PRODUCT INTRODUCTION

R32 MINI ARV

Creating intelligent life

Cultivating excellent talents


01 Outdoor Units
02 Structure & Refrigerant System
03 For User Experience
04 For Distributor & installer

Product line

The new MINI ARV series uses R32 refrigerant with a cooling capacity of 8~16kW. This is an important step towards decarbonizing buildings.

R32

Green Refrigerant

GWP=675

Capacity (kW)	8	10	12	14	16
Appearance					
220-240/1/50	●	●	●	●	●
380-415/3/50			●	●	●

Note : ●means it is ready, ● means it is still being developed.

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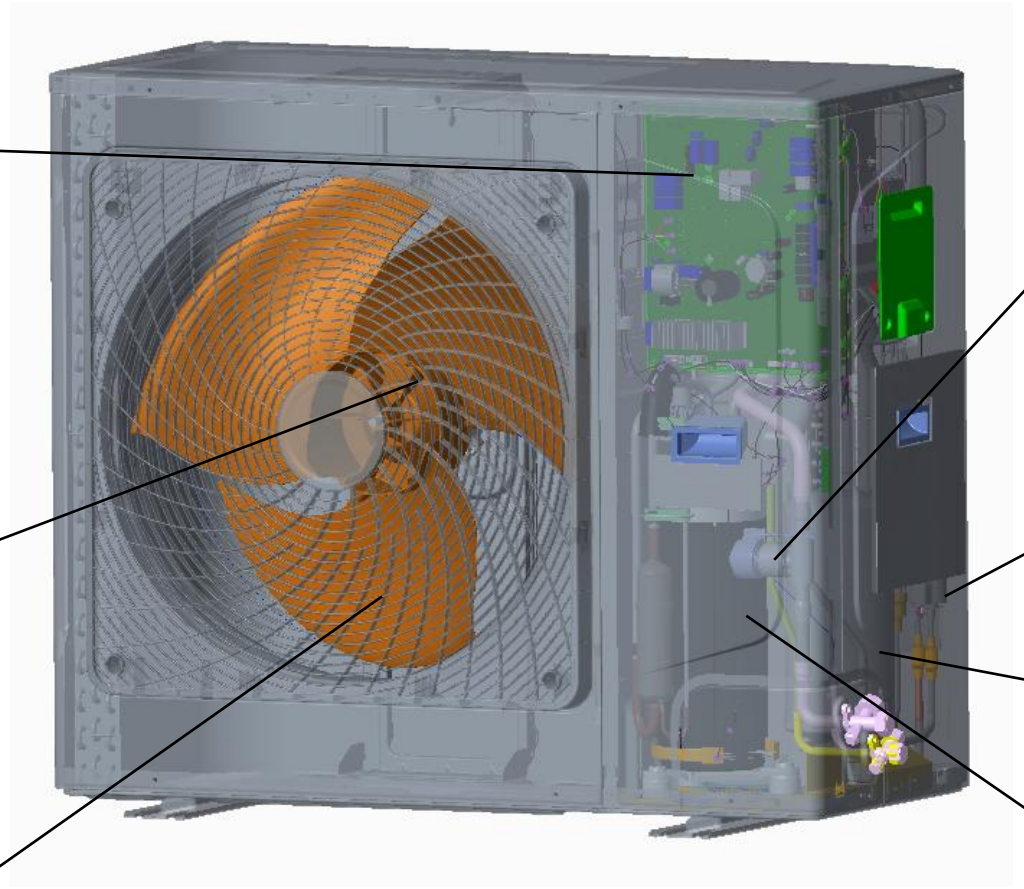
Structure

Capacity 12/14/16kW (3 phase)

Integrated PCB
(3→1)

DC fan motor

Large axial flow blade



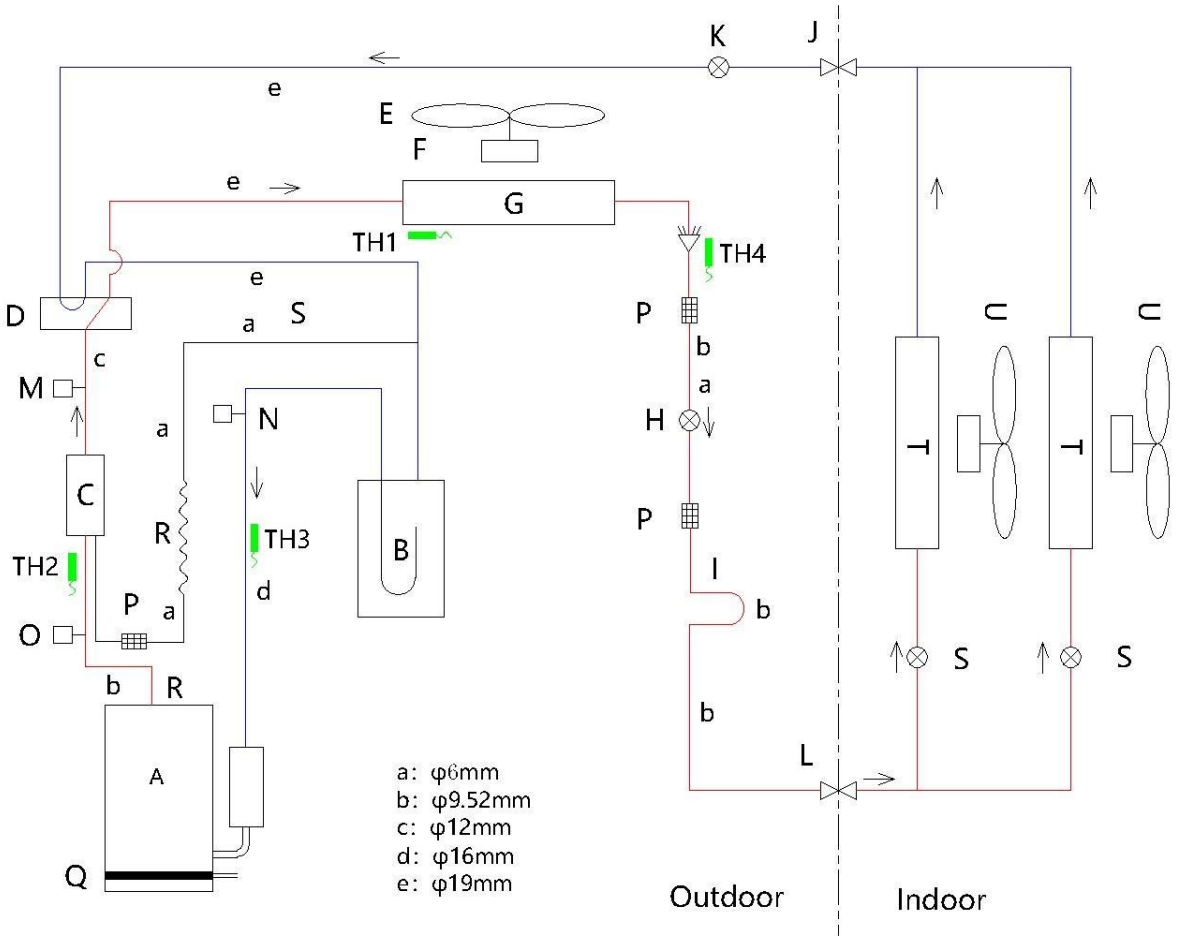
Refrigerant recovery valve

Main EXV

Liquid separator

DC Inverter compressor
GMCC brand

Refrigerant system



Comp.	Component description	Comp.	Component description
A	DC inverter compressor	O	High pressure switch
B	Gas-liquid separator	P	Filter
C	Oil separator	Q	Oil heating belt
D	4-way valve	R	Capillary (oil bypass)
E	Fan	T	IDU heat exchanger
F	Motor	**K**	**Refrigerant recovery valve (EXV)**
G	ODU heat exchanger	U	IDU motor
H	Main electric expansion valve	S	IDU EXV
I	Refrigerant cooling pipe	TH1	Outdoor ambient temperature sensor
J	Gas-pipe stop valve	TH2	Exhaust temperature sensor
L	Liquid-pipe stop valve	TH3	Suction temperature sensor
M	High pressure sensor	TH4	Defrosting temperature sensor
N	Low pressure switch		

