



Worldwide Air Conditioner Partner

The Creative Life

TCL TMV6-Master
VRF Introduction



- 1** VRF Lineup
- 2** Main Features and Functions
- 3** Control System
- 4** Reference Projects

T | **VRF Product Lineup**

Outdoor unit (TMV6-Master series)

Modular VRF, 380V~415V,3N,50/60Hz			
8/10HP (25.2~28KW)	12/14/16/18HP (33.5~50.4KW)	20/22/24HP (56~68KW)	26/28/30HP (73~85KW)
			
925*845*1780	1340*845*1780	1760*845*1780	1900*845*1780

TMV 6 Master outdoor unit (modular type)

- **10 basic modules**, 8HP, 10HP, 12HP, 14HP, 16HP, 18HP, 20HP, 22HP, 24HP, 26HP, 28HP, 30HP,
- 4 modular units can be combined freely, cover wide capacity **8HP~120HP** (25.2~340kW)
- **DC inverter** VRF technology, DC inverter scroll compressors & DC fan motors
- One refrigerant system could connect maximum **80** indoor units



**Max.
120HP**

Outdoor unit (TMV6 Master Mini VRF)

Master Series Mini VRF	
12/14/16kW 220-240V~ 50/60Hz	18/22.4kW 380-415V 3N~50/60Hz
	
950×340×1330mm	1120×400×1560mm

- Widely used in small office buildings, shops, restaurants and residential projects
- Side discharge air blow
- DC inverter rotary compressor and DC fan motor
- High efficiency to meet GCC energy standard
- High ambient temperature operation, maximum temp can be up to 56°C

Product Lineup

Indoor unit lineup

Capacity (kW)	1 way Cassette	2 way cassette	Compact Cassette	8-way Cassette	Slim Duct (0~80Pa)	MSP Duct (0~200Pa)	HSP Duct (0~300Pa)	Fresh air duct (0~300Pa)	Ceiling & Floor	Wall-mounted
										
	AC, 220V~50Hz	AC, 220V~50Hz	DC, 220V~50/60Hz	DC, 220V~50/60Hz	DC, 220V~50/60Hz	DC, 220V~50/60Hz	AC, 220V~50Hz	AC, 220V~50Hz	AC, 220V~50Hz	DC, 220V~50/60Hz
1.8	●		●		●					
2.2	●	●	●		●					●
2.8	●	●	●	●	●					●
3.6	●	●	●	●	●					●
4.5	●	●	●	●	●	●			●	●
5	●	●	●	●	●	●			●	●
5.6	●	●	●	●	●	●			●	●
6.3		●	●	●	●	●			●	●
7.1		●		●	●	●	●		●	●
8				●	●	●			●	●
9				●	●	●			●	
10				●	●	●			●	
11.2				●	●	●			●	
12.5				●	●	●	●		●	
14				●	●	●	●	●	●	
16				●		●				
22							●			
28							●	●		
45							●	●		
56							●	●		

Main Features & Functions

High Efficiency and Energy Saving



High EER/COP Value



DC Inverter Components



High-efficiency Heat Exchanger Design



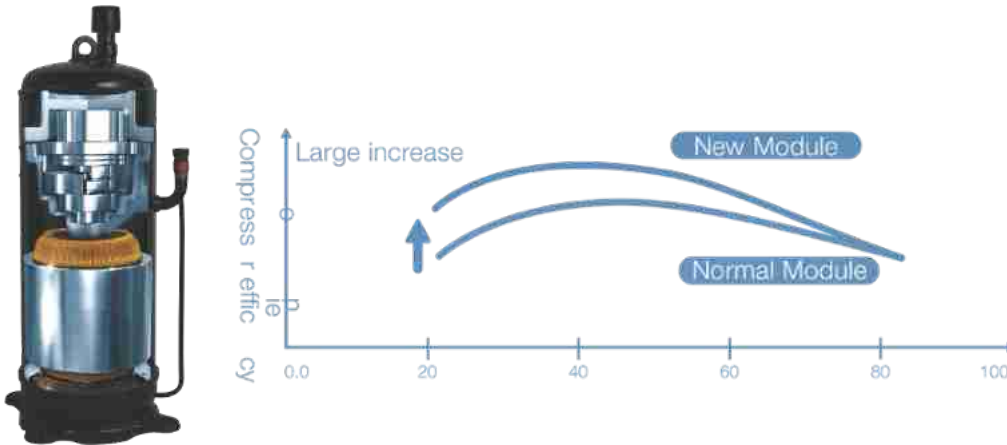
Self-adaptive Adjustment Technology

High EER

- The TMV6 Master series employs full DC inverter technology, high-efficiency heat exchangers, renowned compressors, precision expansion valves, and other advanced components.
- Its EER meets the certification requirements of ESMA, ESTIDAMA, MEW, and SASO across the GCC.

Cert Type	EER Requirements	8~12HP	14~24HP	26~30HP
ESMA	<39.56kw: 4.2 (w/w) 39.56~222.71kw: 4.2 (w/w) >222.71kw: 4.1 (w/w)	●	●	●
ESTIDAMA	<19kw: 11.6 (btu/w.h) 19~40kw: 11.2 (btu/w.h) 40~70kw: 11 (btu/w.h) >70kw: 10 (btu/w.h)	●	●	●
MEW	All capacity: 1.15 (kw/RT)	●	●	●
SASO	<19.05kw:11.2 (btu/w.h) 19.05~39.56kw: 11.2 (btu/w.h) 39.56~70.32kw: 11 (btu/w.h) >70.32kw: 10 (btu/w.h)	●	●	●

DC Inverter Components



Scroll Compressor(Hitachi)

- The DC inverter motor with concentrated winding to ensure higher efficiency.
- Guarantees the reliability and energy saving of the refrigeration system.

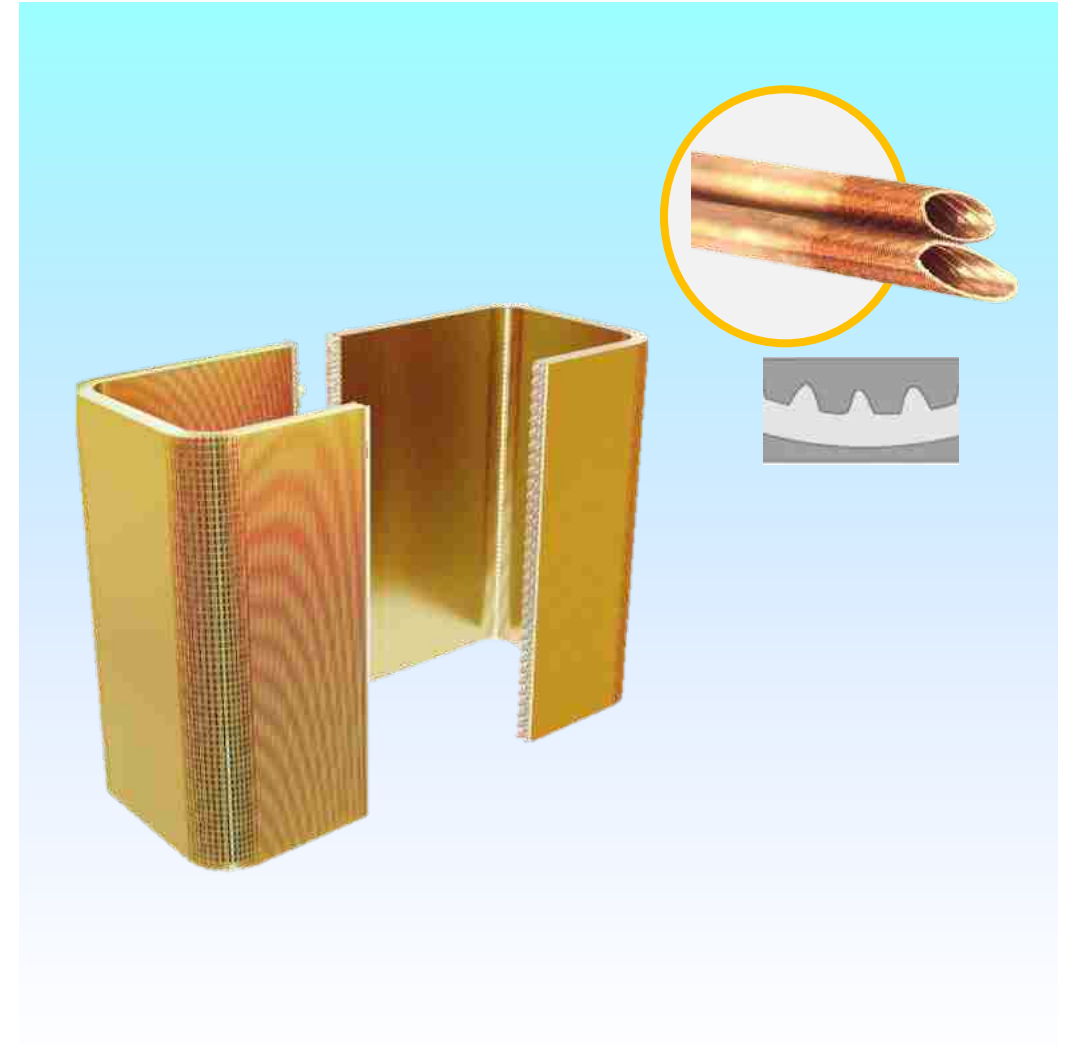


Stepless DC Motor

- 0~90hz stepless regulation of air volume, precise control.
- Original built-in drive with high motor efficiency
- Adopt 750mm large fan blade, more air volume and lower noise.

