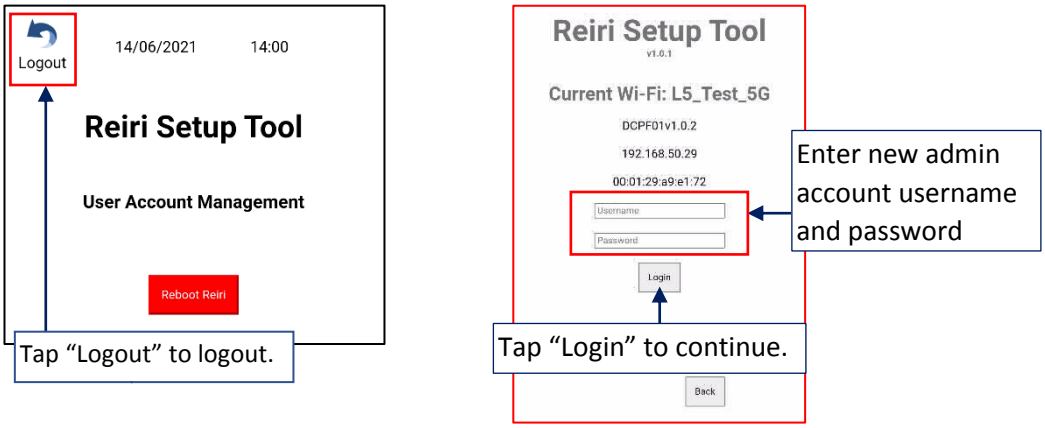



f) Enter new admin username and password. Save and return to previous page.

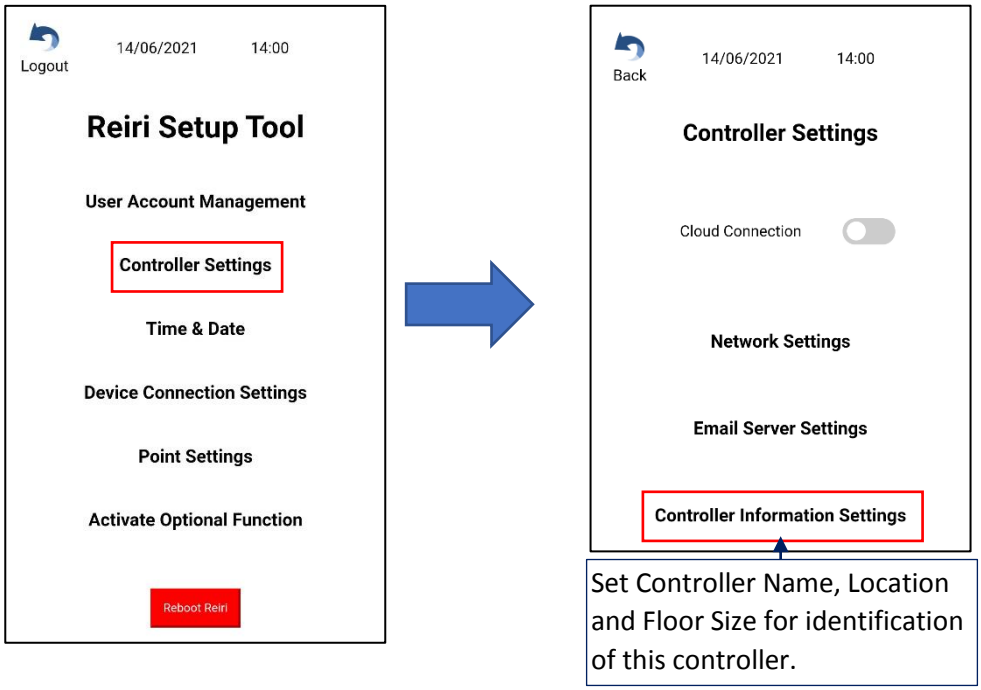



**NOTE: Create at least 2 admin accounts. One for engineer to setup and maintain the controller. The other is for customer use. The engineer’s admin account can be used to save the customer’s account should the customer forget the password.*

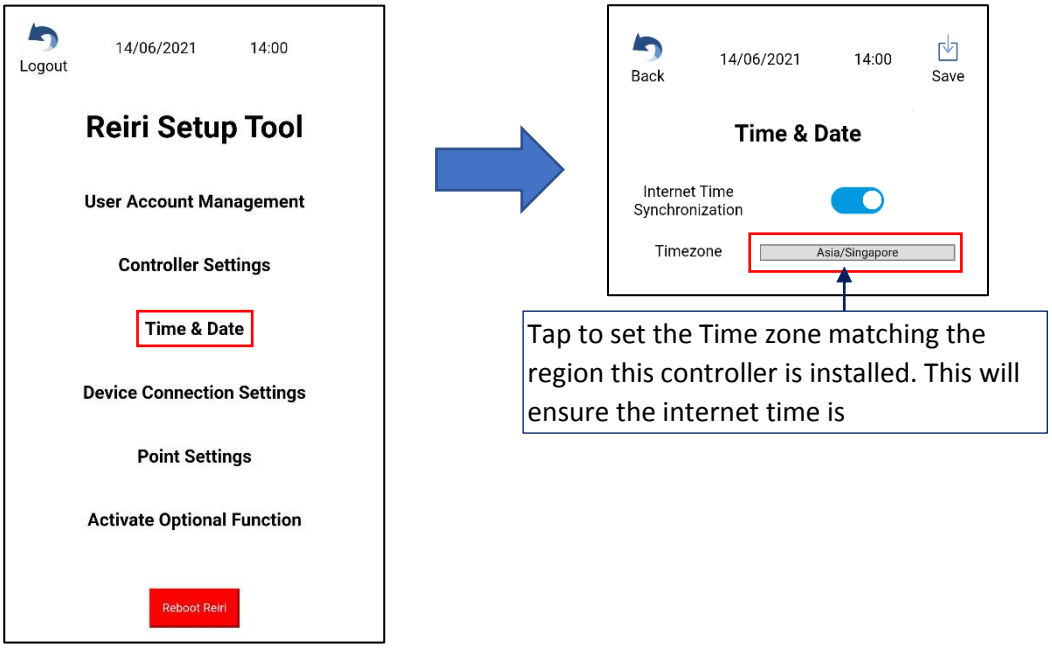
g) Logout of Reiri Setup tool and login again using newly created admin account.



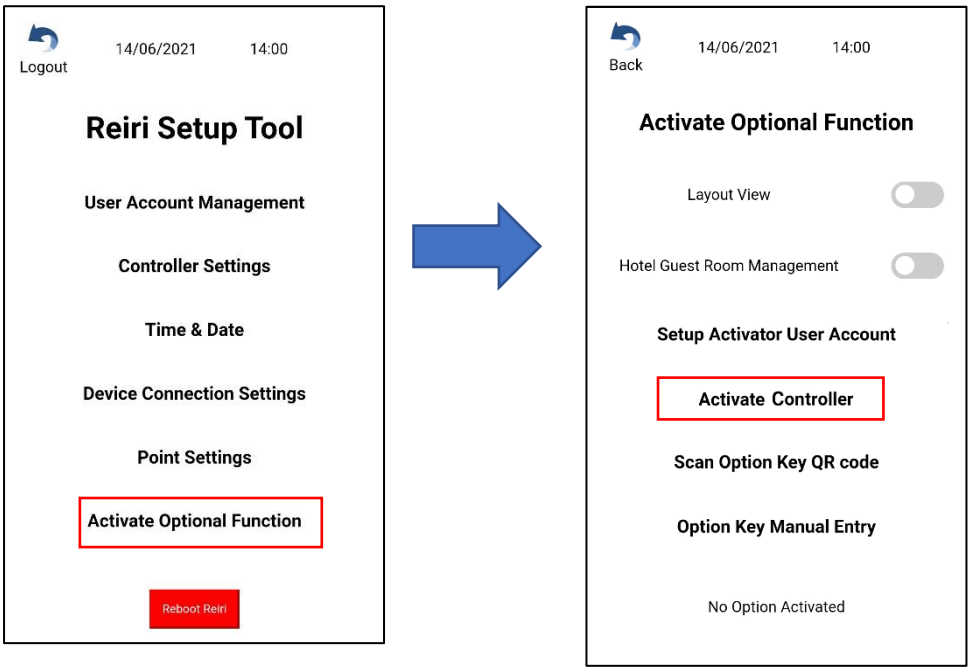

h) Controller settings is important for the setting the identification of this controller in Reiri user app. Tap “Controller Settings” in the main menu after login. Refer to “Chapter 3.5.2 Controller Settings” for details.



i) Time and Date settings are important to ensure that the time zone, time and date are correctly set for time-based information such as history, scheduling, etc. Tap on “Time & Date” to enter. Refer to “Chapter 3.5.3 Time and Date” for details.

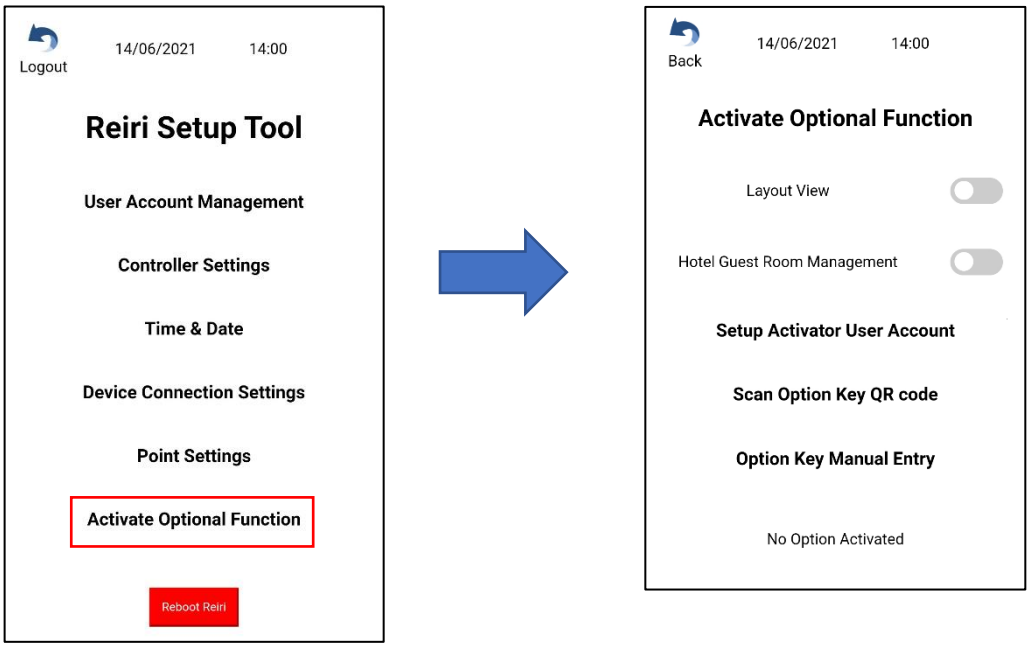



j) Activate controller to release the controller for use by user app. Tap on “Activate Controller” to enter. Refer to “Chapter 3.5.4 Activate Optional Function” for details.



k) In case optional function is used, this step is necessary. Tap on “Activate Optional Function” to enter. Refer to “Chapter 3.5.4 Activate Optional Function” for details.

**NOTE: If internet connection cannot be prepared at customer’s site, “3.5.4 Activate Optional Function” can be done at other locations where access to internet is available. Bring controller back to customer site after completion of “Chapter 3.5.4 Activate Optional Function” setup.*

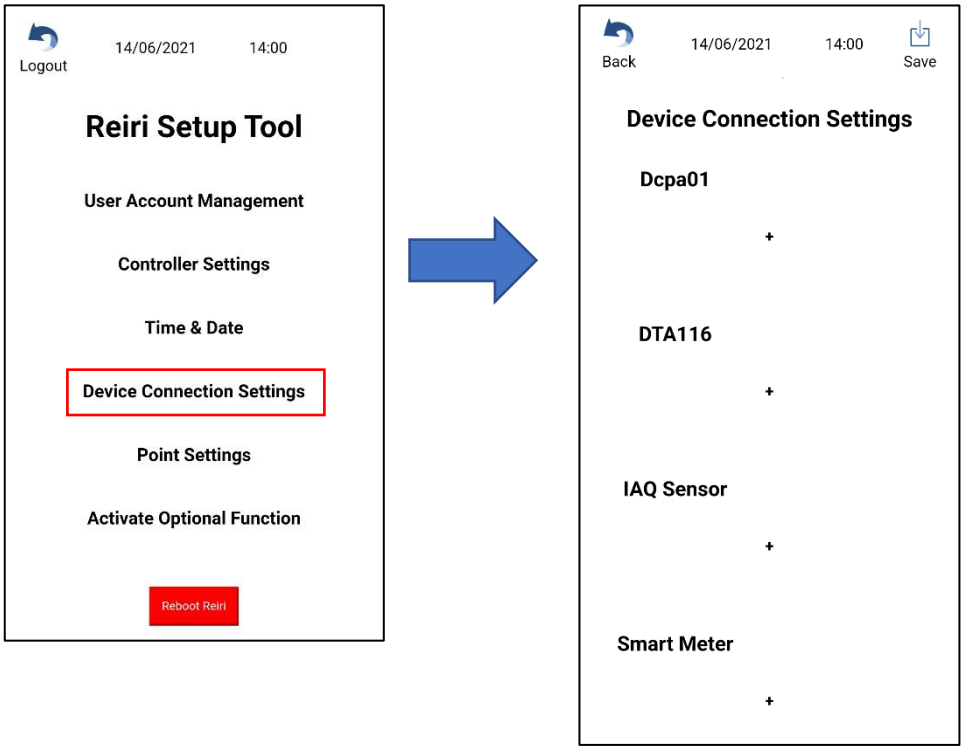



l) Controller basic setup is about to complete. Proceed to “Chapter 3.3 Connection Settings for Compatible Devices” for compatible devices to learn about the Reiri connection with external devices.

## 3.3 Connection Settings for Compatible Devices

Reiri controller can connect to various devices and each device will need to be paired with Reiri to work. Device Connection Settings will enable devices to pair to Reiri (based on the device type). “Chapter 3.6 Reiri Setup Tool - Device Connection Settings” will show in detail the pairing of the devices with the Reiri Setup Tool.

**NOTE: Connect any USB adaptors in order of priority listed. If USB adaptor is unplugged in any instance, save any processes and power off the Reiri controller. Plug the USB adaptor back and power back the controller.*



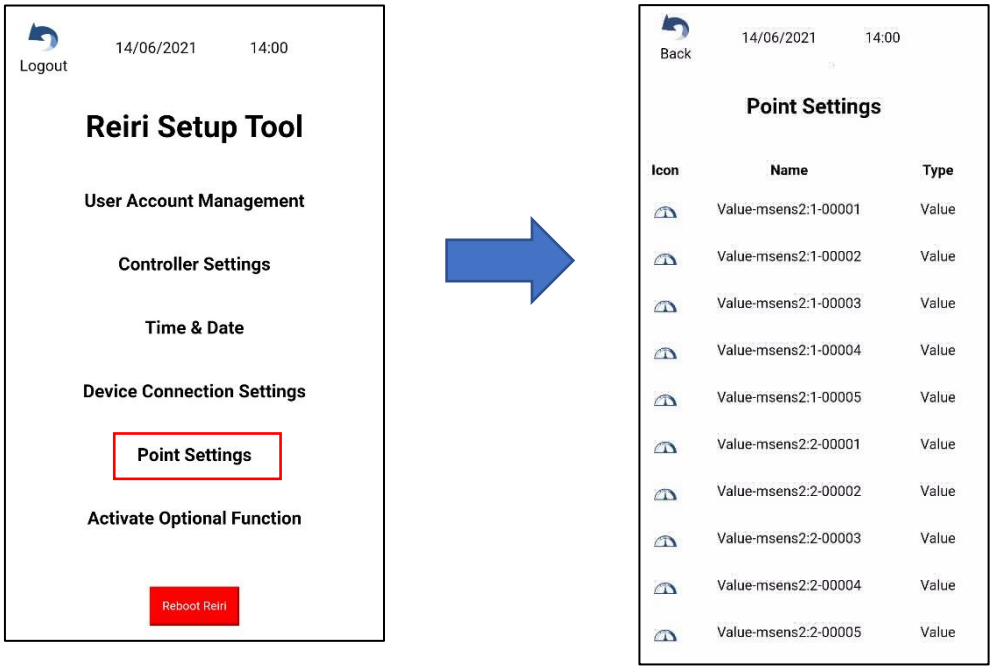

For ReiriOffice, these are the connectable devices:

1. DCPA01 / DTA116A51 for DIII-Net enabled air-conditioning Systems.
2. IAQ Sensors (Reiri IAQ Multi-Sensors) for indoor air quality monitoring.
3. Smart Power Meters for energy management.
4. WAGO I/O modules for third party simple DIO/AIO or DALI lighting control.
5. iTC for centralised indoor unit control.
6. iTM for centralised indoor unit and AHU control.
7. D-Mobile for WiFi control of Daikin residential / SkyAir series air-conditioner.
8. DAMA Module for alternate WiFi control of Daikin residential / SkyAir series air-conditioner.

After device connection settings have been completed, reboot the controller and proceed to customise point attributes.

## 3.4 Customise Point Attributes

Management points are information that can be used by Reiri for display and/or operational uses. Different devices provide various types of information forming the points. Points will need to be customised to identify the use easily. “Chapter 3.7 Point Settings” will explain the point attributes for customisation.




After the points settings have been completed, the setup of the controller has completed. All changes will be reflected after a reboot of the controller.

## 3.5 Reiri Setup Tool Functions

### 3.5.1 User Account Management

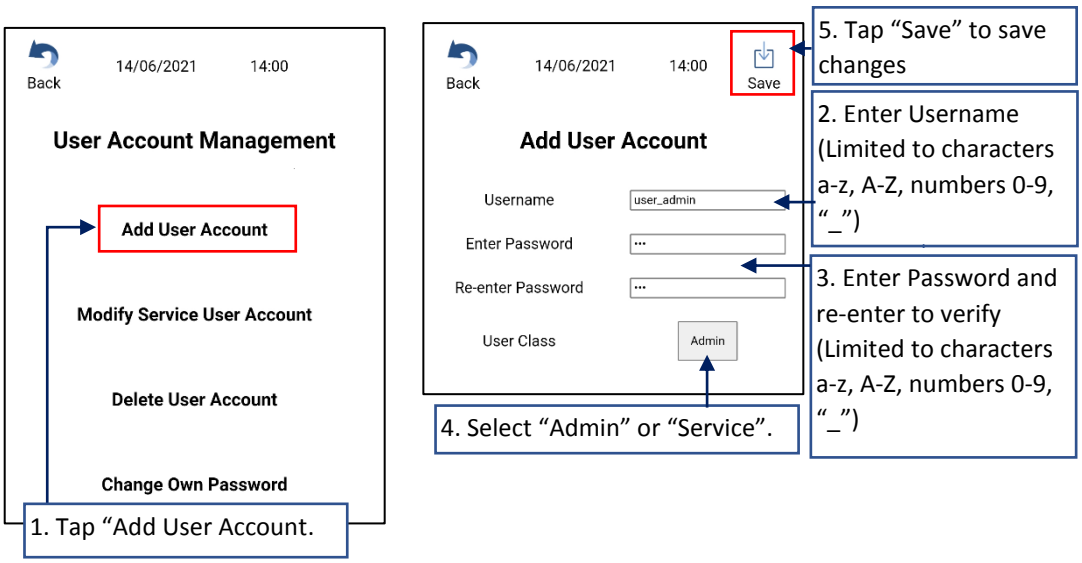
Add User Account

This function creates new accounts for users to access Reiri. There are 2 account classes that can be created in Reiri Setup Tool – Admin and Service.