Capacity 12/14/16 kW (3 phase)

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Refrigerant comparison

The performance of R32 refrigerant is better than that of R410A refrigerant. This means that outdoor units of the same size can be used to achieve greater energy efficiency.

NO	Item	R410A	R32	Remark
1	GWP	2088	**675**	**More environmentally friendly**
2	Performance	100%	**≥105%**	**Higher energy efficiency**
3	Relative charge volume %	100%	**70%**	**Less refrigerant charge**
4	Composition	50%R32+50%R125	**Only R32**	/
5	Flammability level	A1 (noflammable)	A2L (Tiny flammable)	**Necessary leak prevention measures**

High efficiency component

Main components come from the excellent suppliers, High-quality ensure long service life.

High frequency compressor

Large axial flow blade

High precision sensor

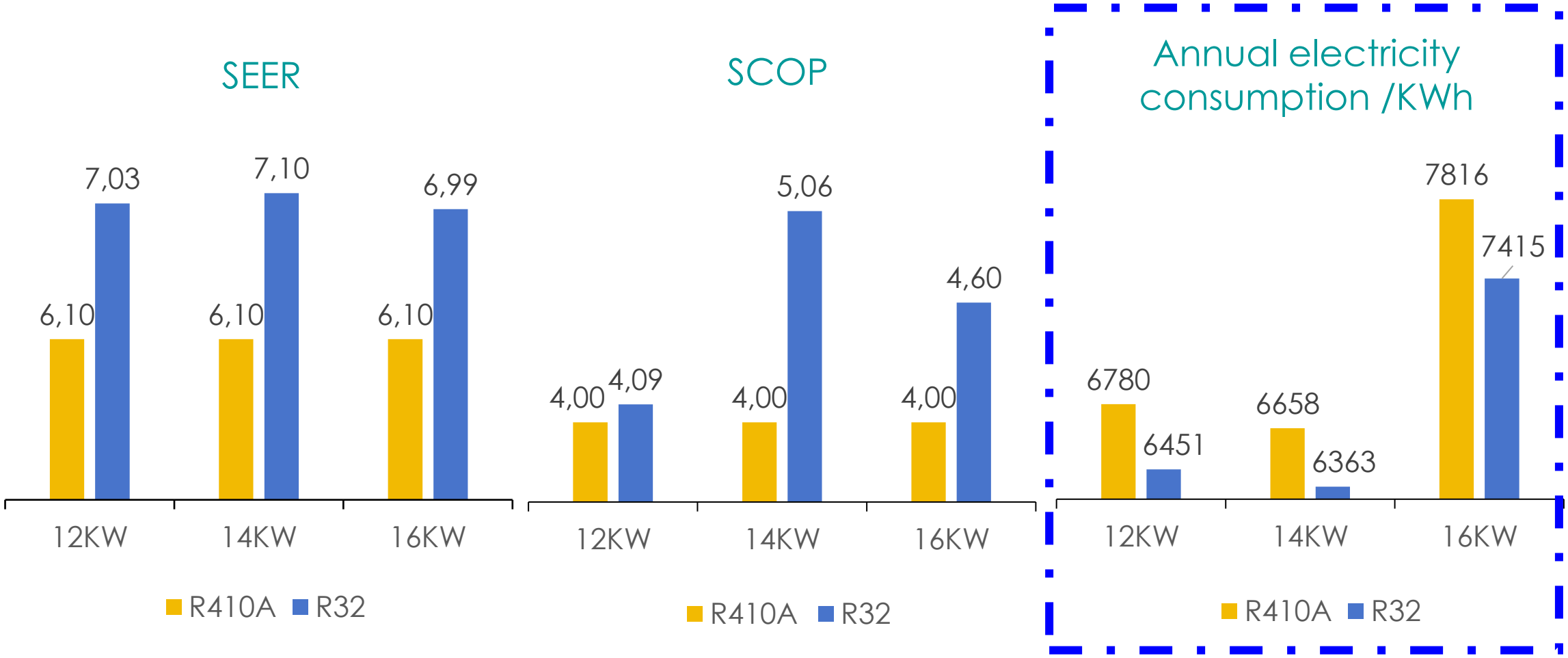
High precision EXV

Refrigerant recovery valve

Performance Comparison

The SEER meets **A++** energy efficiency. The SCOP meets **A+** energy efficiency.

SEER↑**15.4%**, SCOP↑**14.5%**, Annual electricity consumption ↓**5%.**



Wide operation range

- Stable cooling range -15℃ ~ 49℃； heating range -20℃~24℃
- Wide power supply voltage range ±15%

Cooling

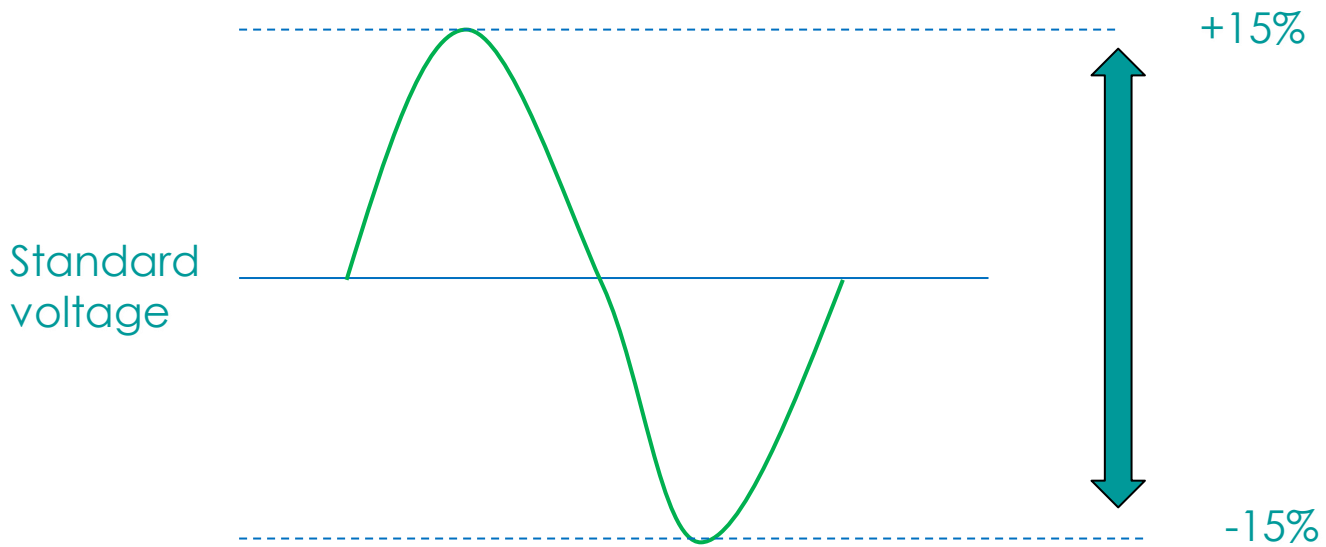
49℃

-15℃

Heating

24℃

-20℃



Refrigerant Leak Alarm (optional)