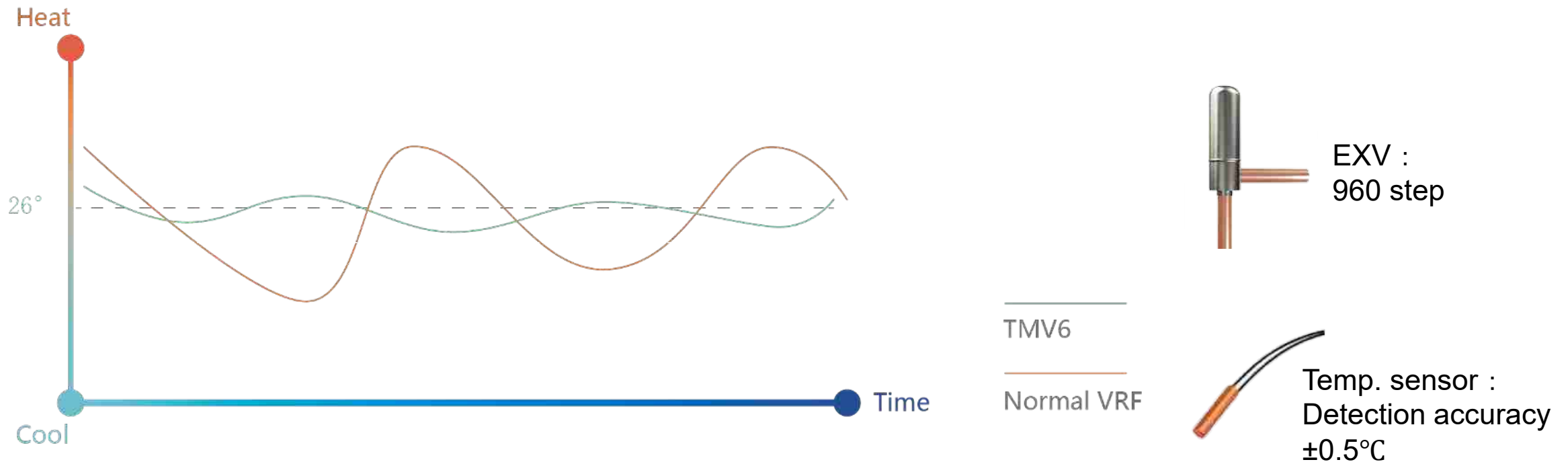
High-efficiency double C Type Heat Exchanger Design

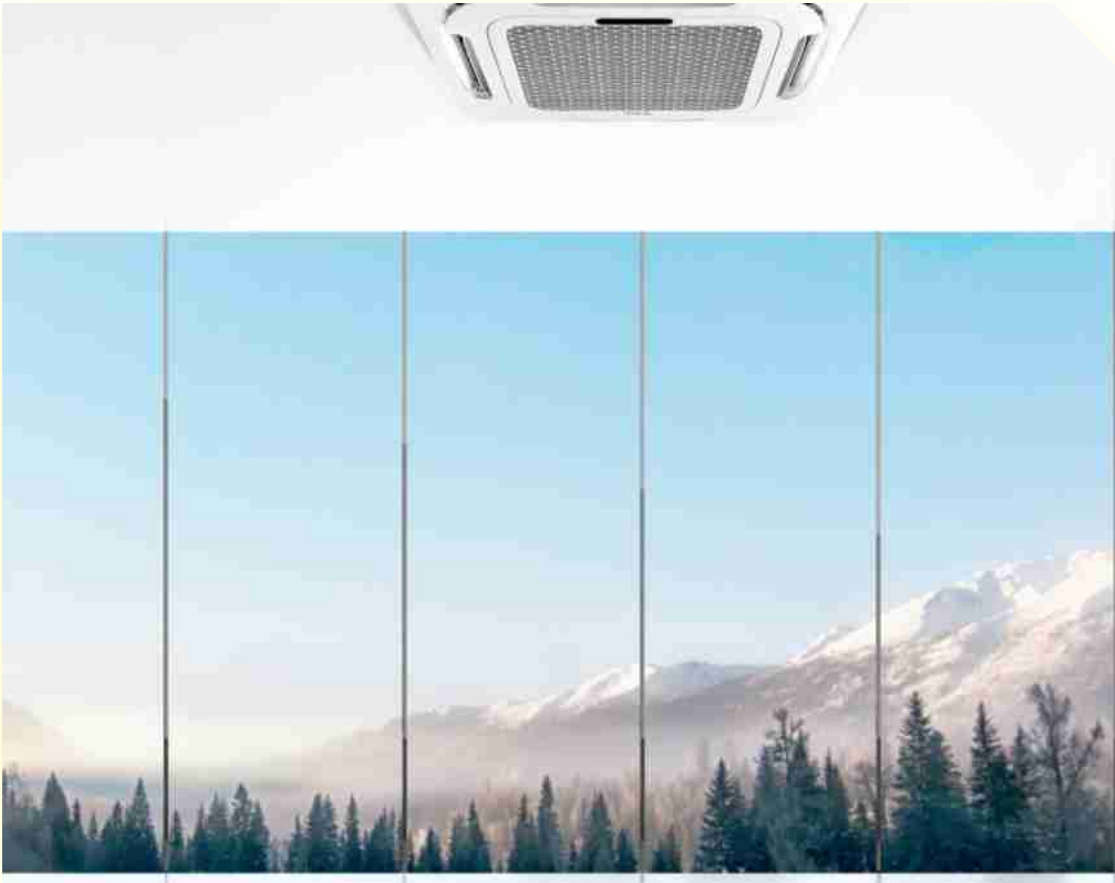
- A double-C heat exchanger with inner grooved copper tubes increases the condenser surface area by 6%.
 - Standard Golden Fin anti-corrosion coating.
-
- The new design improves heat transfer efficiency, especially under high load operation, by up to 10%.



Self-adaptive Adjustment of Evaporating/Condensing Temperature

- According to the set temperature, the system will control the refrigerant flow precisely and adjust the evaporating / condensing temperature automatically through the EXV and temperature sensor, which reduces the temperature fluctuation to make sure the room environment more comfortable.





13 Low Noise Technologies



Healthy Filter (Optional)

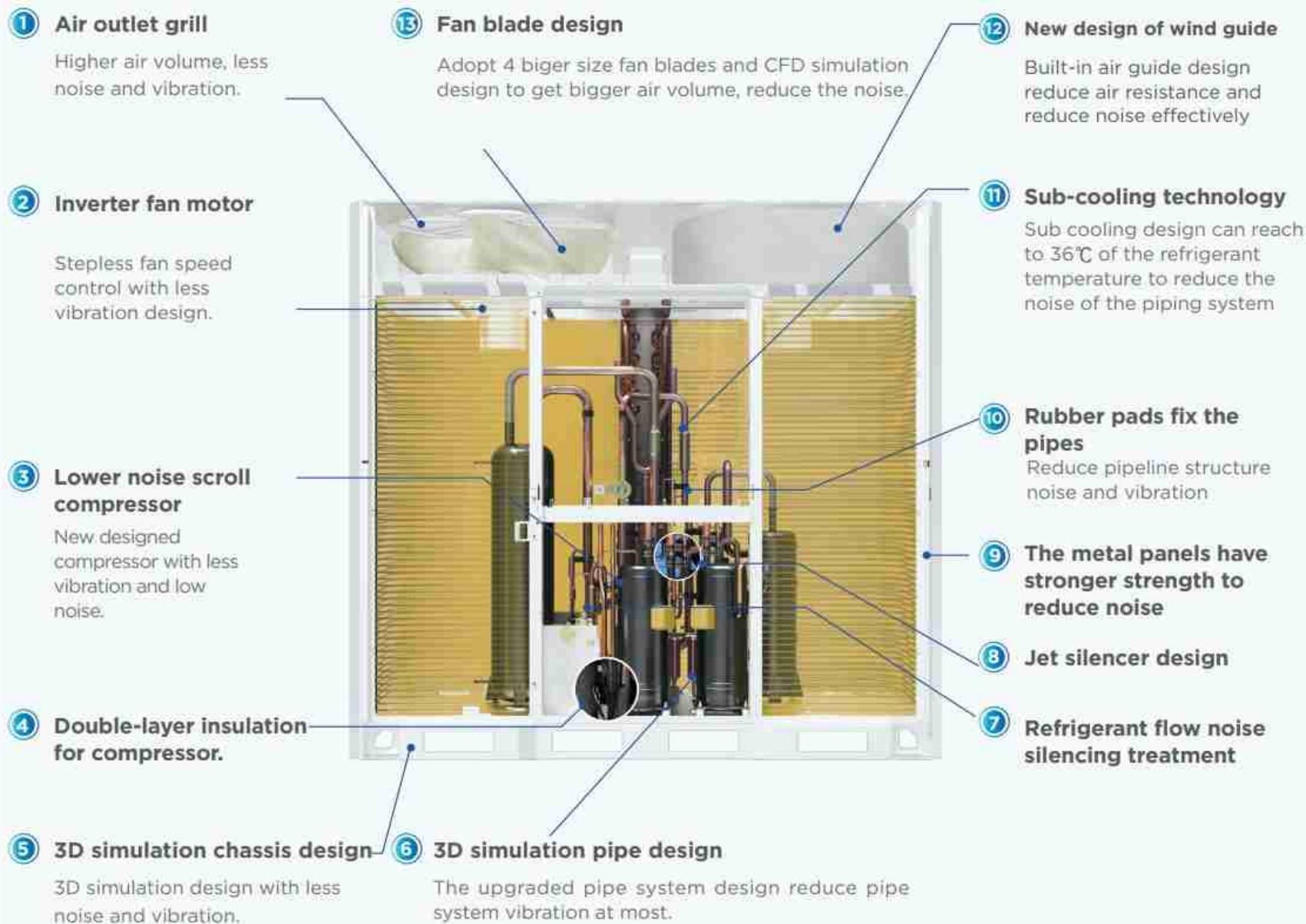


Night Silent Function (Optional)

