



PRODUCT INTRODUCTION

**SVRF (scroll compressor)
R410A DC inverter series**

2025.02

SVRF

01 ODU product line

02 ODU basic features

03 Customization Options

04 Control solutions



ODU product line

SVRF single ODU capacity from 8 to 61KW, the max combination of 4 ODUs is 244KW

25-61KW
(2 compressors)



50-120KW



75-181KW



100-244KW



1. SVRF Models : SVRF-H280-SR1MV (** 280 means 28KW) 2. Power supply : 380~415V,50&60HZ,3ph

SRV

01 ODU product line

02 ODU basic features

03 Customization Options

04 Control solutions



1. Excellent component

Excellent components supply nice basic for the system reliability



HITACHI



Panasonic



U.S.A



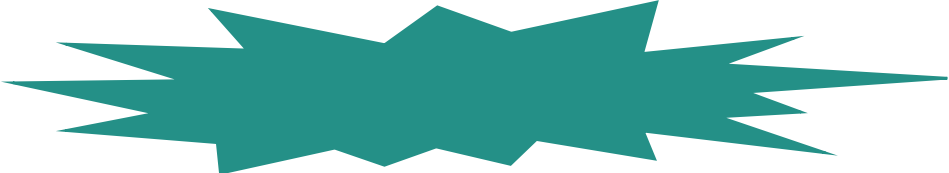
TEXAS INSTRUMENTS

Comp. MCU

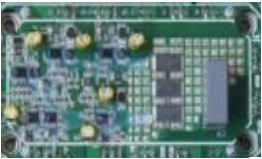


U.S.A

Sensata Technologies



SANHUA



GER

infineon

Comp. IPM



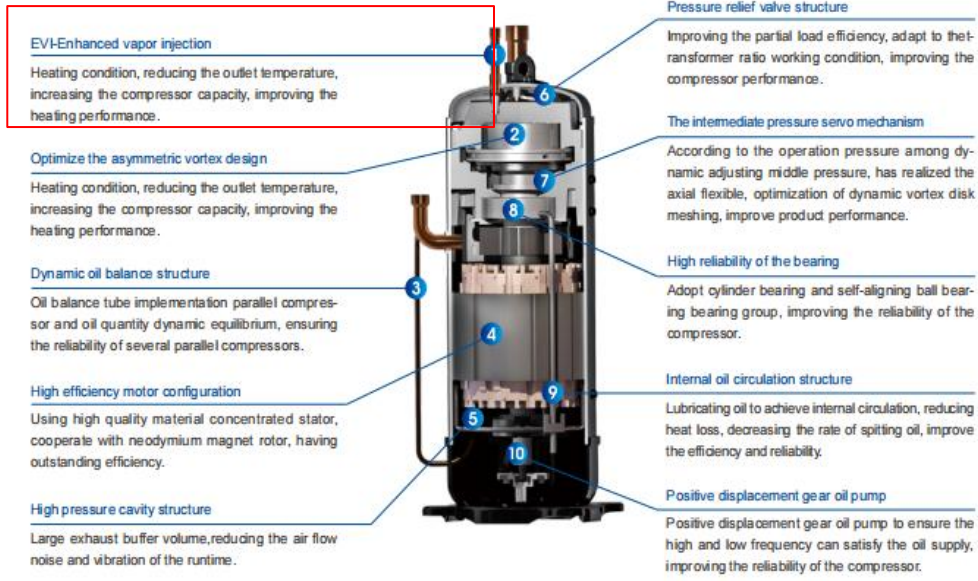
FUJIKOKI

2. Enhanced Vapor Injection Technology

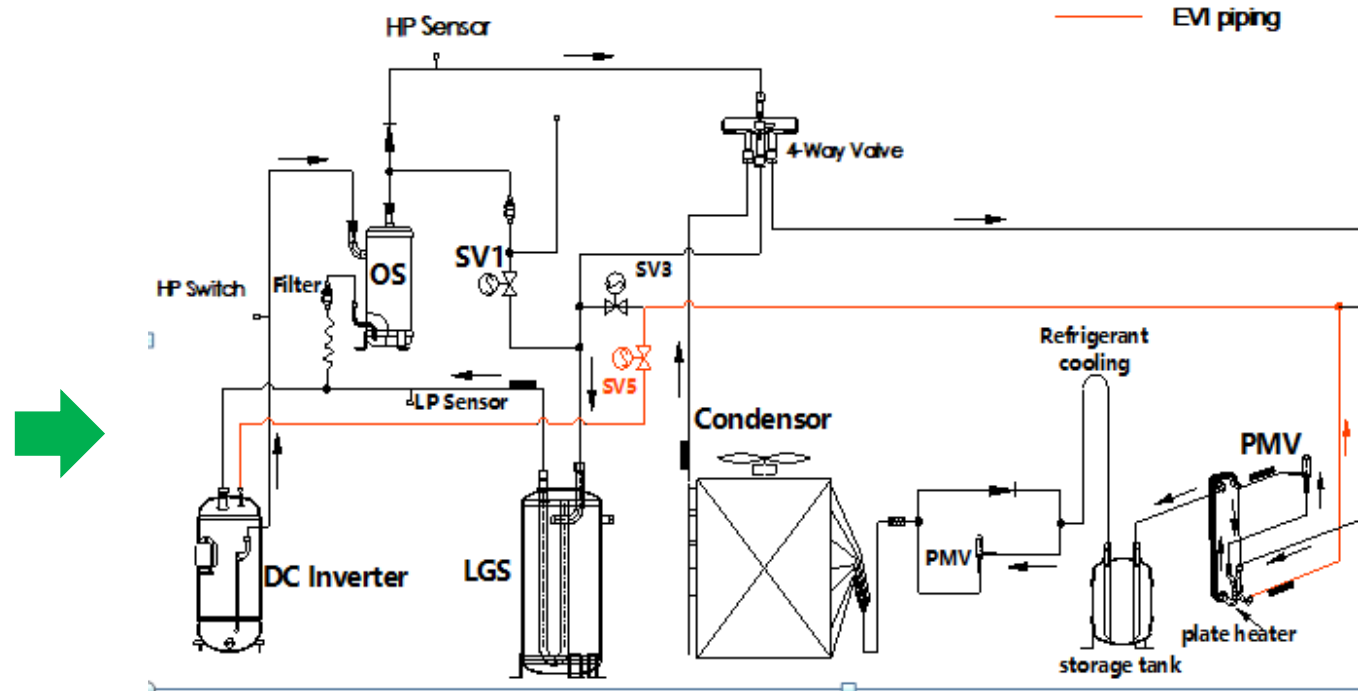
EVI Technology Definition

Heating mode : solenoid valve **SV5** be controlled, so mid-pressure gas refrigerant can directly inject to the compressor, improve capacity output

① EVI compressor



② EVI piping design (red)

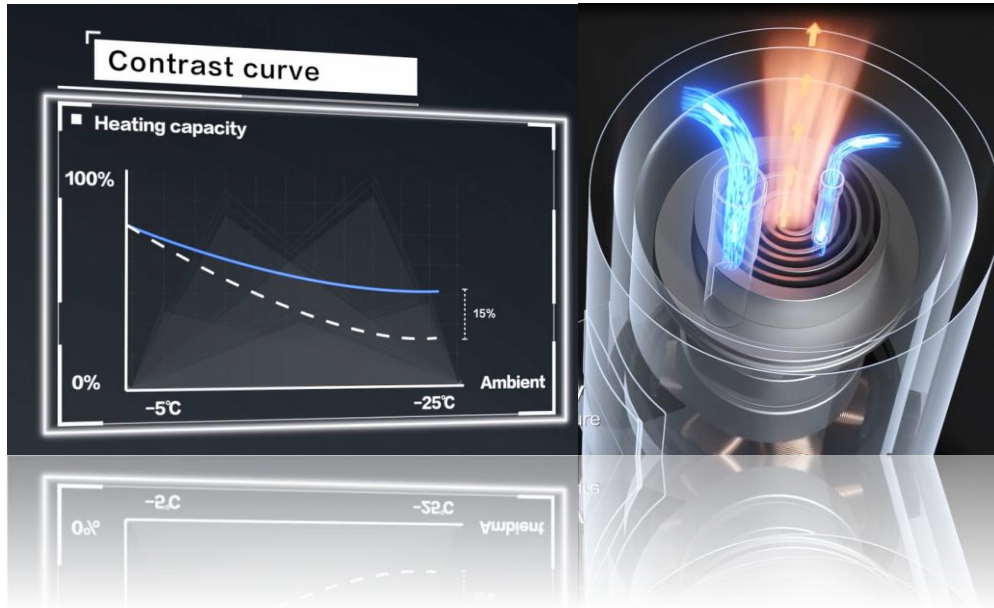


2. Enhanced Vapor Injection Technology

Enhanced Vapor Injection

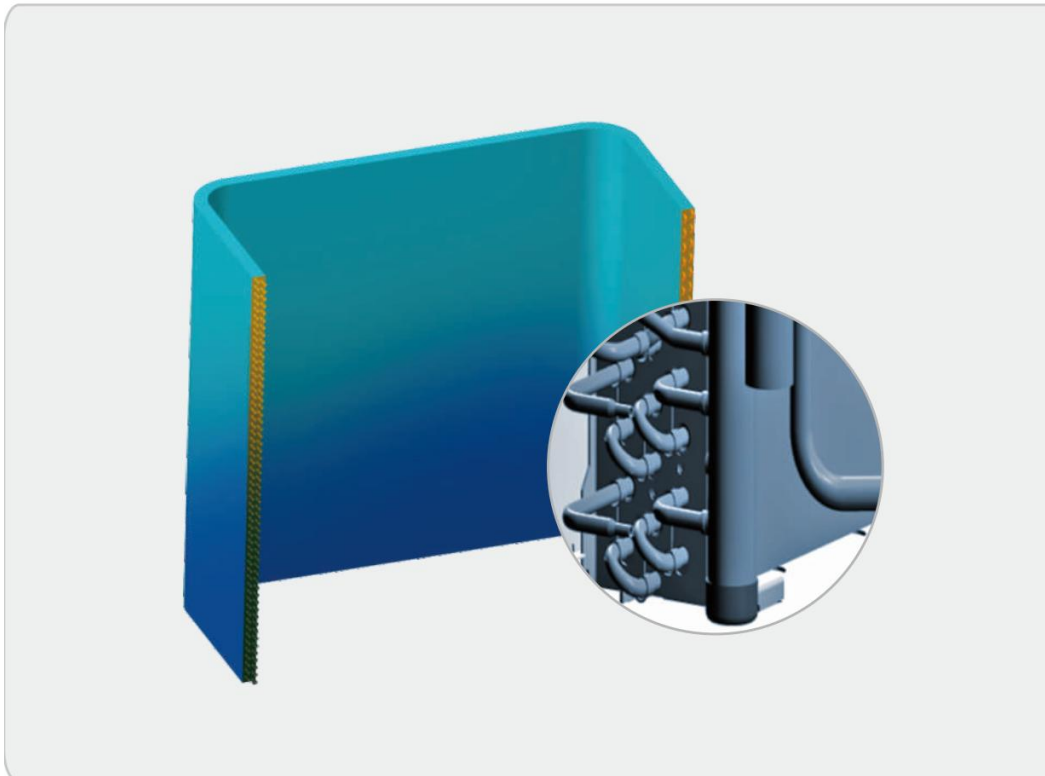
① Improve heating capacity 10~15%

② Stable heating at -30°C



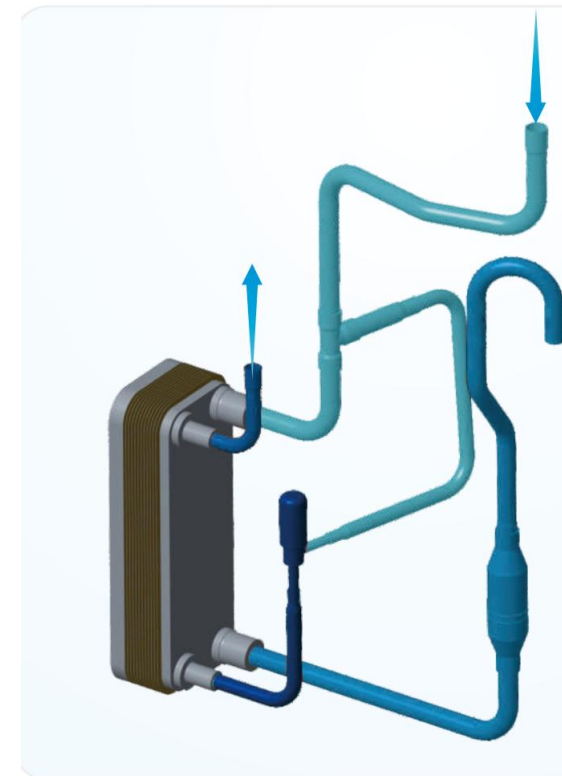
3. Two-stage subcooling

① Subcooling circuit of the condenser to get 6-10°C subcooling



When the ambient temperature is 35 °C, the outlet temperature can be reduced to 37.5 °C (43 °C for ordinary ones)