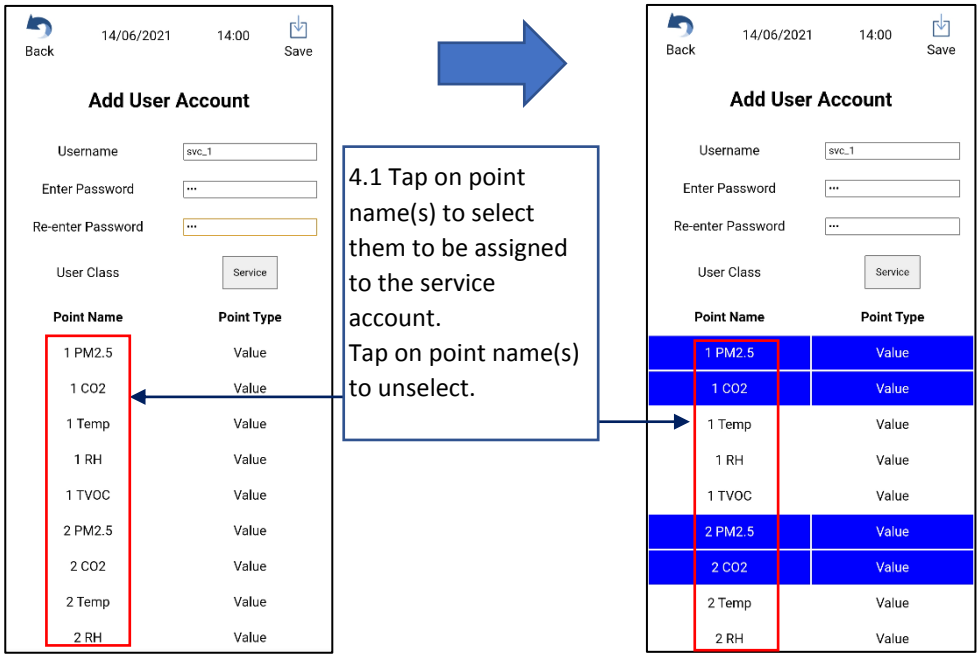
Admin class is administrator for the controller. Account holder can login to app to use all functions and points.

Service class is used when other ReiriOffice controller access ReiriOffice using “Reiri Controller” function.

**NOTE: Admin account can also be created in the user app.*

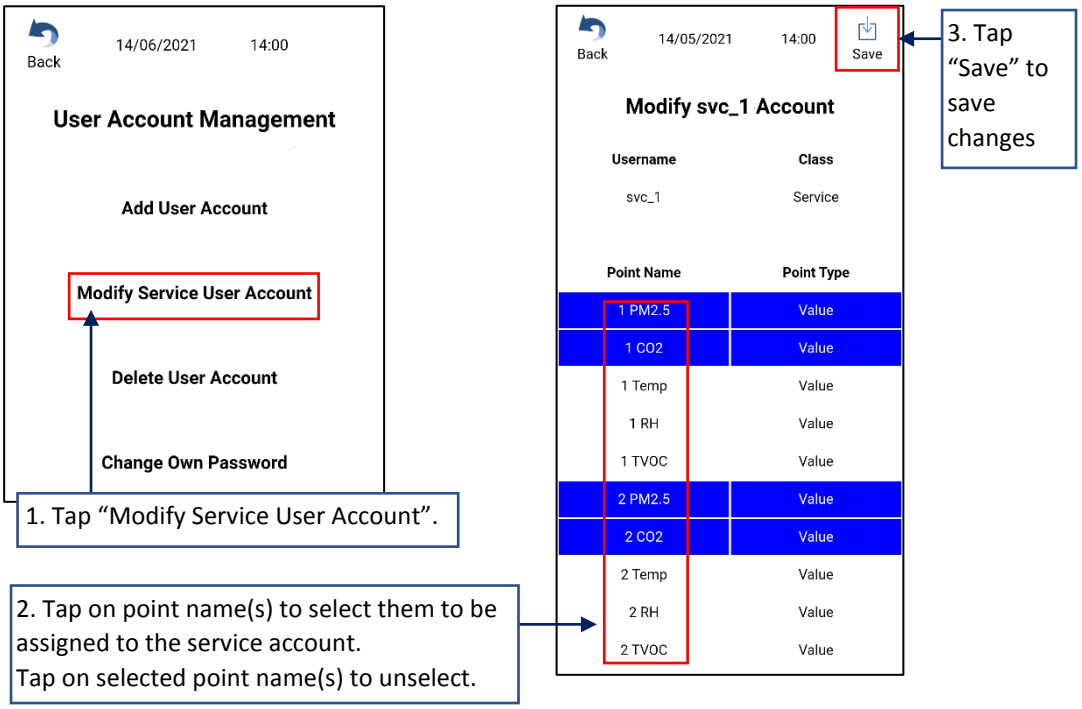



Service Class Settings



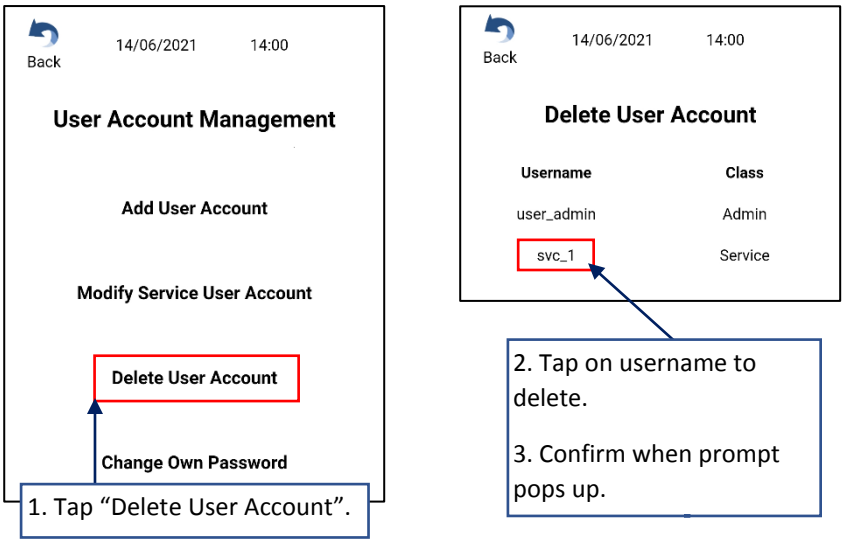
## Modify Service User Account

This function edits the paired management points to a service account.



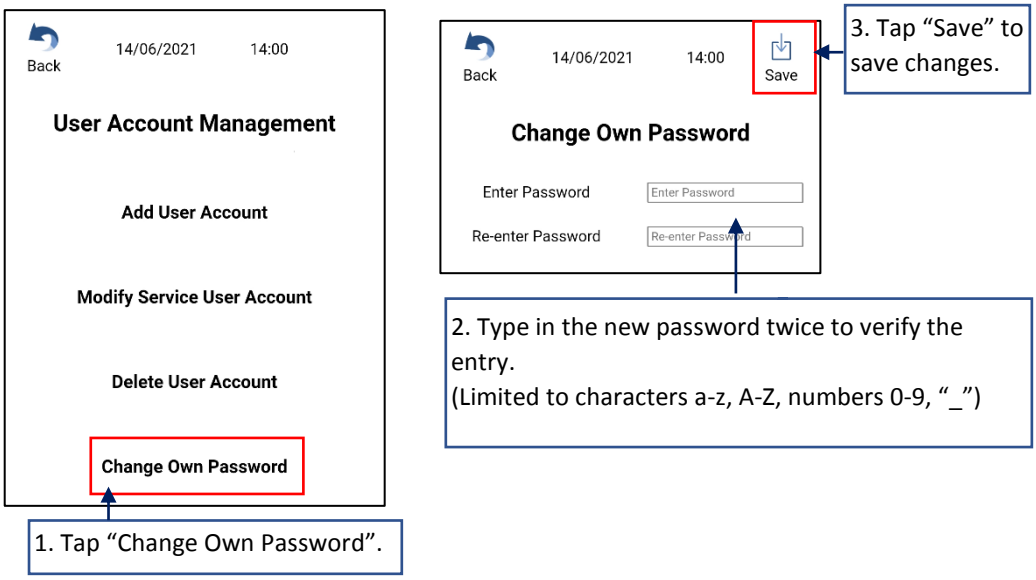

## Delete User Account

Remove users that are no longer need access to the Reiri controller.



Change Own Password

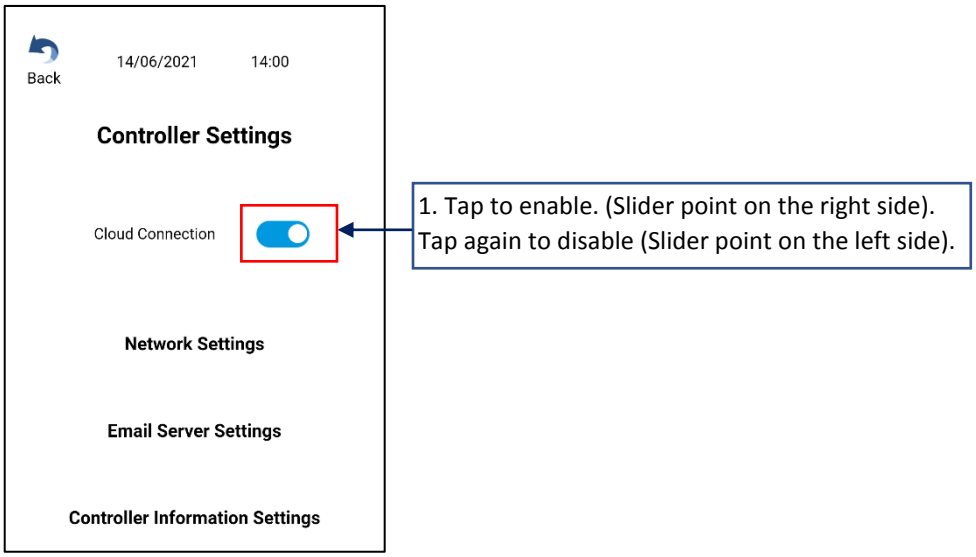
Only logged in user can change the account password.



### 3.5.2 Controller Settings

Cloud connection

When enabled, ReiriOffice app can connect this controller from anywhere through the internet. If Cloud connection is disabled – app connects to this controller by Local Area Network (LAN). Recommend to enable.



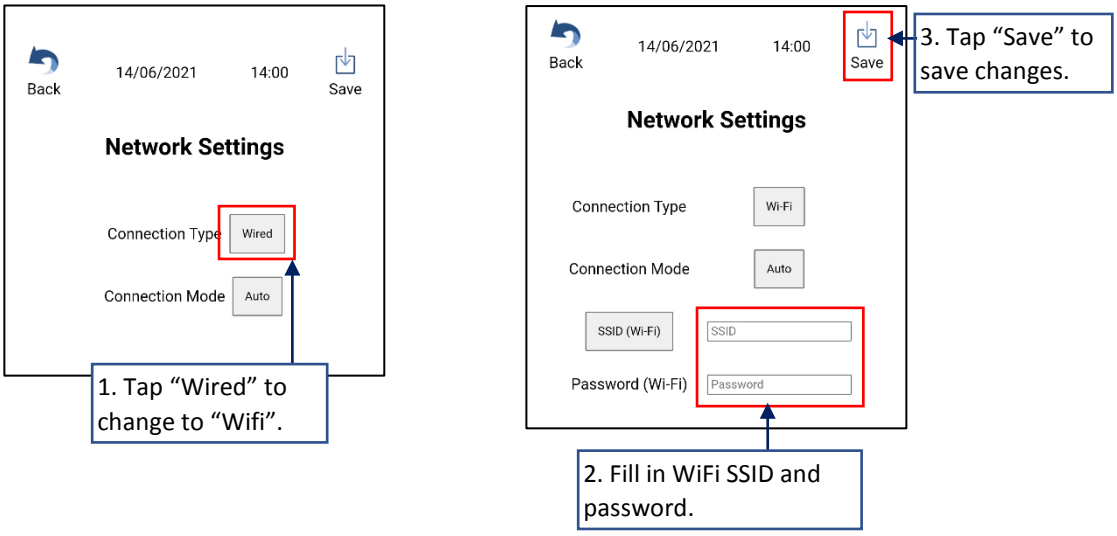

This setting will only take effect after a reboot.

**NOTE: Internet access MUST always be available on the connected network for Cloud Connection to be activated and for continual use.*

Network setting

By default, network setting is automatically determined. No changes required.
Set to WiFi mode when this controller is required to connect LAN by WiFi.
Set to Static mode when required by customer due to network limitations.

WiFi Mode

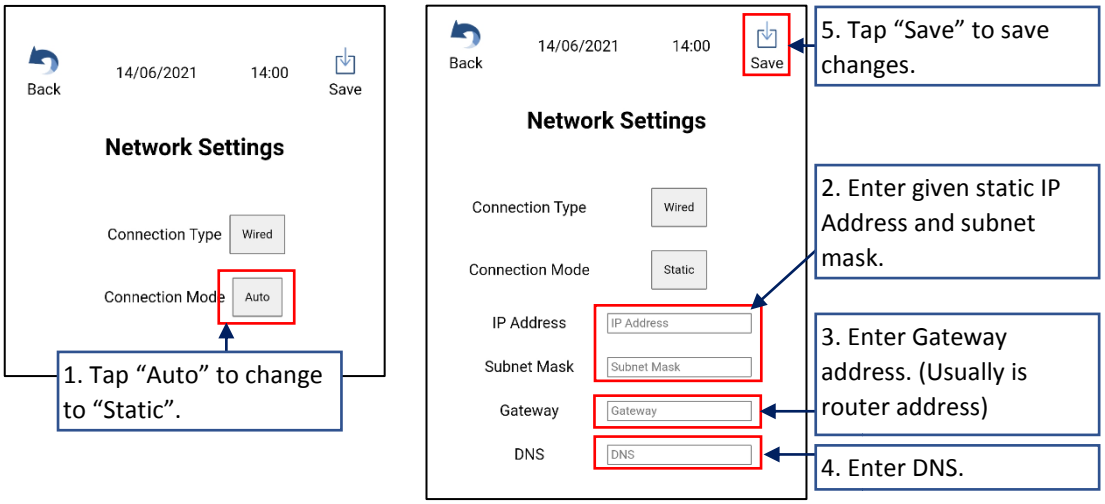



This setting will only take effect after a reboot.

Static IP Settings – Wired

For static IP settings, get the static address, subnet mask, gateway, DNS of the LAN from a person who manage this LAN.

Otherwise, refer “Chapter 7. Finding Network Information (Gateway, DNS, Subnet)”

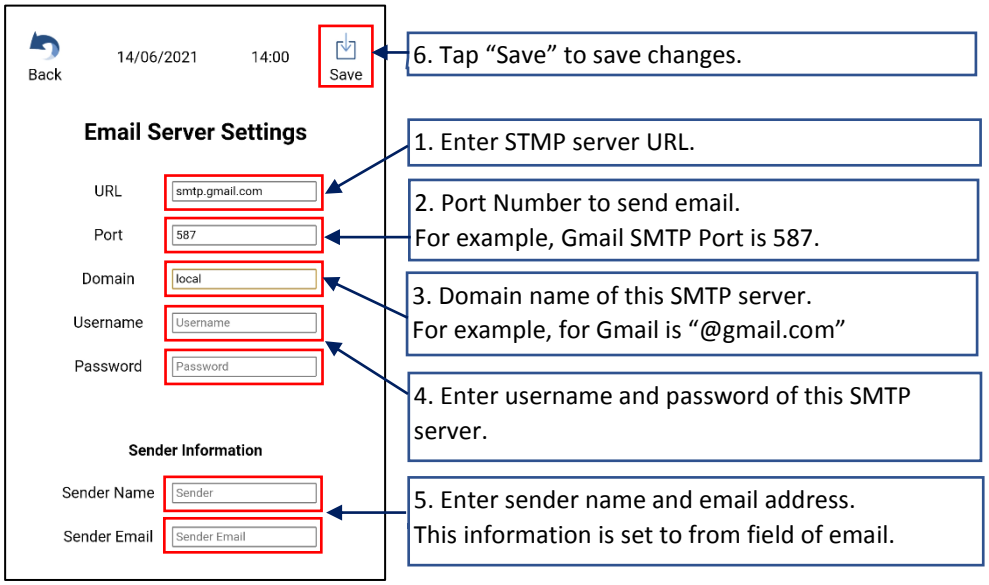



This setting will only take effect after a reboot.

Email server setting

This is the setting of email server details to allow the Reiri controller to send the error notifications out by Email.

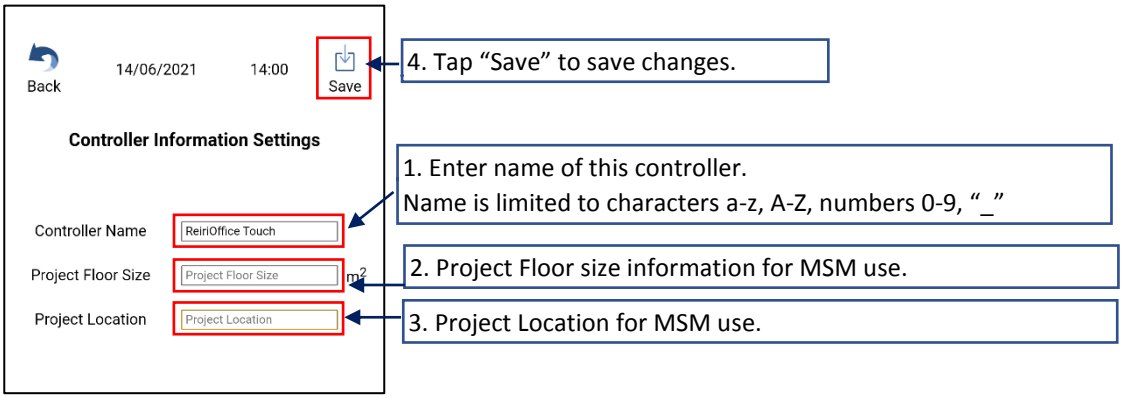
Obtain the email server URL, port, domain, username and password of the person managing the network.