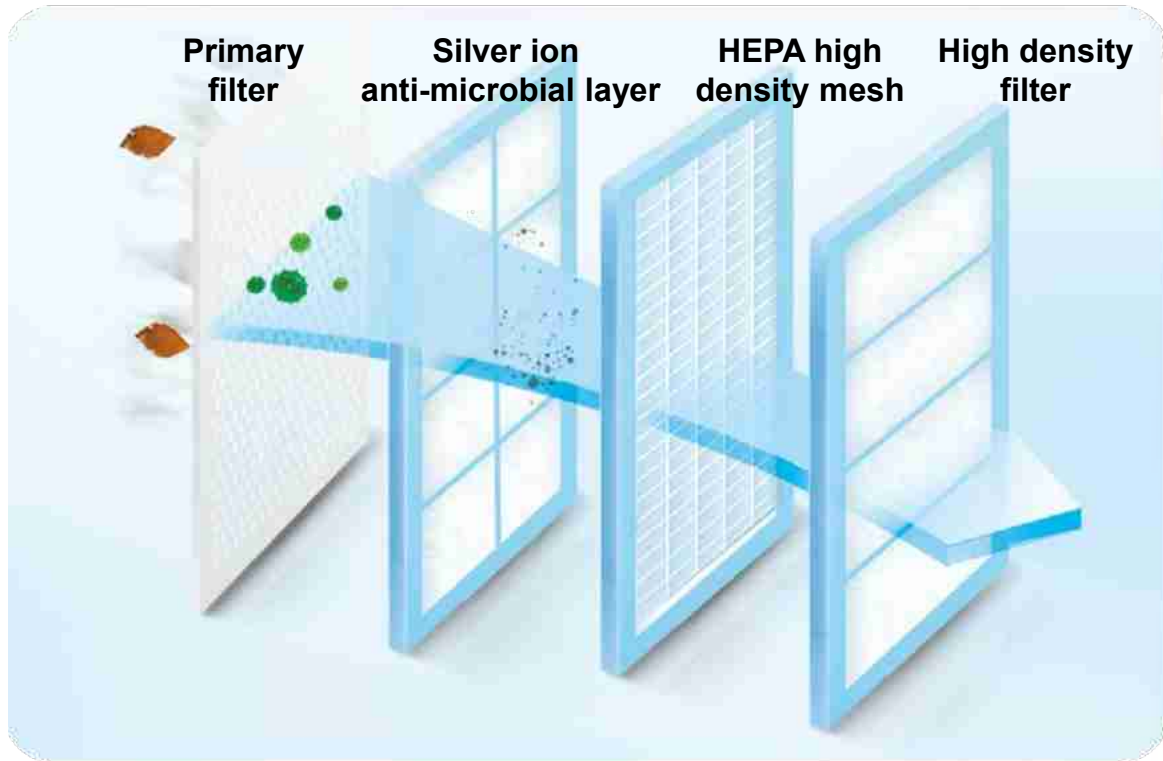


Fresh Air Solutions

13 Low Noise Technologies



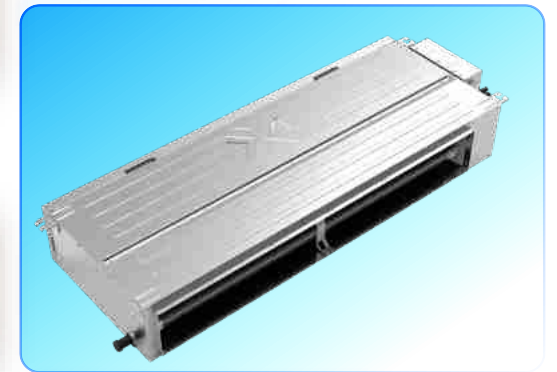
- Cassette and duct units can be equipped with silver-ion and activated carbon filters that effectively reduce formaldehyde and odors, promoting a healthier indoor environment.



PM2.5 purification

Anti-bacterial

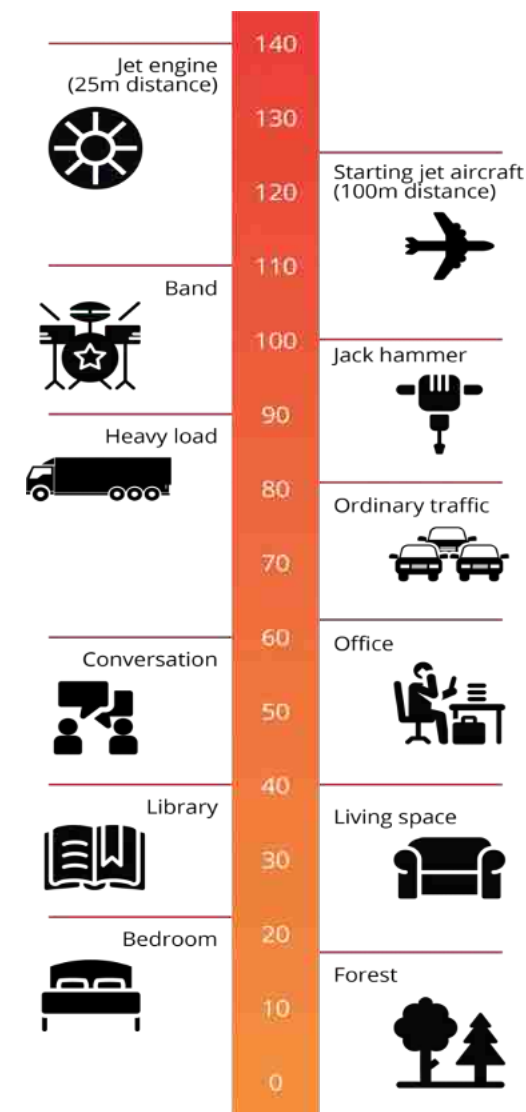
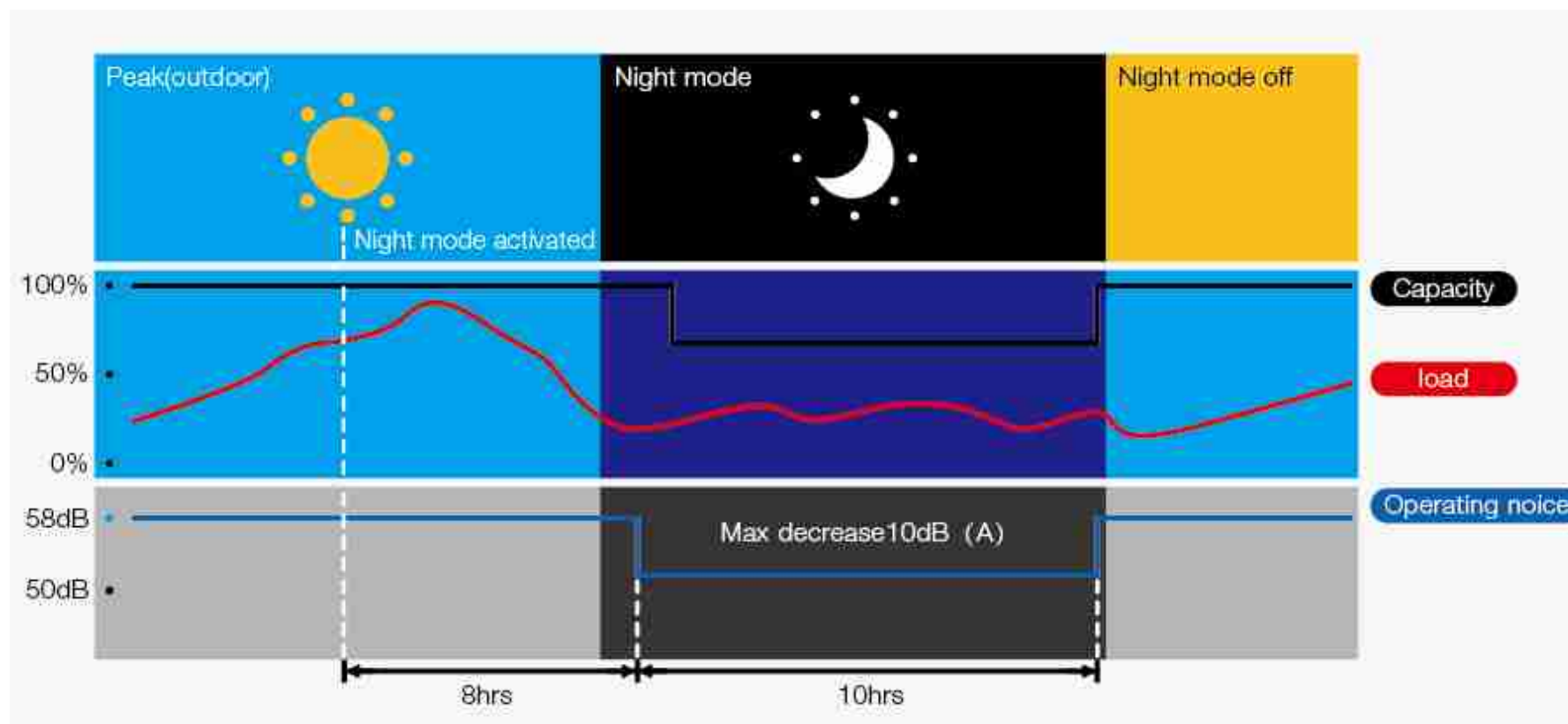
Anti-virus



Note: This function is only available with cassette and slim duct.