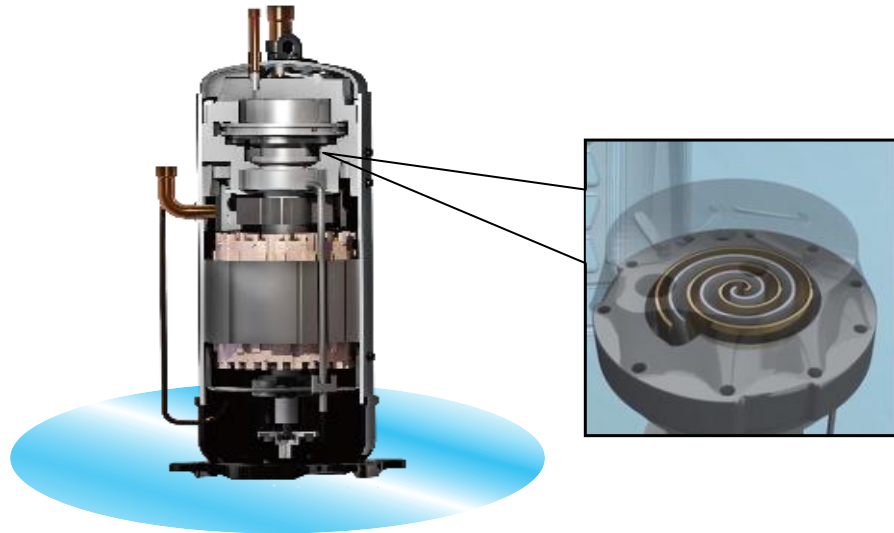
② Plate heat exchanger to get 10-25°C subcooling



Reduce capacity attenuation and improve heat transfer efficiency

4. High energy efficiency

Thanks to all DC inverter technology



HITACHI

DC inverter compressor

High efficiency & large capacity
Stepless regulation of capacity



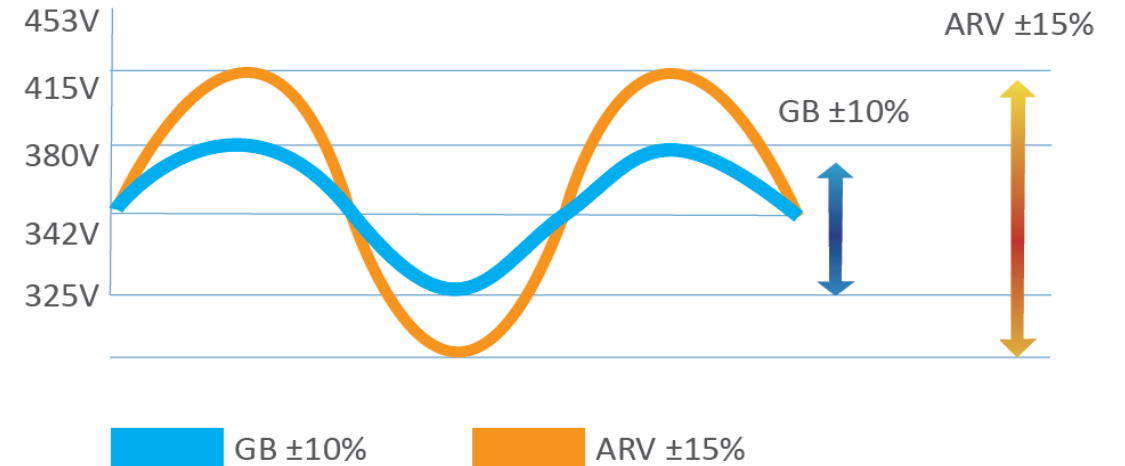
Panasonic

DC fan motor

adjusts the fan speed according to the system pressure and running load to enhance the efficiency by 45%.

5. Wide operation range

Cooling ambient temperature range : -15°C to 55°C In Country with unstable voltage,
Heating ambient temperature range : -30°C to 24°C ARV system still could run stably.

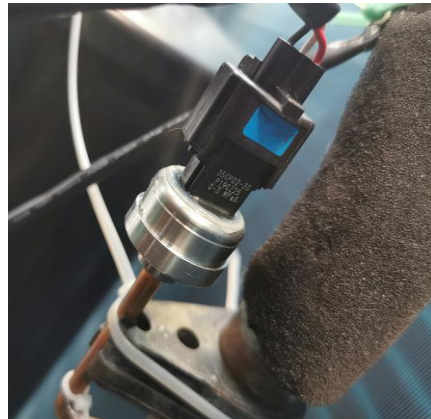


6. Precise control

Precise detect pressure ratio to adjust compressor capacity output ratio and EXV pulse, ensure stable operation of the compressor, keep whole refrigerant system pressure within normal range

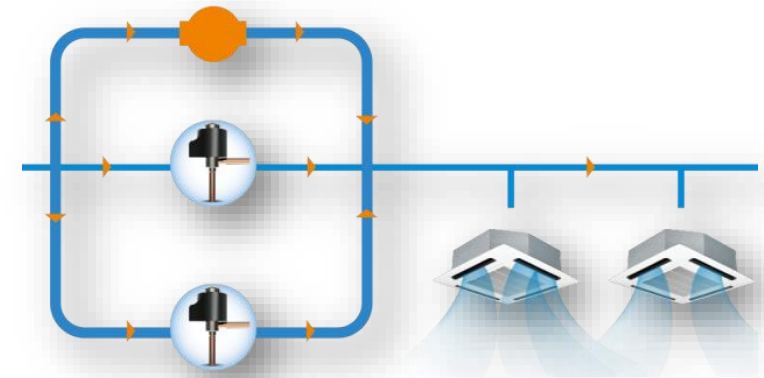


HP sensors



LP sensors

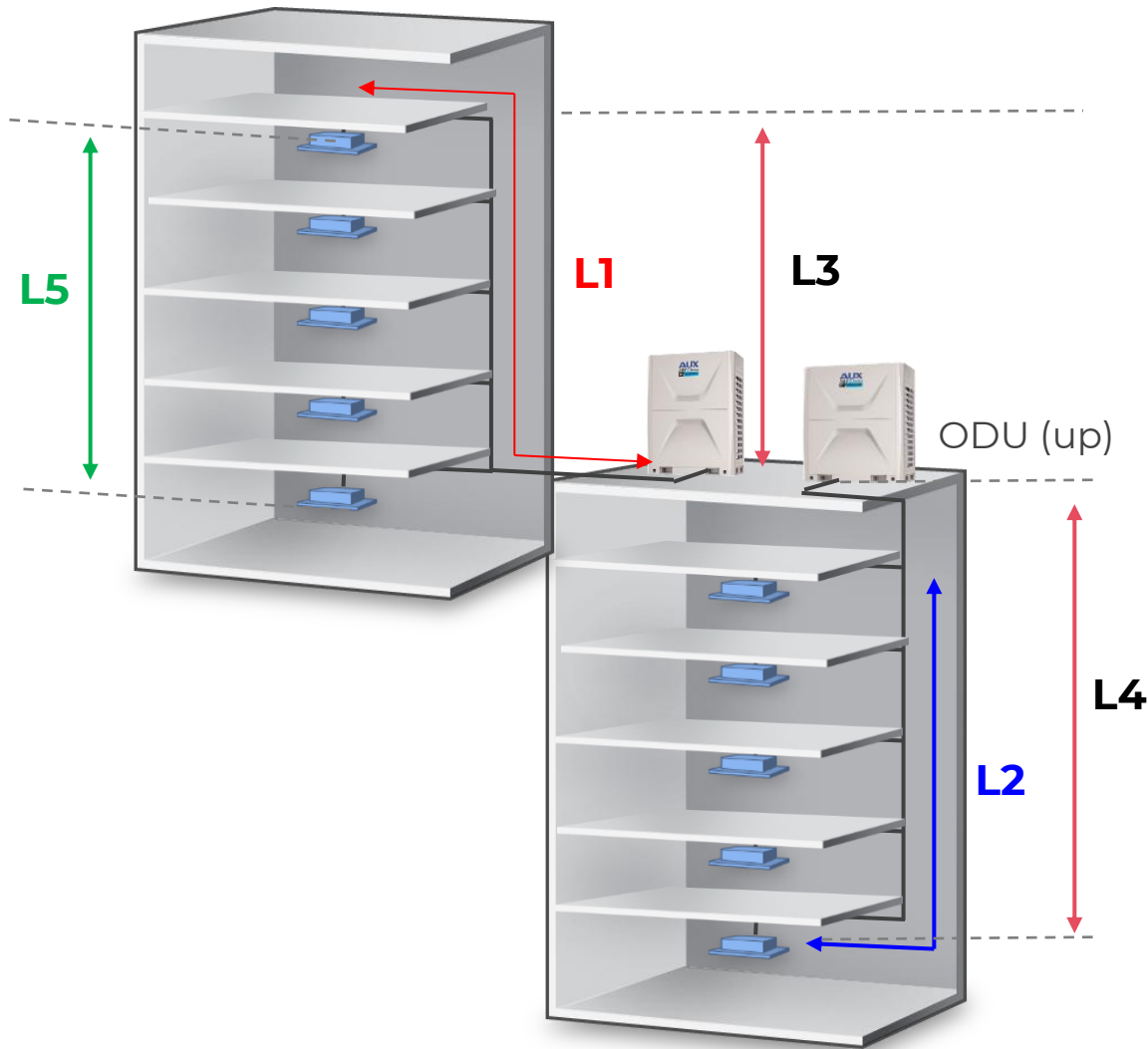
Real-time monitoring refrigerant pressure through high- and low-pressure sensors



Double EXV with by-pass valve
Stepless regulation of refrigerant flow

7. Long Piping Length

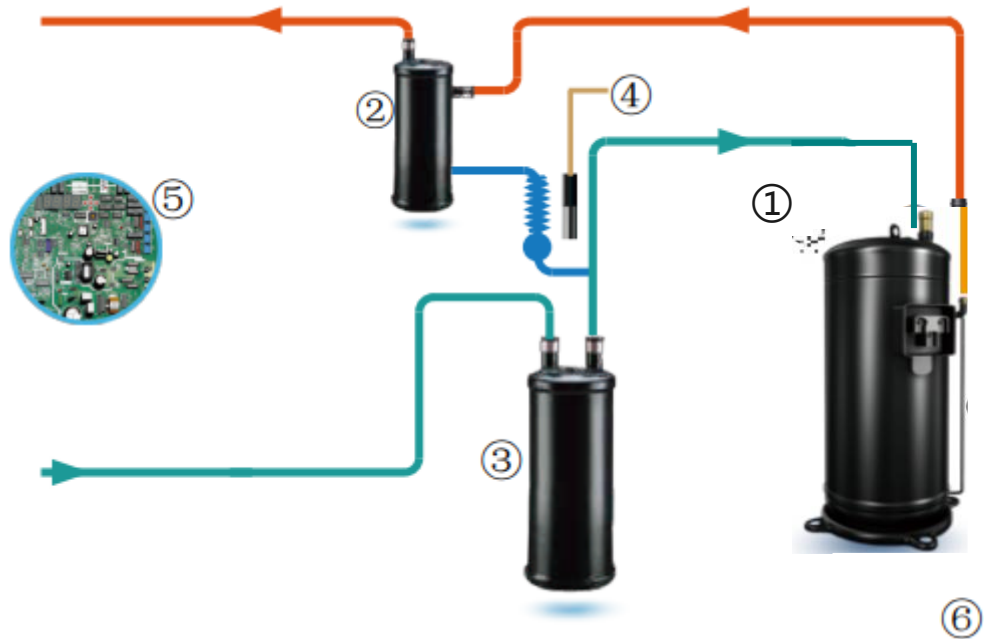
Long piping capability allows designer/installer more flexible installation design.