This setting will only take effect after a reboot.

Controller Information Setting

This function adds information to identify the controller easily at login screen and in Multi-Site Management (MSM).

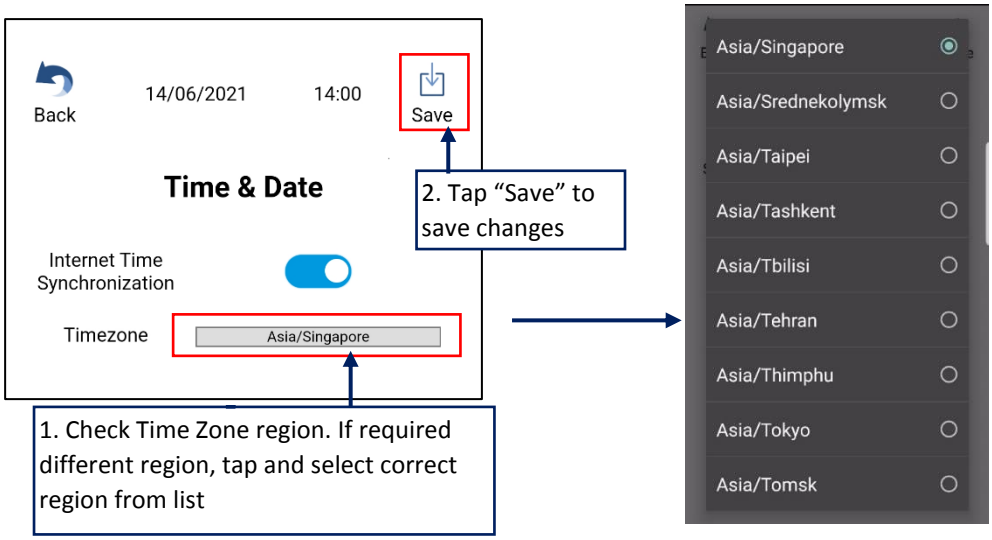



This setting will only take effect after a reboot.

### 3.5.3 Time and Date

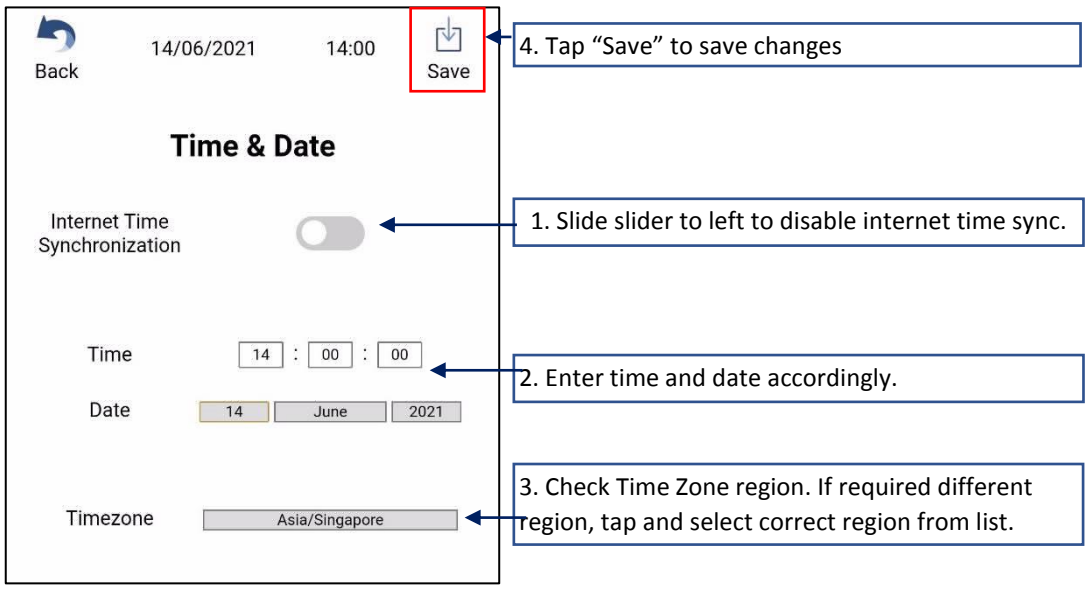
Time and Date settings to allow controller's time to be accurate and hence able to run schedules on time. Check the time zone for an accurate representation of the region the controller is installed.

Internet Time Synchronization allows time sync with Internet Time Servers for accuracy (Default: Enabled)




**NOTE: Internet access MUST always be available on the connected network for Internet Time Synchronization with Internet Time Server.*

If controller have no internet access / cannot access internet time servers, user can manually set the date and time.




This setting will only take effect after a reboot.

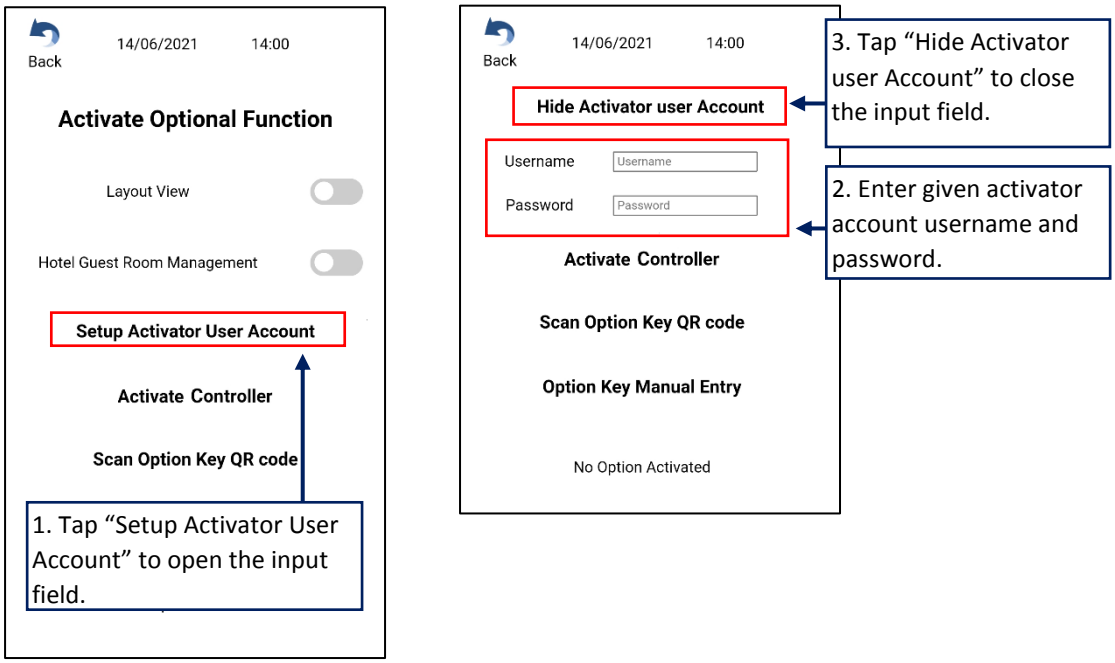
### 3.5.4 Activate Optional Function

**NOTE: If internet connection cannot be prepared at customer's site, "3.5.4 Activate Optional Function" can be done at other locations where access to internet is available. Bring controller back to customer site after completion of "Chapter 3.5.4 Activate Optional Function" setup.*

1) Set Activator Account

An activator account has to be set to activate the controller and other optional software.

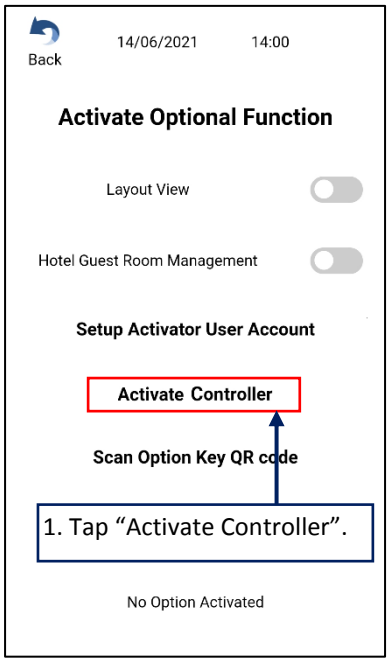
*Get the activator account information from your local Daikin sales office.*



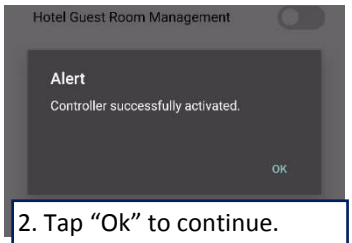
2) Activate Controller

This function is to activate the controller to use with the user app.

**NOTE: Internet access MUST be available on the connected network for activation.*




1. Tap “Activate Controller”.



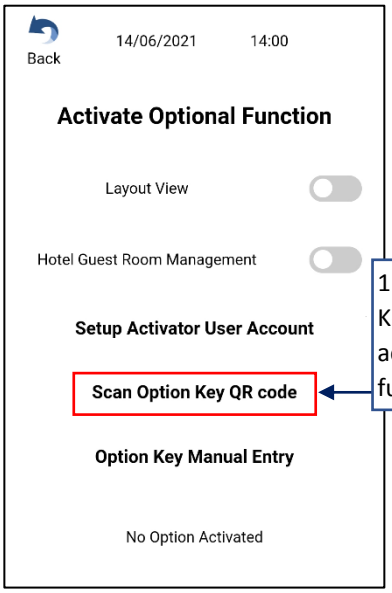

2. Tap “Ok” to continue.

Controller now is activated for user app to use.

3) Activate Optional Function

This function is to activate add-on option features. Certain options are natively available for the Reiri controller. A QR code will be provided for each option package. To activate option feature, this QR code has to be scanned first. Then tap scanned software ID to activate the option.

**NOTE: Internet access MUST be available when activating options.*

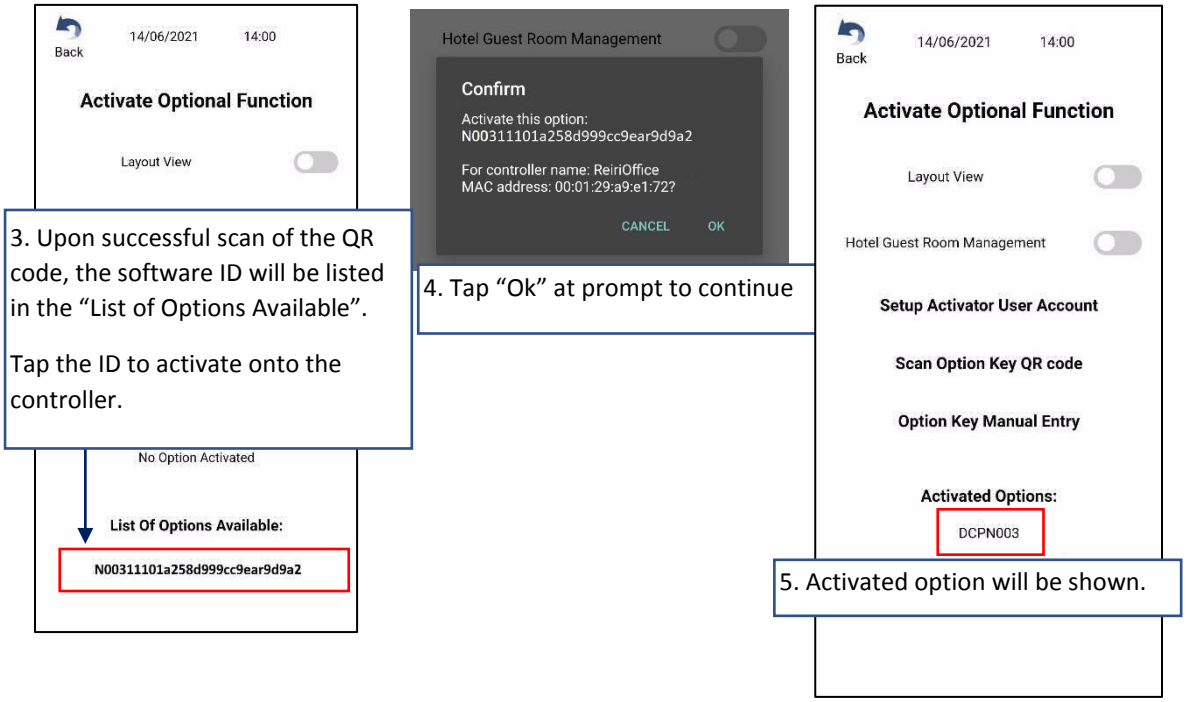



1. Tap “Scan Option Key QR code” to activate camera function.

2. Present the QR code for optional software and scan it using smartphone camera function.

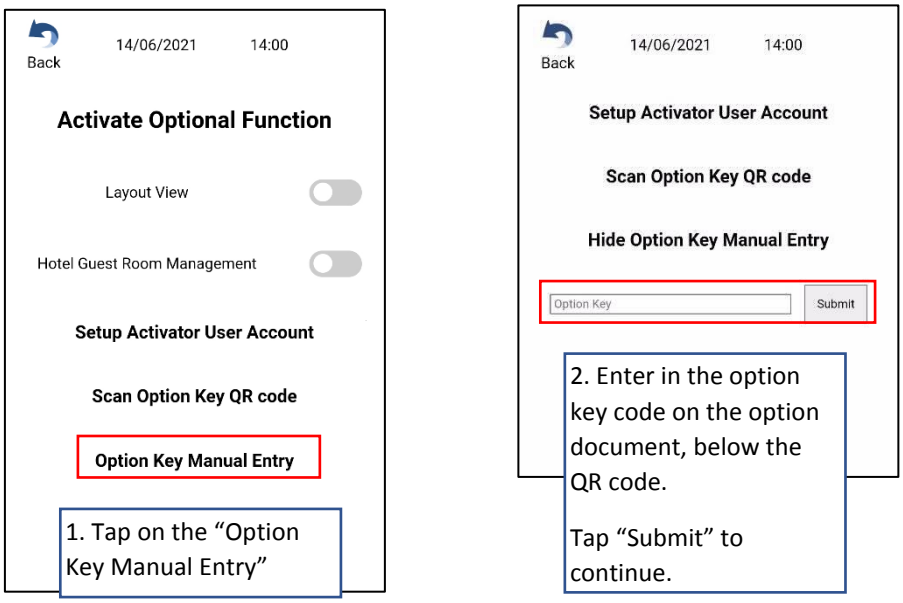
Sample of Option Software Key document

Option Key Code in the bottom for manual entry, if required.

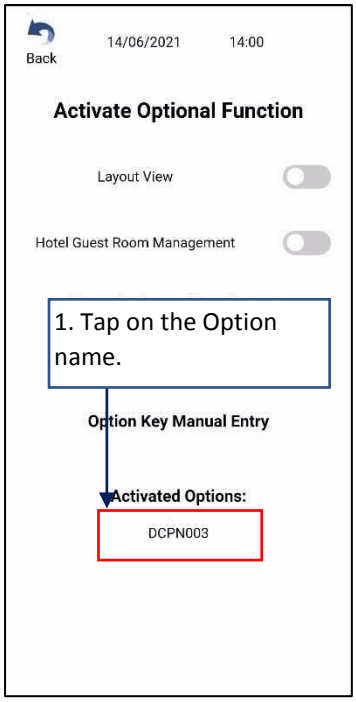


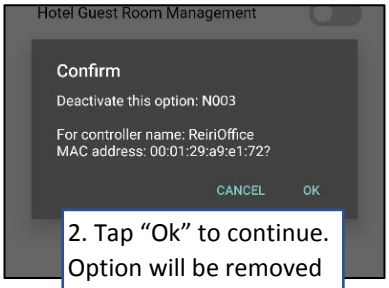

**NOTE: If same option is already activated or the option is cannot use for the controller, the key will not be able to tap.*

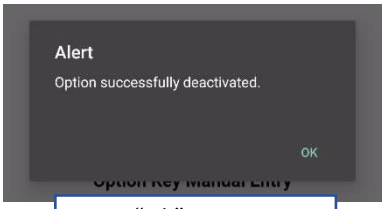
If QR code is unable to be scanned, manual entry of code is available.

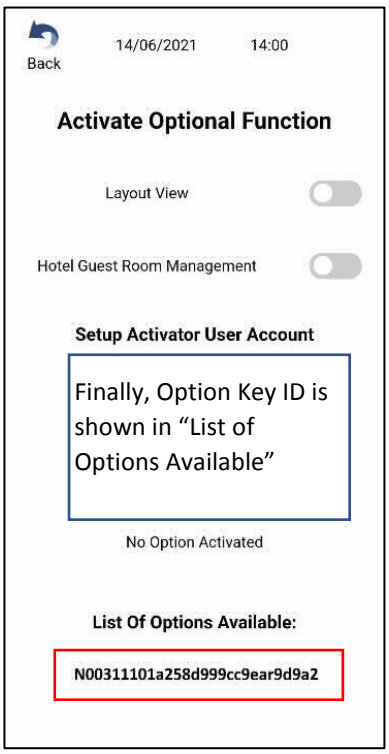



**NOTE: When a wrong option ID is activated, the activated option can be deactivated from controller and the deactivated ID can be reused.*

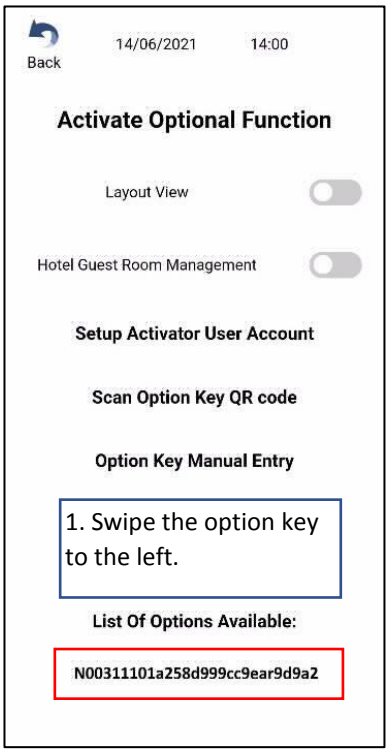

Back
14/06/2021
14:00
Activate Optional Function
Layout View
Hotel Guest Room Management
1. Tap on the Option name.
Option Key Manual Entry
Activated Options:
DCPN003


Hotel Guest Room Management
Confirm
Deactivate this option: N003
For controller name: ReiriOffice
MAC address: 00:01:29:a9:e1:72?
CANCEL
OK
2. Tap “Ok” to continue. Option will be removed from controller.


Alert
Option successfully deactivated.
OK
3. Tap “Ok” to continue. The option now to return to “List of Options Available”.