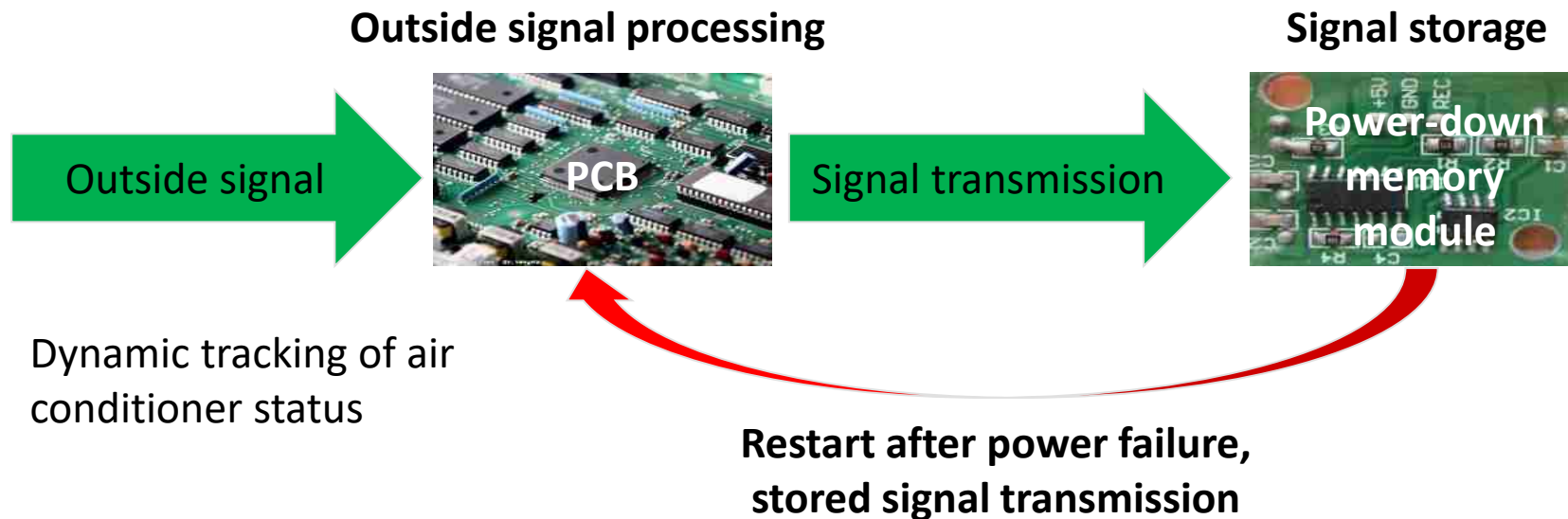
Night Silent Function(Optional)

- The outdoor controller records the time of the day's highest outdoor temperature. It then switches to Silent Mode 8 hours after that time and returns to Normal Mode 10 hours later.
- Both the entry and exit times for Silent Mode are user-adjustable.



Power-down Memory Function

- In the event of a power failure, the system will automatically save the settings in memory, thanks to the power-down memory function integrated into the PCB program. Once the power is restored, the system will seamlessly restart, retaining all prior settings (such as operation mode, set temperature, fan speed, etc.) . These settings will remain intact and continue to function as before without the need to reset the program.



Fresh Air Solutions

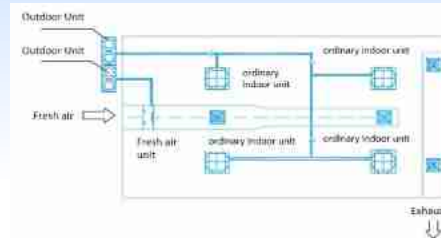
Reserved fresh air interface in ducted indoor units

- Through the knock-out holes on the ducted indoor unit, we can connect a fresh-air duct from the outdoor side to bring in fresh air.



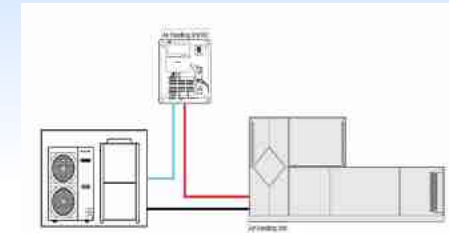
Fresh Air Processing Unit

- It can bring in 100% fresh air and condition it with cooling or heating.
- It also provides up to 300 Pa of external static pressure.



AHU Kit

- Easy connection to any third party AHU
- Capacity Setting by DIP switches
- Max combination of 4 kits, capacity up to 260kw



Stable and Reliable Performance



Refrigerant Cooled Electric Control Box



Anti-corrosion Design



Auto Dust Removal Function



Backup System & Alternate Operation Technology

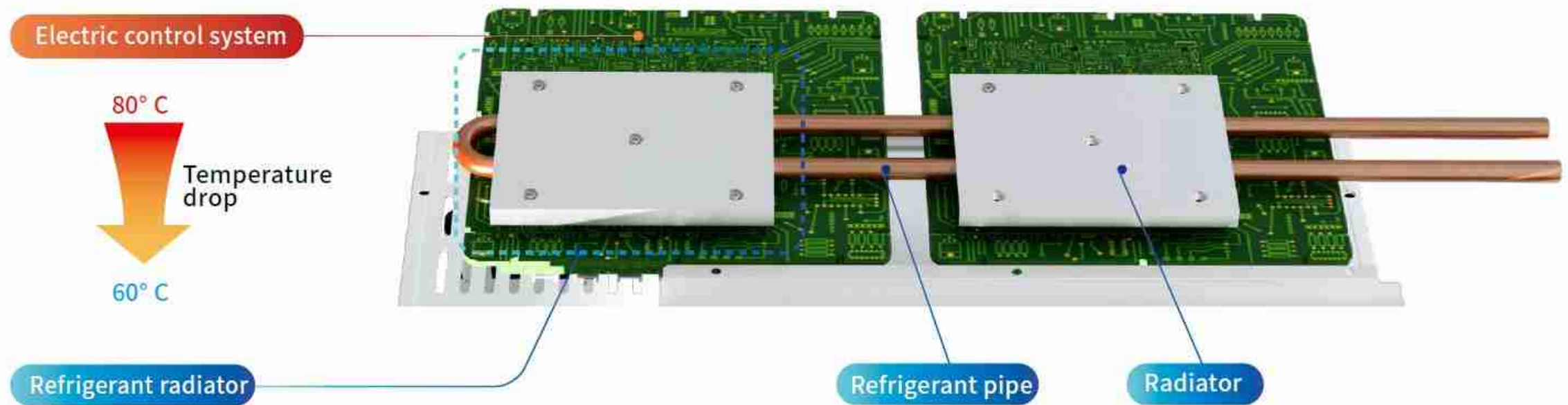


Wide Voltage & Temperature Range Operation

Refrigerant Cooled Electric Control Box

- A liquid-refrigerant-cooled control box is less affected by environmental conditions; even at ambient temperatures up to 56°C, the system maintains stable, reliable operation.

- Compared with air cooling, the IPM temperature is up to 20°C lower, reducing after-sales service needs by 50% and extending component lifespan.



Anti-corrosion Function (optional)

- When the outdoor unit is placed on the roof or outdoors, it will be easily rusted and corroded by the environment. To prevent this, the TMV6 applies anti-corrosion treatment to all key components throughout the unit.

Motor protection upgrade

Anti-rust grease to nuts, gaskets and exposed motor shaft;
Apply silicone oil to the top cover of the motor body screws.

Anti-corrosion golden fins

Moisture-proof adhesive, anti-corrosion spray layer

Thickened sheet metal, surface phosphating treatment



Fasteners

Stainless steel or high corrosion resistant material;
Silicone grease for exposed screws.

Special corrosion resistant coils

conductor with additional electrophoretic layer;
Screws are made of stainless steel.

Tank body and welding port

Tank body surface phosphating treatment;
Welding mouth spraying anti-corrosion paint.

Auto Dust Remove Function(optional)

- The fan motor can reverse operate to remove the dust and clean the inside of the heat exchanger, increase the heat exchange efficiency, and extend the service life of the products.



Normal operation



Reverse operation

Triple Backup System

01

In the event of a compressor failure, the remaining compressor will continue operating to ensure uninterrupted system operation.

02

If a fan motor fails, the other motor will continue running to maintain stable system performance.

03

If a outdoor module fails, the system will automatically isolate the faulty module, allowing the remaining modules to continue operating in emergency mode to maintain overall stability.

Normal



Emergency



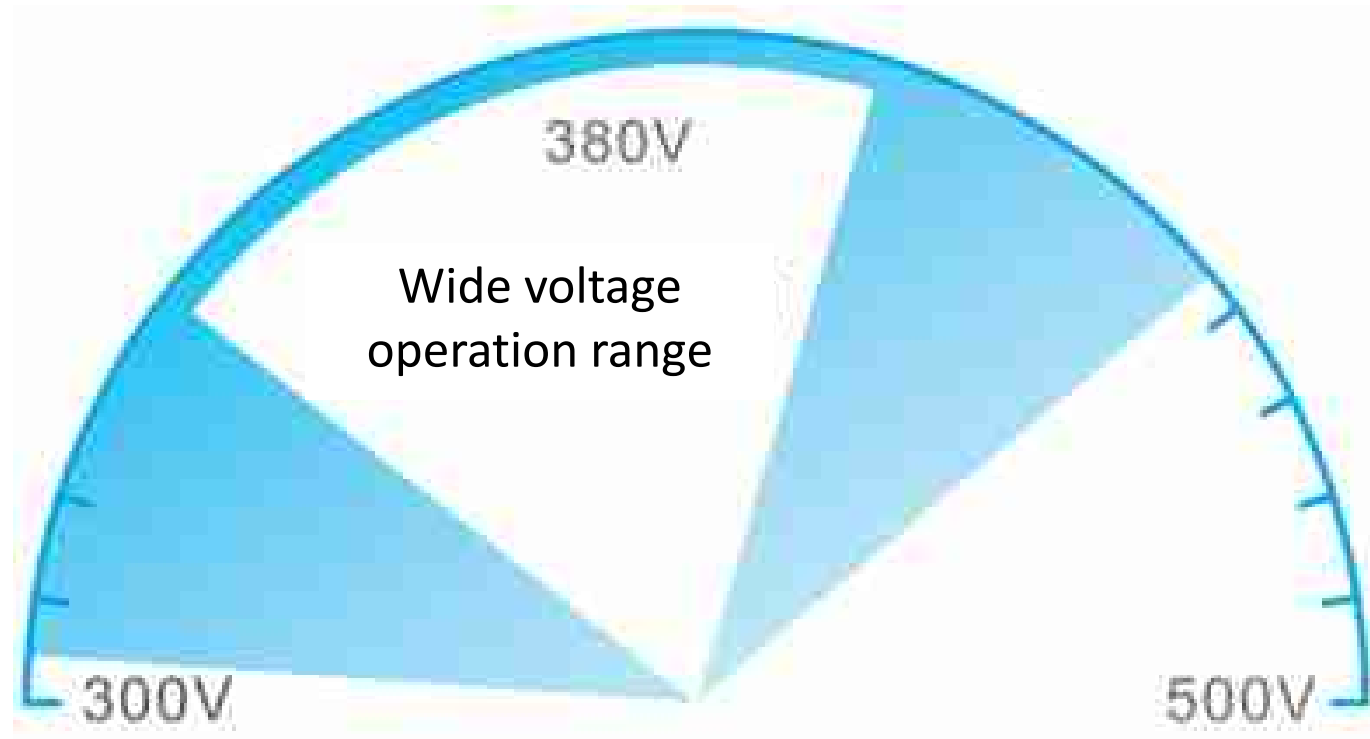
Alternate Operation Technology

- In a modular system, the alternating operation function balances the running time of outdoor units, helping to extend the lifespan of key components such as outdoor units, compressors, motors, etc.