-----	Piping length	
-----	Total piping	1000m
L1	Longest length – actual (equivalent)	200m
L2	Longest length after first branch	90m
L3	Largest height difference between IDU and ODU (down)	130m
L4	Largest height difference between IDU and ODU (up)	110m
L5	Largest height difference between IDUs	30m

8. 6-stage oil return control

6-stage oil return control technology able to precise control the oil balance , ensure compressor long-term stable operation

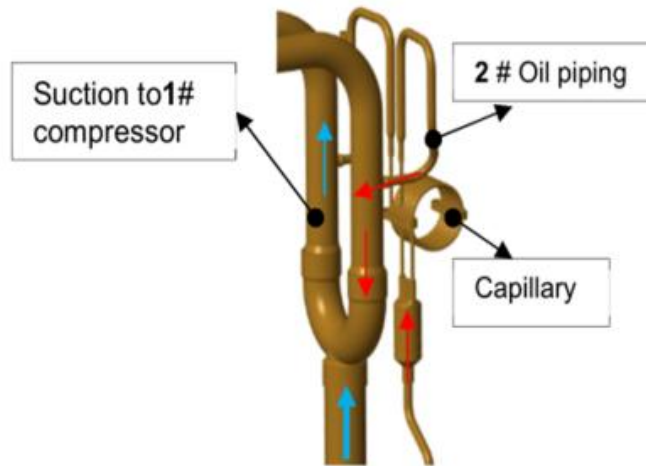


- ① Compressor with oil mist separation
- ② Highly efficient oil separator
- ③ Gas-liquid separator oil return
- ④ Detect sensor of oil temperature
- ⑤ ODU with oil return program
- ⑥ compressor with centrifugal oil pump and oil balance pipe

9. Oil balance technology

① Optimized oil piping design

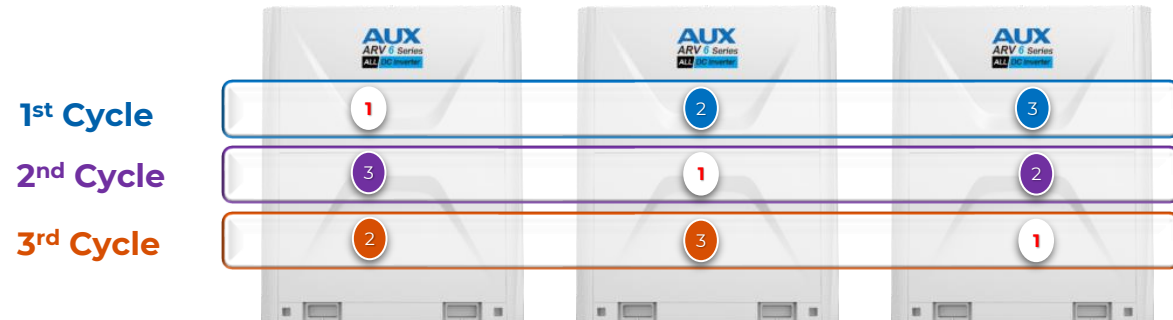
Ensure oil circulation within working compressor



Due to pressure difference and self-gravity, oil will just flow back into compressor which is working

② Alternate operation

Ensure oil balance between compressors & modular

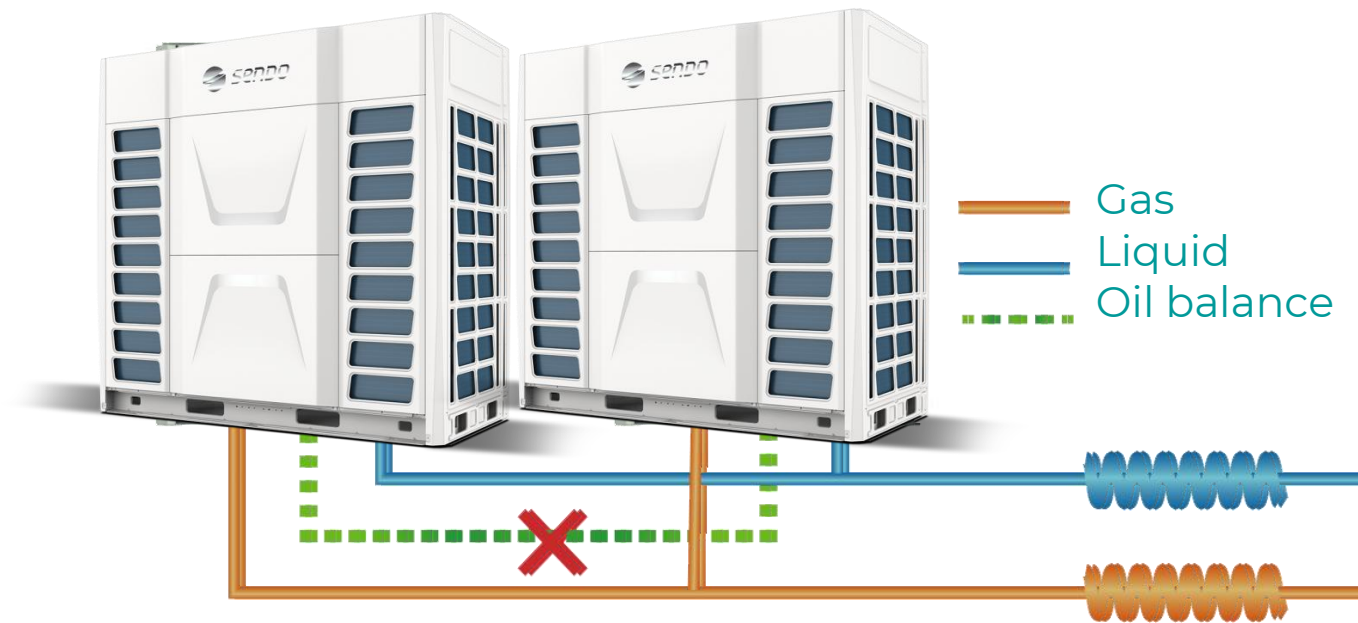


Module alternate operation equalizes the running time of the outdoor units in a multiple-unit system and of the compressors in each unit, significantly extending compressor lifespan.

9. Oil balance technology

Excellent oil balance technology , no need oil balance piping

③ Oil Return Program Run oil return program 4~6min every 4h



10. 360° pipe connection

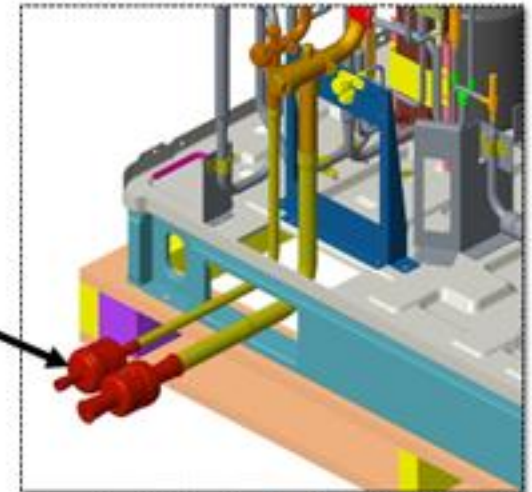
The piping and cable direction can be freely selected from the front and back, left and right side.



Supply filters (factory)



Accessory bag in outdoor unit



11. Phase sequence protection

Special internal protection circuitry is designed to protect system from missing phase or phase sequence errors in three-phase power supply