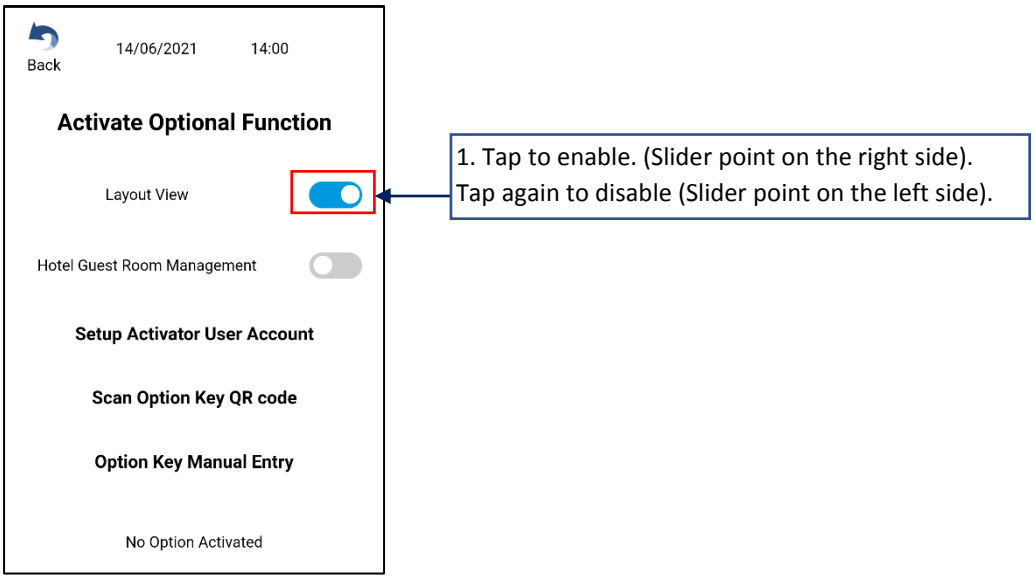

Back
14/06/2021
14:00
Activate Optional Function
Layout View
Hotel Guest Room Management
Setup Activator User Account
Finally, Option Key ID is shown in “List of Options Available”
No Option Activated
List Of Options Available:
N00311101a258d999cc9ear9d9a2

In the case when the deactivate option key is required to be used by other activators, the option key will need to be removed from the app.



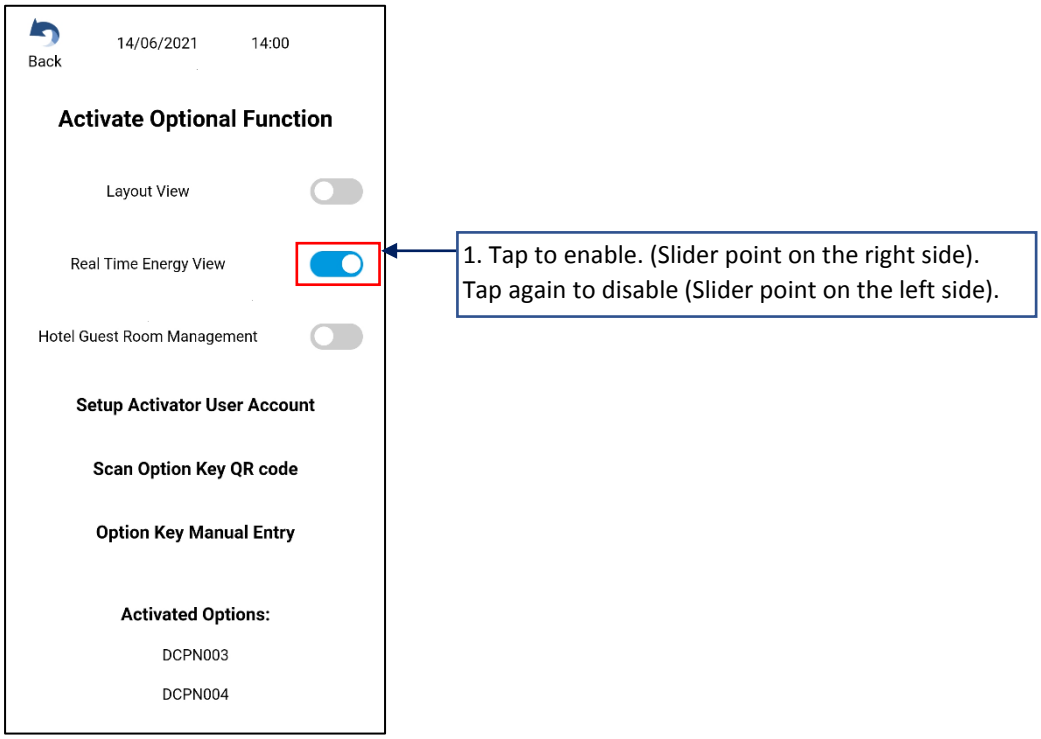

4) Activate Layout View

This function enables the layout view in ReiriOffice controller. If this is enabled, menu bar of ReiriOffice shows layout view icon. Layout view can be edited in the Reiri Layout Editor Windows App. Refer to the document “Reiri Layout Editor manual” for details.



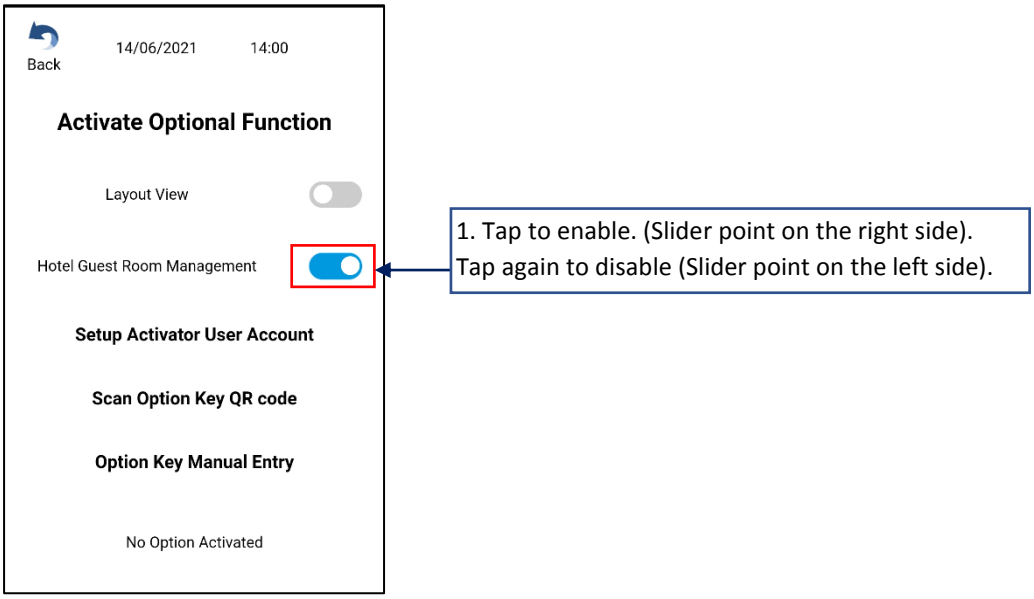
5) Activate Real Time Energy View

This is function will only display when the DCPN004 option is activated. If this is enabled, menu bar of ReiriOffice shows customized Real Time Energy view icon. Real Time Energy View display layout can be edited in the Reiri Layout Editor Windows App. Refer to the document “Reiri Layout Editor manual” for details.



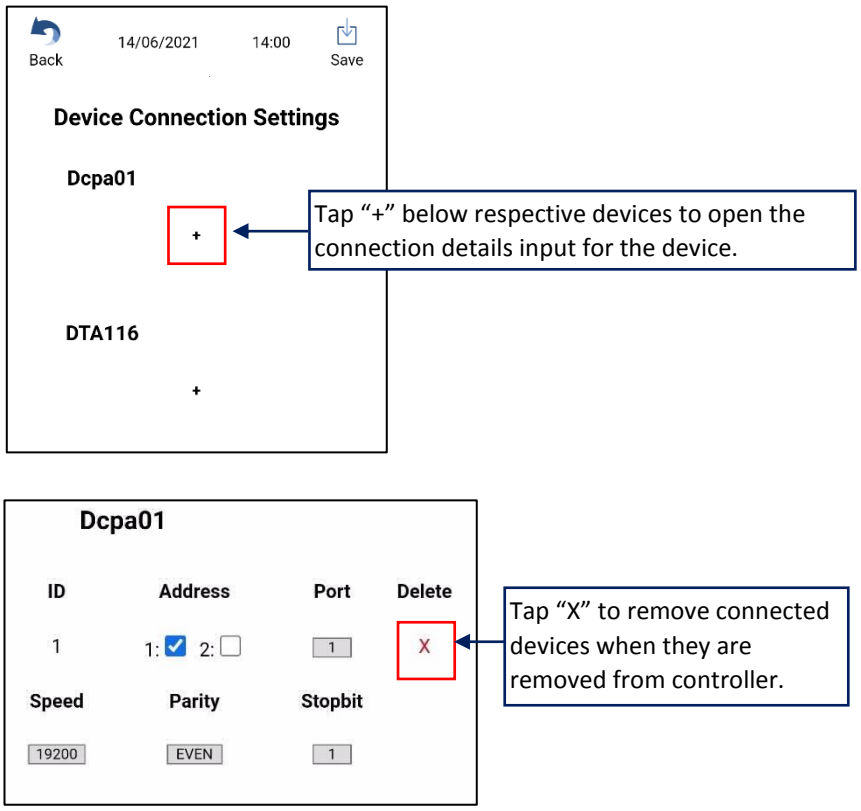

6) Activate Hotel Guest Room Management

This function enables the hotel guest room management in ReiriOffice. If this is enabled, menu bar of ReiriOffice shows Guest Room Management icon. This should be enabled when ReiriHotel/Resort connect to this ReiriOffice.



## 3.6 Reiri Setup Tool - Device Connection Settings

Device connection settings will take effect after reboot. Enter configuration for all required devices first before rebooting. Management points will show up in Point Settings only after reboot.



### 3.6.1 Configuring for DIII-Net - Modbus Interface DCPA01 / DTA116

DCPA01/DTA116 are DIII-Net to Modbus communication adaptors for air-conditioner. This function is to set the communication parameters for the DIII-Net adaptors.

Set the Address, Baud Rate, Parity and Stop Bit values on the DCPA01/DTA116A51 first using the DIP switches (DS1, DS2) as shown below.

DS1 – Communication Parameters

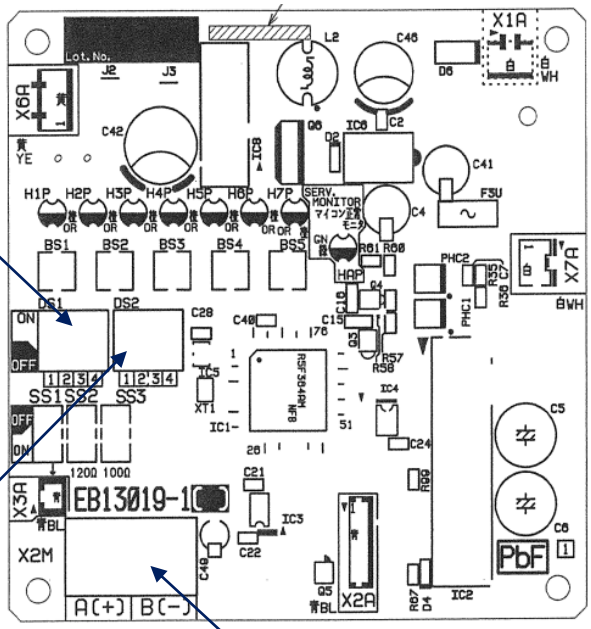
Fixed Default Values:
Baud Rate: 19200
Parity: Even
Stop Bit: 1

DS2 – Address Setting

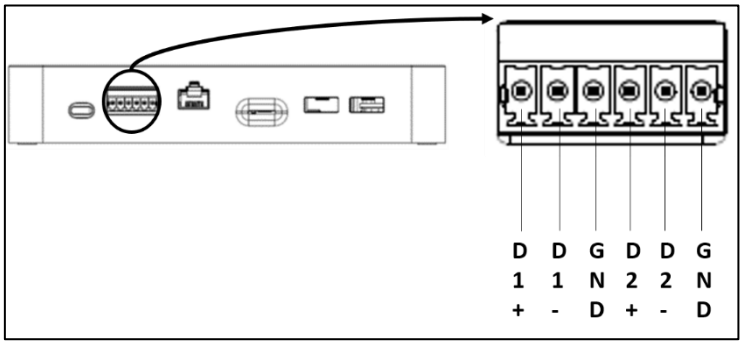
Address either 1 or 2.
(Max 2 DCPA01 / DTA116A51 per RS485 port)

Address Setting 1

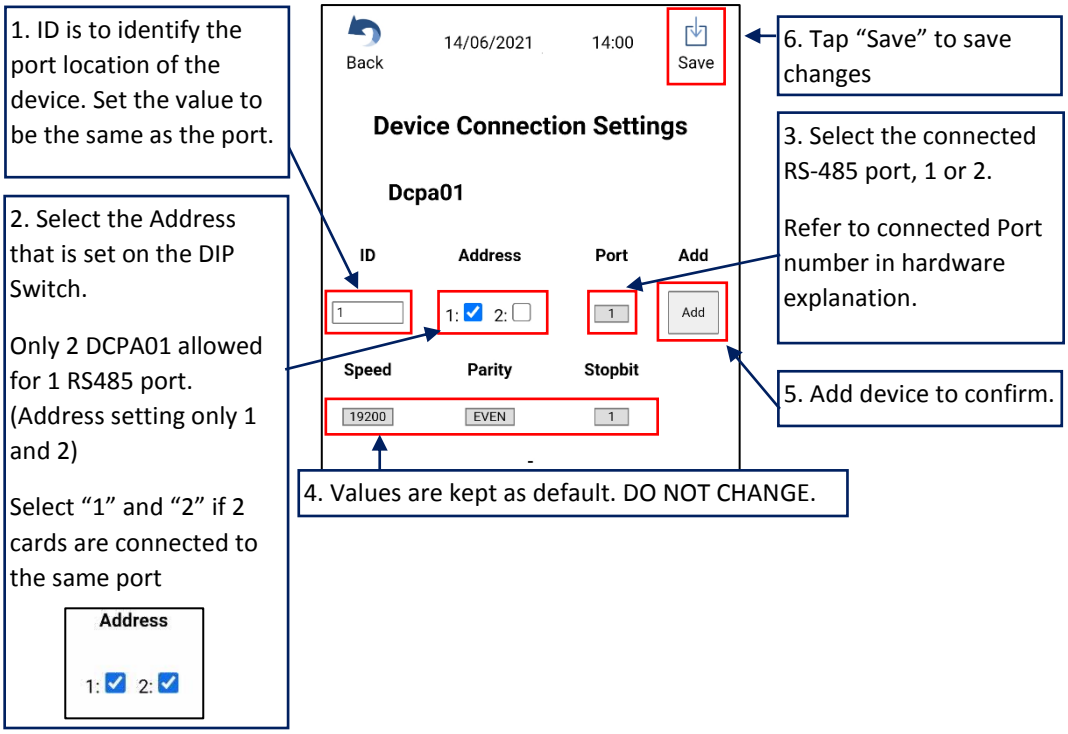
Address Setting 2




Connect the Modbus RS485 connection from DCPA01 / DTA116 to Port 1 (D1 +, D1-) first before using Port 2 (D2+, D2-).




After hardware connected, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.




**NOTE: DCPA01/DTA116 Address and Port numbering should be in this order for multiple DCPA01/DTA116.*

| ID | Address | Port |
|---|---|---|
| 1 | 1,2 | 1 |
| 2 | 1,2 | 2 |

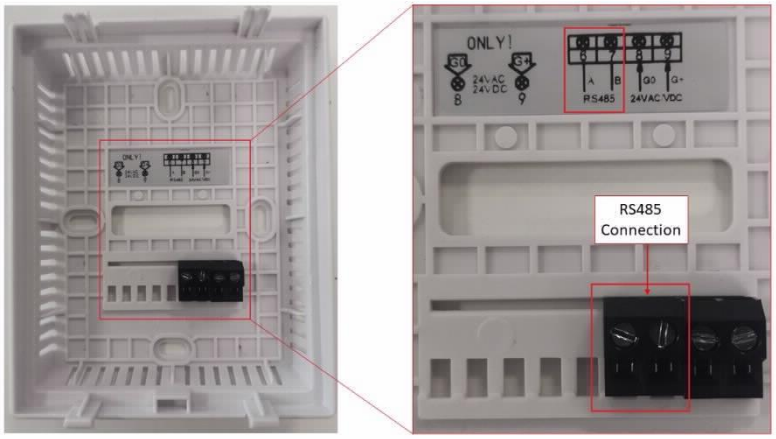
### 3.6.2 Configuring for Reiri Modbus IAQ sensor

The IAQ sensor allows monitoring of temperature (Temp), relative humidity (RH), carbon dioxide (CO2), particulate matter of 2.5 microns (PM2.5) and higher and toxic volatile organic compounds (TVOC). IAQ sensor is connected to controller via Modbus RS-485.

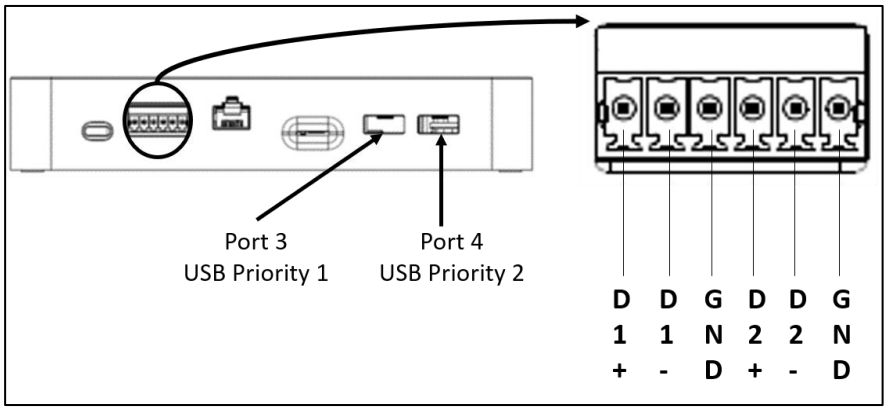
Multiple IAQ sensors (up to 30) can be connected using RS485 daisy chain type. Each IAQ sensor must be assigned a unique Modbus address and same communication parameters using address setting tool. Refer to “Chapter 6.1 IAQ Sensor Address Setting”.