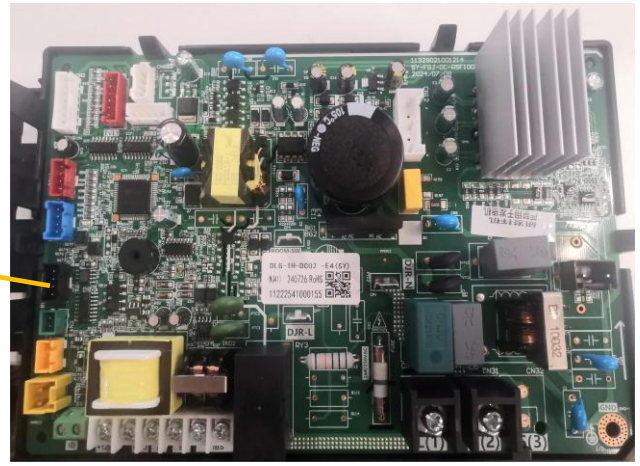
Refrigerant leak alarm installed indoors, real-time detection of indoor refrigerant concentration, and sound and light signals to remind customers, more secure use.

Refrigerant leak alarm

Alarm concentration

10%LFL

Sensor



IDU PCB

Alarm noise level

70dB(A)

Buzzer

Normal: Green indicator stay on

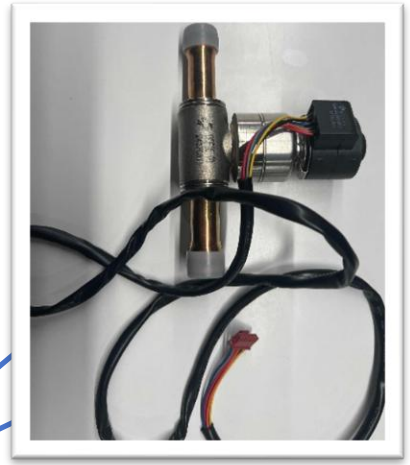
Refrigerant leakage: Red indicator blinking

Self-test error: Yellow indicator blinking

Note: The refrigerant leak alarm needs to be provided with a separate 220V power supply.

Built-in refrigerant recovery valve

The outdoor unit is standard with a refrigerant recovery valve. After the refrigerant alarm is activated, the outdoor unit automatically recovers refrigerant to prevent further refrigerant leakage.



Refrigerant recovery valve

Brand	Refrigerant recovery unit
SENDO	Built-in
Other	External

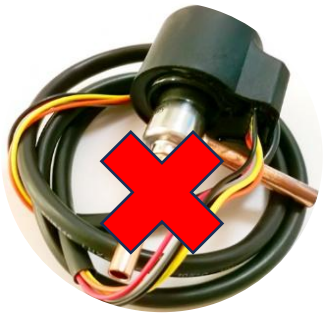
Note: Only 12 ~ 16KW outdoor units are standard with a refrigerant recovery valve.

Refrigerant recycling process

When the refrigerant leaks, the unit automatically carries out the refrigerant recovery action, the specific process is as follows:

Refrigerant leak alarm alarm

The main EXV in the ODU closes immediately



Outdoor unit operation cooling mode

Satisfy any of these conditions:

- Compressor runs for 3 mins
- $T_{ai} - T_{em} \leq 3℃$
- The high pressure reaches the limit

The refrigerant recovery valve is closed

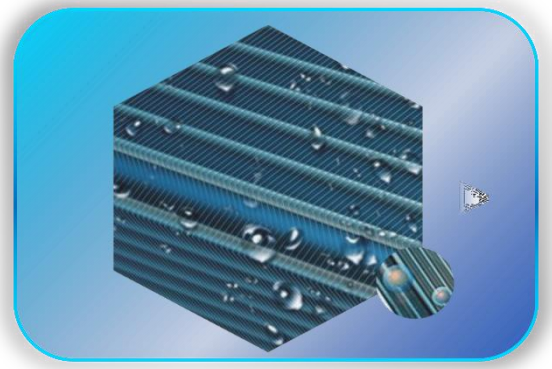
Refrigerant recovery complete ,shut down

Note: 8~10kW is not equipped with refrigerant recovery function. In case of refrigerant leakage, the system will stop.

Self-Cleaning Mode

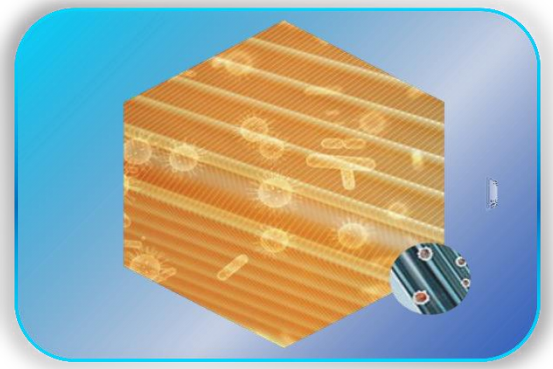
After long-term use of air conditioners, dust accumulates on the surface of heat exchangers, which hinders the heat exchange between indoor and outdoor units, and the self-cleaning mode keeps the air conditioners running efficiently.

Low temperature washing



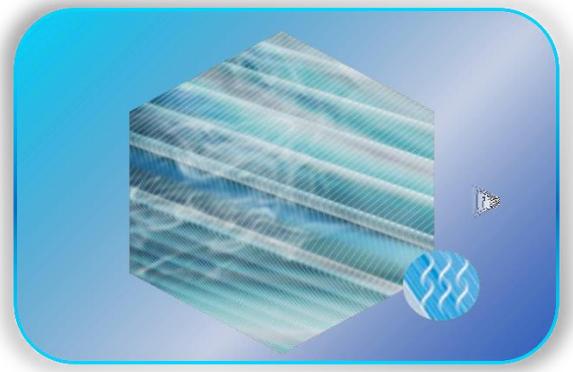
> 150g Condensate water

High Tem sterilization



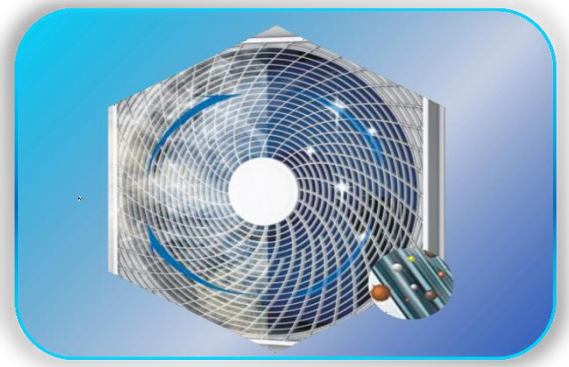
57℃ high temperature

Drying and ventilation



Blow away the residual heat

ODU dust removal



ODU fan reverses

Fast cooling and heating

In the hot summer and cold winter, the fast cooling and heating function is the most needed function of users.Heating outlet air temperature ↑**6℃.**Cooling outlet air temperature ↓**10℃.**

Example cooling mode:

10 mins

Slice Mode

The R32 MINI VRF includes a silent mode and a mute at night mode. When silent mode is turned on, the noise will be reduced by↓**3 dB(A)** than normal.