ODU power terminal



Detect during commissioning

Ensure correct phase sequence

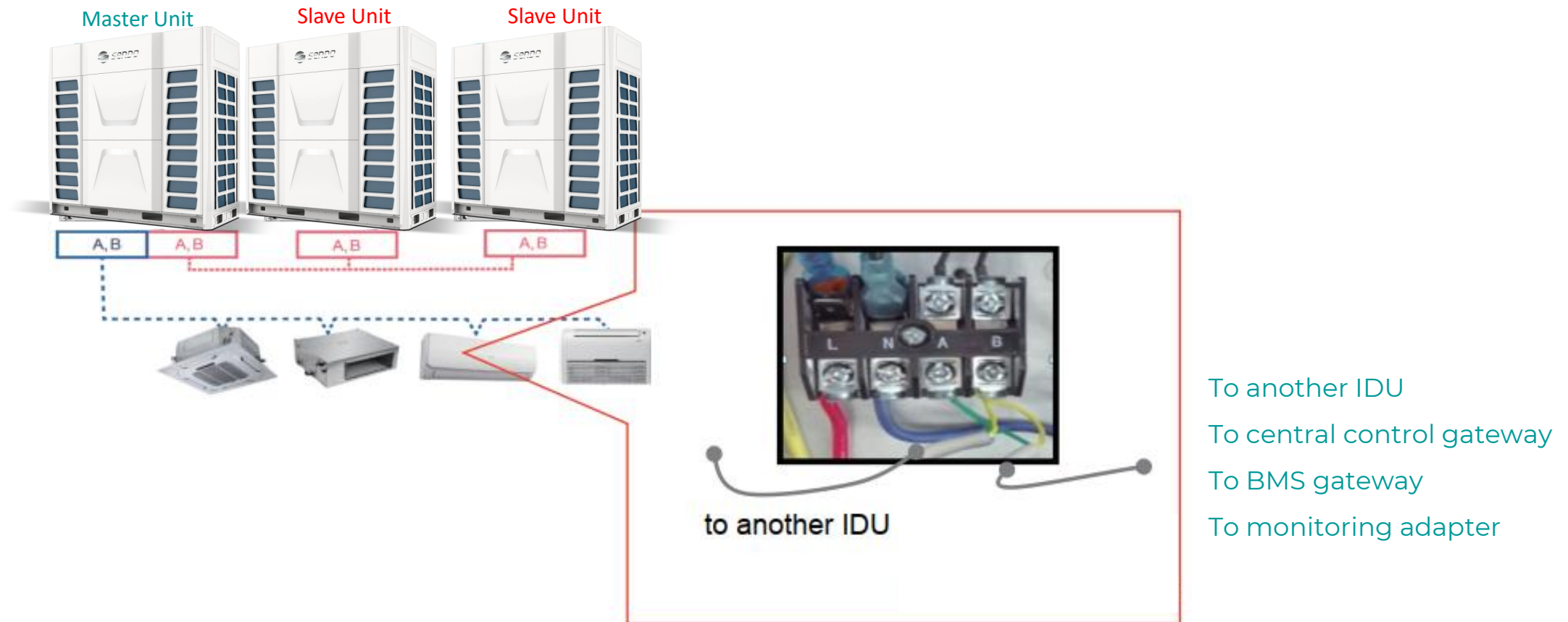
ODU main PCB digital tube

HJ Error reference



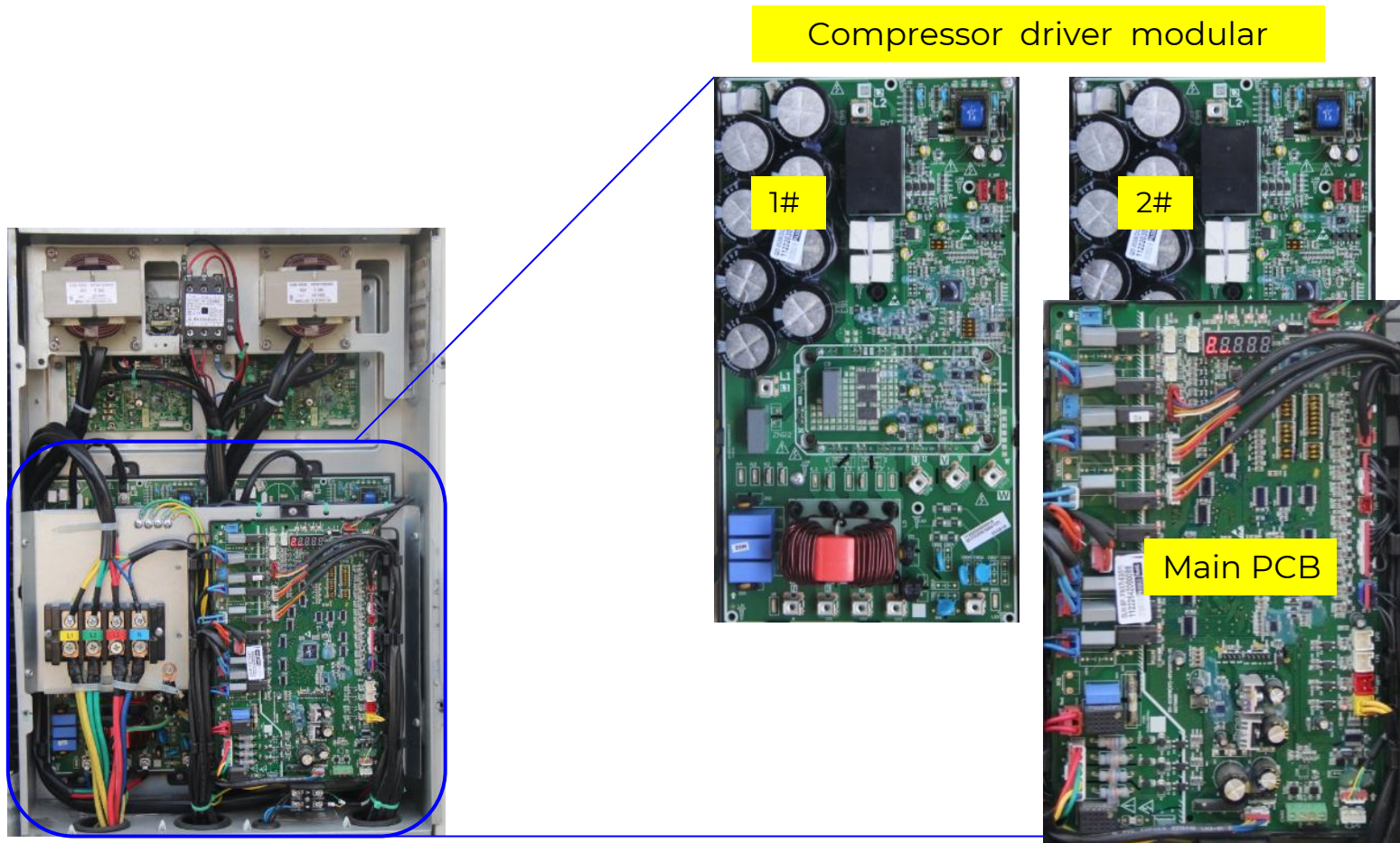
12. Nonpolar communication

Nonpolar communication **between IDUs and ODUs**, and Same terminal A, B can connect to different port, easier for installation



13. Electrical components integrated design

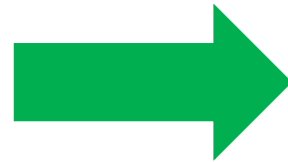
The integrated design can reduce the wiring connections greatly, making the electrical wiring simpler and more reliable.



Capacitor board, filter board and compressor board are integrated into one board

14. Refrigerant cooling technology

Special piping design, refrigerant go through PCB part, Compared with air cooling, the PCB working temperature is 10°C lower, Lower PCB working temperature, higher PCB lifetime



15. Auto Commissioning

Through auto commissioning can check out errors and ensure better running state before delivered to users

“d.” means waiting for commissioning



One-button selection

01 : Auto **address setting**

02 : Auto check Qty of ODU's

03 : Auto check Qty of IDUs

04 : Auto **check communication** between ODU's

05 : Auto **check components states of ODU's**

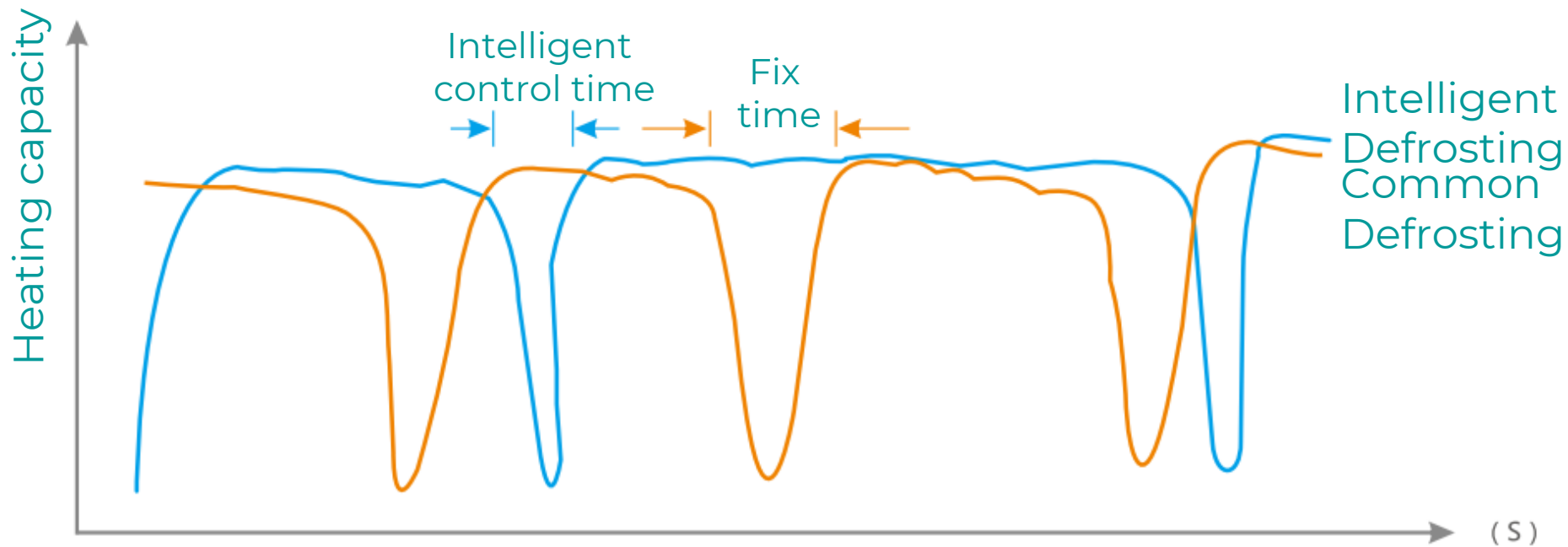
06 : Auto **check components states of IDUs**

07 : Auto **check refrigerant Qty**

08 : Auto check **running parameters**

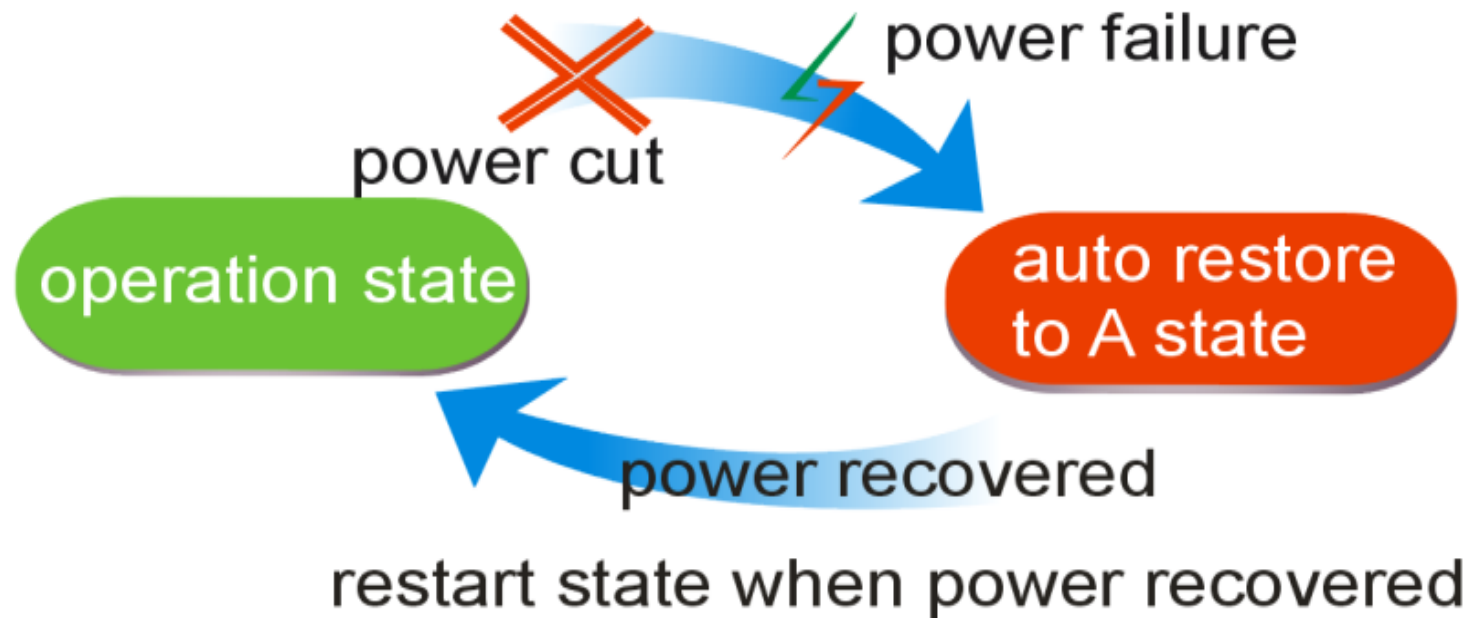
16. Intelligent defrosting

Through temperature and pressure detection, intelligently judge the frosting situation, precise control the defrosting time, Effectively solve the problem of frequent defrosting, ensure comfort