Fixed Default Values:
Baud Rate: 9600
Parity: None
Stop Bit: 1

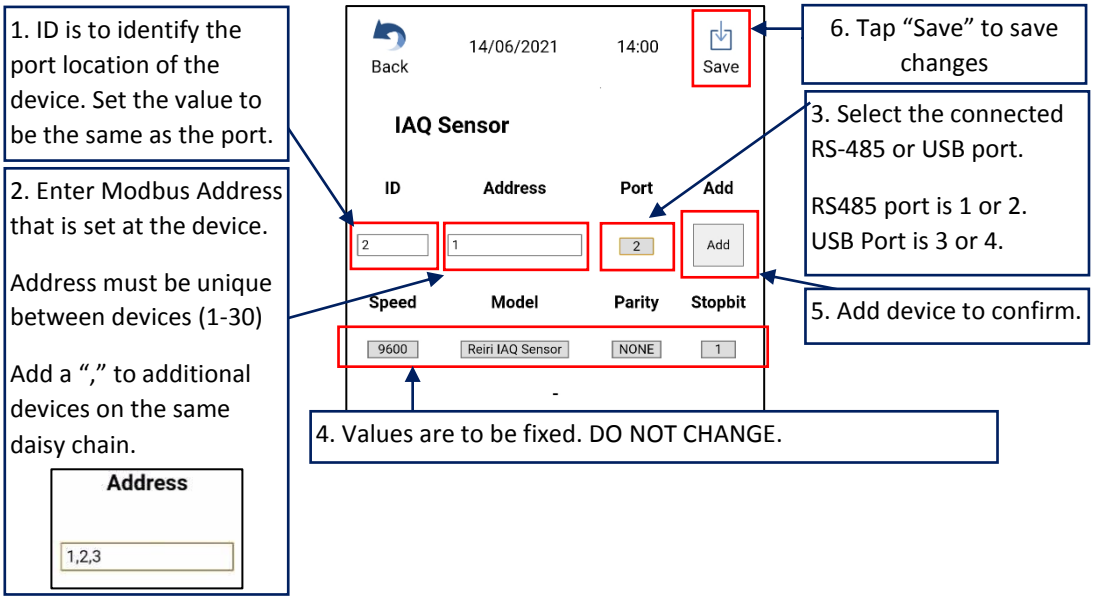
Connect the RS485 connection from IAQ Sensor connection terminal to Reiri Controller. Connect power to the connection terminal next to the RS485 terminals (highlighted in red).




Connect the Modbus RS485 connection from Reiri IAQ Sensor to RS485 Port. If RS485 ports are not available, use the USB ports with a USB to RS485 convertor. Connect to USB port priority 1 first.



After hardware connected, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.

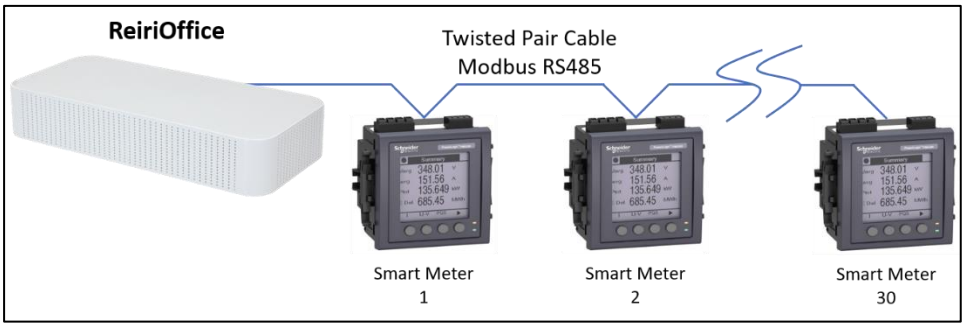


### 3.6.3 Configuring Modbus Smart Meter

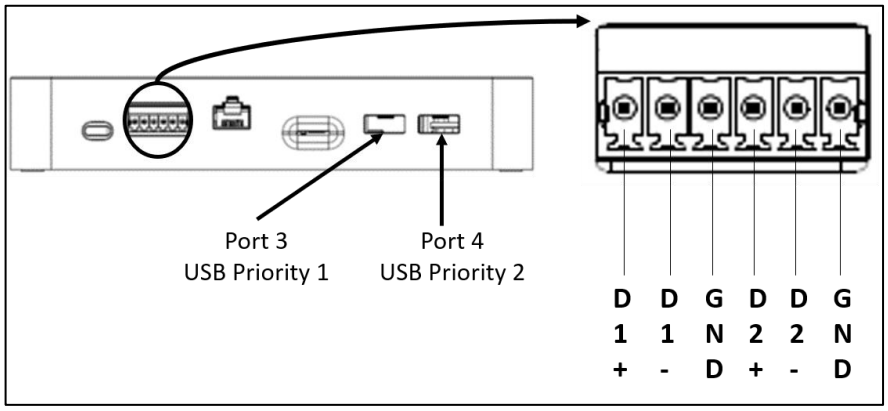
The Smart Meter measures the power consumption. It can also use for PPD calculation.

There is a fixed list of compatible smart meters with Reiri. Check the compatibility table for the model lists.

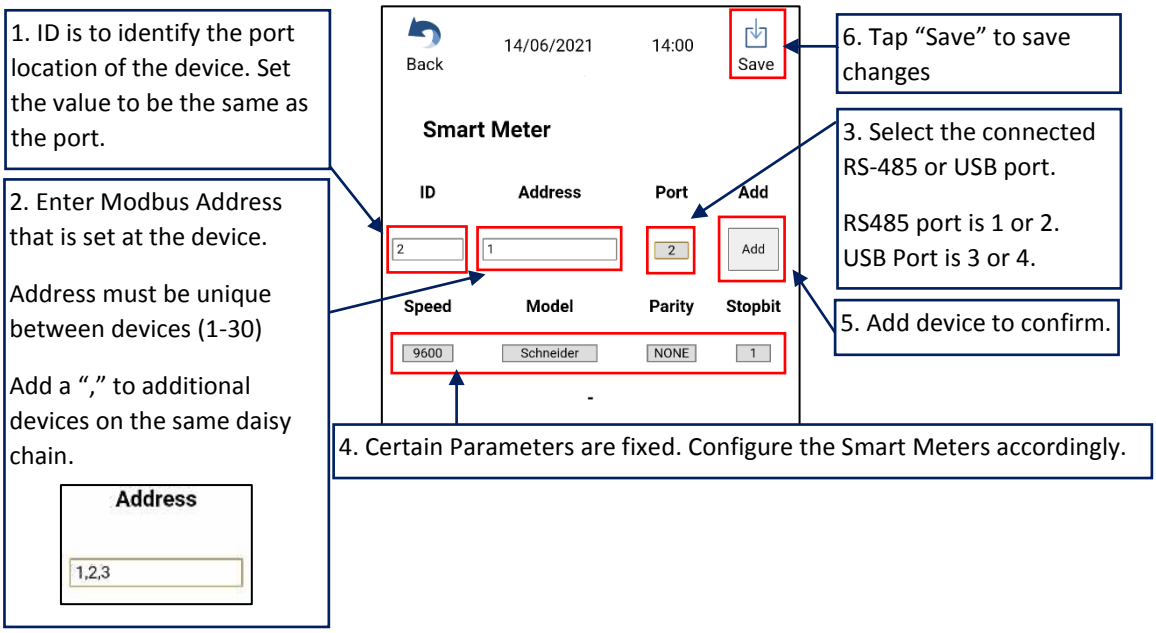
Multiple Smart Meters (up to 30) can be connected using RS485 daisy chain type. Each Smart Meter is required to be assigned a unique Modbus address and same communication parameters. Refer to each smart meter's manual for Modbus communication setup information.




Connect the Modbus RS485 connection from Smart Meter to RS485 port. If RS485 ports are not available, use the USB ports with a USB to RS485 convertor. Connect to USB port priority 1 first.



After hardware connected, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.

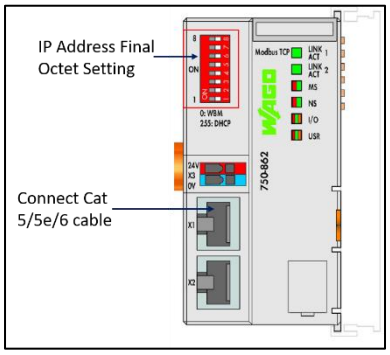


### 3.6.4 Configuring for WAGO IO

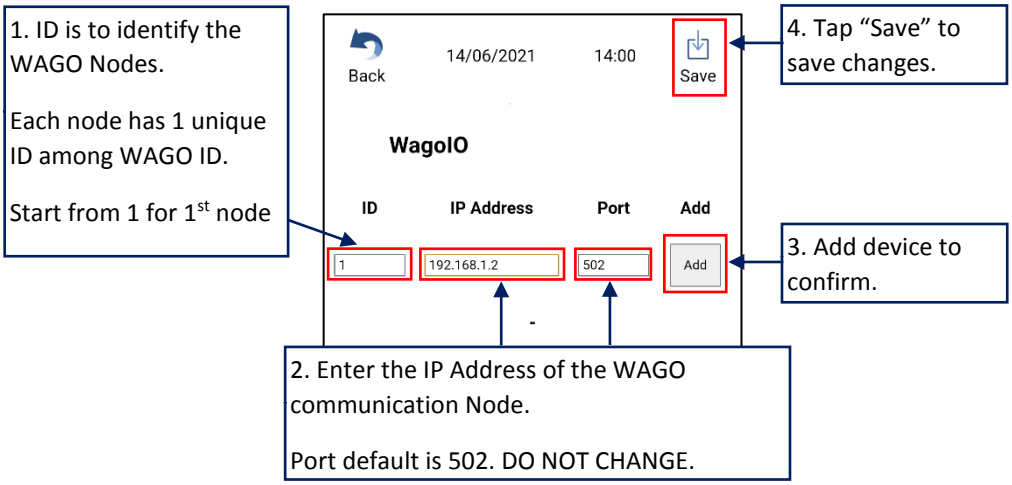
WAGO is an IO module system that allows various third-party equipment to be connected via normal I/O. DALI light control can also be done through the DALI module.

WAGO has multiple modules available for use and refer to compatibility tables for the modules that can used with Reiri.

For connection, connect Cat 5/5e/6 cable one end to the WAGO communication module and the other end to the router. Set the Address value on the WAGO module first using a computer connected to the same router network. Refer to “Chapter 5. WAGO Setup” to learn about the communication parameter setting and IP address final 8 bits (octet) setting using physical DIP switch.



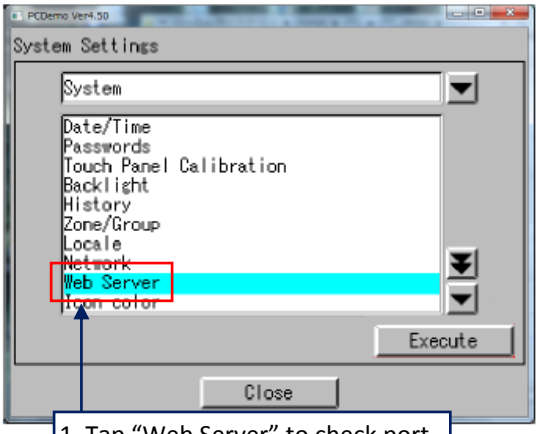

After hardware connected, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.

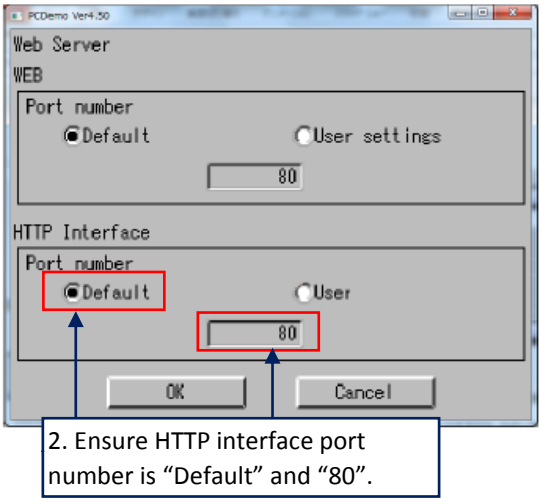


### 3.6.5 Configuring for iTC Connection

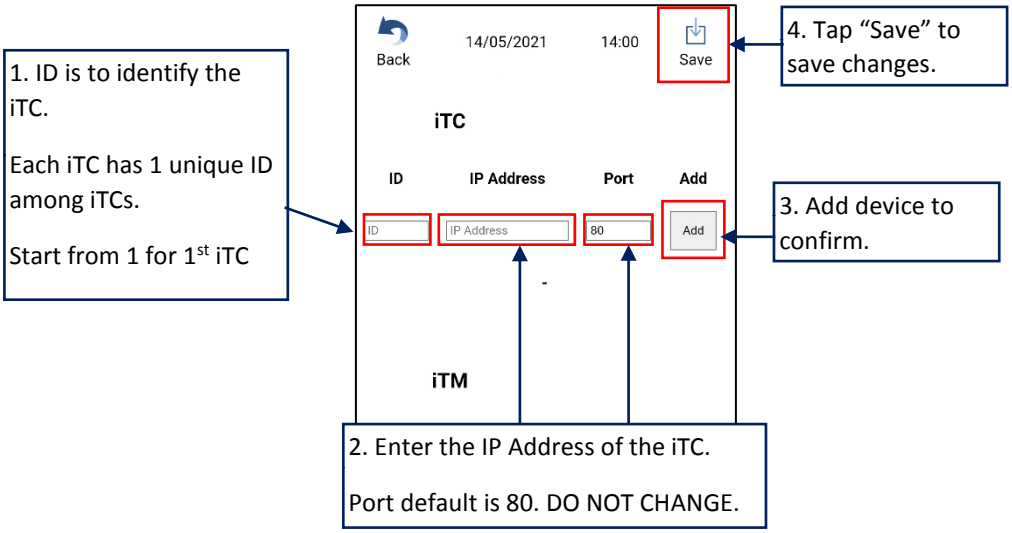
iTC is a centralised control for Daikin air-conditioning indoor units. This function is to set the communication parameters for iTC to connect with Reiri.

iTC must connect to the same local network as Reiri using LAN. iTC System settings must be setup first before using Reiri Setup Tool.




After iTC setup done, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.

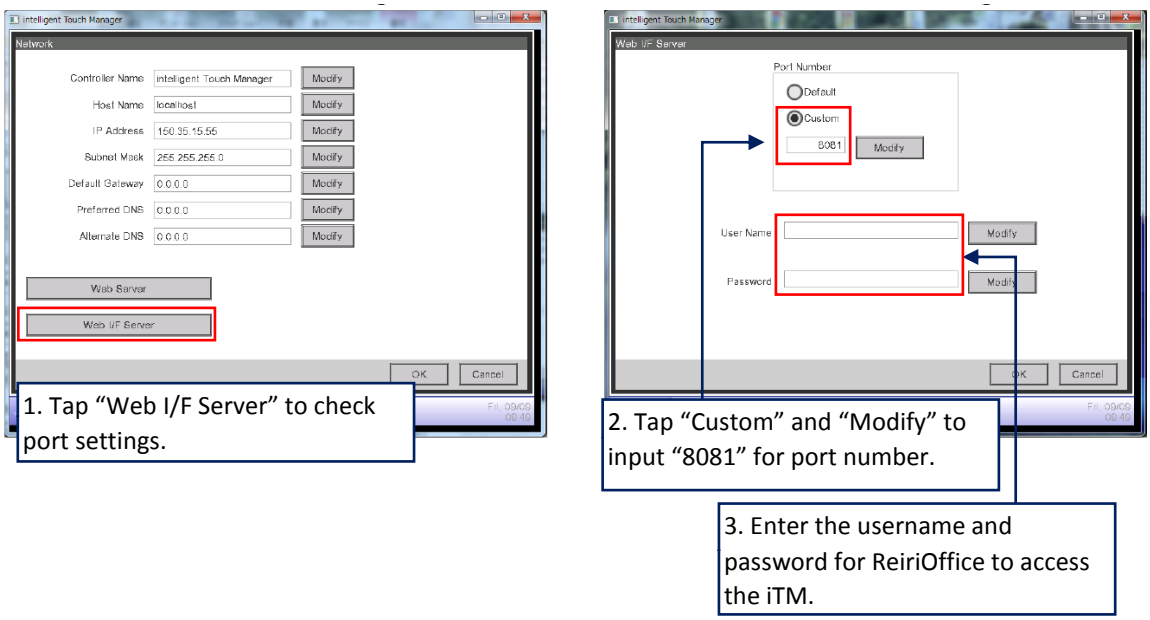


### 3.6.6 Configuring for iTM Connection

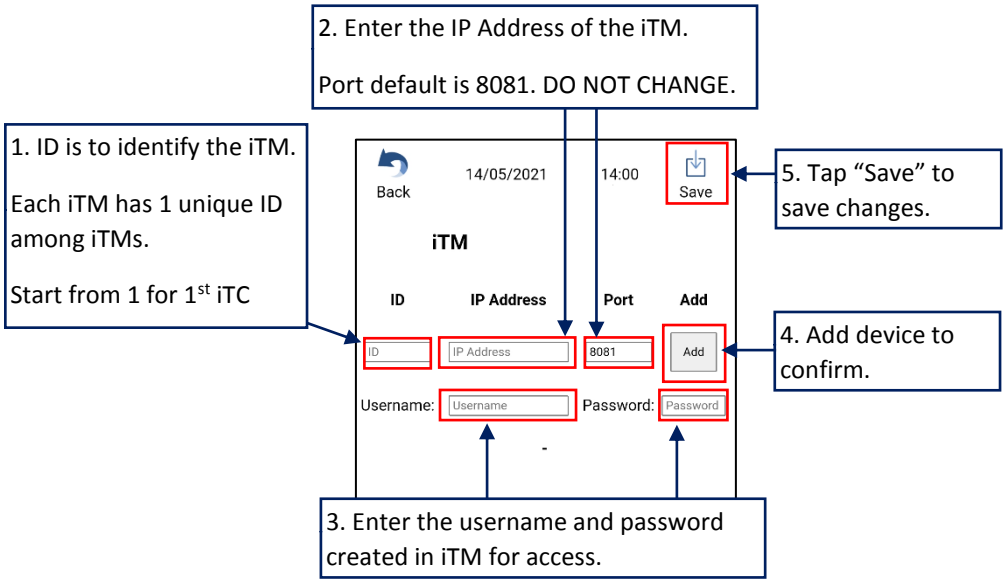
iTM is a centralised control for Daikin air-conditioning indoor units and air handling units. This function is to set the communication parameters for iTM to connect with Reiri.

iTM must connect to the same local network as Reiri using LAN. Ensure that the iTM option (DCM007A51) is activated for use with ReiriOffice.

iTM Network settings must be setup first before using Reiri Setup Tool.



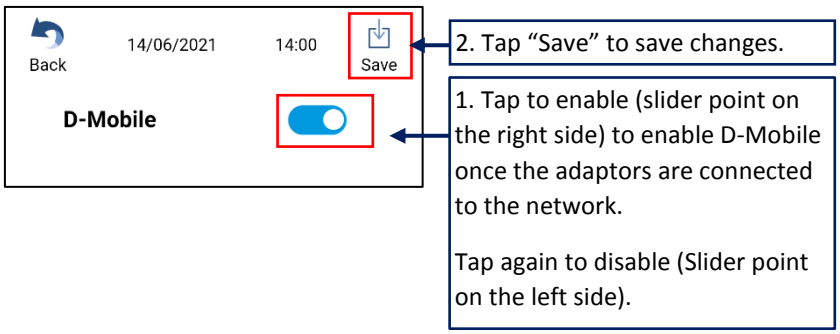

After iTM setup done, configure the communication parameters in Reiri Setup Tool – Device Connection Settings.