Silent mode

Reduce the compressor frequency and outdoor fan speed

Mute at night

Have a memory to the highest ambient temperature, after 7 hours, running silent mode

Heating mode oil return design

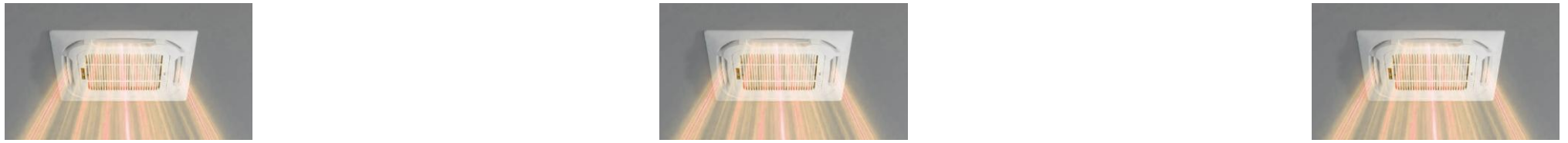
In the heating mode, the oil is returned, the hot air is continuously provided, and the air outlet temperature is floating **≤2℃**, which improves the user comfort.

Other

Heating mode → Shut down → Cooling mode oil return → Shut down → Heating mode

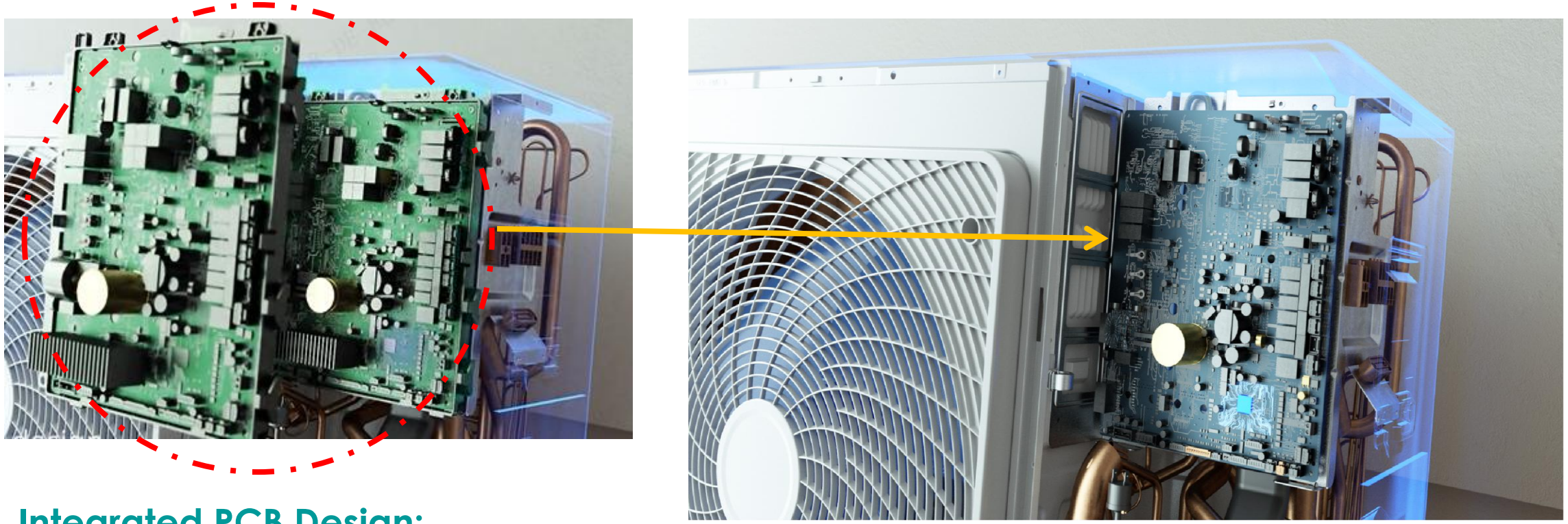
AUX

Heating mode → Heating mode oil return → Heating mode



Integrated PCB refrigerant cooling

The main PCB is cooled by the refrigerant, which has a high cooling effect and ensures the efficient operation of the system.