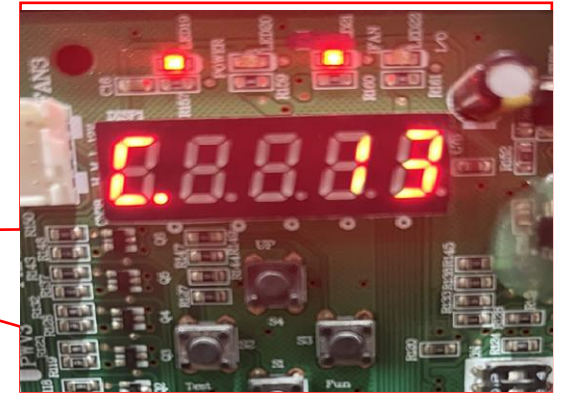
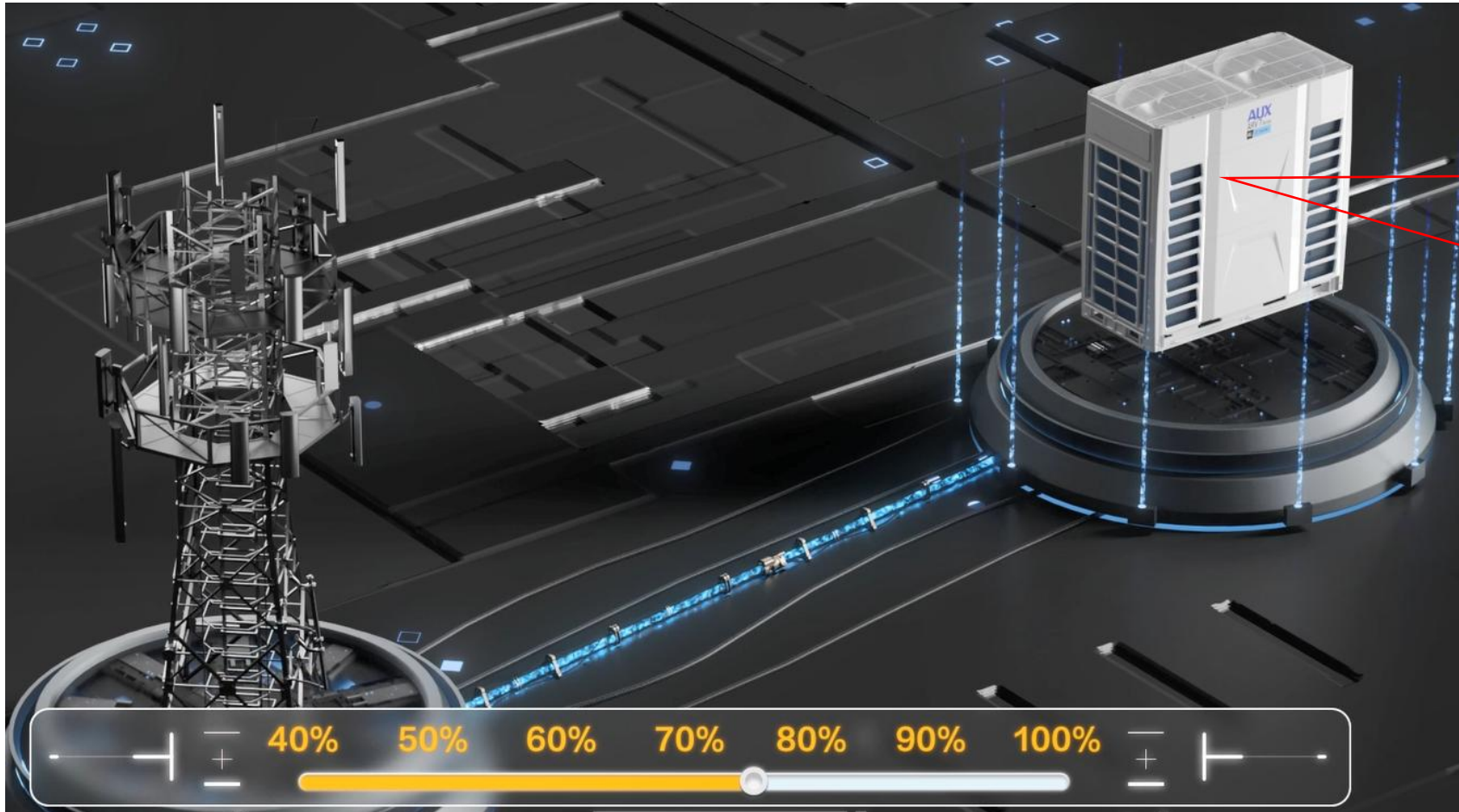
17. Auto restart function

The AC can automatically memorize the operation setting when power is cut off accidentally. It can return to previous setting when power resumes.



18. 7 level Power/Current limit

Peak electrical signal input (dry contact), enable power limitation setting (1~7 level setting)



 **Activate**

- 0 : 100% (default);**
- 1 : 90%;
- 2 : 80%;
- 3 : 70%;
- 4 : 60%;
- 5 : 50%;
- 6 : 40%;

19. Central control without gateway

ODU PCB integrated gateway function, which can be directly connected to the central controller



SRV

01 ODU product line

02 ODU basic features

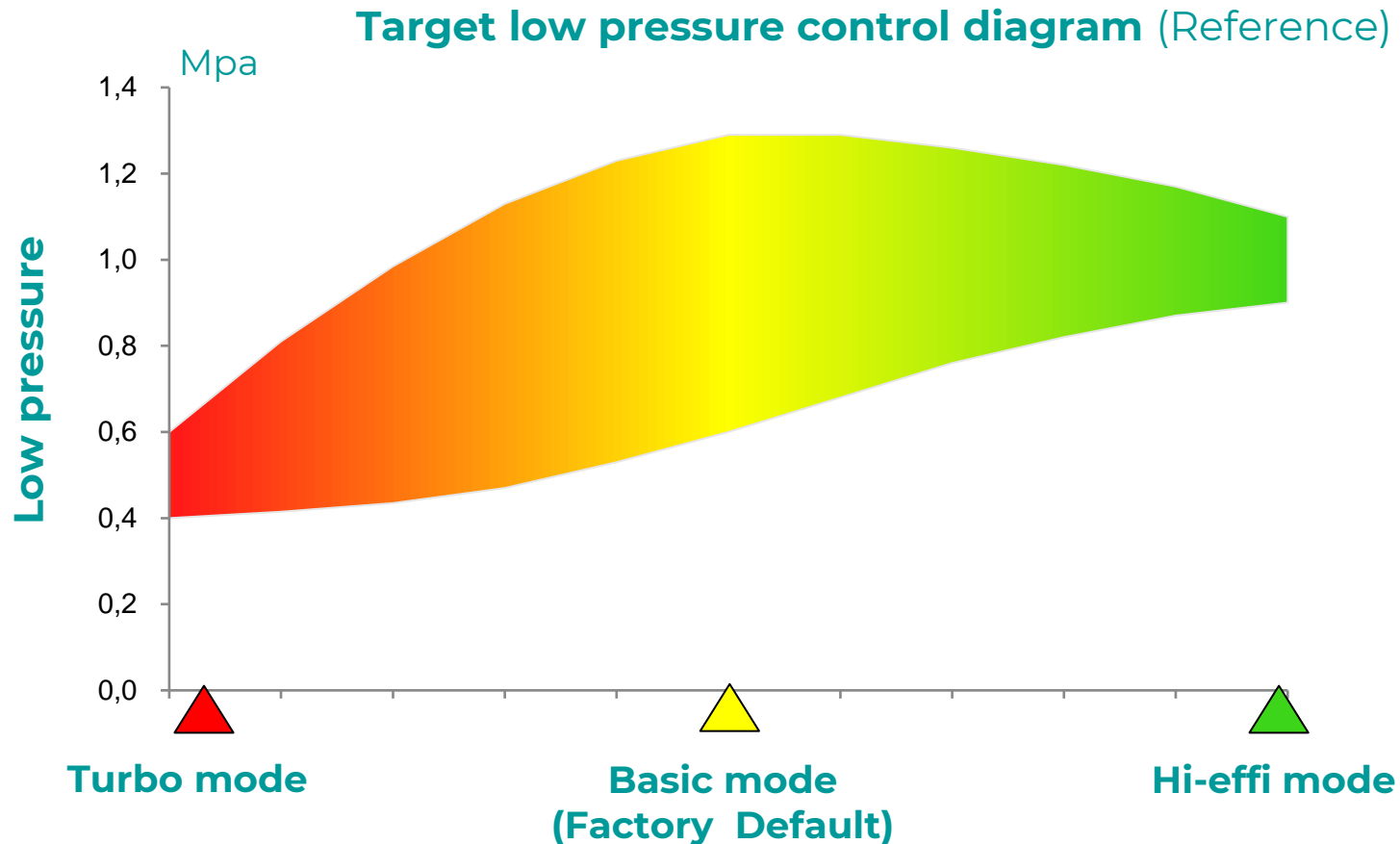
03 Customization Options

04 Control solutions



1. Variable energy efficiency regulation

ARV7 series has 3 different control modes which means variable target refrigerant pressure adjustment to achieve different evaporation temperatures, high performance & energy saving



Turbo mode

- Low evaporation temperatures
- High compressor frequency
- High performance

Short time(fastest **1 -2 minute**) to reach the high frequency and meet the 100% load demand



Hi-efficiency mode

- High evaporation temperatures
- Low compressor frequency
- Energy saving

5-10% power consumption saving than basic mode

1. Variable energy efficiency regulation

① Meet different load demand for kinds of application sites

Shopping mall

(Large flow of people,
large load demand)



Turbo mode

Office

(Light work ,
common load demand)



Basic mode

Hotel

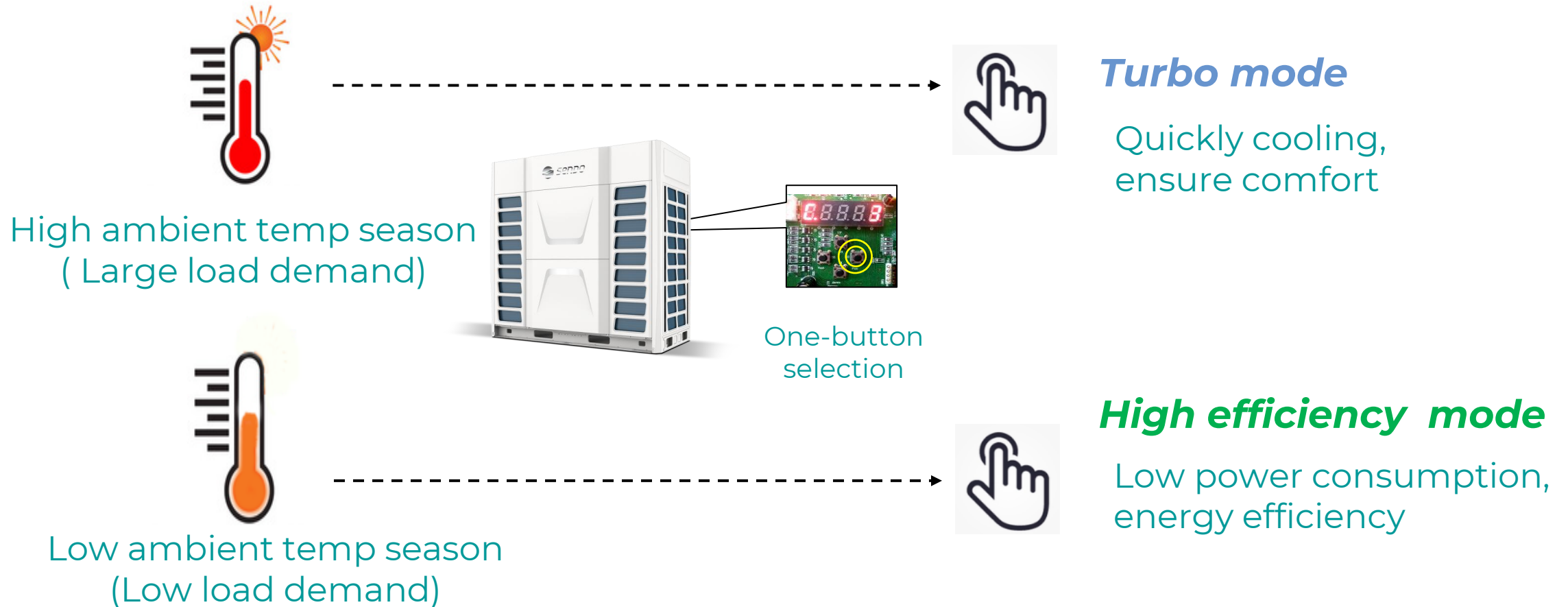
(low load demand of
each single room)