### 3.6.7 Configuring for D-Mobile Adaptor

D-Mobile Adaptor is the WiFi control for residential air-conditioning units.

To connect D-Mobile adaptor to ReiriOffice, the D-Mobile adaptor has to be connected to the same LAN with ReiriOffice. If D-Mobile is set to enable, all D-Mobile adaptor connected to the same LAN will be connected to ReiriOffice automatically.



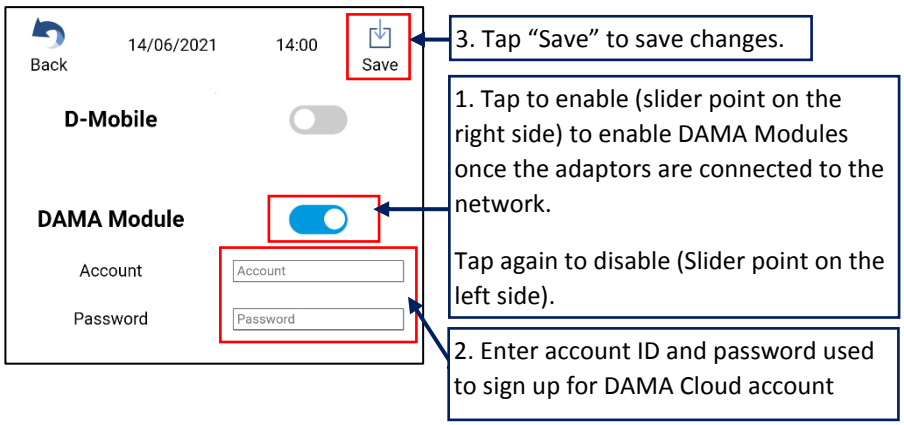
### 3.6.8 Configuring for DAMA WiFi Module

DAMA WiFi Module is the WiFi control module for residential air-conditioning units from DAMA factory.

Refer to DAMA WiFi module manual to setup the module.

Confirm the DAMA cloud login account and password after registration. ReiriOffice will connect to the DAMA modules linked with the account.

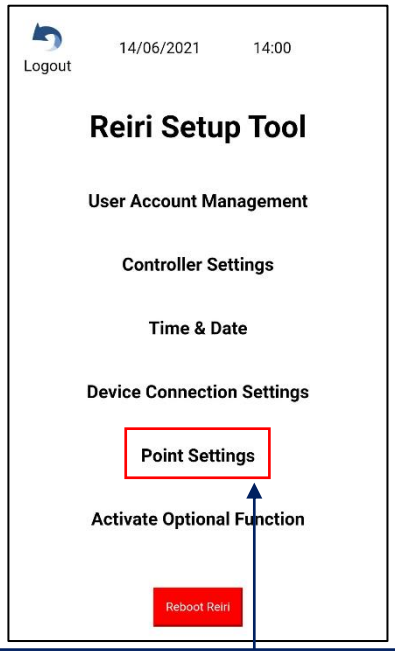
**NOTE: Internet access MUST be available when DAMA WiFi Module is used.*



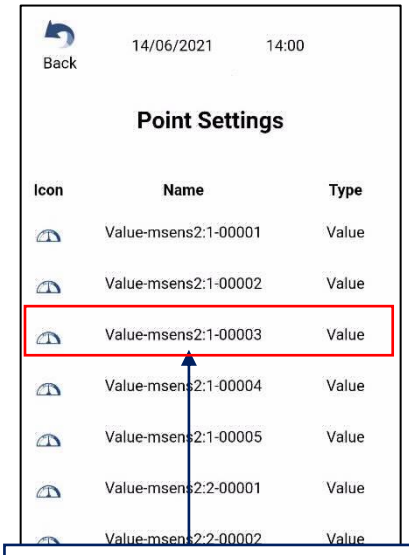
## 3.7 Point Settings

This function is to customize the point attributes to use the data correctly. Name, Display icon and other parameters can be customized to indicate the behavior of the point.

To go manage individual points,




1. Tap “Point Settings” to view the points list.




2. Tap on point name to view the point attributes.

All the management point attributes are explained subsequent tables. Edit or Enable the point attributes according to the required use of the device.

Two key attributes are Point Type and Point Usage. Point Type is a simplified description of the device.

Point Usage is the detailed breakout of attributes from Point Type. It is use for creating default groups in the user app.

Table below shows the point types and usage.

| **Device** | **Point Type** | **Point Usage** |
|---|---|---|
| Air-conditioner (inclusive AHU) | Ac | ac |
| HRV | Hrv | hrv |
| Temperature Measurement | Value | temp |
| Relative Humidity measurement | Value | humi |
| CO2 measurement | Value | co2 |
| PM2.5 measurement | Value | pm25 |
| TVOC measurement | Value | tvoc |
| Power measurement | SMeter | emeter |
| Light | Switch | light |
| | LevelSW | light |
| On/Off device | Switch | switch |
| On/Off Status | Status | stat |
| Error/Alert | Alert | alert |
| | Error | error |
| Sensor | Value | value |
| Level Control | Level | value/ratio |

**NOTE: Some point types can change to other point types.*
*Status -> Error / Alert if status shows error or alert.*
*Level -> LevelSW if it can have on/off status.*

Point Attribute List and Functions

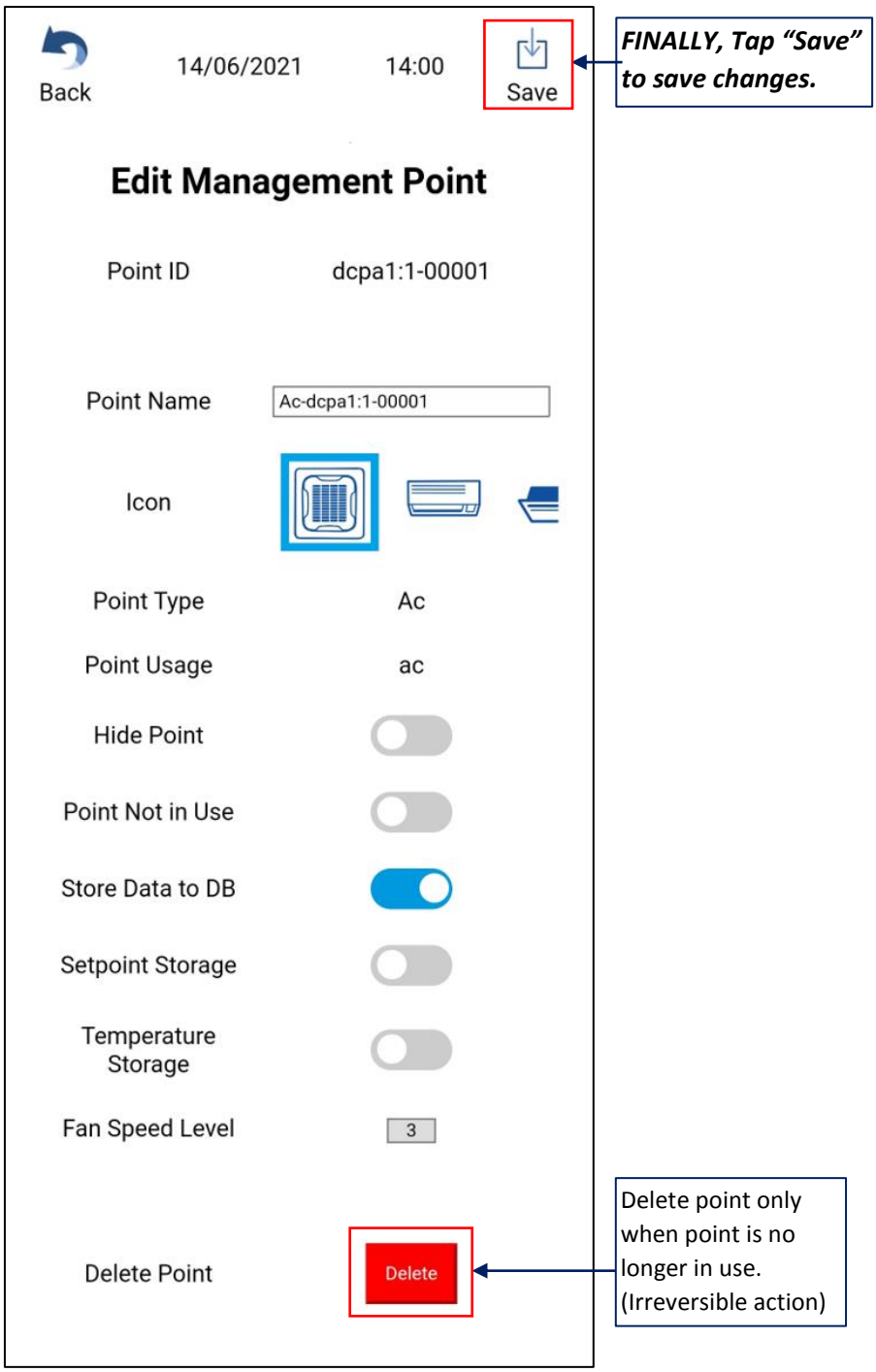
| Point Attribute | Point Types available with attribute | Function |
|---|---|---|
| Point ID | All | Auto generated ID |
| *Point Name | All | IMPORTANT: Edit name to identify point easily in user app. |
| *Icon | All | IMPORTANT: Edit icon to correctly represent the point in user app. |
| Point Type | All | Description of device. |
| Point Usage | All | Detailed attribute of device. Used for default grouping. |
| Status Keyword | Status, Switch | |
| Parent Point ID | Status | Parent ID. Default is None.<br>If set, update information is sent to parent management point<br>Switch and status can be a parent. |
| Hide Point | All | Enable to hide the point from being seen in user app. The point values will still be monitored in the background. Default is “Disabled”. |
| Point Not In Use | All | This point is not used in this controller.<br>The point values will not be monitored in the background. Default is “Disabled”.<br>E.g. WAGO IO points that are not connected with any device can be set to “Point Not In Use” |
| Record to History | All | Status change information is stored in History DB. |
| Store Data to DB | All | Operation information is stored in DB |
| Setpoint Storage | Ac | Enable to save setpoint values in database.<br>Default is “Disabled” |
| Temperature Storage | Ac | Enable to save room temperature measurements in database for trending.<br>Default is “Disabled” |
| Off delay | Status, SensorStat | Enable to delay point off status change from device off status.<br>If 1 is set, point status will off in 1 min. |
| Signal Invert | Status, Switch | Enable to invert the on/off status.<br>If this is set to enable, when device is OFF, status is ON. |
| C type switch | Switch | Enable to handle point as a C type switch (2-way switch). Use with status point combination. |
| Error type | Status | This is used to customize error indication. |
| Alert type | Status | This is used to customize alert indication. |
| Fan Speed Level | Ac | Change fan speed capability to adjust to actual AC fan speed capability. |

*Table to be continued on following page

| Point Attribute | Point Types available with attribute | Function |
|---|---|---|
| AV Range | Level, Value | This is used to convert device value to actual value.<br>Min, Max does not allow empty.<br>If min is 0 and max is 1 are set, device value will not convert.<br>In case of WAGO Ai or Ao is used, min and max have to set actual min and max value.<br>For example: CO2 sensor which min value is 400 and max value is 5000. Then min has to set to 400 and max set to 5000. |
| Decimal Points | Level, Value | Sets the decimal points for values displayed in user app. |
| Unit | Level, Value | Sets the unit of measurement for values displayed in user app. |

**NOTE: Name and Icon are important attributes to edit for setup.*

AC Management Point



## 3.8 Option – PPD

PPD is an option function that needs to be activated at “Activate Optional Function”. Refer to separate document on PPD setup for Reiri in ***“Reiri Option Setup – PPD Billing”.***

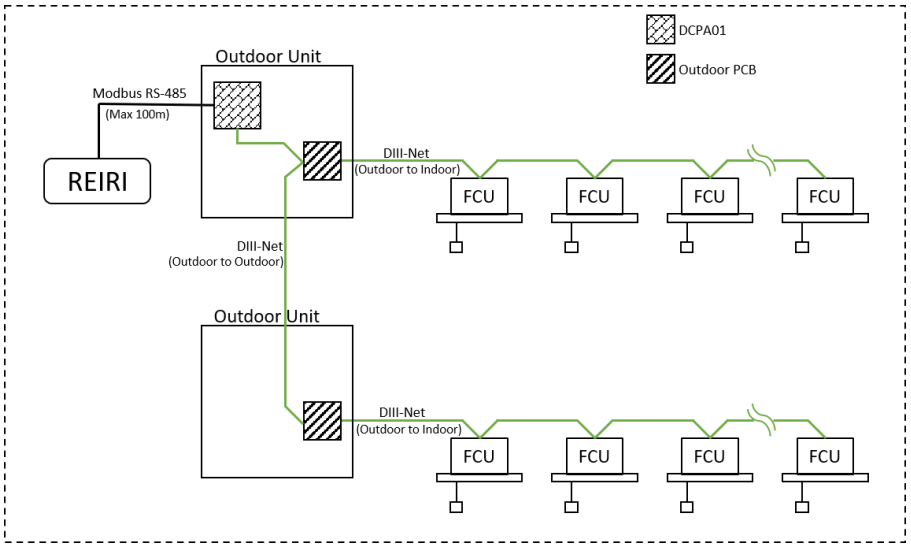
# Part 3 – Additional Setup Information

The purpose of this section is to provide additional information to facilitate the setup of Reiri that may not be able to explain in detail in previous sections of this Installation Manual.

## 4. DCPA01 Installation (to ODU/IDU)

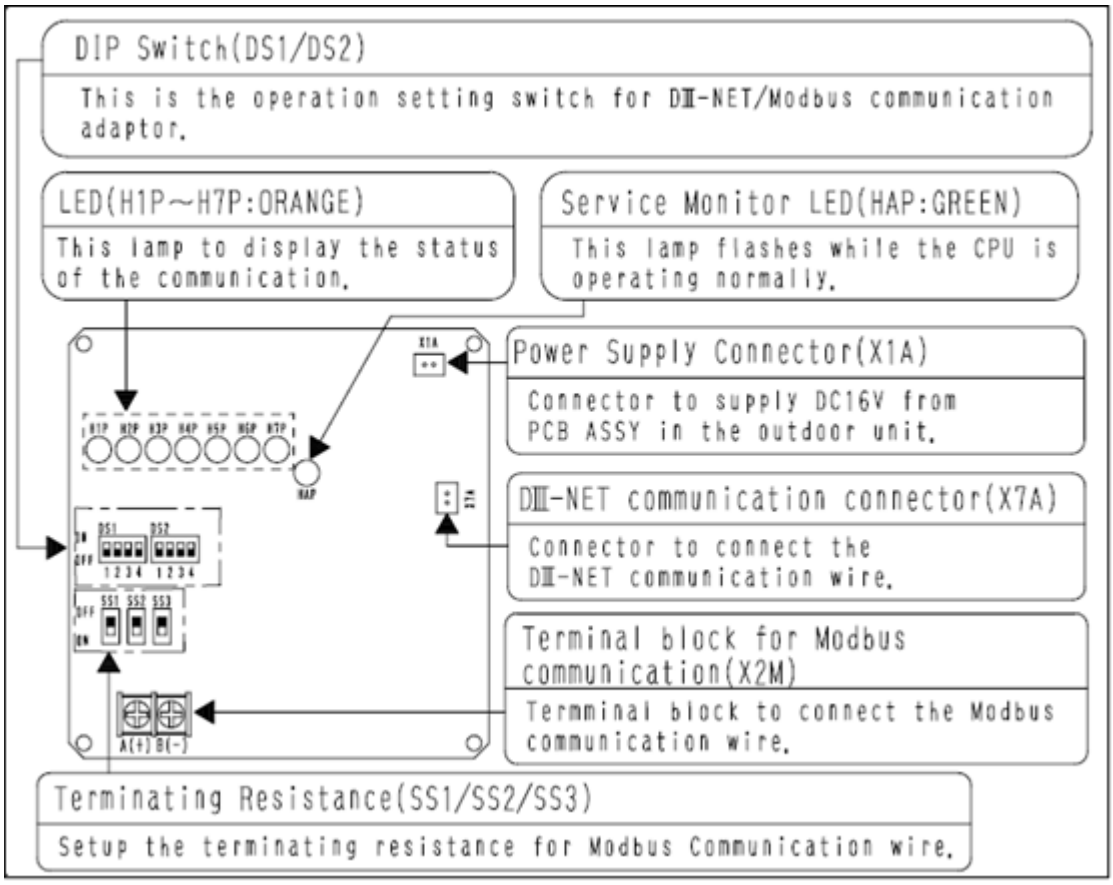
The DCPA01 adaptor is an interface device to translate between DIII-Net and Modbus protocols for DIII-Net enabled indoor unit monitoring and control.

Through Modbus communication, Reiri can stop the indoor unit operation, monitor and control the operation mode, pre-set temperature, air flow rate and direction.




**NOTE: Total wiring length for RS-485 communication wire must be within 200m. Maximum 64 indoor units and 10 outdoor units able to connect to 1 DCPA01.*

The parts name and function of DCPA01 is shown in the picture below.