Wide Voltage Range Operation

- The TMV6 Master outdoor unit (ODU) supports an operational voltage range of 304~456V, ensuring stable and reliable performance even in areas with an unstable power supply.



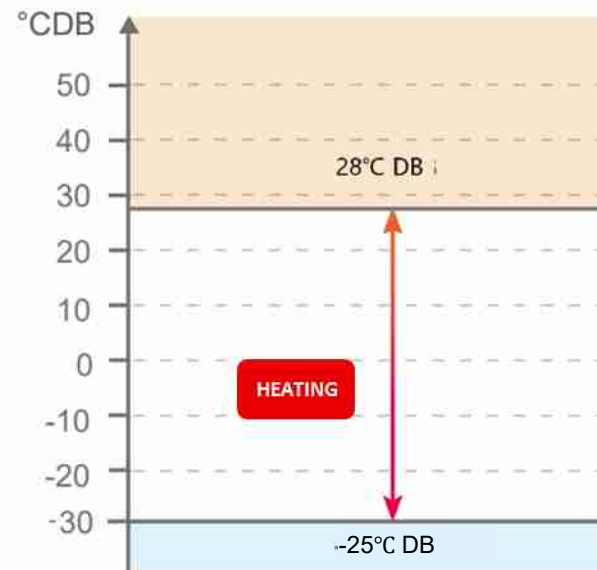
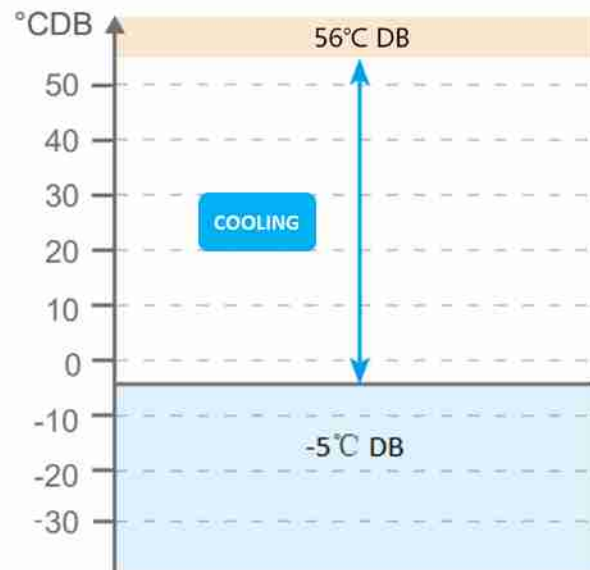
Wide Operation Temperature Range

Cooling Mode

Ambient temperature range -5 ~ 56°C

Heating Mode

Ambient temperature range -25 ~ 28°C



- TCL can provide the widest temperature range among VRF industry both for cooling and heating.

Installation & Maintenance Convenience



Super Long Piping Design



Adjustable External Static Pressure



Cancellation of Oil Balance Pipe

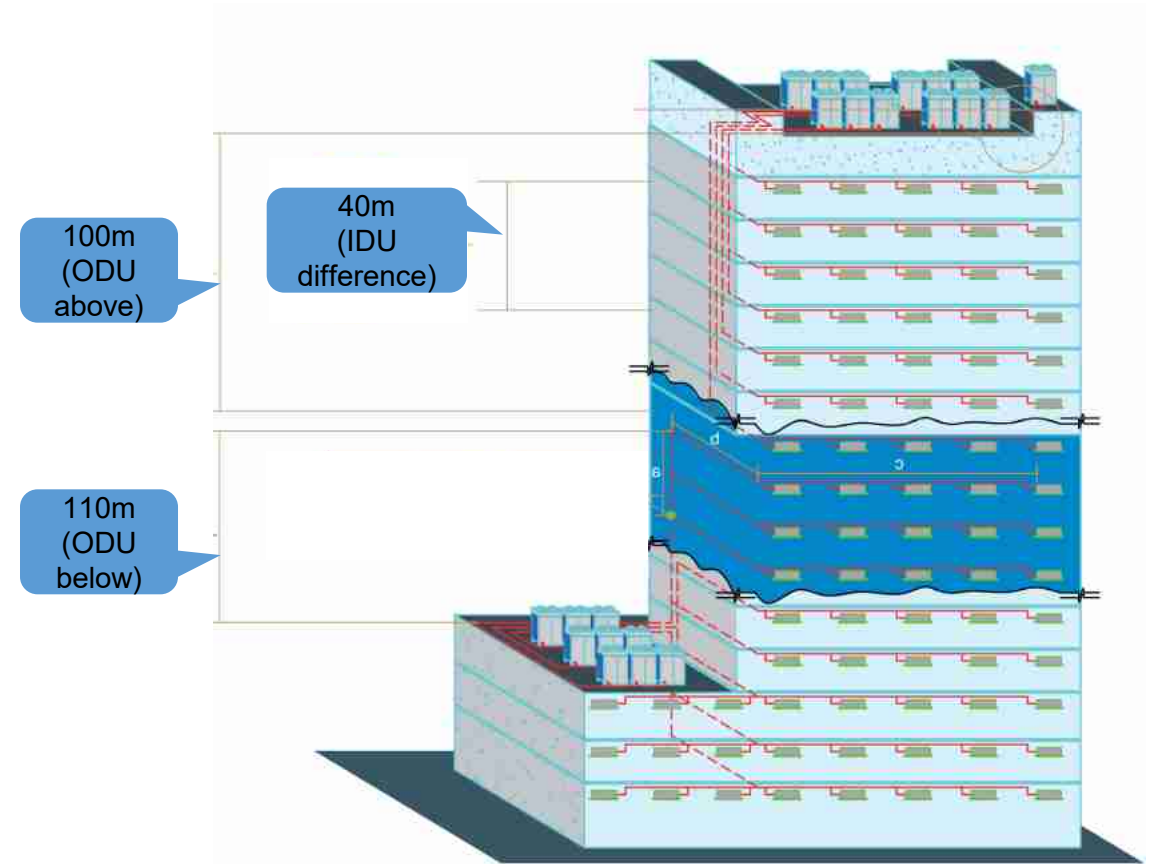


Selection Software

Super Long Piping Design

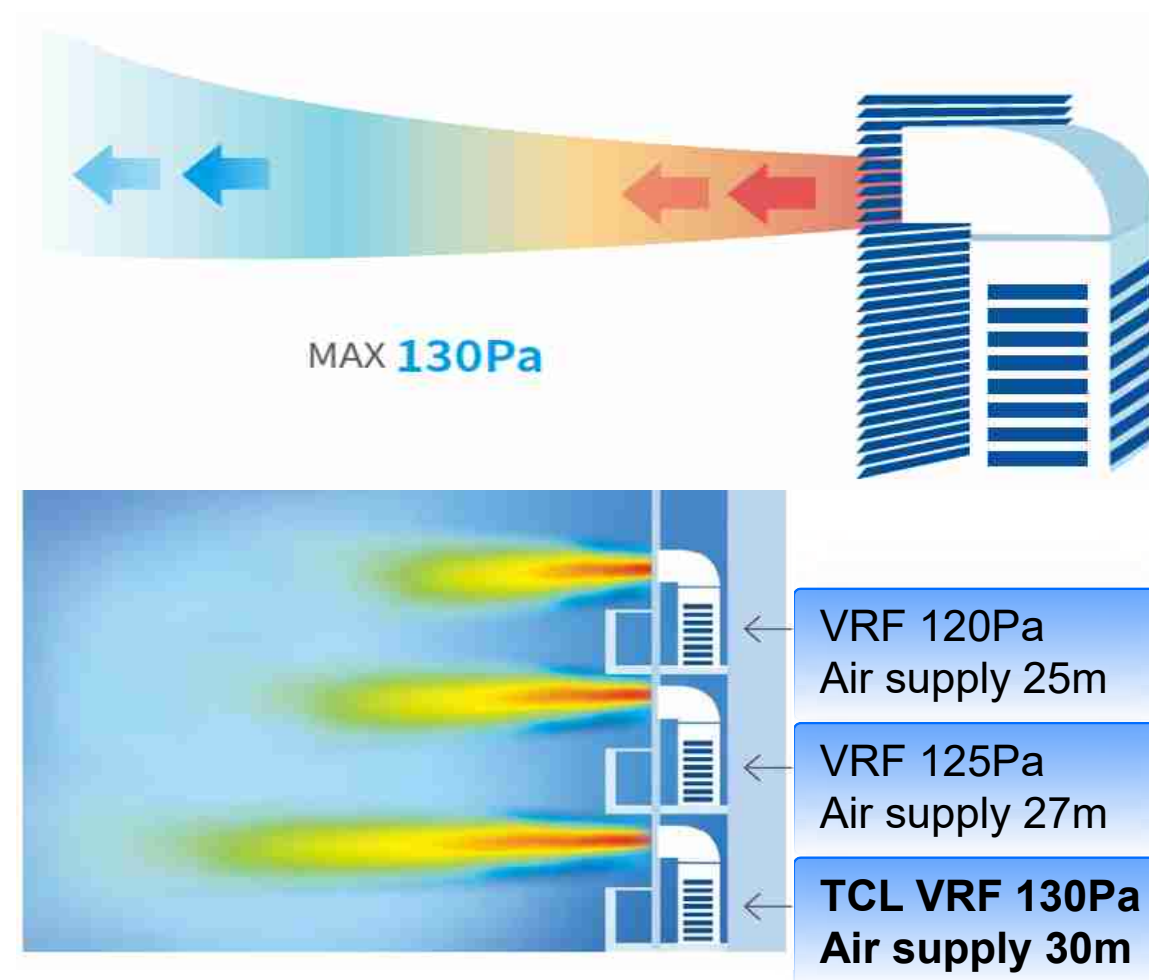
- With the extra-long refrigerant piping, the system offers exceptional flexibility in both design and installation.