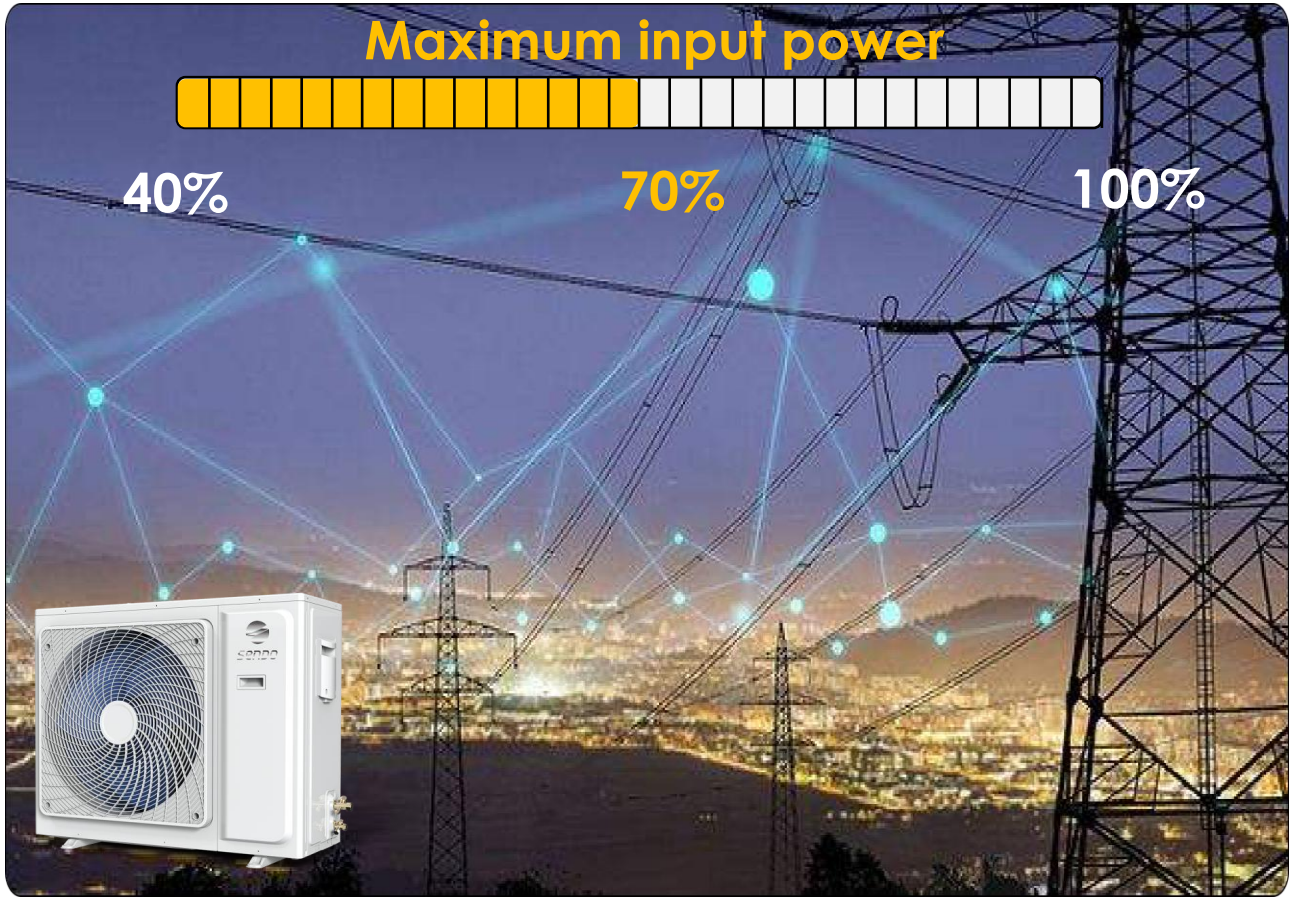


Integrated PCB Design:
The main control, drive and filter boards are all centralized in one control board

Compared with air cooling, PCB reduces the temperature by **10+℃**

30-Levels Power Limit

Users can set the max power input of 40% to 100% of the outdoor unit according to the power demand, with 30 levels of adjustment . So that the unit can still run stably in some areas with power restrictions.



For example:

One system : 16kW outdoor unit

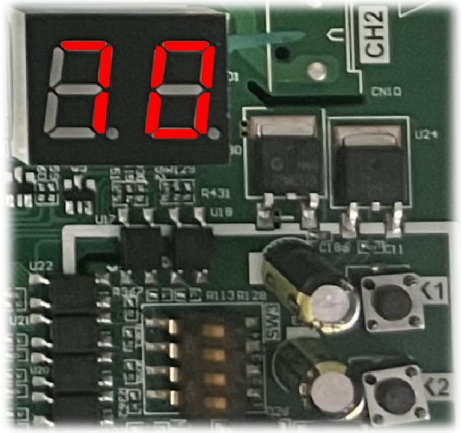
The max input power : **7.4kW**

The power limit : **5.18kW**

How to set the power limit level of the unit?

5.18 / 7.4 kW = **70%**

SET 70%



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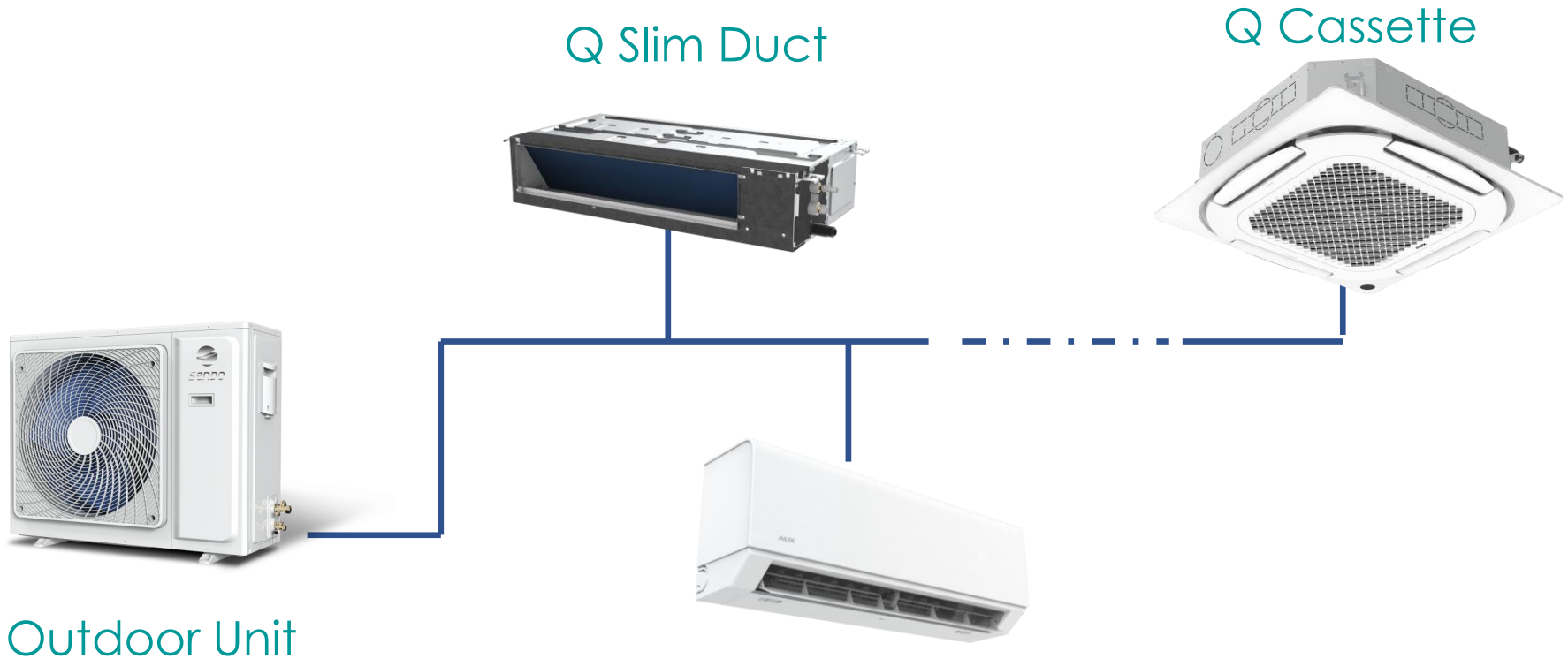
Diversification of Installation

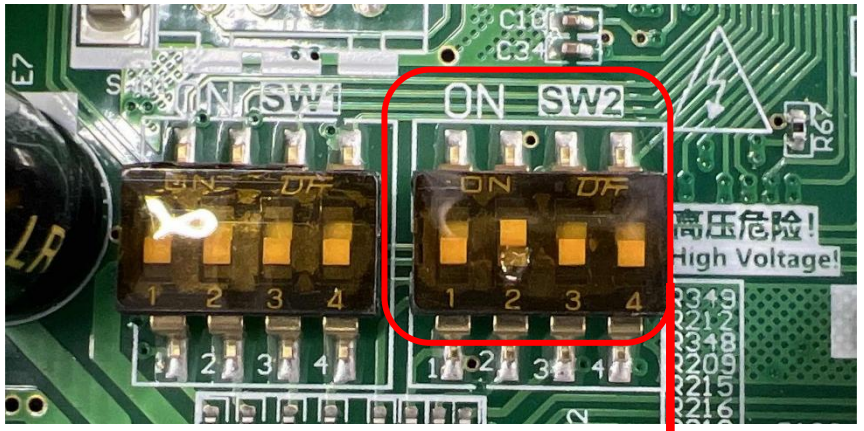
A various of indoor units can be connected together, multi indoor units can be freely combined together in one systems. So Mini ARV is the best choose for some place which had multi rooms.

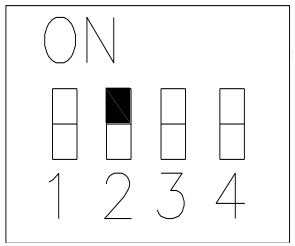


Max combination 130 %

Automatic IDU address Setting

The R32 MINI ARV product enables the indoor unit automatic address function through DIP switches, greatly reducing installation and commissioning time.