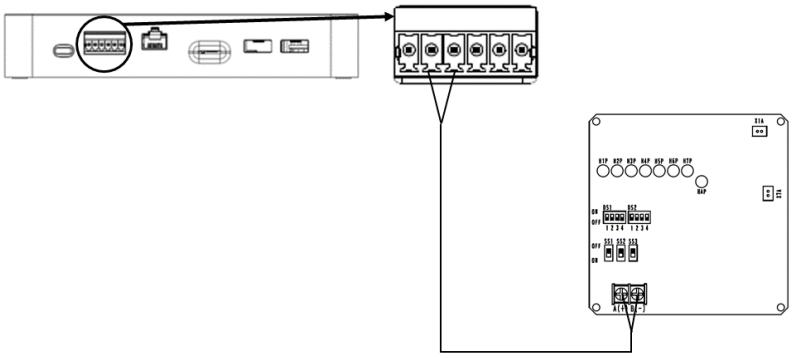



DS Switch Setting for Modbus communication (DS1 and DS2)

| DS | Pin | Function | OFF | ON |
|---|---|---|---|---|
| DS1 | 1 | Reserve | - | - |
| | 2 | Baud Rate | 9600bps | 19200bps |
| | 3 | Stop Bit | Stop Bit 1 (Parity) | Stop Bit 2 (Non Parity) |
| | 4 | Parity* | Even | Odd |
| | | *Parity setting will enable when DS1-3 is off. | | |
| DS2 | 1-4 | Slave Address | 0: No Modbus communication<br>1-15: Slave Address 1-15<br>**OFF: 0** ; **ON: 1**<br><br>*1: off, 2: off, 3: off, 4: on (0001) is 1<br>DIP switch input format is binary.<br>Pin 1 as MSB – Most Significant Bit<br>Pin 4 as LSB – Least Significant Bit<br>Refer to Decimal to Binary Table for aid on conversion | |

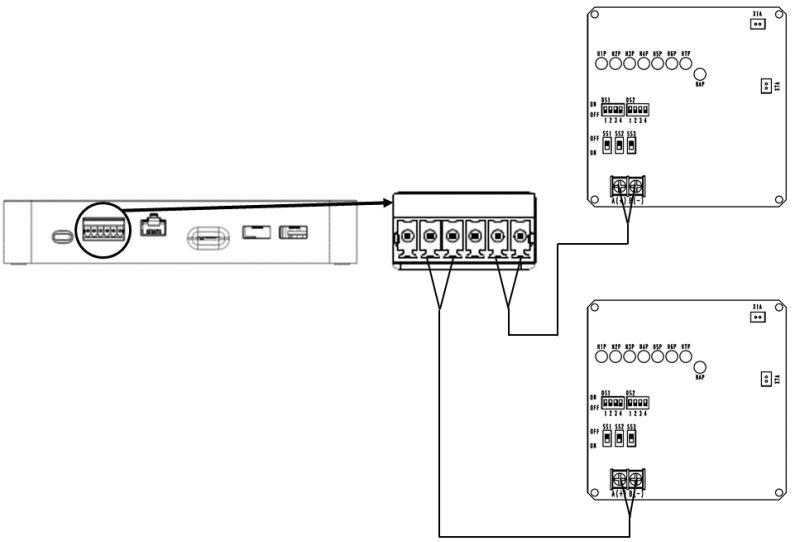
Up to 4 DCPA01 adaptor cards can be connected to 1 ReiriOffice. There is a maximum limit of 2 DCPA01 adaptor cards per RS485 port. In the case of 2 DCPA01 adaptor cards, it is highly recommended to use 1 RS485 port for each adaptor card. Please take reference from the pictures below (based on the number of DCPA01 adaptor card(s) connected).

**<1 DCPA01 adaptor connected>**



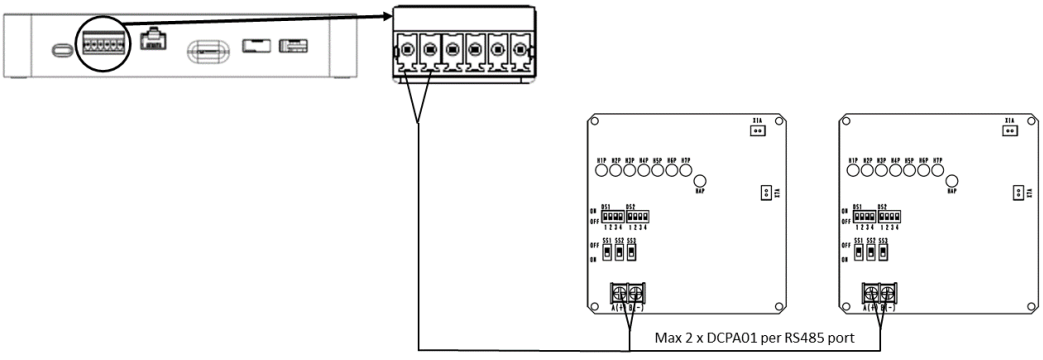
**<2 DCPA01 adaptors connected>**

Method 1

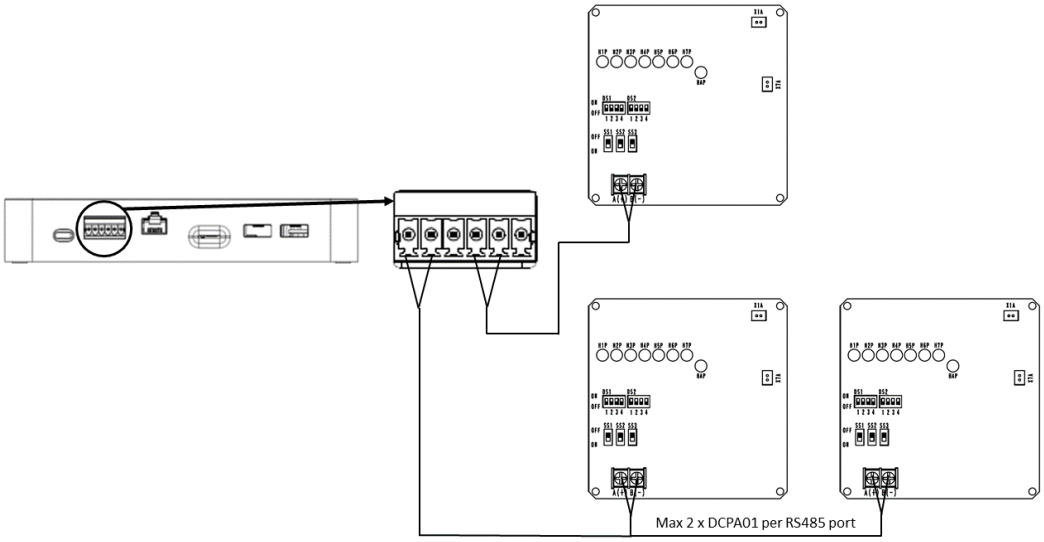


**OR**

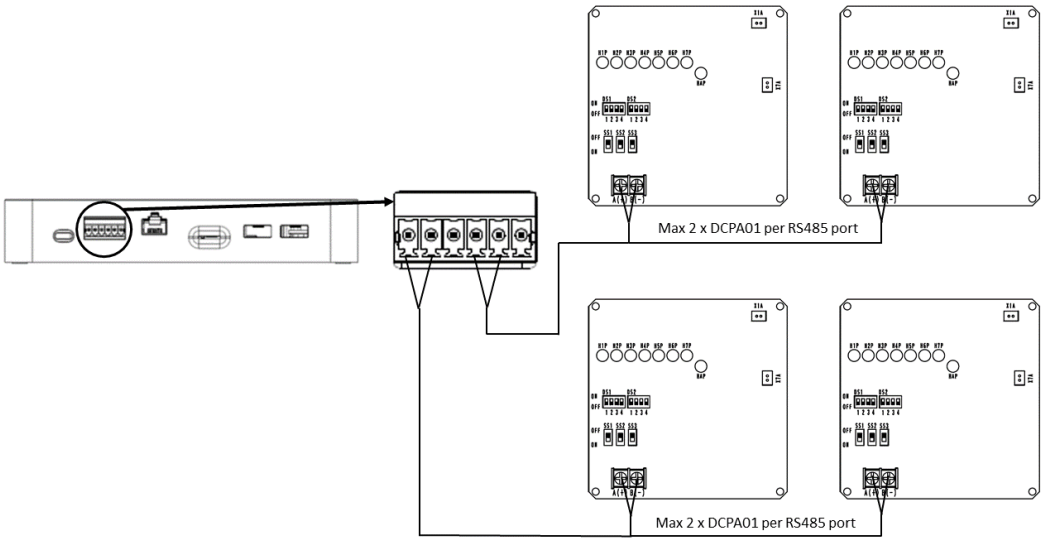
Method 2



**<3 DCPA01 adaptors connected>**




**<4 DCPA01 adaptors connected>**



# 5. WAGO Setup

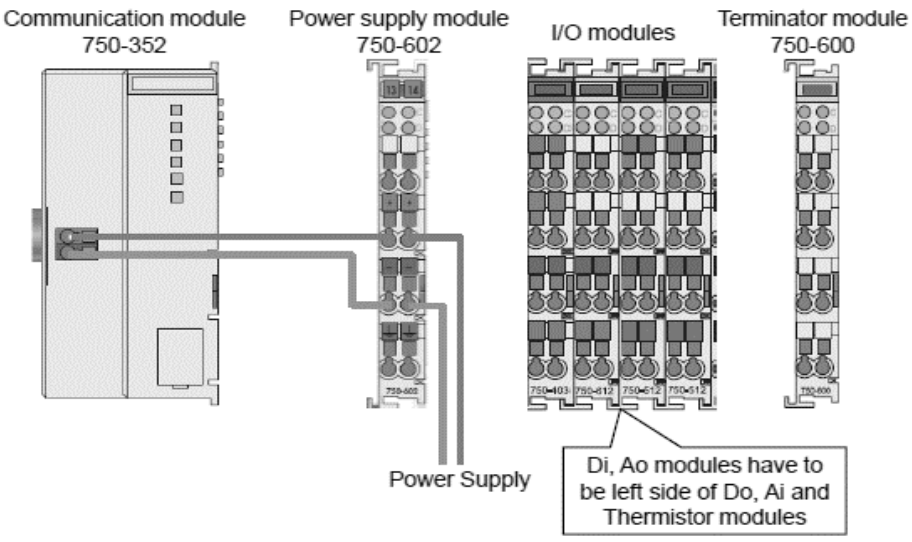
Reiri can control / monitor Daikin air conditioners and various types of building facilities like fan, light, and sensors by using WAGO I/O system. This section describes how to setup WAGO I/O system to control / monitor various types of building facilities by Reiri.

## 5.1 System structure

It is important to connect the I/O modules in the correct order to ensure the safe and accurate operations of WAGO.

Each module of WAGO I/O system must be connected to the following order:

1. Communication Module
2. Power Supply
3. Di
4. Ao
5. Do
6. Ai
7. Thermistor
8. Termination Module



## 5.2 Network Setting

For connection and detection in the LAN, the network setting for the communication module must be done.

Module 750-352 IP address setting is separated into 2 parts. The IP address, Subnet mask and default gateway are set on the software.

Default network address is “192.168.1.X”

If the network address first 3 octets (yyy.yyy.yyy.) is the same as default, then TCP/IP module address setting can be set DIP switch. The DIP switch is setting by binary value. For example, if you want to set 192.168.1.50, DIP switch must be set to 50. (Switch position: “On” is 1, “Off” is 0)

50 is “0011 0010” in binary. 4 is “0000 0100” in binary.

If 750-352 is connected to another network address domain, the network address will need to be changed. Firstly, set 750-352 DIP switches all to “On” for 750-352 to be in DHCP mode. Under DHCP mode, IP address will be assigned from router automatically.

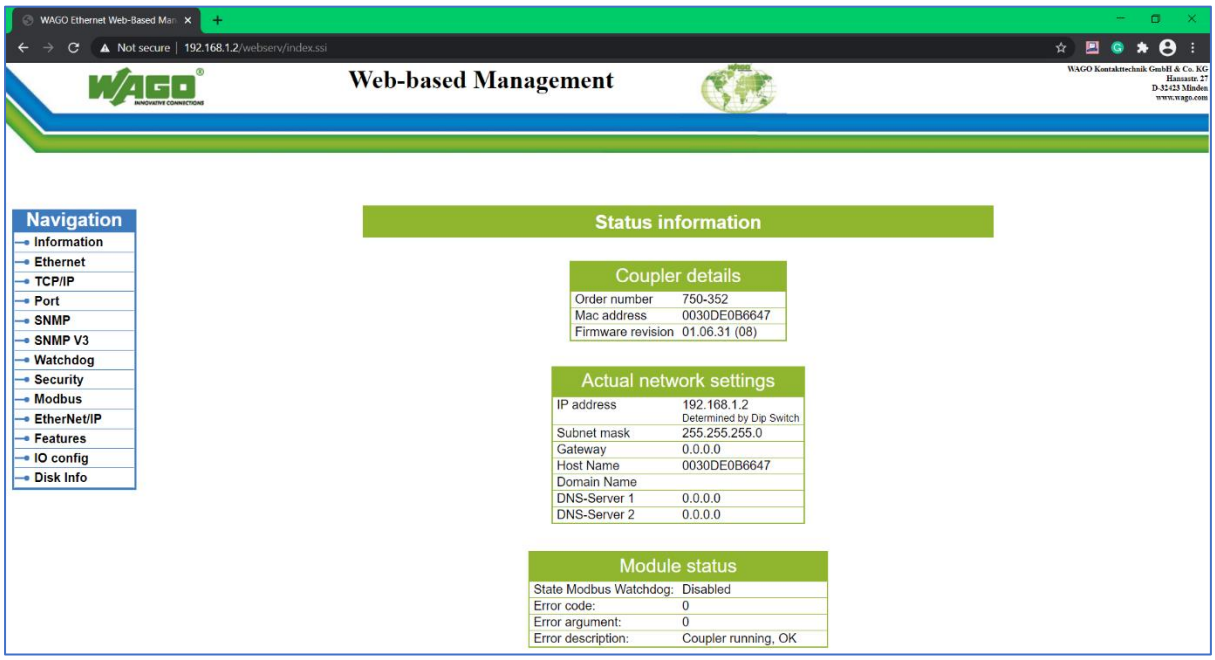
Connect 750-352 to a router and power on. 750-352 will work then get the auto-assigned IP address from the router.

Next, find the IP address of 750-352. Access router maintenance screen and check DHCP client information for the IP address of 750-352.

Using the known IP address, open web browser on PC and type the IP address in URL bar. The WAGO web-based management screen will be appear. A prompt for username and password will pop-up. Username is “admin” and password is “wago”.

*First access status information page*

The first webpage provides a simple summary of the information regarding the WAGO module.



*TCP/IP configuration page*

This page is only for configuration of the TCP/IP parameters manually into the EEPROM. DIP switch will need to be set to zero (all in “Off” position – DHCP mode) to use this manual IP configuration.

Information shall be provided by owner or IT department for the network settings

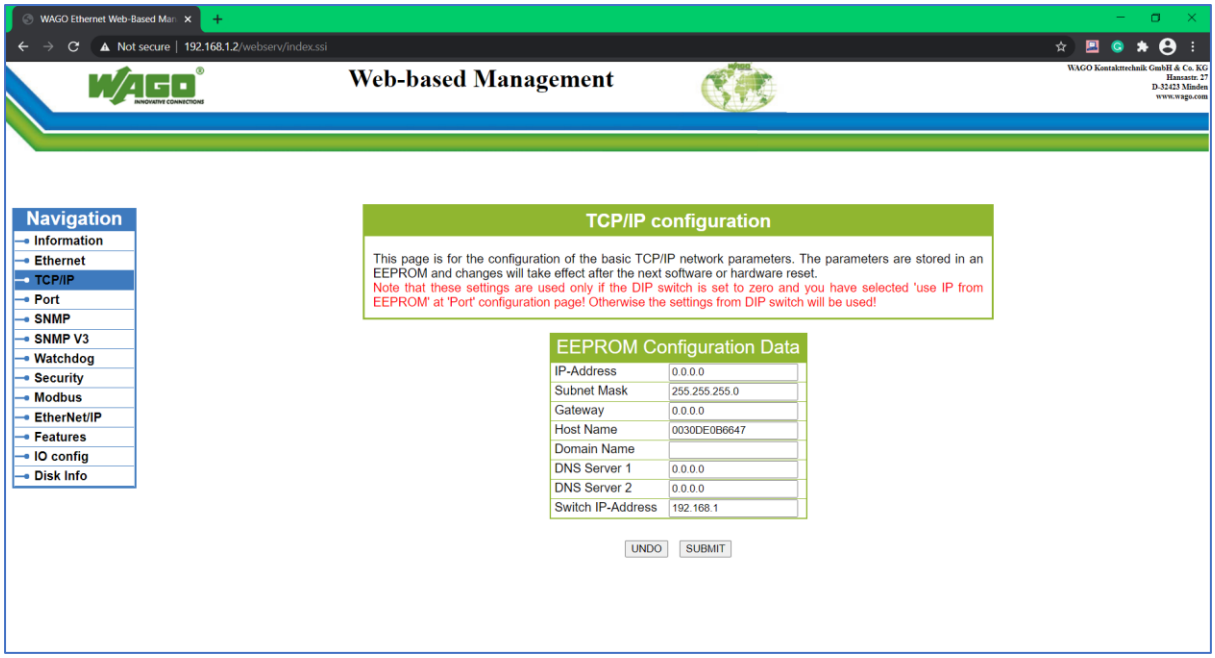
Enter the static IP address meant for the controller.

Enter the Subnet Mask – usually 255.255.255.0

Enter the Gateway address – usually is the router address (192.168.1.1 subjected to changes by local admin)

Enter Domain name – if required cloud access

Enter DNS address 1 and 2 – if available. (Required for cloud access)




After setting, click “SUBMIT” and reset the power of 750-352 then these parameters will be enabled.

Please refer to the respective WAGO devices’ installation manual. For more help, please contact DHOS support email at dhos.support@daikin.com.sg

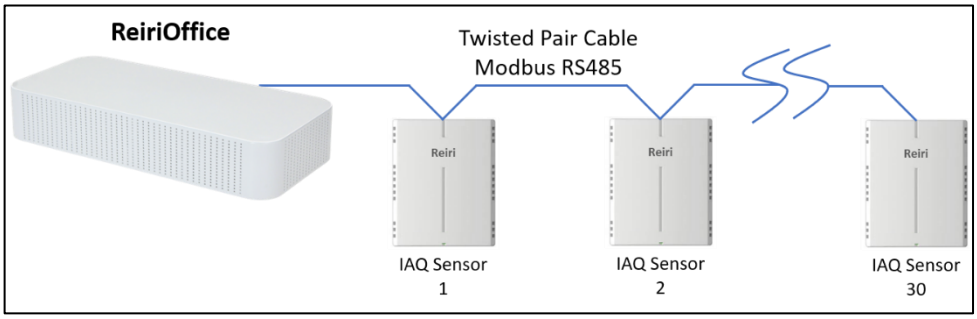
# 6. Modbus Smart Meter / IAQ Sensor

Up to 30 Modbus Smart Meter and 30 Modbus IAQ Sensor can be connected to ReiriOffice via Modbus RS-485 connection.

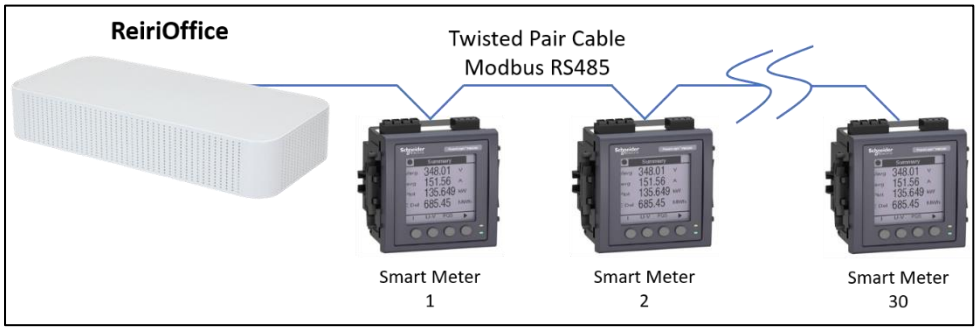
Be sure to connect the positive (+) core to the positive RS-485 terminal and the negative (-) core to the negative RS-485 terminal respectively. Device to device connection can be daisy-chained as per image below.