The total pipe length	1100m
The longest pipe length	220m
The longest pipe equivalent length	240m
Equivalent length from first indoor branch to last indoor unit	120m
Height difference between indoor and outdoor unit (ODU above)	<100m
Height difference between indoor and outdoor unit (ODU below)	<110m
Height difference between IDU	40 m



External Static Pressure

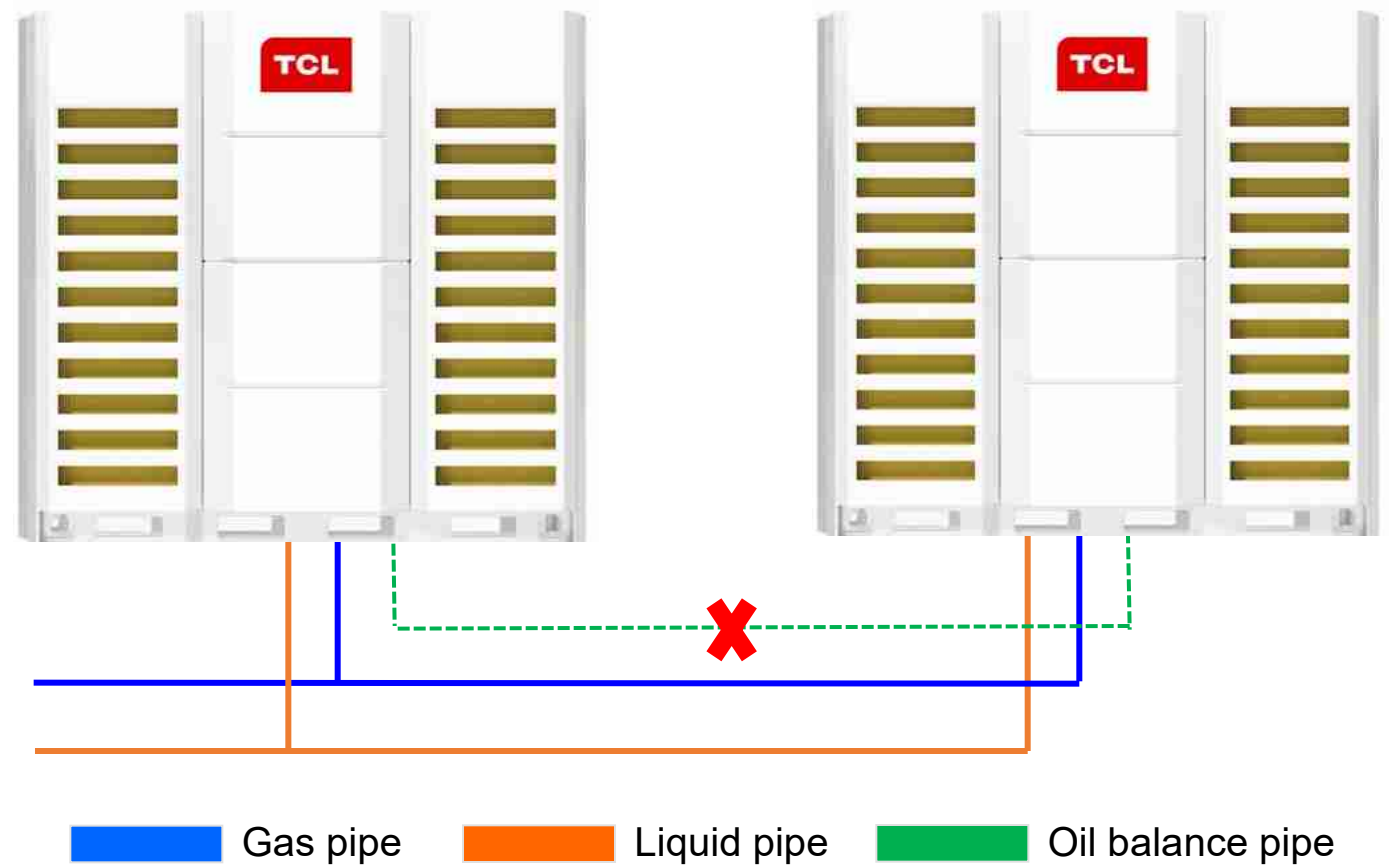
- With the innovative fan design and DC inverter fan motor, the external static pressure (ESP) of the outdoor fan is adjustable for installation flexibility.
- Four standard ESP levels are available: 0, 20, 50, and 80Pa (maximum ESP can reach 130Pa).
- Outdoor units can be conveniently installed on the service floor or in a machine room.



Note: The standard ESP levels (0/20/50/80Pa) can be set by the PCB DIP switch, while 130Pa should be customized with fan and motor

Cancellation of Oil Balance Pipe

- The outdoor unit is designed without oil balance pipes, simplifying installation and significantly reducing the risk of pipeline leakage.



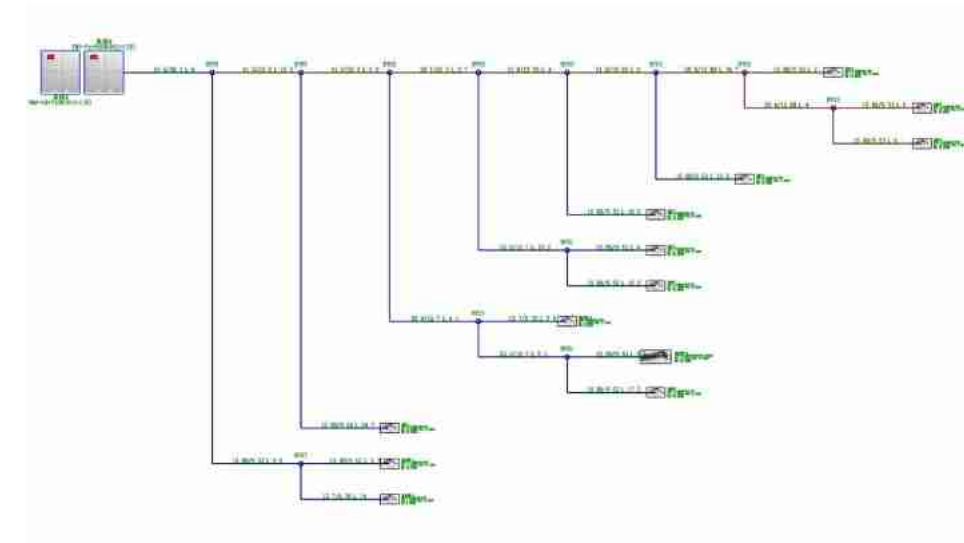
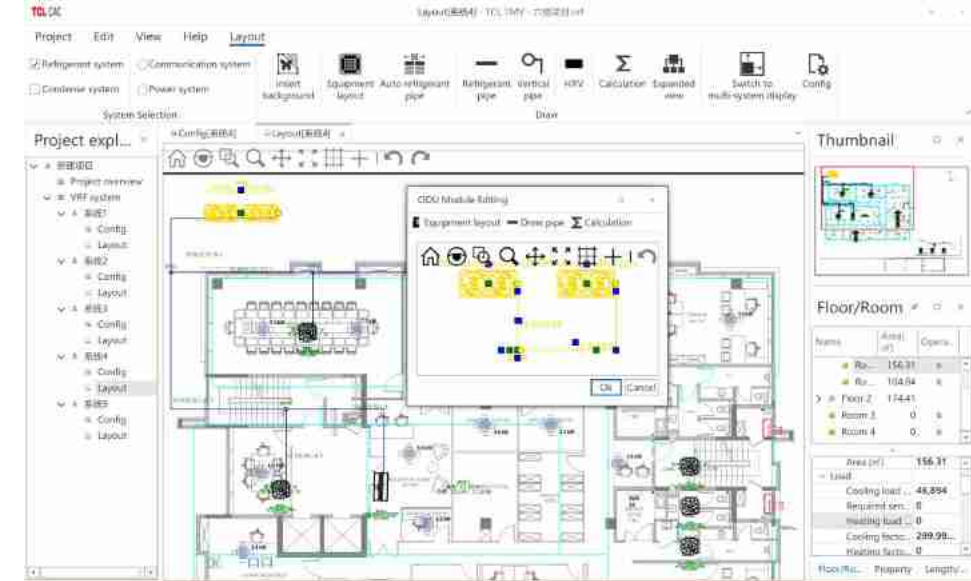
Emergency Power Failure for IDUs

- If an indoor unit requires shutdown for maintenance due to a malfunction, it can be powered off individually without disrupting the operation of the entire system.



Selection Software

- **Newly Updated**
- **User-Friendly Interface:** Designed for simplicity and ease of operation.
- **Comprehensive Functions:** Allows importing building floor plans, including outdoor and indoor layouts, as well as piping and wiring details—all at a glance. Also supports free drawing mode for projects without floor plans.
- **Flexible System Design:** Supports multi-system setups, cross-floor designs, and fresh air system selections.
- **Automatic Calculations:** Automatically calculates the actual cooling/heating capacity for each indoor unit based on system proportions.
- **Piping Configuration:** Automatically matches branch pipes, calculates piping length, wiring length, and additional refrigerant amounts.
- **Smart Project Output:** Generates detailed project proposals, ensuring efficiency and accuracy in system planning.