High efficiency mode

1. Variable energy efficiency regulation

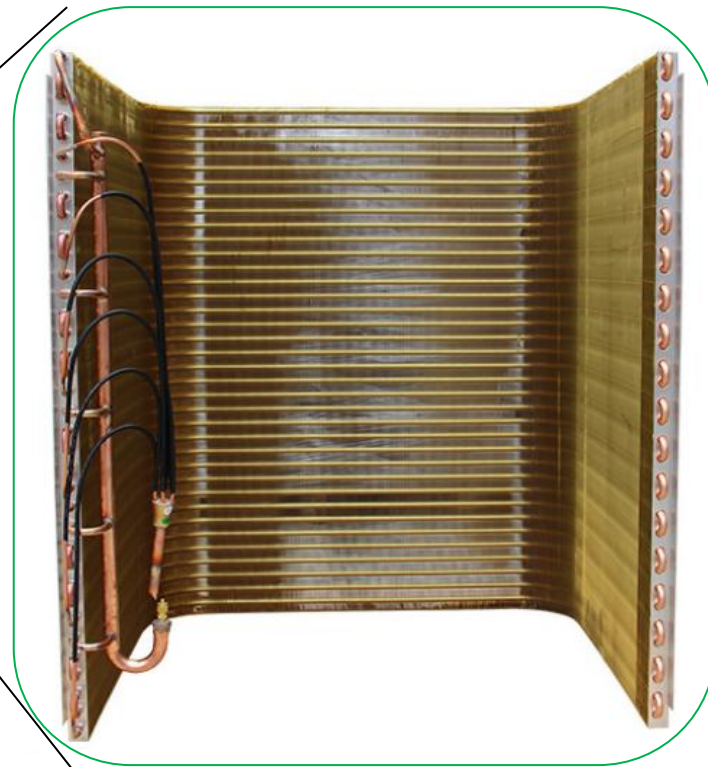
② Meet different load demand for ambient temperature fluctuation



2. Optional anticorrosive fins

In some areas with high salt spray solubility, golden / black fins can be selected to improve the corrosion resistance

Optional golden fins condenser



Optional black fins condenser



3. 5 priority modes

5 priority mode settings, provide more freedom and convenience to match the customer needs.

The auto priority mode can be cooling priority or heating priority depending on the outdoor ambient temperature



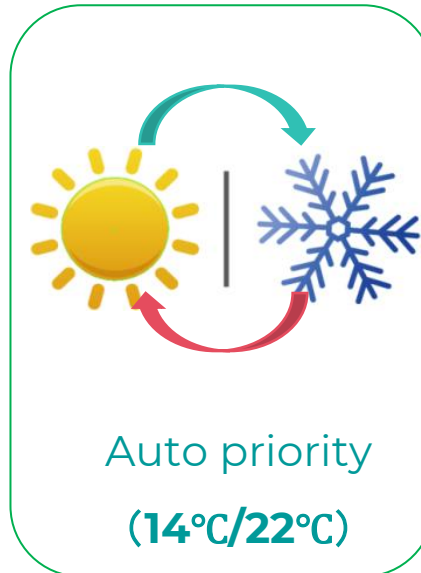
VIP Room



First-on
priority



Cooling priority



Auto priority
(14°C/22°C)



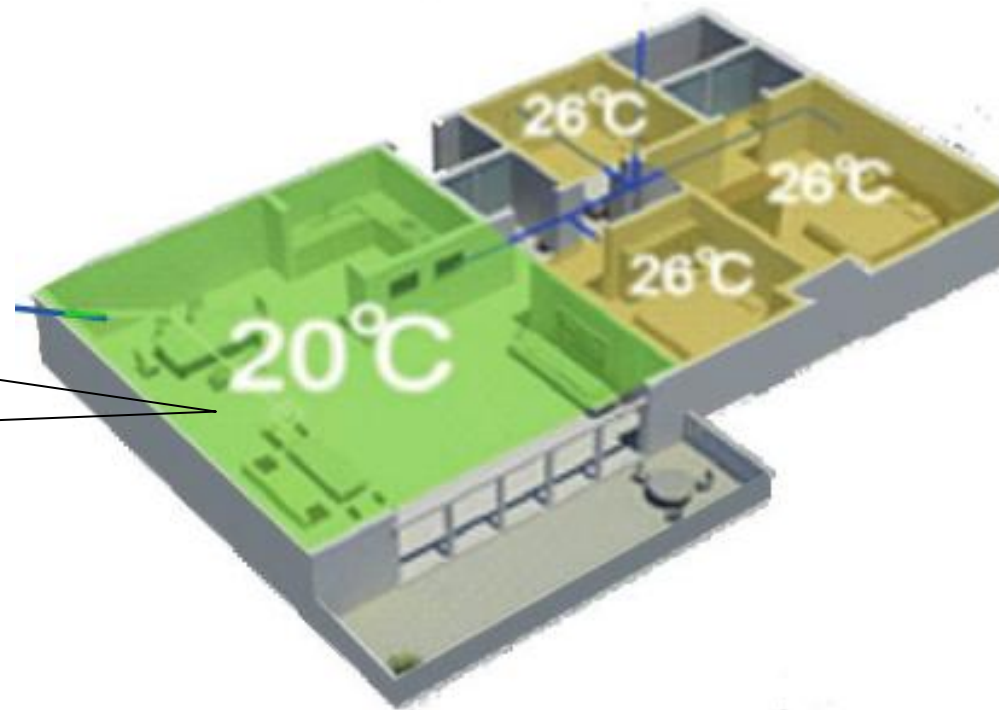
Majority rule priority

4. Economic Locking

The whole system

Lowest cooling set temperature will keep in **26°C**

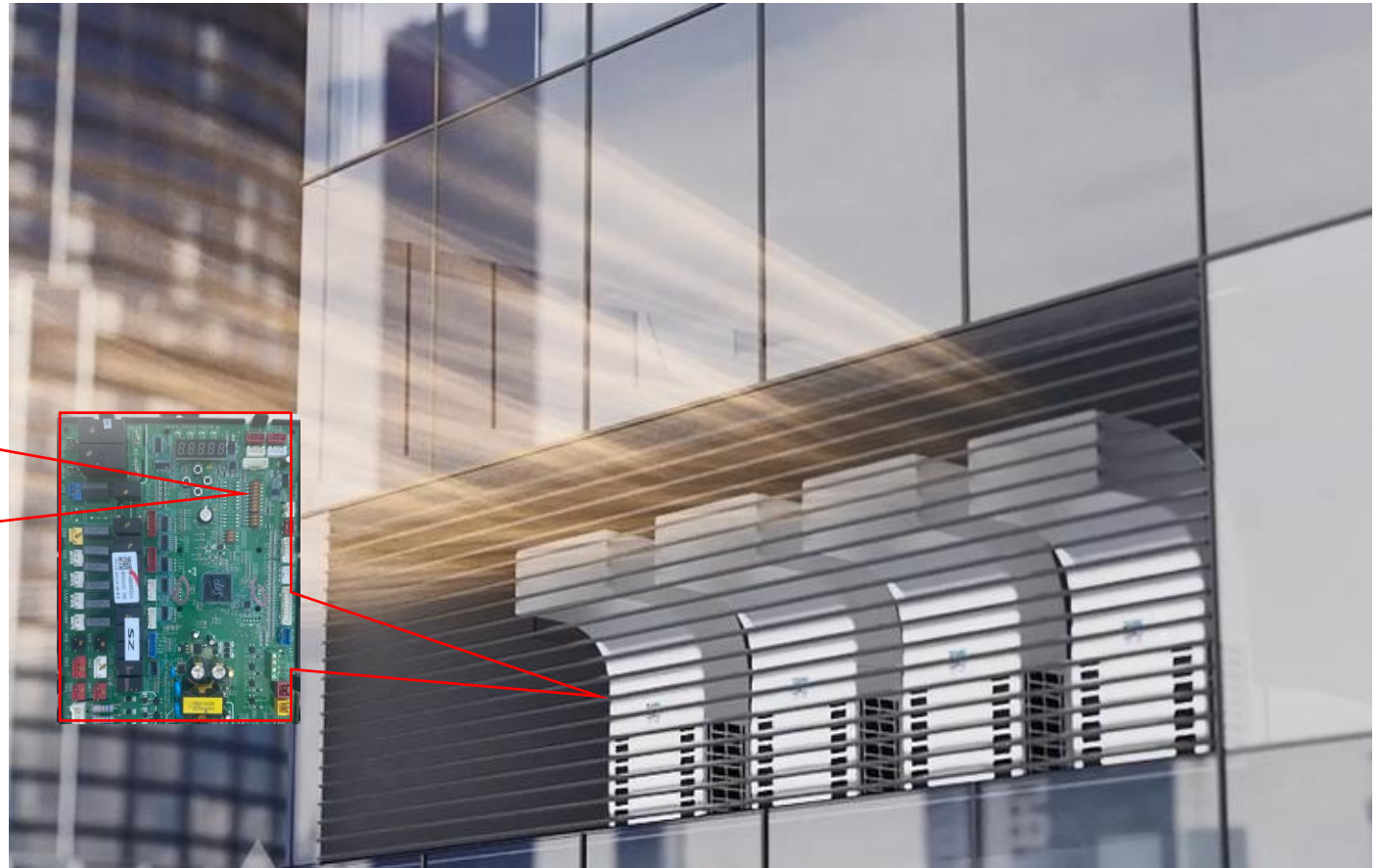
Highest heating set temperature keep **20°C**