Each daisy chain can only be connected to one type of device. i.e. Smart Meter only chain with Smart meter, IAQ sensor only chain with IAQ sensor.

Modbus connection for IAQ sensors




Modbus connection for Smart Meters



## 6.1 IAQ Sensor Address Setting

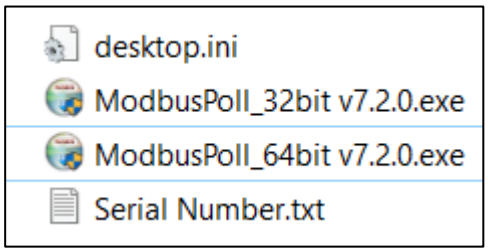
Multiple IAQ sensors can be connected to the Reiri controller via Modbus RS485. Modbus address needs to be set to pair the sensor with the controller. The IAQ sensor requires a Modbus addressing tool to issue the fixed address to the sensor. Default address is fixed to 1.

Additional equipment required:

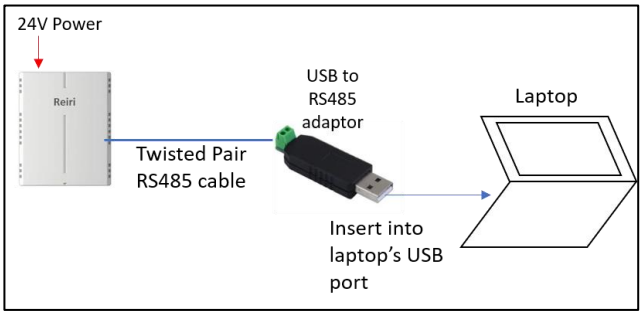
- Laptop or PC
- USB to RS485 adaptor
- RS485 compatible twist pair cable
- 24VDC Power Supply
- Modbus Poll software with configuration file

<u>Steps to set Reiri IAQ Sensor</u>

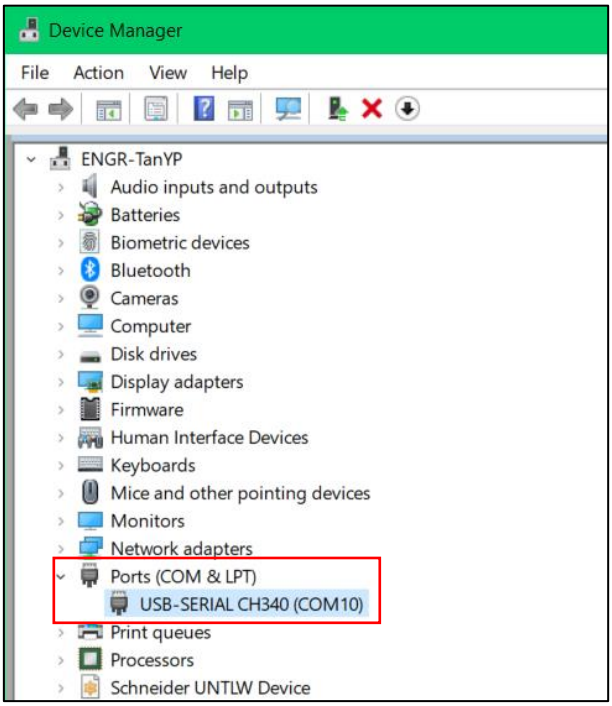
1. Install the addressing tool “Modbus Poll”.
   (Select 32bit or 64bit base on operating system format)



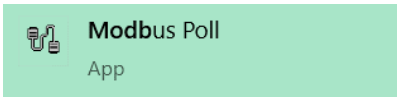

2. Connect Reiri IAQ sensor to power supply and USB to RS485 adaptor
3. Plug in USB to RS485 adaptor to laptop



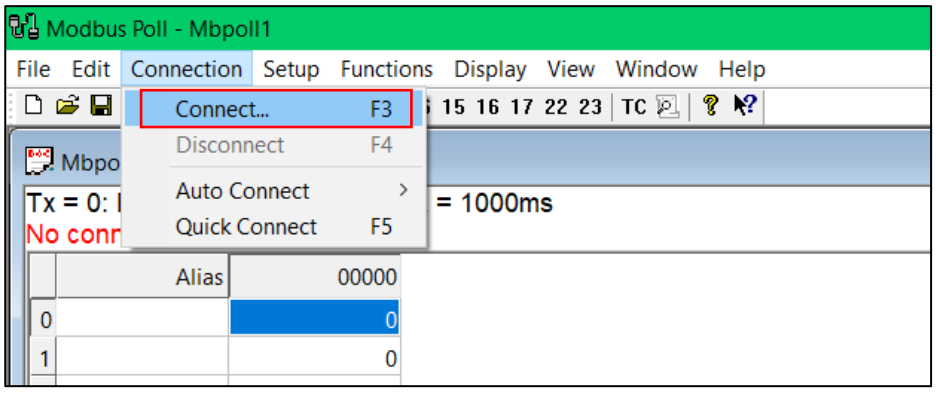
4. Run “Device Manager” in Windows.
5. Look for “COM PORTS” and find the COM port number for the USB to RS485 adaptor

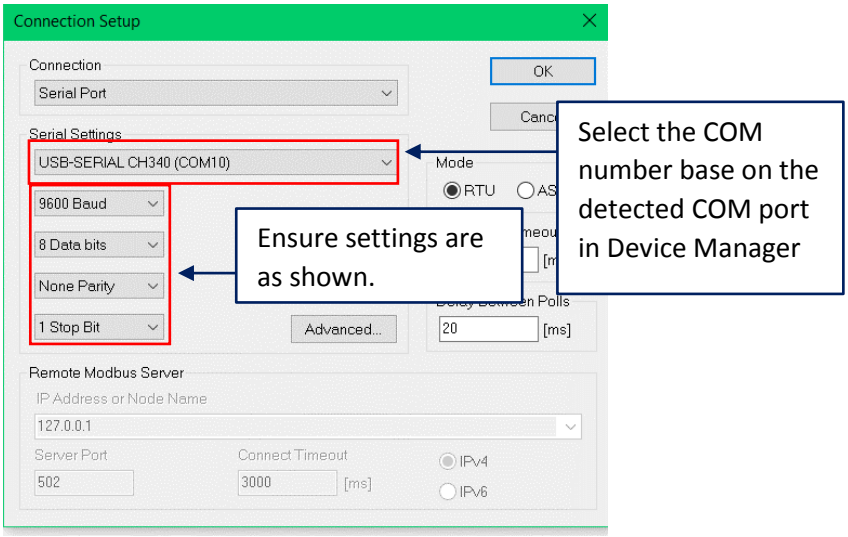



6. Start the Modbus Poll software.

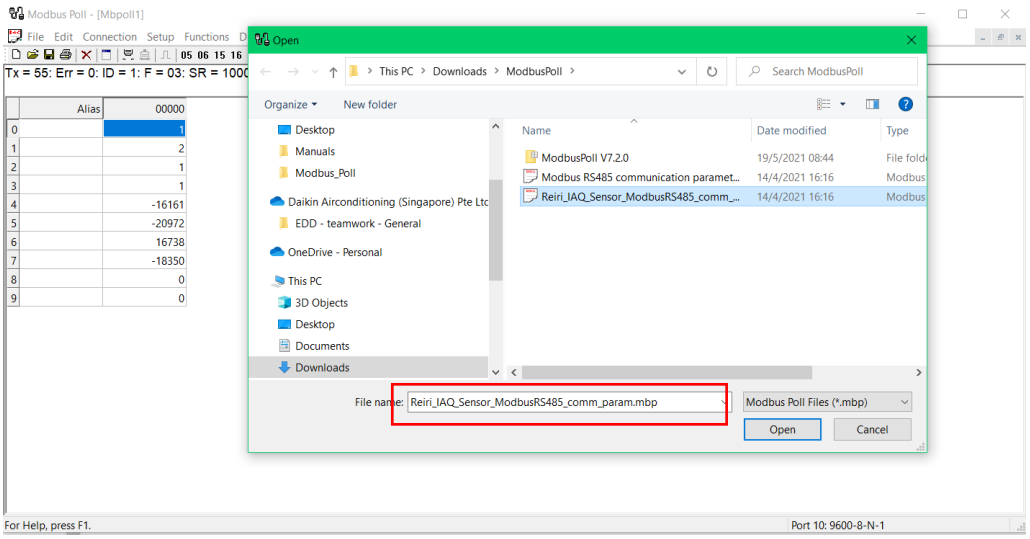



7. Go “Connection” -> “Connect” to set the communication parameters to read the Reiri IAQ sensor. Refer to screenshot for the parameters, except COM port number. Click “Ok” to connect to sensor

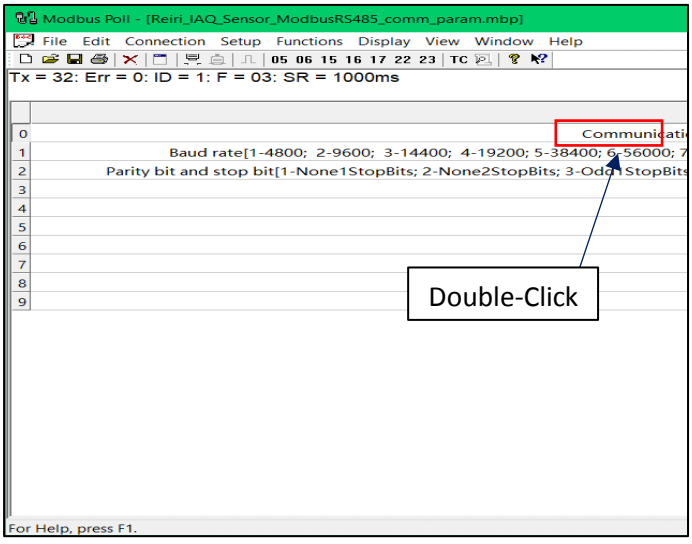




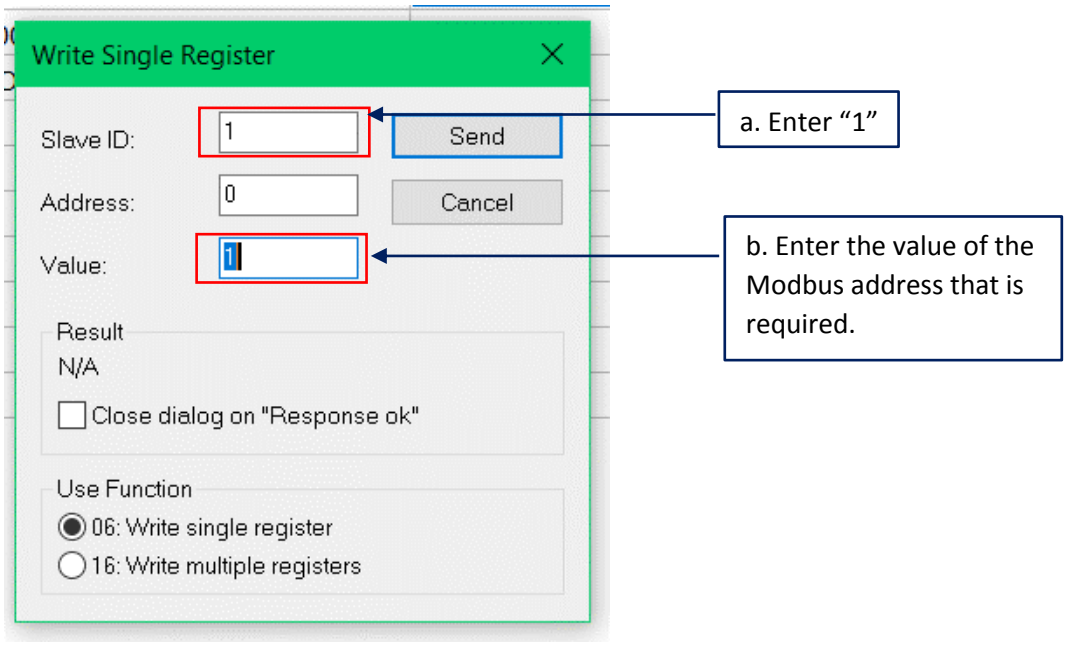

8. Go “File” -> “Open”. Locate the configuration file template “Reiri_IAQ_Sensor_ModbusRS485_comm_param.mbp”



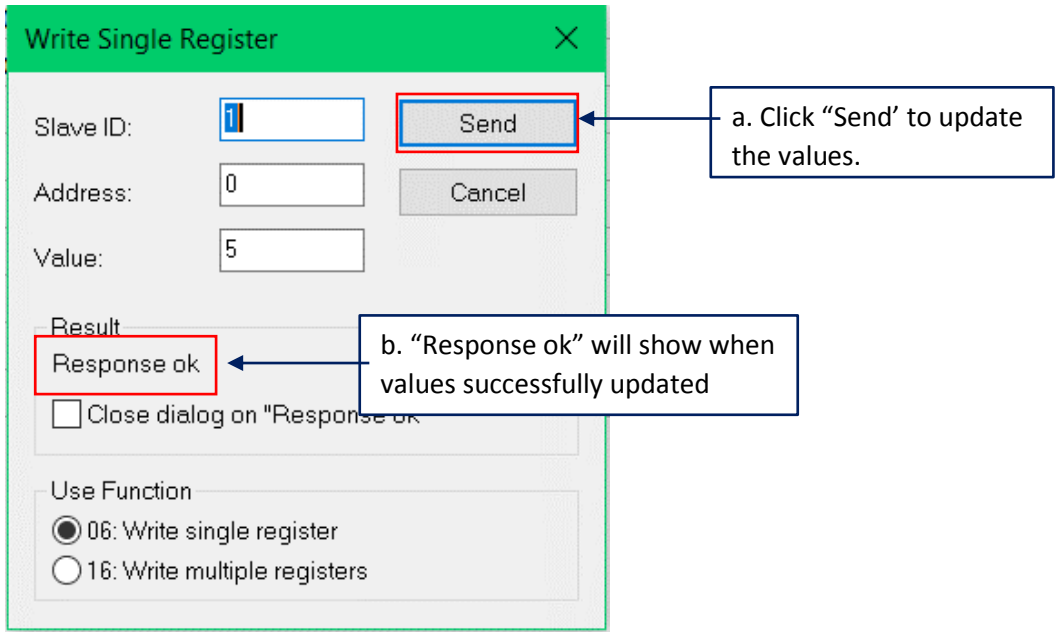

9. Double click on the value beside “Communication Address [1-247]”.



10. Input Slave ID as “1” in the new window and your desired new Modbus address in “Value” field.




11. Click “Send” and “operation send” will be shown.
The address will automatically be the value entered earlier. Clicking “Send” again will have error as the slave ID (address) is no longer 1.




12. The new address for the IAQ sensor has been updated and can be use in pairing. Power off the IAQ sensor and disconnect the Modbus connection to the laptop.

## 6.2 Smart Meter Communication Setting

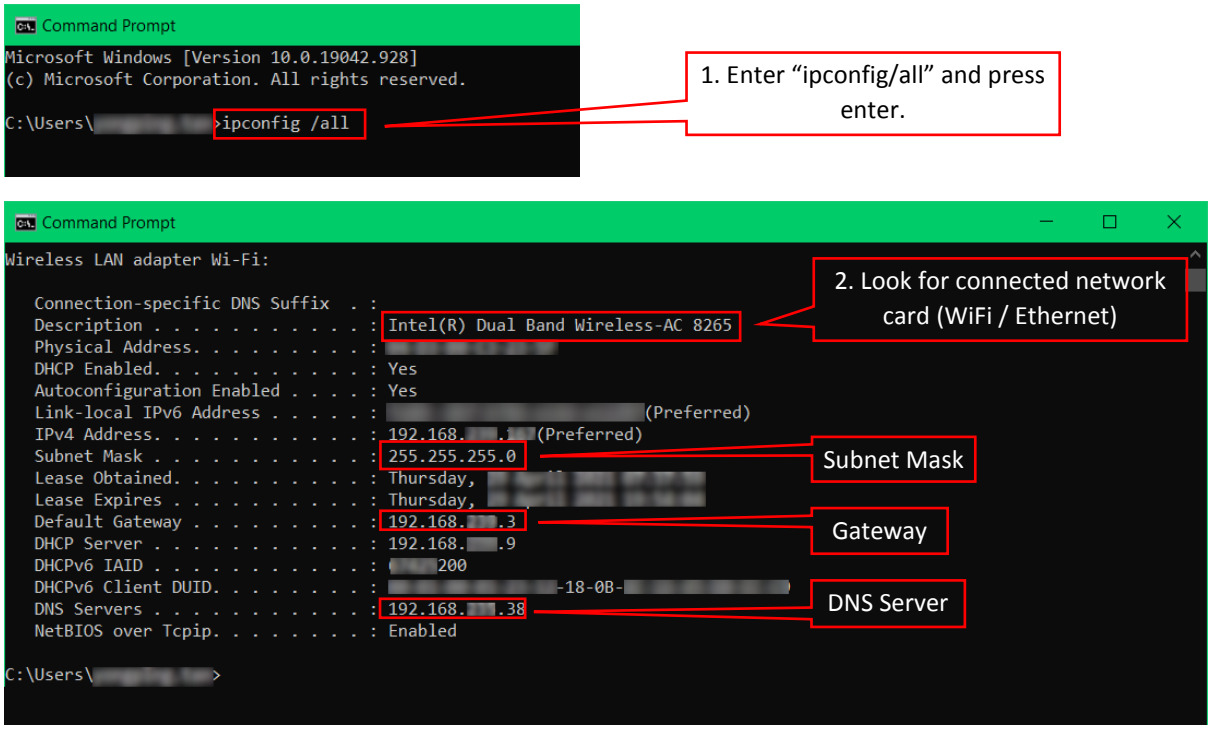
Multiple Smart Meters can be connected to the Reiri controller via Modbus RS485. Modbus address needs to be set to pair the meter with the controller. Most Smart meters that have display will have settings menu available on the device. Default address is fixed to 1 for most devices.

For example: Configure the RS-485 communications for Schneider PM5300 Smart Meter with display

1. Navigate using the buttons to Main > Setup.
2. Enter the setup password (default is “0”), then press OK.
3. Press Comm.
4. Move the cursor to point to the parameter you want to modify, then press Edit.
5. Modify the parameter as required, then press OK.
6. Move the cursor to point to the next parameter you want to modify, press Edit, make you changes, then press OK.

# 7. Finding Network Information (Gateway, DNS, Subnet)

To find the IP settings for gateway, DNS, subnet mask, connect to the same network as the controller by WiFi or Ethernet cable using a computer.

In Windows, run command prompt. At the command line, enter “ipconfig/all” and press enter.

Look for the connected device (WiFi adaptor card or Ethernet card) and record the details for controller network settings. Example shows connection via WiFi so network settings will come from the WiFi adaptor card.