T | **Control System**



Basic Control System



Centralized Control System



Commission Software

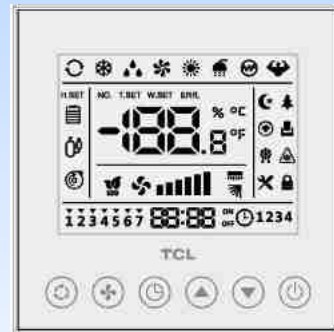
Basic Control System

Various Control Terminals

Remote controller



Wired controller



Centralized controller



TCL VRF management system



Remote Controller

- Cooling/ Dehumidify/ Fan/ Heating/ Auto mode;
- Temperature/ Fan speed
- Sleep/ Timing/ Swing/ Turbo



52E



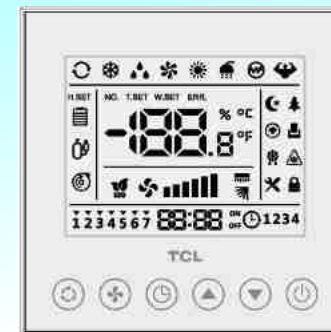
58E



66E

Wired Controller

- Size is 86×86mm, it is in harmony with the wall
- LCD display, it can query the unit operation status
- Cooling/ Dehumidify/ Fan/ Heating/ Auto mode.
- Temperature/ Fan speed
- Sleep/ Timing/ Swing/ Turbo



86J1

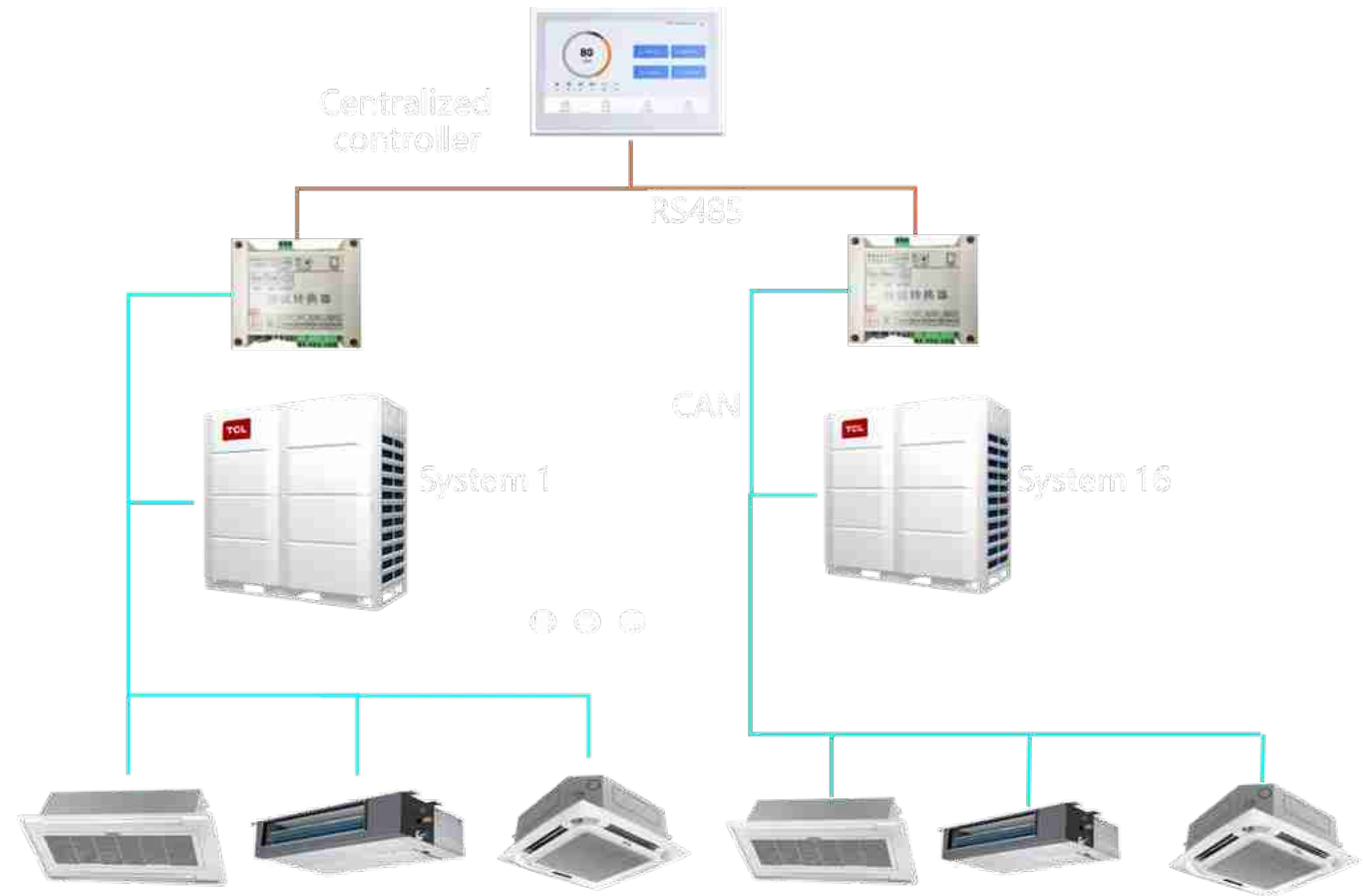


86N3

Centralized Control System

Centralized Controller (Optional)

- ✓ Touch screen, color display, convenient operation
- ✓ Communicates with the protocol converter through the RS485 interface
- ✓ With weekly schedule timing, history of fault query, individual control, group control, central control and remote control
- ✓ Max connection of 16 refrigerant systems



TCL Management System

Centralized control of indoor units and outdoor units

- Monitor the operation statue of indoor and outdoor units
- Max connection of 1280 outdoor units



Data Analysis

- Operation data record
- Records and alarms for errors and faults
- History of operating schedules



Estimate of energy consumption

- Calculation of electricity cost according to the running time, refrigerant flow, etc.
- Detail reports and bills of energy consumption are available

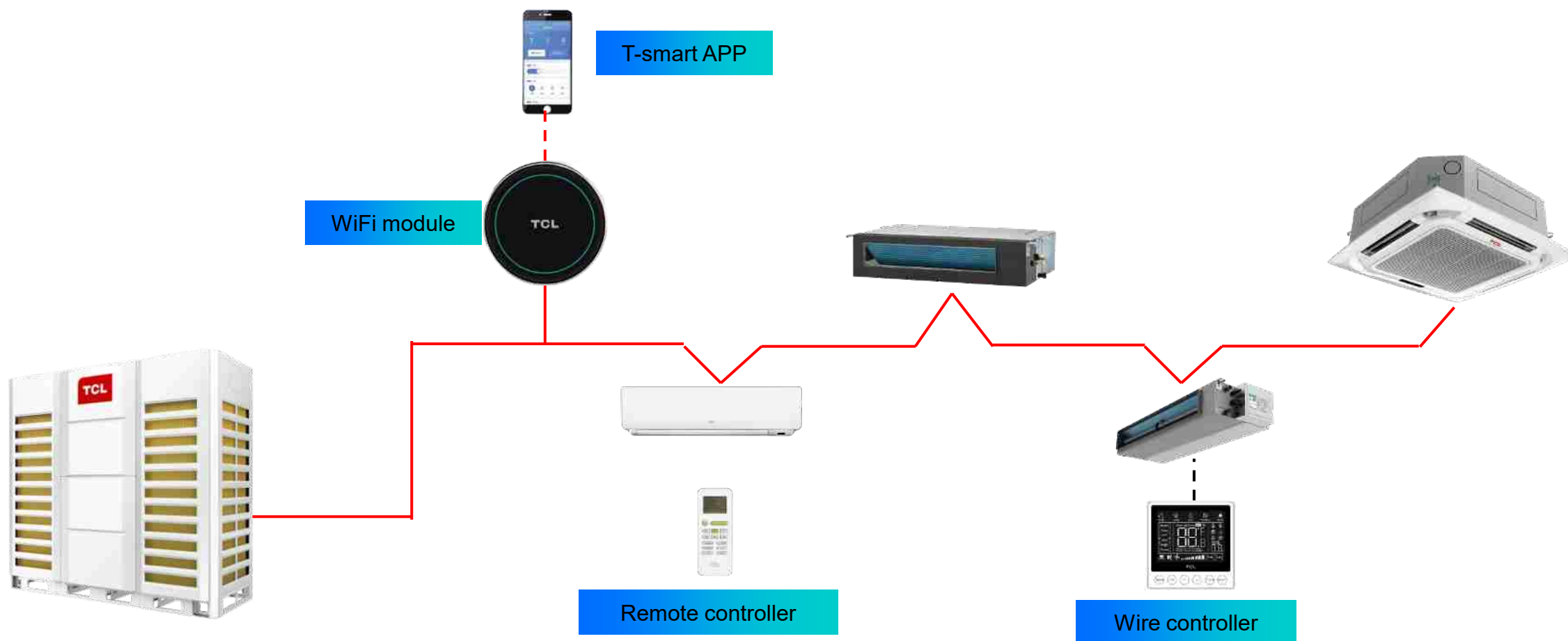


Schedule function

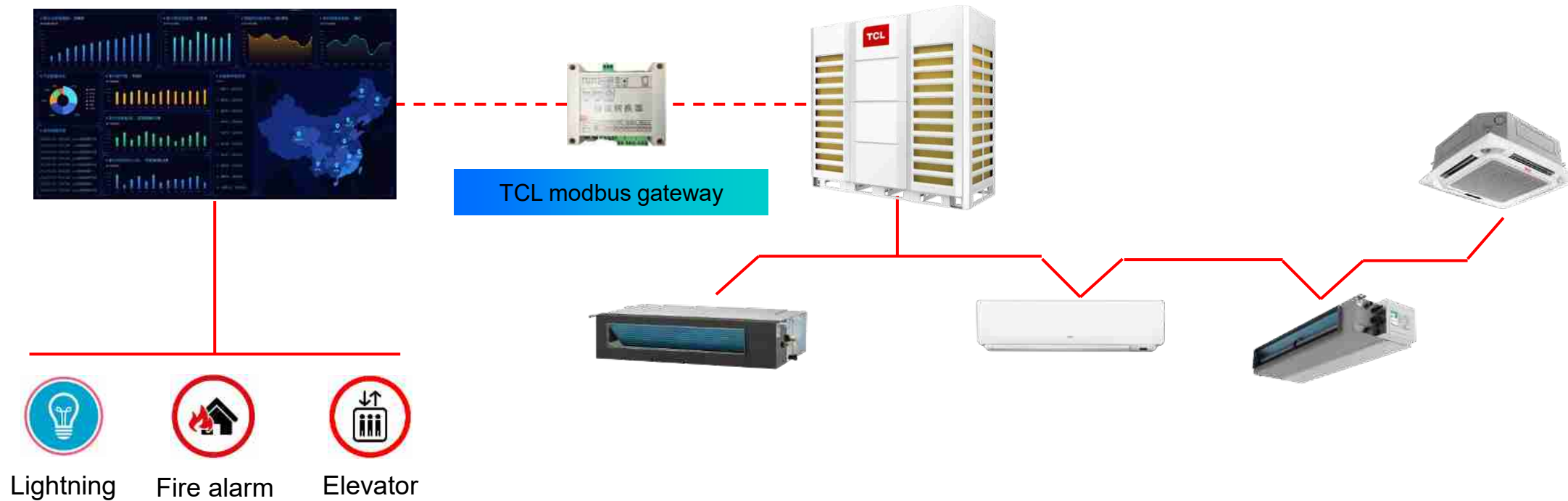
- Annual, monthly, weekly and daily schedules timing
- Schedules of individual or multiple units