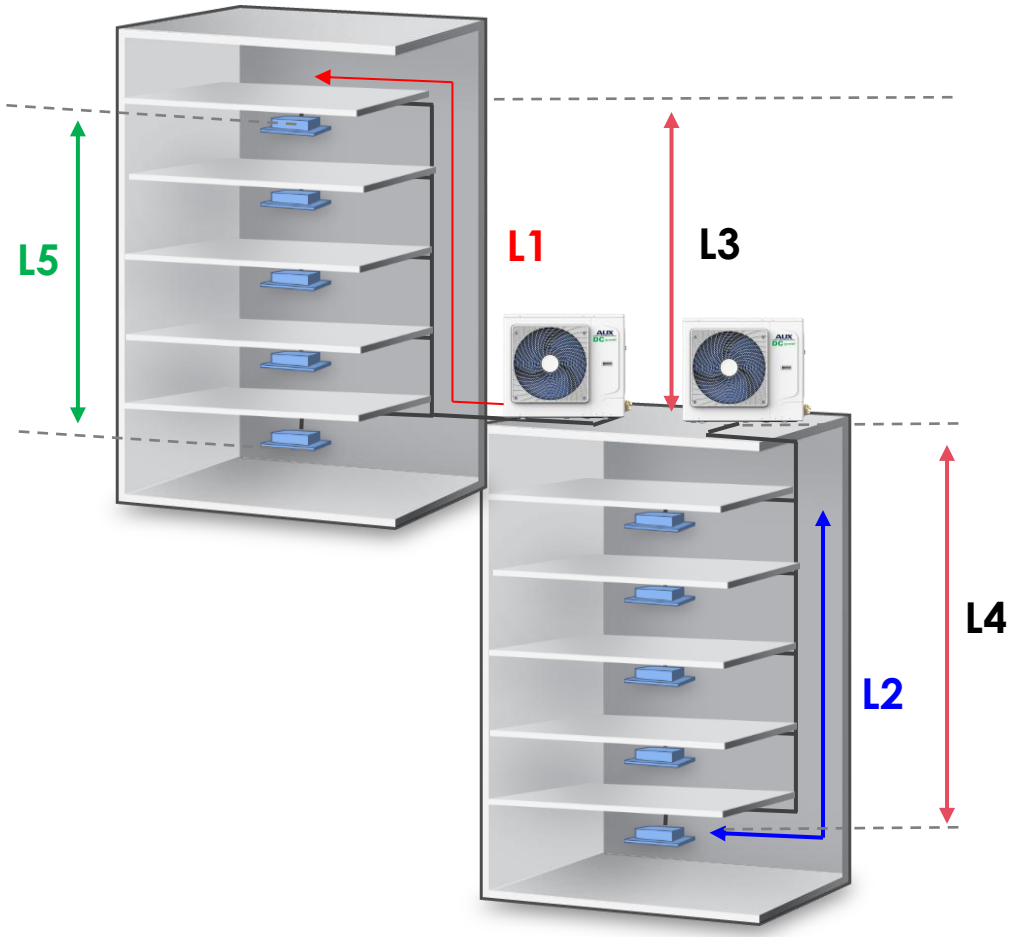




2	1	Auto addressing(default)
	0	Manual addressing

Long Piping length

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



-----	Connection pipe requirements	Unit	Allowable value	
		kW	8/10	12/14/16
-----	**Total piping**	m	40	100
L1	Longest length – actual	m	25	55
L2	Longest length after first branch	m	20	
L3	Largest height difference between IDU and ODU (down)	m	15	
L4	Largest height difference between IDU and ODU (up)	m	20	30
L5	Largest height difference between IDUs	m	10	

Smart control solution

A variety of control methods are available to meet the needs of customers in different application scenarios.

Remote controller

Wired controller

Room card

WIFI function

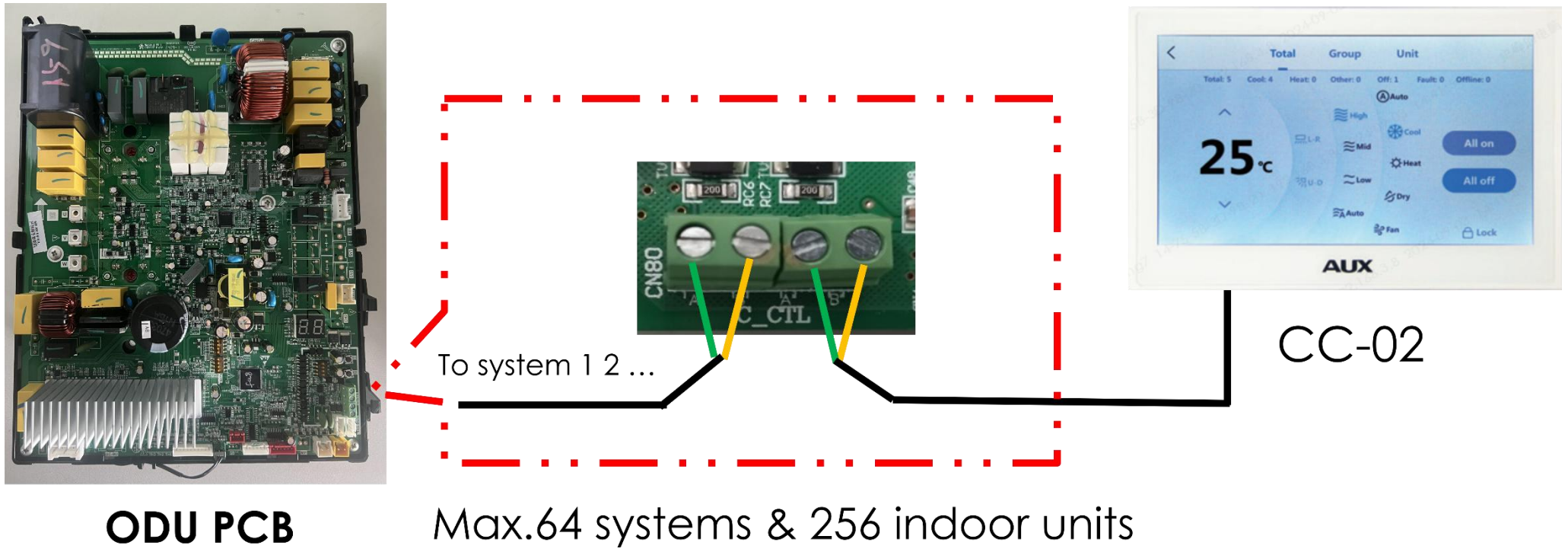
Note: 1 VRF system requires only 1 WIFI module.

Smart control solution

The wired controller can control up to 16 indoor units in the same system at the same time.