5. Wide choose of ODU Static Pressure

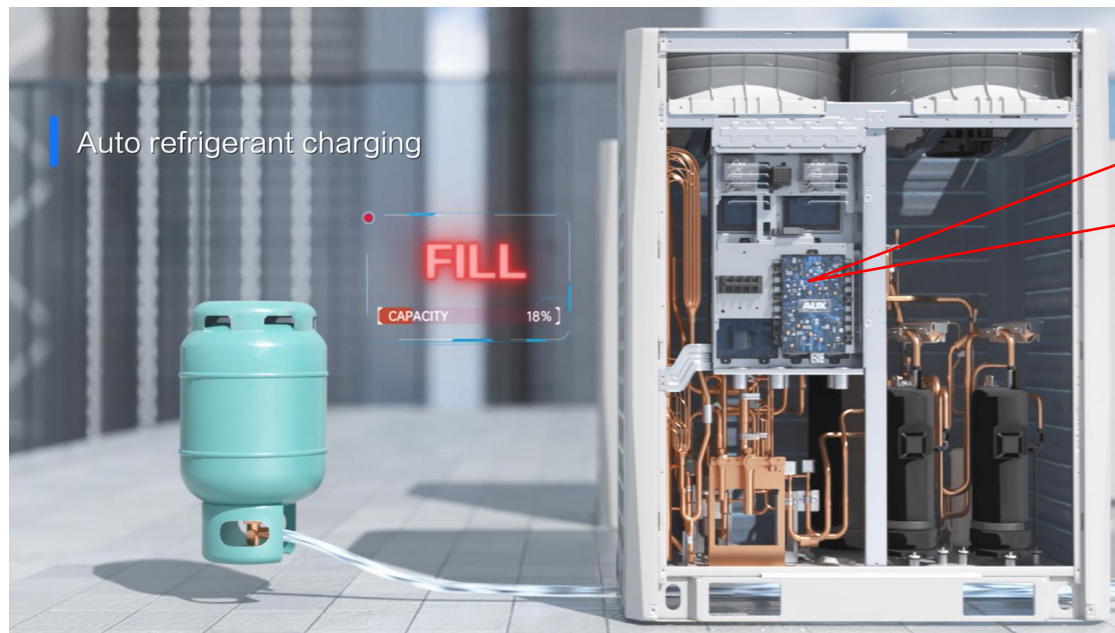
- Adjust Fan motor speed to achieve **80** Pa
- ODU able to install in service floor or facility room.
- Activate through DIP switch setting

No.7 to No.8	Static pressure selection	ON	Normal (default)
		ON	Low static pressure
		ON	Middle static pressure
		ON	High static pressure



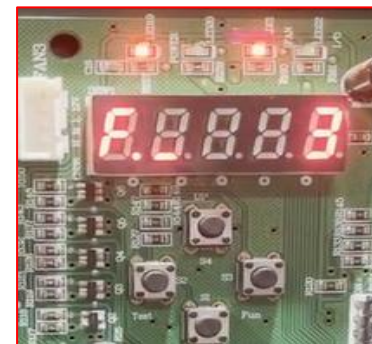
6. Auto refrigerant charging

No need to manual calculate quantity of additional refrigerant ,no need to judge the refrigerant state refer to test pressure value, Easy for installation & maintenance



1) Activate

2) FILL ...cooling mode



3) Result display

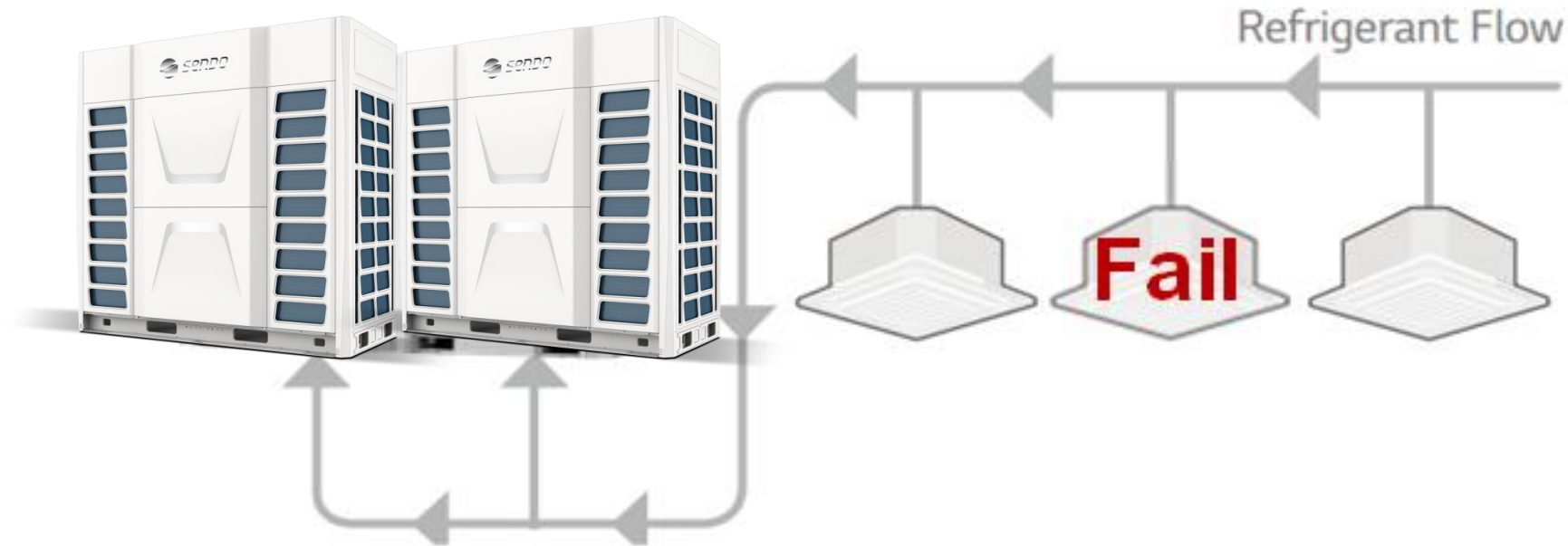
【F.....1】 : not enough

【F.....2】 : enough

【F.....3】 : Excess

7. Auto refrigerant recycling

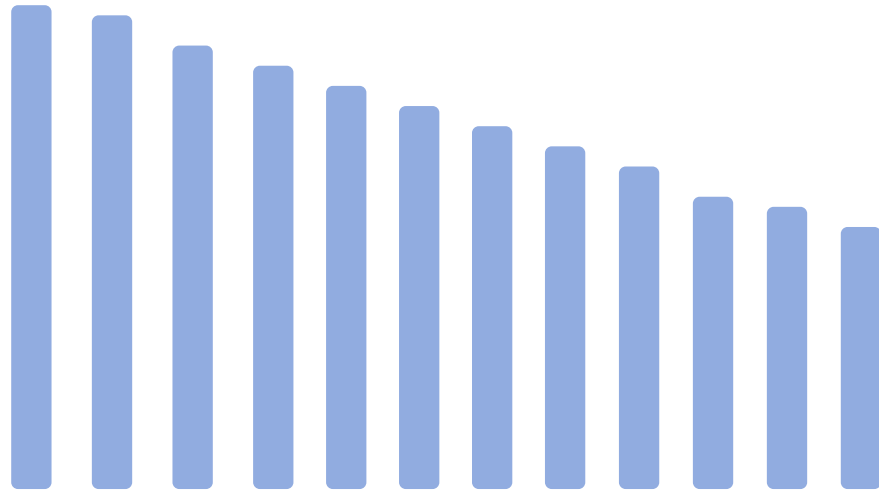
All refrigerant can be recycled to the outdoor unit, Cost saving and convenient for after-sale service



All refrigerant can be recycled to the outdoor unit

8. Silent mode

12 steps silent mode provide more comfortable environment to match the customer needs



12 steps silent modes

Have a memory to the highest ambient temperature, after 7 hours, running silent mode, so will not affect others' rest, down to 43dB(A)



Night silent modes

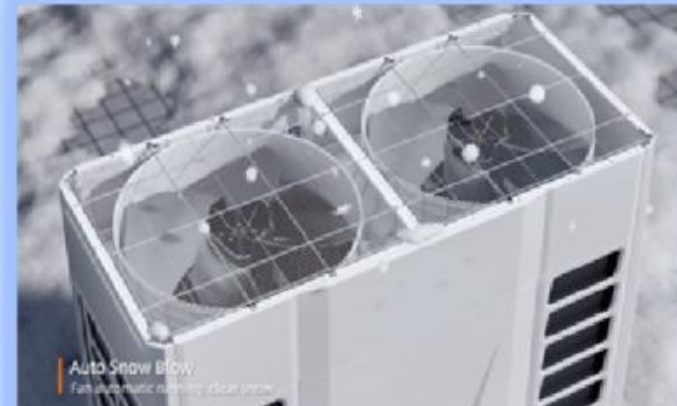
9. Auto dust removal & Auto snow-blowing

The fan will be running in the opposite direction to prevent the dust



Auto dust removal

Blow away covered snow in given time automatically



Auto snow-blowing

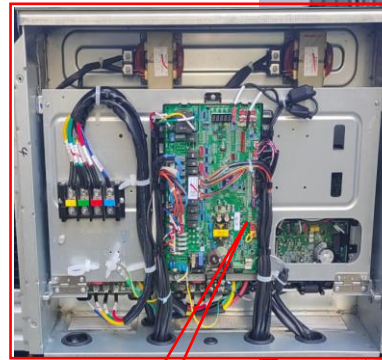
10. Compressor & Fan & ODU emergency

Compressor and fan emergency. Outdoor unit backup. Will shield all fault of abnormal compressor, fan and ODU, The outdoor unit will work normally before after-sales maintenance (recommended to repair within 48h)



11. Fire alarm connection port

- Fire alarm signal connect to Main PCB F-SW port (It's a dry connection port - normally open)
- Once received fire alarm signal, whole system will stop run to prevent fire spread .



Dry connection port



Fire alarm signal to Main PCB

SRV

01 ODU product line

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03 Customization Options

04 Control solutions



1. Split controller

Various split controllers, meet customer requirement



XK-05A



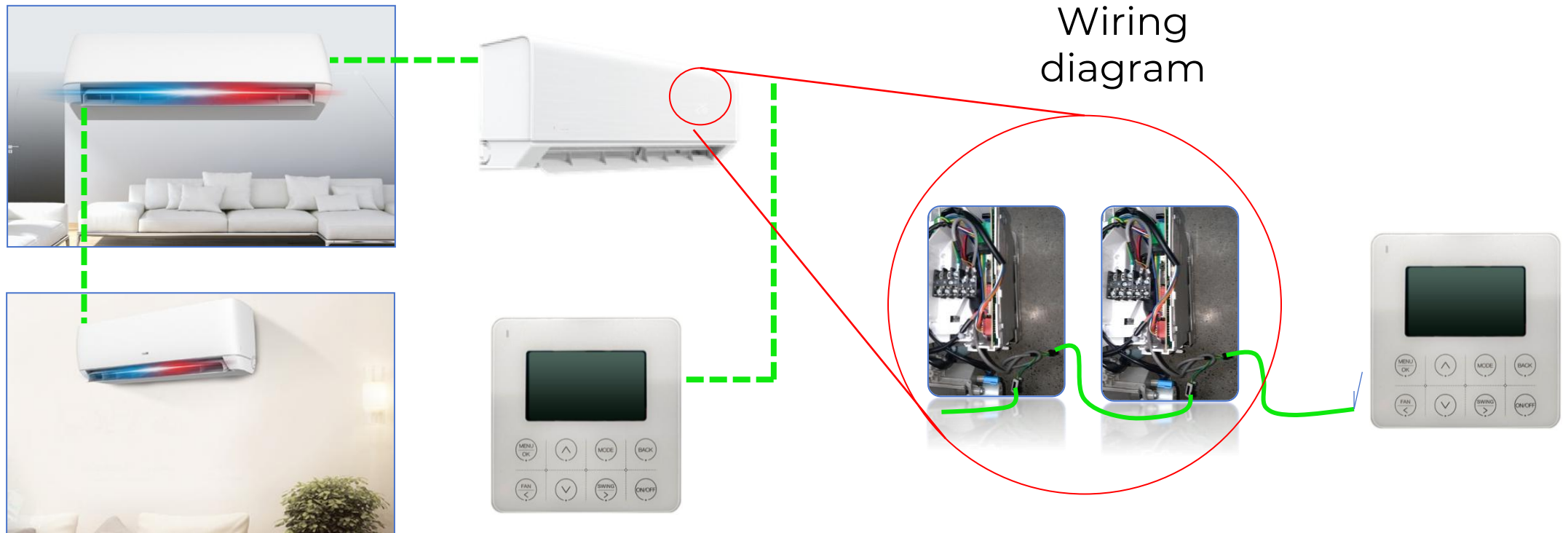
YK-L





YK-K

2. Group control of split controller

- Max **16 indoor units** can be controlled by one wired controller
- Each IDU should be set a group address
- Hand in hand connection between IDUs
- All units can be controlled at the same time (not individual control)