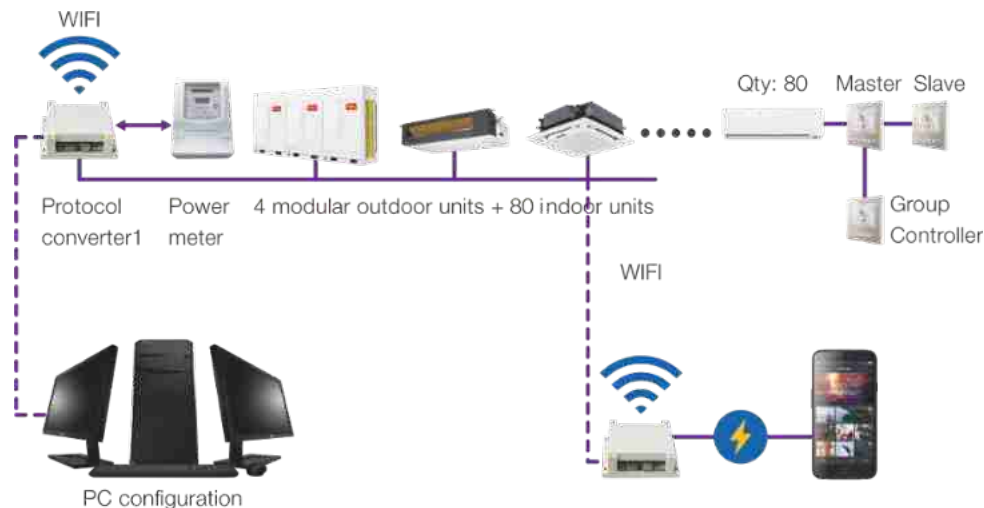
TCL WiFi Control System



Third part BMS system



- Use-friendly Interface
- Monitor and Diagnose, for commissioning and maintenance
- Monitor max. 4 outdoor units and 80 indoor units
- Data logs including operating records and error reports are saved by the software



TCL Debugger

Start Exit Data Curve Control Project commissioning Help

The number of failures: 0

System:

The number of online ODU	1	Device model	TMVX	Outdoor ambient temperature	0
The number of online IDU	3	Master slave state	Master	Inverter compressor 1 target frequency	0
System operating mode	Cool	Actual rated capacity	0	Inverter compressor 1 operating frequency	0
System outdoor environment temperature	0	Allocation ability	0	Inverter compressor 2 target frequency	0
System nominal capacity	0	Current operating capacity	0	Inverter compressor 2 operating frequency	0
System computing power	0	Defrosting state	Fin	Fan motor 1 target frequency	0
System defrosting status	Normal	Oil return status	Fin	Fan motor 1 operating frequency	0
System oil return status	Normal	Oil status	Fin	Fan motor 2 target frequency	0
System oil balance status	Normal	Reset completed	Completed	Fan motor 2 operating frequency	0

The highest high pressure value of the system

The lowest low pressure value of the system

IDU Select

Project number	Device model	Master	Rated capacity	Power	Operating mode	Wind speed	Up and down sweeping	Left and right sweeping	Set temperature	Enviro inlet temperature	Enviro outlet temperature	Outlet temperature	Auxiliary heat switch	Reset completed	Fresh air intake	Water pump status	Anti-freeze protection	Protocol version	Prog version
1	T1-ds From	18	0.0	0.0	Fin	18.0	0.0	0.0	25	43	42.8	43	0	0.0	Completed	0.0	Normal	4	1.0
2	T1-ds From	22	0.0	0.0	Fin	18.0	0.0	0.0	25	43	42.8	42.8	0	0.0	Completed	0.0	Normal	4	1.0
3	T1-ds From	30	0.0	0.0	Open	18.0	0.0	0.0	25	43	42.8	42.8	0	0.0	Completed	0.0	Normal	4	1.0

Current sampling time: 2022-04-08 09:12; Sampling duration: 0 Minutes

T | **Reference Projects**

Reference Project

Project Name: Kuwait High-end Club SVN, Kuwait

Equipment used: TMV6 full DC variable frequency multi-split



Project Name: Rozna Restaurant, Muscat, Oman

Equipment used: TMV6 full DC variable frequency multi-split



Reference Project

Project Name: AL JUHAIL VILLA, Hawalli Province, Kuwait

Equipment used: TMV6 full D C v ariable frequency multi-split



Project Name: Jaber Al Ahmad Mal, Kuwait, Kuwait

Equipment used: TMV6 full DC variable frequency multi-split



Reference Project

Project name: Pakistan Located in Islamabad, PAF hospital. Total Capacity 1647 TR.

Equipment used: TMV6 full DC variable frequency multi-split



Project name: Pakistan Located in Islamabad, NASTAP is a university. Total Capacity 630TR.

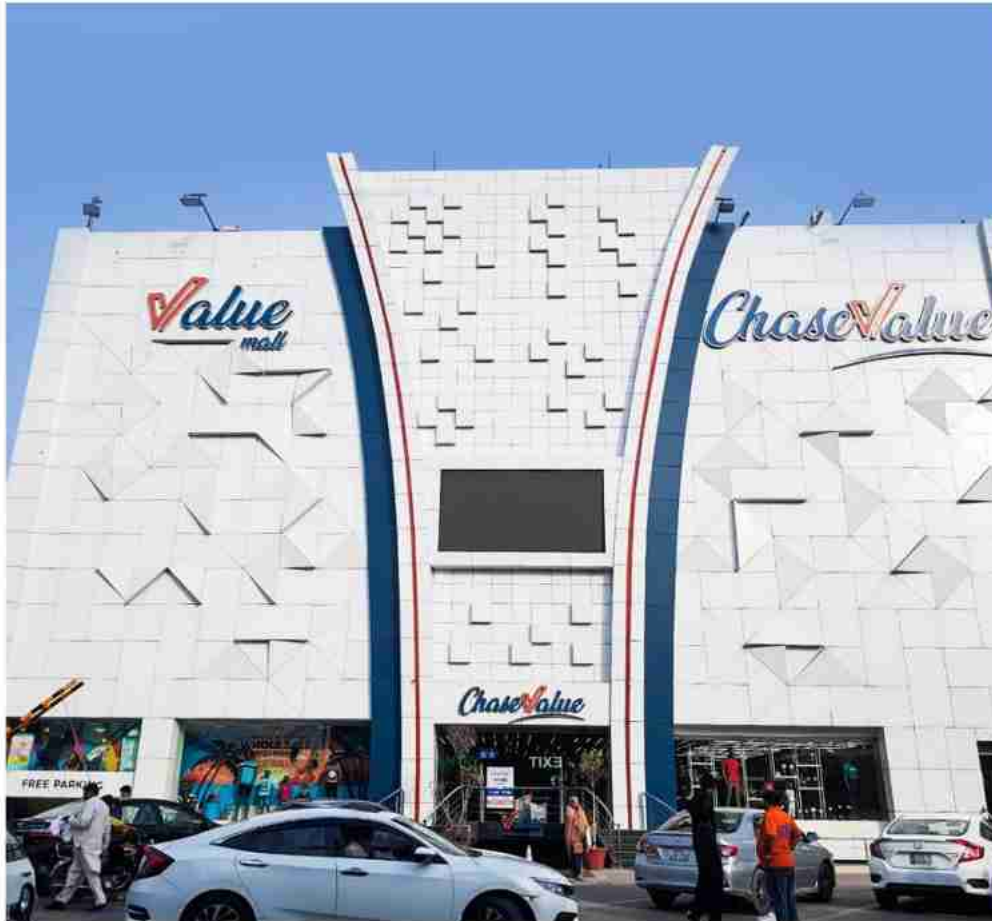
Equipment used: TMV6 full DC variable frequency multi-split



Reference Project

Project name: Pakistan Located in Multan, Chase Value is a shopping mall. Total Capacity 314TR.

Equipment used: TMV6 full DC variable frequency multi-split



Project name: Pakistan Located in Multan, Chase Value is a shopping mall. Total Capacity 314TR.

Equipment used: TMV6 full DC variable frequency multi-split



Reference Project

Project name: Pakistan Located in Karachi, NASTAP is a university. Total Capacity 1152TR.
Equipment used: TMV6 full DC variable frequency multi-split.



Project name: Pakistan Located in Karachi, Chase Value Head Office. Chase Value is a shopping mall. Total Capacity 475TR.
Equipment used: TMV6 full DC variable frequency multi-split.



Reference Project

Project name: High-end restaurant i n Jizak National Scenic Area, Uzbekistan

Equipment used: TMV6 full D C v ariable frequency multi-split



Project name: The largest shopping mall in Margilan, Fergana, U zbekistan

Equipment used: TMV6 full DC variable frequency multi-split





Worldwide Air Conditioner Partner

Thank You