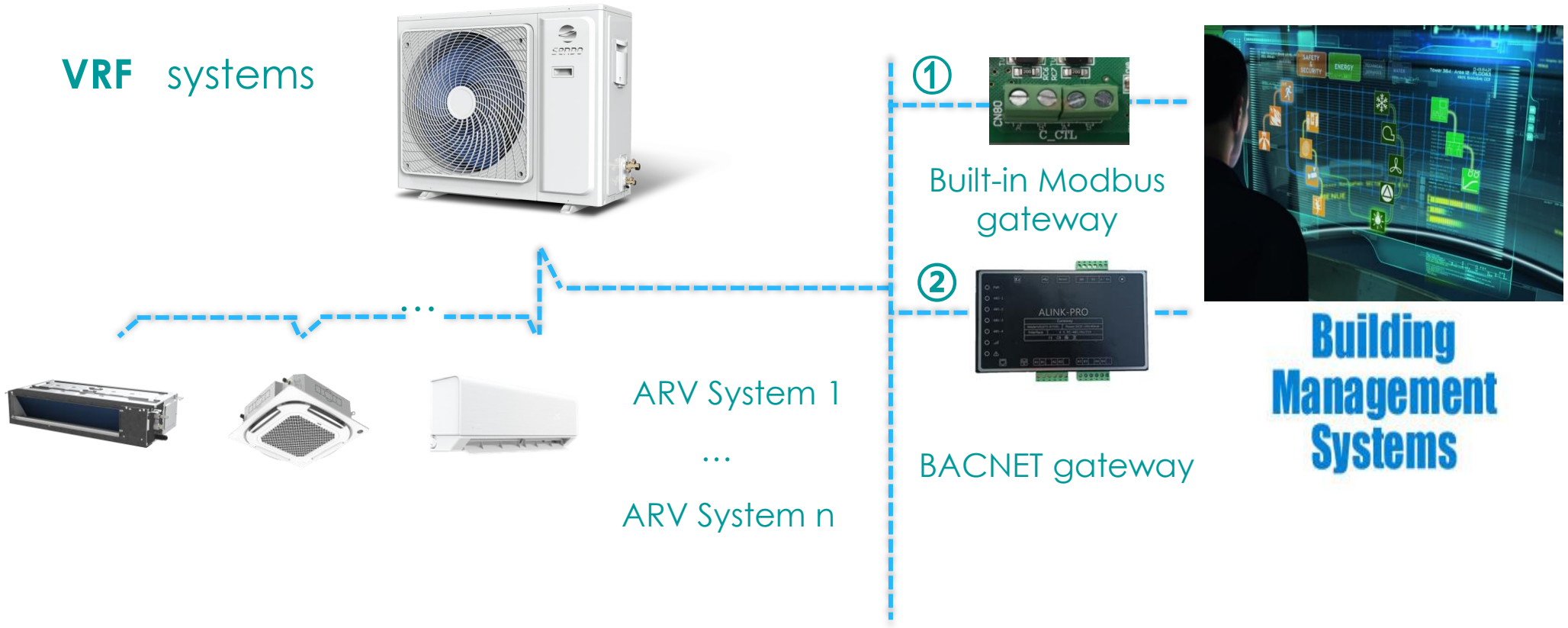
Smart control solution

The R32 MINI ARV product has a built-in gateway, which eliminates the need for additional external gateways and enables direct connection to the centralized controller for centralized control.



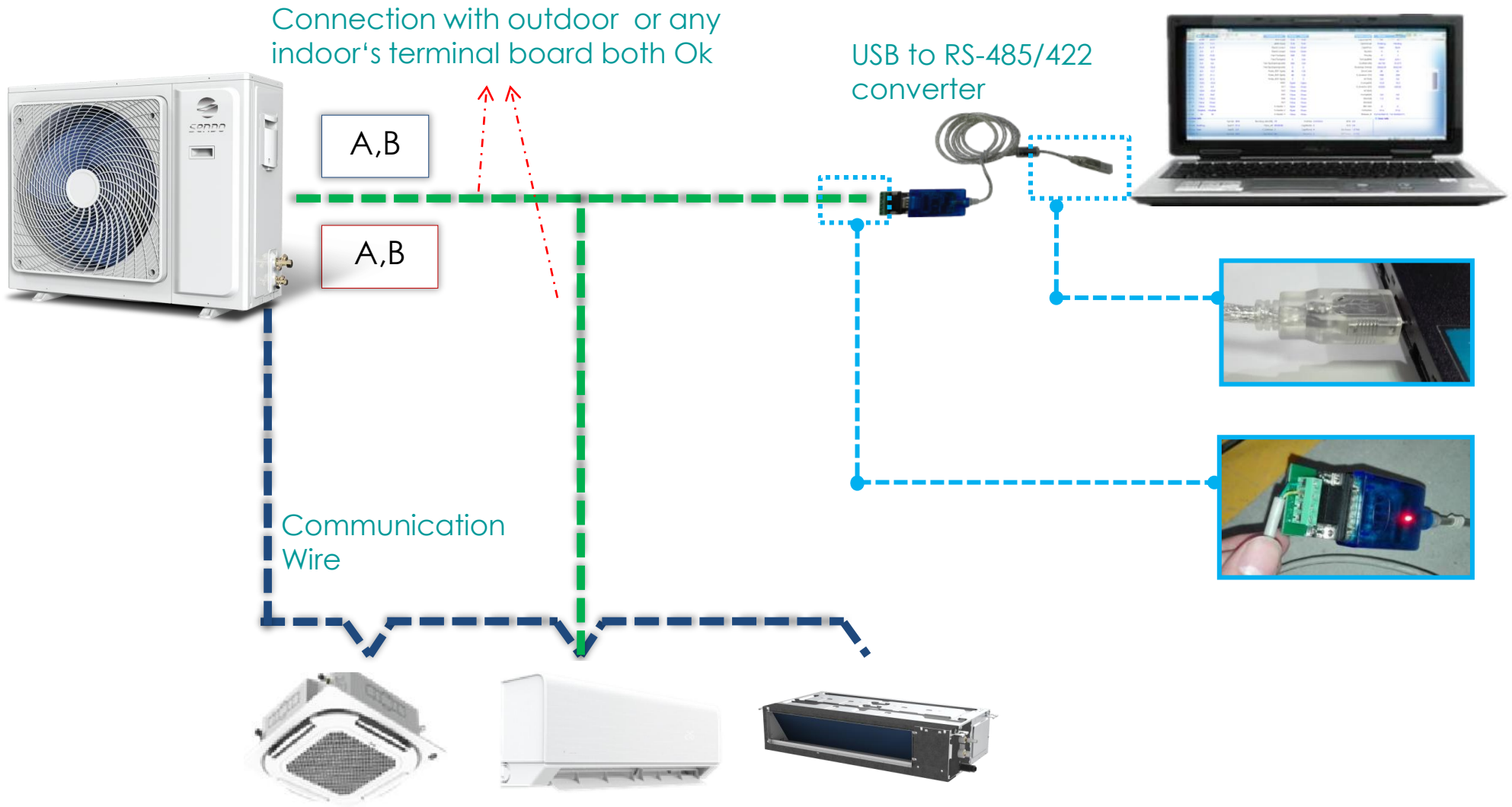
BMS Control

The R32 MINI ARV product has a built-in gateway, which eliminates the need for additional external gateways and enables direct connection to the BMS system for centralized control.