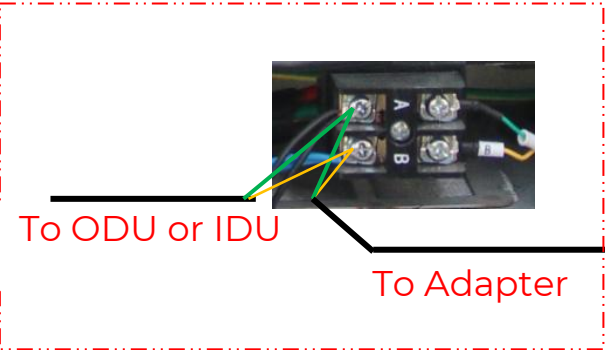
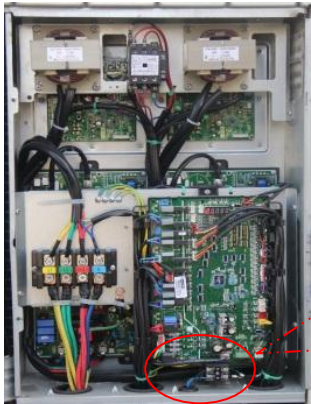
3. Centralized controller

-----	Photo	Model	Function & Remark
Touch centralized controller		PAUCC-02	Max. 256 IDUs can be controlled
		Centralized gateway	Max 64 gateways can be connected, 1 gateway can connect to 1 system

2. Centralized controller

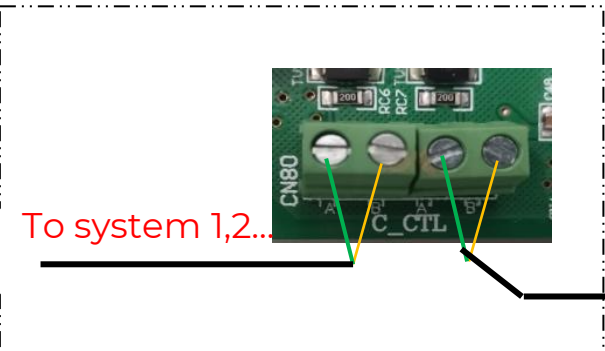
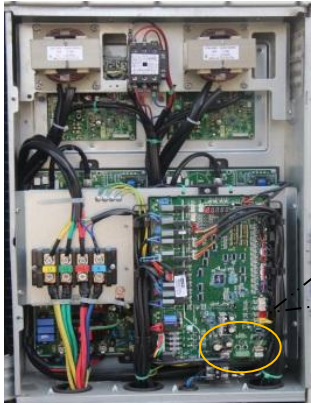
No need adapter, but same function, installation more convenient

Before
2021/12/30



Produce Date

After
2022/01/01





To CC02 or BMS device



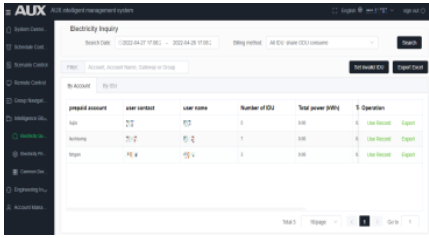
PAUCC02 Or BMS
device

Same function: CC02(Max.64 systems&256 indoor units); MODBUS(Max.255 systems)



3. Centralized control software

-----	Photo	Model	Function & Remark
<p style="text-align: center; color: #008080; font-weight: bold;">Centralized Control Software</p>		<p style="text-align: center; color: #008080;">Software</p>	<p style="text-align: center; color: #008080;">Max. 1024 IDUs can be controlled</p>
		<p style="text-align: center; color: #008080;">Centralized gateway</p>	<p style="text-align: center; color: #008080;">1 gateway can connect to 4 system</p>



4. PPD software-Tenant billing solution

Name	standard	Reference picture	Qty	Supplier
Electrical Meter	<p>1. Code: 16430043000001 DTZY188</p> <p>2. Voltage:380V~3ph ,</p> <p>3. Max current :100A</p> <p>4. Communication type: RS485</p> <p>5. Protocol: DL/T 645-2007;</p> <p>6. Baud rate: 9600, parity type :"even parity"</p> <p>7. Operation: Temp(-25~55°C), humid(45~75%)</p> <p>8. Dimension: 290x170x85mm</p>		Same as the Qty of ARV system	<p>SENDO</p> <p>or</p> <p>self-purchase</p> <p>(necessary to meet the protocol requirement)</p>
Adapter/ Gateway	<p>Code: 16348002000001 CM-PTD/A02</p>		≥1/3xQty of ARV systems	<p>SENDO</p>
PPD software	<p>Code:16430026000019</p>		1	<p>SENDO</p>


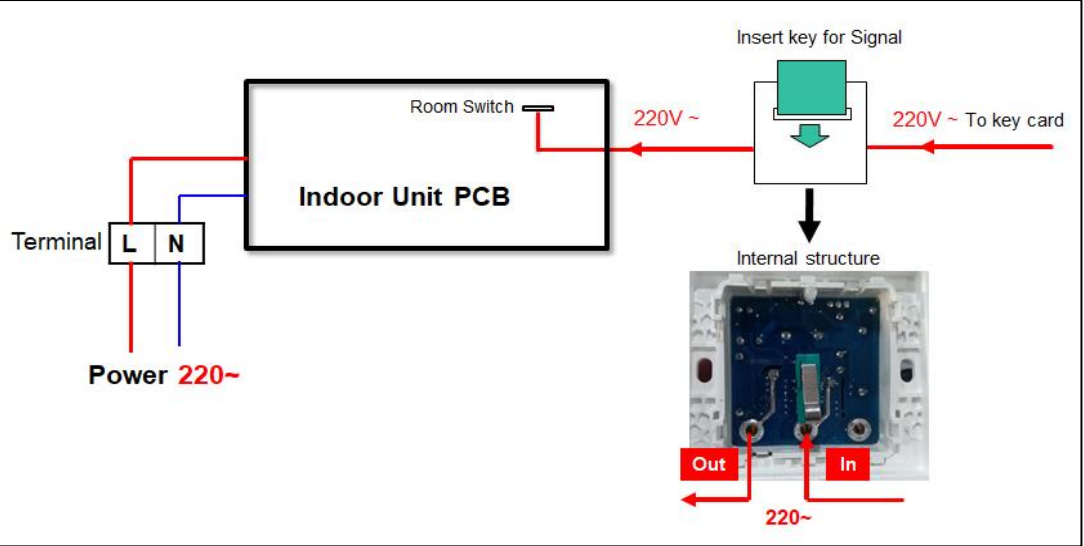
5. BMS solution

-----	Photo	Model	Function & Remark
MODBUS solution		Modbus Gateway	Max 255 gateways can be connected
BACNET solution		BACnet Gateway	Max 4 systems can be connected in one gateway


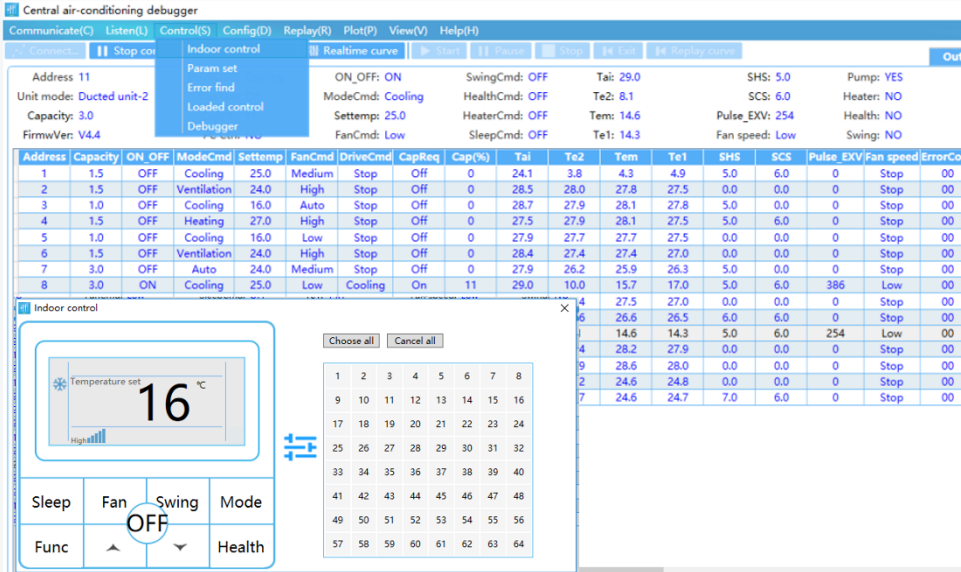

6. WIFI remote control

-----	Photo	Model	Function & Remark
WIFI- Remote Control Function		AC Freedom APP	Remote control (IDUs no limit)
		WIFI box	1 system can be connected to a box


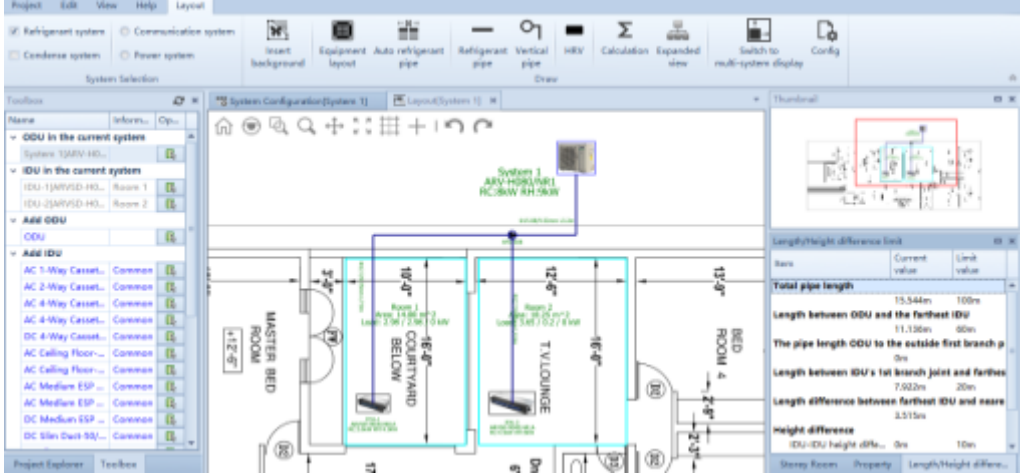
7. Room card function

-----	Photo	Model	Function & Remark
<p>Room Card</p>		<p>Card (local market)</p>	 <p>All IDU Type</p>

8. Monitoring Software

-----	Photo	Model	Function & Remark
<p style="text-align: center;">Monitoring Software</p>		<p style="text-align: center;">Software</p>	
		<p style="text-align: center;">USB to RS-485 Converter Connect between Laptop and AC</p>	<p>One system can be controlled through the software, check ODU and IDU running parameter</p>

9. Selection Software

-----	Photo	Model	Function & Remark
<p data-bbox="155 735 415 906">SRV Selection Software</p>		<p data-bbox="1009 808 1233 853">Software</p>	 <p data-bbox="1327 1029 2390 1196">Simplifies system selection and drawing design Convenient for designers and consultants</p>

10. AHU solution

Independent Control Box (AHU-KIT), Including electronic expansion valve and main PCB board, also the sensors and the controller inside. to connect our VRF outdoor units with third-party AHU.