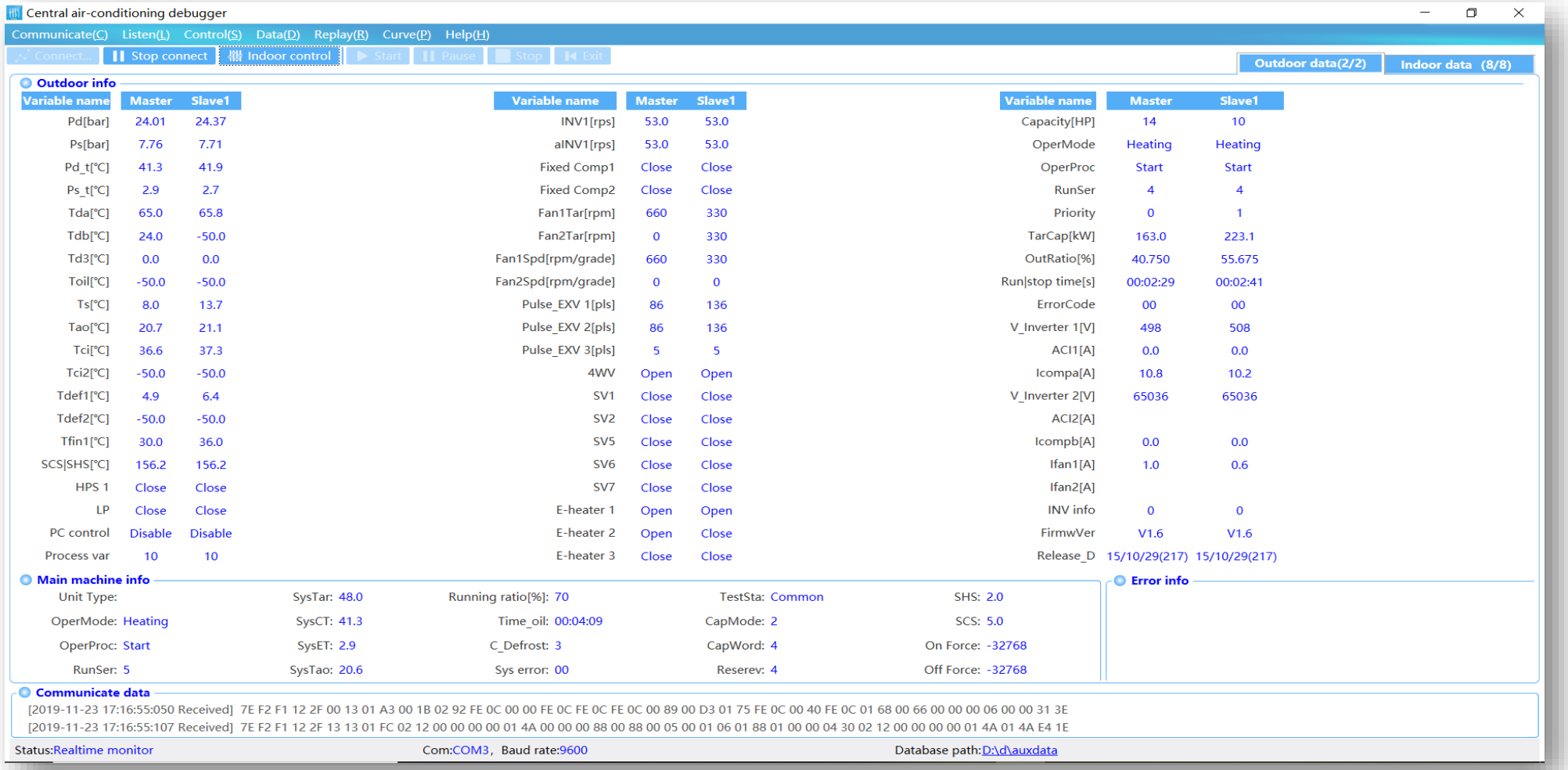
Monitoring Software

Below is wiring diagram of monitoring software , Hardware (RS -485/422 converter).



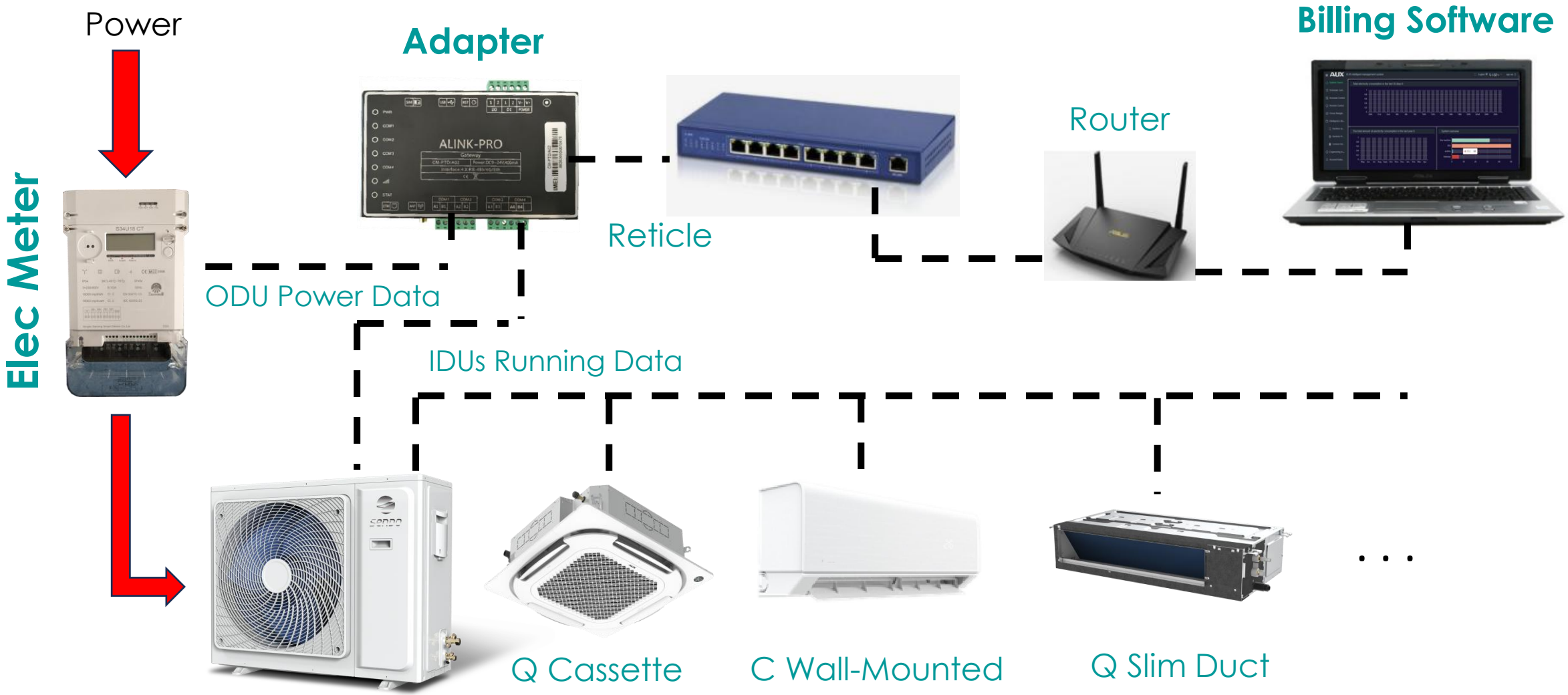
Monitoring Software

Through software can monitor lots of indoor and outdoor parameters , more convenient for trouble shooting and analysis.



Tenant billing system

For projects such as shopping malls/office buildings, a tenant billing solution is provided to calculate the air-conditioning power consumption of different tenants.




sendo
AIR-CONDITIONING